

**Embedding Ecological Public Health in the
hospital foodservice system:
a case study in Wales**

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**A thesis submitted in the fulfilment of the requirements for
the degree of Doctor of Philosophy**

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Abstract

Literature suggests that the public sector has a unique responsibility to promote sustainable practice from within. Food systems impact on planetary, social, economic and human health, and Ecological Public Health (EPH) is making these holistic connections explicit. This study developed a new methodological approach based on the principles of EPH, which for the first time are used to empirically investigate a complex foodservice system, the hospital foodservice system. In addition, Street Level Bureaucrat theory is used at the ward level for the first time deepening understanding of workers' practices, particularly on the theme of choice.

Using a case study based within one Welsh Health Board, this research considered the translation of a new Welsh policy into practice through an exploration of two key elements within the foodservice system: menu planning and food service at ward level. Following the systemic and interdisciplinary thinking promoted by EPH, a multi-methods approach was taken using documents and formal interviews with 28 key stakeholders in the case study Health Board. Ward based studies took place in three Health Board hospitals: lunch service on a total of nine wards was explored through observation, 33 informal interviews, 104 patient experience questionnaires, waste data and an in-depth study of one meal (lasagne) with 48 participants.

The study showed mixed findings in the translation of policy into practice: aspirations to improve sustainability through procurement and waste reduction did not materialise in practice, and the individualised approaches of workers led to high levels of food waste and inconsistent approaches to choice. Patient satisfaction with choice increased under new menus, but a drop in satisfaction around menu changeability was found, particularly for longer stay patients. Finally, the lasagne study showed that patients had diverse responses to the same dish, and that liking the dish did not mean enough was eaten to meet nutritional needs. Such findings, in drawing the fields of nutrition and sustainability together, have multi-disciplinary impact, particularly for nutrition, environmental and hospitality management studies. In turn the findings demonstrate the value of research that draws on the principles of EPH.

Study Acronyms

A number of acronyms were used throughout the study as shown below:

EPH	Ecological Public Health
GBS	Government Buying Standards
H1	Hospital 1
H1W1	Hospital 1 Ward 1
HB	Health Board
HCA	Hospital Caterers' Association
HFSP	Hospital Food Standards Panel
HFSS	Hospital foodservice system
IP	All Wales Nutrition and Catering Standards for Food and Fluid for Hospital Inpatients. Concise Guide and Implementation Plan (Welsh Government 2011a)
LSP	Lasagne Plate Study
LSQ	Lasagne Questionnaire
MC	Menu Clerk
MPG	Menu Planning Group
NRES	National Research Ethics Council
PE10	Patient Experience Questionnaire 2010
PE13	Patient Experience Questionnaire 2013
R&D	The case study Health Board Research and Development team
SD	Sustainable development
SLB	Street-Level Bureaucracy
SLBs	Street-level bureaucrats
The Standards	
	All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients (Welsh Government 2011b)
WAO	Wales Audit Office
WBC	Ward Based Caterer
WG	Welsh Government

Introduction

The research context

That food sustains human health is recognised by all, and its potential to undermine both human and environmental health is well established in literature, as is its capacity to contribute positively in the same areas. With one in six meals served outside the home in places such as schools, hospitals and the workplace (Department of Health 2012b), the system within which such meals operate, known as the foodservice system (IGD 2005), plays a large part in the contemporary food landscape and may have significant implications for health. In its operations, the foodservice system is conceptualised as a “collection of interrelated parts or subsystems¹ unified by design to obtain one or more objectives” (Gregoire 2010, p. 2), the objectives being sector and context specific. For Sullivan and Atlas (1998), the subsystems of a healthcare foodservice system include menu planning, equipment selection and design, food purchasing (often referred to as procurement), food production, food service², personnel and finances. These subsystems have distinct aims of their own, while also functioning collectively to achieve an overall systemic goal.

Public foodservice systems are particularly complex for a number of reasons: they are subject to multiple levels of governance, from the local to the global, and governed by legislation in a multitude of diverse yet related areas; they have symbolic power, in that they operationalise a state’s commitment to sets of values (Morgan 2008); they shape markets through procurement; they operate in the hands of many due to the organisational multidimensionality of public organisations; and they act as a choice framing mechanism for the end consumer. Hospital foodservice systems are unique in that nutrition is fundamental to the care of patients (Naithani et al. 2009), yet they often fail in this integral function: the incidence of malnutrition increases while in hospital (Hickson et al. 2011), and reasons for leaving food unfinished often has little to do with ill health (Dupertuis et al. 2003). The

¹ A subsystem is “a complete system in itself but not independent, is an interdependent part of the whole system” (Gregoire 2010, p. 5).

² ‘foodservice’ refers to the whole foodservice system, and ‘food service’ to a single subsystem within the foodservice system in which food is served directly to the consumer

hospital setting itself can also be foreign and confusing for patients, and the social significance of food is important: the meal offers a rare opportunity for some familiarity in the day (Johns et al. 2010).

And yet the hospital foodservice system is complex. Encompassing the primary subsystems mentioned above (Sullivan and Atlas 1998), it is also shaped by technical infrastructure and the organisational systems in place. Multiple actors are involved, including caterers, procurement, finance, dietetics, speech and language and nursing staff, yet these disciplines often work in silos, and the clinical significance of food provision is often overlooked. Those involved in food service at ward level – the front line of the food operation – often work in isolation from the rest of the food system: they have little or no say in menu planning, in procurement or in food quality. While hospitals can embed standardised organisational practices for food service, staff carrying out such practices often working autonomously, the consequences of which are poorly understood.

While patient food has not historically been framed as a public health issue, the NHS Future Forum (2012) signposts the NHS as a key contributor to the public health agenda. Historically public health has dealt with food under narrow human health related boundaries such as obesity and food safety, but this model is being challenged. Ecological Public Health (EPH) (Rayner and Lang 2012) emphasises the connections between human and ecosystem health, proposing that human health will suffer if systems ignore the impacts of human activities on ecological health, whether through policy or practice. For Morris (2010), EPH suggests that ‘everything matters’ in relation to health and wellbeing, and the challenge to policy makers is creating policy responses to this complexity. Public health, Rayner and Lang (2012) argue, should be recast with respect to environmental, social and economic sustainability (2012, p. 331), should recognise multiple dimensions of existence, and use choice framing to achieve greater sustainability. Rayner and Lang define EPH as follows:

In the twenty-first century, the pursuit of public health requires the analysis of the composite interaction between the material, biological, social and cultural dimensions of existence. This demands a new mix of interventions and actions to alter and ameliorate the determinants of health; the better framing of public and private choices to achieve sustainable planetary, economic, societal and human health; and the active participation of movements to that end. Ecological Public Health is about shaping the conditions for good health for all (Rayner and Lang 2012, p. 353)

Research in public food systems tends to be narrow in focus, and the connections between human health and sustainability are missing. Procurement and the supply chain feature heavily, with little exploration of the intersection between nutrition and sustainability. Studies rarely take a systemic approach to public food within organisations, and as such, inter-linkages and tensions between elements of the foodservice system often remain unrecognised and unexplored. Finally, while recognising the importance of practice, enacted through routinized behaviours (Reckwitz 2002), the significance of the practice of individual workers, framed as 'street-level bureaucrats' (Lipsky 2010)³, is overlooked. Lipsky claims that workers' practices "effectively become the public policies they carry out" (2010, p. xiii), and the study of practice alongside policy therefore serves to deepen understanding of the mechanisms of change.

The study of hospital food understandably has a heavy focus on nutrition, yet perhaps more than any other public foodservice system, hospital food challenges the notion of what it is to support planetary, economic, societal and human health. Studies show that malnutrition in hospitals is under-recognised and under treated (Elia 2009), that the economic impacts of malnutrition in hospital are considerable (Correia and Waitzberg 2003), and that hospital foodservice systems can be economically and environmentally unsustainable through their wastefulness. Indeed, hospital food waste can be an invisible problem, Sonnino and McWilliam (2011) finding it unreported and unrecognised. While no studies to date have used EPH as a framing mechanism to investigate a foodservice system, Lang (2009, p. 332) argues generally for the development of the EPH research agenda, particularly in the areas identified in Figure 1.

This research aims to address a number of Lang's suggested gaps: it aspires to provide evidence that bridges policy and practice, to connect nutritional health and sustainability, to be interdisciplinary in nature, and to use a systems approach. The major innovation of this research is therefore in using the framework of EPH to develop a methodological approach in order to address a major gap in studies: the lack of systemic approaches to research on hospital food systems.

³ In an updated edition of his book from 1980

Figure 1. Areas for methodological consideration under Ecological Public Health

Research should:

- Address both short- and long-term behaviour change
- Help narrow the gap between evidence and policy but be policy relevant
- Locate health firmly within the sustainability agenda
- Address all the domains of existence - material, biophysical, social, and cultural
- Be cross-disciplinary
- Take a whole chain approach from farm to consumption
- Point to appropriate levels of governance with which to formulate policy responses

Lang, 2009, p. 332

Wales provides the case study site for two reasons. Firstly, in holding sustainable development as a statutory requirement⁴ (Government of Wales Act 2006) the Welsh Government has a strong policy commitment to sustainability, and secondly, Wales has recently introduced new standards for hospital food, the 'All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients' (the Standards) (Welsh Government 2011b). As such, this research will explore a hospital foodservice system in depth at a time of policy change. It will explore the process of embedding the Standards, which for the first time draw together nutrition and service standards within Wales, asking for compliance in a time phased way. At the same time, the Standards advocate a systemic approach that recognises the importance of procurement, of menu planning and of food service, and asks that sustainability be considered, particularly through procurement and waste reduction. By using EPH to frame the study, both policy and practice will be explored through this lens, opening up learning in a multi-dimensional way and testing the paradigm itself as new tool in research that is of relevance to food scholars, policy makers and practitioners.

⁴ The Government of Wales Act 2006 asks that a Sustainable Development Scheme is to be developed, and implementation and effectiveness to be reported on annually

The thesis structure

The following literature review sets the scene by exploring debates around the nature of sustainable development and sustainability, finishing with Blay-Palmer's assertion that food is a key area through which the complexities of sustainability can be considered as "it translates complicated issues into meaningful ideas, policy and actions" (2010, p. 6). The chapter explores key thought on the state as an actor through which to embed sustainability, before exploring emerging and contested themes on the nature of sustainable food, such as the value of local food and current debates on the nature of healthy food. Hospital food research is then considered in more detail, introduced with a brief look back in history at the role of good food and care in healing. A review of contemporary hospital food studies follows, exploring the implications of current practice on nutritional health and economic sustainability, and at the reasons why patients do not always eat enough food to meet their nutritional needs. A penultimate section looks at the role of the worker within the hospital foodservice system, and the chapter ends by introducing EPH as a new metric for food systems research.

The second chapter introduces the primary research and methodology. A case study approach has been taken within one Welsh Health Board during the period in which policy change was embedding. The reasons for choosing a systems approach to frame the scope of data collection are explored, as are the system parameters set by Sullivan and Atlas (1998). In turn, during the early stages of data gathering the decision was made to focus on two key elements of the hospital foodservice system: menu planning and food service, as richer data was emerging in these areas. EPH is revisited, and definitions are broken down and presented as a device for framing the lines of enquiry during data gathering, and to guide the development of analytical themes. As EPH requires different forms of knowledge (Rayner and Lang 2012, p. 336), critical realism is introduced as the philosophical approach for the research. In the quest for multiple forms of evidence through which to build a comprehensive picture of practice, a multi-methods approach was taken, with seventeen different sources of data used, including documents, interviews, patient experience questionnaires, observations and a micro-study of one meal. The case study took place in one Health Board (HB). During data gathering, 35 semi-structured interviews took place with multidisciplinary stakeholders, and eighteen days were spent observing food service

practice on nine wards (two days each ward), three wards each across three different hospitals. Over 100 general patient experience questionnaires were completed, mainly face to face between patients and the researcher, in order to understand the impact of the Standards and the HBs own menu planning approach. The format of a Wales Audit Office patient experience survey was used (Wales Audit Office 2010) (Appendix 7), and the findings from a 2010 Audit (Anon 2010b) offered a pre-Standards benchmark against which to compare the new 2013 findings. In addition, as literature shows that the link between patient experience and food intake is complicated (Hartwell et al. 2007) and under-investigated, a micro-study of one dish, lasagne, was undertaken as a vehicle through which to explore variation in patient experience, intake and waste. Indeed the level of variation shown between patient experiences of the same meal was surprising.

Given the range of data collected and the complexity of the analytical approach, visual methods are used within the methodology chapter to explain the approach. Tables and a 'data ring' diagram illustrate how the data was analysed and triangulated, exploring how interlinkages were made between differing data sets to enable themes to emerge.

The policy context, and hospital food in practice are explored in chapter three, examining multi-level governance in the hospital foodservice system and examples of hospital food in practice. This chapter sets the policy context for the following study, and probes examples on the ground. Themes implicit in EPH are drawn out of the policy context, such as nutritional care, sustainability and procurement, with policy led initiatives from the EU, England and Wales explored. Wales is presented as a country leading in embedding SD and in its commitment to improving hospital food through policy development. In addition, practice is explored in the second part of the chapter with examples citing initiatives designed to maximise sustainability through, for example, local procurement and lowering carbon impacts. The chapter finishes with a closer look at hospital food service and food waste in Wales, as investigated in 2010 by the Wales Audit Office (Vaughan Thomas 2011).

Chapters four and five present the study findings, which are further discussed in chapter six. Chapter four presents a brief overview of the case study Health Board, and then focuses on the menu as a mechanism through which to drive change. Benchmarking patient experience in the period before the Standards were introduced, an exploration is undertaken of how

change was mobilised and driven over the research period, what challenges and gaps were identified, and the value of taking a multidisciplinary approach. The Standards themselves are explored, and consideration is given as to their effectiveness as a lever to operationalise change, and the degree to which opportunities were missed, either through poor policy framing or through operational constraints.

Chapter five examines how the aspirations of the policy context, and of the HB's own menu planning process appear in practice at the level of food service. This is explored in a number of ways: by examining shifts in patient experience; through an in-depth look at the behaviours of staff, in particular around choice and waste; and through an in-depth micro-study of one meal - lasagne. A number of findings challenge the expectations of both the Standards and of the menu planning team, and staff practices at ward level in particular defy the expectation of those interviewed. Chapter six returns to the research questions in a discussion of the findings, and the researcher will leave the reader to explore these within the body of the thesis.

Finally, in the conclusion, the study returns to explore EPH, asking in what ways do the principles of Ecological Public Health enhance theoretical and practical understanding of a complex public foodservice system? This approach has not been taken before, and conclusions have implications for how foodservice systems are understood in specific sectors (in this case, the hospital foodservice system), but also appraise the value, both methodological and theoretical, of EPH as a lens through which to investigate complex foodservice systems.

Chapter 1: Sustainability and public food systems: the shift towards Ecological Public Health

Sustainability and the sustainability of contemporary food systems are growing in prominence in academic and political agendas. Diet-related health and nutritional wellbeing are under equal scrutiny, and Ecological Public Health (EPH) (Lang and Rayner 2007; Lang 2009; Rayner and Lang 2012) is a relatively new paradigm under which health, nutrition and sustainability are connected. Despite greater societal awareness, resource intensive food systems dominate, obesity is rising, food poverty is growing, and food is wasted on a great scale.

Morgan has suggested that

The public provision of food – in schools, hospitals, care homes, prisons and so forth – is arguably a litmus test of the state's commitment to sustainable development in the fullest sense of the term because, depending on the nature of the provisioning, it can address social justice, human health, economic development and environmental goals, the main domains of sustainable development (Morgan 2008, pp. 1238-1239)

And yet academic literature suggests that in some cases hospital food is not meeting even basic human needs: patients are leaving hospital more poorly nourished than when they entered, often leaving food uneaten for reasons other than ill health (Dupertuis et al. 2003). Hospitals are also failing to operationalise their potential for sustainable food practices in two key ways. Firstly, sustainable procurement practices are rarely undertaken, with the exception of a small number of isolated cases, such as Malmö in Sweden (City of Malmö 2010), Health Care Without Harm in America (Health Care Without Harm undated), and those using audited standards such as the Soil Association's Food for Life Catering Mark (Soil Association 2013) in the UK. Secondly, much hospital food is wasted (Sonnino and McWilliam 2011).

EPH builds on the foundations of sustainability, and as such the following literature review will firstly consider the key debates on the contested nature of sustainability. As the primary provider of hospital food in the UK, the chapter will then examine the role of the state in supporting and promoting sustainability. Differing, and often complementary perspectives

on the nature of sustainable food follows offering an insight into two contested areas: the local food agenda and the role of health in the diet offered within the public sector. Hospital food is introduced through an historical look at the significance of food in the treatment of the sick. In order to explore themes and identify gaps in hospital food system research around nutrition and sustainability, the chapter continues by looking at the implications of current practice on nutritional health, the economic implications of undernutrition, and the reasons why patients do not always eat enough food to meet their nutritional needs. As food service at ward level is a key element within the HFSS, the penultimate section looks at the role of the worker. Finally the chapter ends by introducing EPH as a new metric for food systems research, which explicitly connects human and eco-systems health (Rayner and Lang 2012), and will inform the methodological approach used within the following case study.

Literature drawn on is predominantly academic and from a wide base of disciplines including the social sciences, environmental sciences, nutrition, public health, foodservice, medicine and nursing. Practice theory and the role of the worker is explored, in particular the work of Lipsky (2010), who frames public sector workers as ‘street-level bureaucrats’.

1.1. Sustainability and sustainable development: multiple and contested meanings

Sustainability, Carter argues (2007, p. 48), is based on two central ecological principles: the need to recast human-nature relations, and the limits to growth. ‘The Limits to Growth’ publication (Meadows et al. 1972) influenced green political thinking with a number of unique perspectives of relevance to food studies: that nature’s resources are finite; that elements within human and natural life are interdependent, and that cause and effect relationships exist between these elements; and that technology can provide only temporary solutions. Long term economic, social and political strategies must therefore also address the environment (Dobson 2000, p. 63; Carter 2007, p. 43). Mitcham argues that ‘The Limits to Growth’ couched solutions in negative terms with the message that “human beings have to *stop* what they are presently doing”, implying a steady-state or no-growth economy (1995, p. 315). The subsequent shift from the discussion of what *should not be*

done, to that of *what should be done* illustrates a move from 'limits to growth' towards 'sustainable development' (SD) (Mitcham 1995, p. 315).

In green development, there is a holistic and reflexive view of human and natural interaction: people take only what they need, ensuring resources are available for the future (Carter 2007, pp. 47-48). Green development is therefore framed as a process of continuation (or indeed downscaling), rather than of expansion or growth – a positive reframing of the 'solutions' proposed in 'The Limits to Growth'. Jackson suggests, sustainable consumption produces a 'double dividend', in that it enables citizens to both 'live better by consuming less' and therefore also reduce their environmental burden (Jackson 2005, p. 19). Indeed within a green ideological framework, this freeing from the societal norms of consumer behaviour brings an added set of gains, both material and spiritual such as: better food, the growth of craftsmanship, increased personal happiness and satisfaction and a more integrated society (Carter 2007, p. 49). Carter's developmental gains could be seen as a new metric, with a focus on the development of values that cannot be measured in material terms.

The green vision of a sustainable world is far reaching and radical, yet the value and desirability of the reform it suggests has been questioned (Carter 2007, p. 51). SD offers an alternative less radical ideology, as "an alternative policy paradigm based on the reform of the existing capitalist system" (Carter 2007, p. 51). Where 'sustainable' responses to environmental problems tend to focus on value change, Robinson (2004) suggests that responses framed under the construct of SD tend to favour technological fixes, suggesting that despite a frequent intersection in the use of 'sustainable' and SD, there is an ideological chasm between the two terms.

'Our Common Future' (World Commission on Environment and Development 1987) provided the term SD with credible meaning and authority (Meadowcroft 2000, p. 370). It considered long term environmental issues and internationally minded strategies for environmental protection and enhancement. Central also were the relationships between people, resources, the environment and development (World Commission on Environment and Development 1987, p. ix). The book argued that the environment was not a separate entity, removed from human life and development, rather that "the 'environment' is where

we all live; and 'development' is what we all do in attempting to improve our lot within that abode. The two are inseparable" (World Commission on Environment and Development 1987, p. xi).

In contrast to the ecological view of green development discussed by Carter (2007), which advocates a self-sufficient, resource-minimising and non-growth approach to development, the WCED were also tasked with addressing the global implications of sustainability and development. Indeed this potentially contradictory twin narrative of environmental protection and economic growth, Meadowcroft (2000, p. 371) suggests, is the global appeal of SD: on one hand guiding more environmentally sound practice in developed nations, while advocating the social and economic value of development in developing nations.

In the wake of 'Our Common Future' (World Commission on Environment and Development 1987), literature has tended to understand SD in three key ways: that it requires integrated consideration of society, the environment and the economy; that it requires participatory forms of decision making; and that there must be a more formal recognition of 'common but differentiated responsibilities' between Northern and Southern nations (Meadowcroft, 2000, p.372).

Academic literature offers a plethora of definitions and interpretations of SD. Meadowcroft (2000) sees the adaptability and flexibility of the term as directly related to the strategic wording of the WCED (1987) document, and notes its openness to multiple future interpretations. For Meadowcroft, this flexibility has seen SD become quickly assimilated into political discourses, where it operates as an "idealist construct, which operates as a multi-dimensional bridging concept" and "a potentially unifying meta-objective, with a suggestive normative core" (2000, p.381). Other scholars find fault with the haziness of SD, suggesting that it is a relatively empty concept that fails to adequately address key complex issues, leaving "bigger issues to float from the ill-defined present into the misunderstood future" (Luke 2005, p. 229), and that its vagueness "attracts hypocrites and fosters delusions" (Robinson 2004, p. 370). Other critics suggest that SD is contradictory, that sustainable growth and SD are conflated terms, when in fact 'growth' implies a quantitative perspective while 'development' is qualitative (Daly 1990, p. 1). In operational terms Luke (2005) proposes that SD is in fact principally concerned with economic growth rather than

environmentally minded decision making, and Robinson (2004, p. 370) goes further, suggesting that in its aim to successfully accommodate social, environmental and economic considerations, SD is attempting to “square the circle...to achieve the impossible” (2004, p. 370).

Discussions of *what* is to be sustained can be absent from SD discourses (Redclift 2005), and this ‘what’ will change as human and natural interactions change over time (Meadowcroft 2000). In the radical green approach, natural resources become the ‘object of sustainability’: resources must be sustained (rather than human life) (Redclift 1992, pp. 395-396). For Redclift, this biocentric approach suggests a tradition of ‘stewardship’. Here, humans have a responsibility as guardians of natural resources, ensuring “sustainable yields from renewable resources”, and placing a value on natural capital stocks that is independent from the classical economic paradigm (Redclift 1992, p. 396). Jackson focuses on consumption reduction, challenging society to ‘live better by consuming less’ (2005, p. 19). Socially equitable global consumption (live better by consuming more) is perhaps supported by ecological modernisation, in which the ecological rationalizing of production and consumption (Mol and Spaargaren 2000) facilitates an internalization of externalities and a decoupling of economic growth from environmental degradation.

An identified strength of sustainability and SD are their multi-dimensional natures, Meadowcroft (2000), framing SD as a “multi-dimensional bridging concept”, and Robinson suggesting “if sustainability is to mean anything, it must act as an integrating concept”, where social and environmental issues are merged (2004, p. 378). Robinson highlights the key role for interdisciplinary approaches:

What is needed is a form of transdisciplinary thinking that focuses on the connections among fields as much as on the contents of those fields; that involves the development of new concepts, methods and tools that are integrative and synthetic, not disciplinary and analytic; and that actively creates synergy, not just summation. (Robinson 2004, p. 378)

Such integration relates not just to different fields, but also to different interest groups and sectors, both public and private; change ultimately relies on effective partnerships between public sector, business and civil society (Robinson 2004). Despite the suggested power of integration, challenges are highlighted: a failing of much sustainability rhetoric is the lack of

recognition of the conflicts inherent in achieving goals that are both socially and environmentally motivated (Redclift 2005).

While the flexibility of terms such as SD and sustainability are read both as a strength and a weakness, and the nature of *what* is to be sustained is also subject to debate,

The power of the concept of sustainability, then, lies precisely in the degree to which it brings to the surface these contradictions and provides a kind of discursive playing field in which they can be debated (Robinson 2004, p. 382)

Food, it is argued, has a key role to play in the investigation of contemporary challenges to sustainability, Blay-Palmer suggesting that “as a fundamental need and right food offers a prism to consider and address sustainability challenges as it translates complicated issues into meaningful ideas, policy and actions” (2010, p. 6). She suggests three ways in which food functions as this prism: firstly, we all eat, therefore food is a well understood medium; secondly, food connects with the different dimensions of sustainability (environmental, socio-cultural and economic) allowing for a greater understanding of the interconnections; and finally, food is tied to notions of social justice, both through supporting livelihoods and equitable access to healthy and nutritious food (p. 7). Some of these issues will be further explored within this chapter in order to identify gaps in knowledge relating to public food systems and hospital food systems more specifically.

1.2. Sustainability on what terms? The role of the state

The importance of the state as an actor in supporting and promoting more sustainable food systems is underpinned in political science literature and drawn on in the field of public food literature (Morgan and Sonnino 2007; Morgan 2008; Sonnino 2009), a field in which this research can be sited. The centrality of the state’s role in pursuing sustainability more generally is emphasized by Luke, who suggests that

government comes into its own when it has sustainability – or the welfare of populations, the improvement of their condition, the increase of their wealth, security, longevity, health and so on – as its object (Luke 2005, p. 230)

Yet a fragmented approach to sustainability is clear. Morgan (2008, p. 1238) argues that there is a tendency for the state to reduce the triple dimension of sustainability down to the singular environmental perspective for practical reasons: environmental elements are easier to measure, more suited to management systems, and eliminate the challenge of potentially subjective and fluid social considerations.

Some authors point to other actors involved in the governance of SD such as industry, NGOs and civil society (Robinson 2004; Luke 2005; Meadowcroft 2007). Power is diffused throughout the state and society, the state becoming the 'steerer', guiding towards greater sustainability (Meadowcroft 2007). Successful steering depends on three things: having clear goals, a good understanding of relevant causal relationship, and the power to influence outcomes (Meadowcroft 2007, p. 205). Causal relationships imply a systemic approach, yet as discussed earlier, sustainability also relies on shifting foundations of knowledge and understanding, and on integrating values and changes in practice throughout society. Here the reflexive element of modern political processes that Meadowcroft (2007) recognises, provides the route to developing more sustainable approaches and adapting to the multi-dimensional context. Good governance systems are therefore those that encourage engagement with multiple actors to facilitate consolidation, goal development, reflection and adaptation.

Robinson (2004) suggests that while the state has a role in fostering policies and practices that promote sustainability, "governments alone have neither the will nor the capability to accomplish sustainability on their own" (p. 278). Robinson proposes multi-actor networks in which the state, industry, NGOs and civil society work together developing, implementing and achieving sustainable objectives. Here both political will and effective democratic decision making processes are essential for working towards SD, as

without a political constituency for change, a market for different products and consumption patterns, and social acceptance of both the public policy and the private sector actions needed to accomplish these goals, no fundamental changes in behaviour or practice are possible (Robinson 2004, p. 378)

Dobson (2000) suggests an alternative vision of the state that is intrinsically anti-democratic in nature, reflecting selected actor networks rather than representing society broadly. The state here is also represented as short-termist in its political aspirations, working towards

more immediate gains rather than on long term goals linked to positive environmental objectives (Dobson 2000, p. 117).

Within food systems, a lack of governmental action plans and programs that are integrated in their approach to sustainability may explain the general failure to embed more sustainable consumption patterns (Reisch et al. 2013). Policy makers have differing mechanisms for enhancing food system sustainability: information based approaches, market based mechanisms, regulatory instruments and ‘nudging’ mechanisms such as organisational choice editing (Reisch et al. 2013, p. 15).

One tool in particular, public food procurement, emerges as both a practical and symbolic mechanism for change:

governments and public bodies are themselves powerful role models and market makers that, by choosing sustainable alternatives by default, can help to create critical demand (public procurement) (Reisch et al. 2013, p. 16)

Indeed others suggest that public food procurement is a primary mechanism through which the state can actualise its commitment (Morgan and Sonnino 2007; Morgan 2008; Lang et al. 2009; Sonnino 2009). Outside academia, Sustain, the alliance for better food and farming, go further in advocating for laws that mandate better public food:

the only way to achieve a radical improvement in public sector food—for example in our schools, hospitals, and care homes—is for government to introduce a new law which sets high, and rising, standards for the food served (Sustain 2010, p. introduction)

Generally absent in literature however are more systemic approaches to sustainability in public food systems that move beyond procurement. There is little literature on the specific responsibilities of the healthcare setting towards promoting sustainable objectives, and in line with Morgan’s criticisms of single issues approaches (2008), a focus on environmental perspectives is evident. Cosford (2009), for example, contextualizes climate change within the healthcare setting, highlighting the importance of the NHS in pursuing a climate change mitigation agenda. Cosford suggests that due to its scale and its role as health protector and healer,

the NHS has a duty to lead the way in mitigating the impact of climate change... nothing is more central to the role of the NHS than to be an exemplary leader in acting on the biggest health challenge that we face (Cosford 2009, p. e1).

As such, there is some indication that a new role for healthcare is emerging in literature, as key actors in the internal transition towards more sustainable practice. Indeed Harvie et al. (2009, p. 409) propose that “health care involvement in policy and advocacy is vital to solve the expanding ecological health crisis”, placing the role of healthcare centrally in the sustainability agenda.

While the conceptual role of the state is developed in literature, healthcare workers translate visions into practice, highlighting the importance of clear and reflexive aims and goals, and good governance systems. Literature suggests that good leadership, for example, is essential to promote sustainability objectives in healthcare settings (Sattler and Hall 2007; Cosford 2009; Harvie et al. 2009; Menard 2009), and staff engagement is vital as “harnessing the enthusiasm of staff to develop strategies within each organisation will often have a greater impact” (Cosford 2009, p. e3). Despite much of this literature being American in origin, (such as Harvie et al. 2009; Menard 2009; Sattler and Hall 2009; Vanetti 2009) operating in a predominantly private healthcare system, the responsibilities of such healthcare actors are arguably undiminished. Indeed medical professionals should be much more involved in policy and advocacy of sustainable practice, as they “bring tremendous credibility and influence” (Harvie et al. 2009, p. 418), doctors and nurses in particular having power and authority in the role of engaging with other actor groups such as patients, professional organisations and public interest groups (Harvie et al. 2009). Nurses in particular emerge in literature as potentially powerful actors for sustainable change, perhaps because such papers are written by academics in nursing themselves (such as Sattler and Hall 2007; Menard 2009). Nurses are seen as uniquely placed “at the hub of all hospital activity”: they are advocates for patients, they understand the connections between environmental hazards and ill health, and can become “the catalyst to transform their workplace into an environmentally healthy and safe place by promoting environmentally preferable policies and suggesting environmentally friendly products” (Sattler and Hall 2007, p. 13). Despite this, nurse engagement in greening hospitals depends

on how well nurses are educated in relevant issues, and their inclusion in practical greening initiatives (Menard 2009).

In conclusion, despite the unique position of the state in operationalising sustainable approaches through policy and through facilitating non-state actor engagement, a number of issues emerge from literature: firstly, there is a tendency to frame sustainability in environmental terms; sustainable public food is often framed as a procurement issue; yet literature acknowledges that systemic and reflexive approaches are necessary to embed sustainability in public sector settings.

1.3. Sustainable public food: what is in the shopping basket?

That procurement is framed as the key tool in creating more sustainable public food systems is clear from literature. While it is not the aim here to interrogate fully the implication of and potential for procurement to address the multi-dimensional nature of sustainability in the food chain, a number of dominant themes emerge that illustrate both the complexity and potential of public food systems in addressing wider goals. Two such themes will be investigated further below: the role of local food, as this is perhaps the most broadly recognised framing of sustainable food; and the healthy diet in the public sector, a theme particularly relevant given the study's focus on food in a healthcare setting.

1.3.1. Close to the table: the role of local food

Some literature suggests that local food chains are synonymous with sustainable food chains, and that re-localizing food supply is a key ingredient of public procurement reform (such as Morgan 2008, p. 1244). The benefits of procuring locally tend to be framed in two ways: as environmentally beneficial, and as socially and economically beneficial through boosting the local economy. Beyond the parameters of procurement, local food is also framed as an educative and behaviour change tool, building relationships between farmers and consumers (Smith et al. 2013) and acting as a tool to stimulate consumption of fresh rather than processed food (Reisch et al. 2013).

Local food in hospitals is perceived as inherently environmentally better, with a lower carbon footprint than distantly produced food (Sattler and Hall 2007). Long food miles, although challenged as a valid environmental indicator (Edwards-Jones 2010), have proved emblematic of unsustainable food systems, with Cosford (2009) proposing that increased awareness of distant procurement patterns has prompted re-localisation initiatives within the NHS⁵. From a carbon perspective, Edwards-Jones (2010) argues that local food is not inherently less environmentally damaging than non-local, due to the environmental implications of seasonality (including the need for storage), low impact transport methods, methods of production and soil types. Despite these challenges, Edwards-Jones does suggest that:

it is probably safe to assume that the lowest carbon footprints will be associated with eating fresh fruit and vegetables that have been collected from the farm without using a motor vehicle. So, in this sense, local food can be the best environmental option, but, this is not always the case (Edwards-Jones 2010, p. 587)

Although Edward-Jones (2010) does advocate the importance of systemic approaches, inclusive of food chain perspectives, his carbon agenda is itself a reductive approach to environmental impacts. Pretty et al. (2005) for example broaden the base of food transport related impacts, showing that transport methods also accrue health and social costs related to congestion, noise and pollution.

It is often argued that procuring locally yields economic benefits for local communities (Morgan and Sonnino 2007; Carlsson and Williams 2008; Walker and Preuss 2008). Public procurement policies should therefore encourage purchasing from SMEs to yield both direct and indirect economic and social benefits for local communities⁶ (Walker and Preuss 2008). Studies on active localization initiatives show benefits: dramatically increased re-spending in the local economy when compared to neighbouring 'business as usual' models in the case of Royal Cornwall Hospitals Trust's 'Cornwall Food Programme'⁷ (Thatcher and Sharpe 2008),

⁵ The 31,000 mile journey of the average NHS steak and kidney pie ingredients prompted the Cornwall Food Programme, which engaged in maximising local procurement (Cosford 2009)

⁶ such as increased local employment (a direct benefit) and decreased social welfare payments (an indirect benefit)

⁷ The 'Cornwall Food Programme' was an initiative set up to maximize local food procurement within the Royal Cornwall Hospitals Trust. Despite methodological limitations, such as low response rates, using economic modelling the study concluded that of every pound spent under the Cornwall Food Programme, 52 pence was re-spent in Cornwall compared to a re-spend of just 5 pence in a neighbouring health board who were not actively procuring local food (Thatcher and Sharpe, 2008)

and increasing employment figures and product diversification in the Scottish 'Hungry for Success' school meals initiative (Morgan and Sonnino 2007). Both studies however have methodological limitations: Thatcher and Sharpe had poor returns on their questionnaire and subsequently altered the reach of their analysis, and Sonnino and Morgan lack quantitative data collection measures.

That local food may in some way be healthier is perhaps the most contested aspect of the sustainable public food debate. For schools engaged in local food initiatives, it is suggested that health impacts are greater due to the educative connections between farm and pupil (Morgan and Sonnino 2007) and improved access to healthier and fresher food (Carlsson and Williams 2008). In contrast Edwards-Jones (2010) reports that the inherent nutritional value of crops is dependent on genetic composition and the biological and physical production environment. He suggests that under localised food consumption, the impact of storage (necessary to avoid non local imports) would have the greatest impact on nutritional qualities, highlighting a number of studies that suggest storage of fresh produce generally reduces its nutritional capacity, as do some preparation processes in food freezing. Despite these findings, Edwards-Jones (2010) highlights a research gap in the nutritional implications of the local and non-local diet.

Studies suggest that procuring local food can be a catalyst for a deeper and more meaningful engagement with the development of more sustainable food systems. Under the guidance of 'Health Care Without Harm', for example, which puts local procurement top of its agenda, evidence of hospital participation shows a raft of other complementary initiatives such as purchasing food produced using less chemical intervention, the initiation of hospital food committees and the setting up of on-site farmers markets (Sattler and Hall 2007). Carlsson and Williams (2008) propose that benefits in procuring locally are multiple: "experiential education for sustainability", speedier delivery resulting in less spoilage and lower costs, improved access to fresher and healthier food, economic benefits for local producers, improved community relationships and cohesion, and the protection of urban farmland (Carlsson and Williams 2008, pp. 408-409). Here the value of a multi-dimensional and systemic approach to research is demonstrated: the synergies and interconnections that grow from practice change are clearly illustrated.

As a final challenge to binary approaches to sustainability in food systems, Hindrichs (2010) cautions against “stark easy binaries such as local v global ... or conventional vs alternative” suggesting that “sustainability in food systems is unlikely to result from one blue ribbon recipe, publicized, circulated and followed by the letter. Instead, multiple recipes need to be pursued, adapted and shared” (Hindrichs 2010, p. 19).

1.3.2. The healthy diet in the public sector

Procuring with health in mind is a developing theme in recent literature, yet its potential is recognised:

choices made in selecting food for [hospital] venues can have a profound effect on human health from an ecological health perspective, as well as that of individual health (Sattler and Hall 2007, p. 12)

Two themes within the conceptualisation of healthy diets appear, sometimes overlapping, and at times independent of one another. One theme centres on ecological health (Harvie et al. 2009) and the other on nutritional health (Allison 2003; Iff et al. 2008; O'Regan 2009).

Changes in approaches to hospital food that focus on sustainability and health, are particularly evident in American literature. Although not strictly the public sector, these studies highlight issues of great relevance to the study of public food systems. Harvie et al. (2009, p. 409) chart a period from 2004 during which the American healthcare sector forged new connections between food and health through the organization ‘Health Care Without Harm’ (HCWH). Set up on the principle of ‘first do no harm’, HCWH launched a successful ‘Healthy Food in Health Care’ pledge to which 250 hospitals are committed. This pledge illustrates a “significant aggregation of the health care understanding of the relationship between food, agriculture, and health and commitment to action” (Harvie et al. 2009, p. 418), and illustrates the move towards more integrated thinking.

Health is conceptualised within a broader ecological framework, and the growing engagement of the healthcare industry is noted:

We are now experiencing an awakening to the intricate relationships health care has with food production and ecological health. Health care leaders are broadening their awareness to include the need to address the food system as a means to individual, public, and global health, above and beyond basic nutritional factors. And, the co-benefits to ecological health and the financial health of our health care system are now increasingly recognized by health care leadership (Harvie et al. 2009, p. 410)

The healthcare sector, Harvie et al. (2009) argue, should take on a leadership role in creating a healthy food system, and they cite many examples of American healthcare settings and associations that are actively engaged in advocating and procuring more sustainable food that have positive social, economic and environmental implications for hospital food⁸.

Human health is considered central to the sustainable diet (Morgan and Sonnino 2007; Morgan 2008; Lang et al. 2009), and it is suggested that in public sector settings health benefits can be sought through the provision of more nutritious food, improvements in the 'quality' of meals provided⁹, the banning of artificial additives and the championing of unprocessed and fresh ingredients (Morgan and Sonnino 2007, p. 134). This is particularly important as consumption habits in the home tend to prioritise cost and convenience over nutrition and sustainability (Dixon and Isaacs 2013), leaving the public sector to lead by example. Current meat and dairy consumption patterns in the west are identified as a major source of human (and environmental) health impacts (Reisch et al. 2013). This literature takes a more systematic approach and recognises that procurement does not work in isolation. These findings suggest that the planning of menus to maximise access to healthy balanced choices, with limits on meat and dairy consumption, also has a role in health promotion. While the assumption that access to healthy and sustainable food will impact positively on the health of 'customers', studies do not investigate the connection between the availability of healthy and sustainable food and outcomes for human health. This gap illustrates on one hand a failure to connect different elements of the food system in research that frames food in relation to sustainability and health, and also may reflect the methodological complexity of linking sustainable and healthy foods with direct health outcomes.

In hospitals, the health of patients in relation to food is usually framed around nutritional intake, yet food intake is a particularly complicated issue in this sector. While authors agree that better quality food in hospitals may be part of the solution to endemic malnutrition in hospital patients (Lean and Wiseman 2008; Abayomi et al. 2009) there are other factors that

⁸ E.g. through promoting environmentally sound agricultural practices, the reduction of GM products, working with local producers, increasing fair trade products, and improving the nutritional implications of food that both prevents disease and promotes health. Mechanisms for change include better labelling, and tendering process that include sustainability and aggregated purchasing.

⁹ such as increased vegetables, fruit, potatoes, pasta and rice, decreased fat, salt and sugar

impact on food intake that will be explored in more detail in the following section. Again a gap in literature that takes a systems approach to sustainability and health will be identified.

As the sections above have illustrated, two key themes illustrate both the multidimensional and the fragmented approach to sustainability in public and hospital food systems. There are contested views on the value of local food systems, particularly as a means for minimizing environmental harm, although literature is clearer on the economic benefits of local food chains. The further proposal that local procurement can incentivize additional sustainable practices hints at its systemic value. An exploration of the role of the 'healthy diet' shows that new connections between human health and sustainability are being recognized and promoted, and American literature in particular is framing the healthcare sector as leaders. Yet despite a growing understanding of the links between types of food and health, gaps have been identified around the links between availability of healthy and sustainable choices and outcomes for human health.

1.4. Sustaining the most vulnerable: the world of hospital food

In order to understand the complexity of the following case study research site, the following sections look in more detail at hospital food. The scene is set with an investigation of the significance of food as a form of treatment in historical terms, and continues by exploring themes appearing in academic engagement with health and sustainability in HFSSs: nutritional health, the economics of malnutrition, and research on food intake. A central challenge to patient health is inadequate nutritional intake, yet reasons why some patients do not eat all their food are complicated. In addition, literature on food quality and food service quality are explored, along with an investigation of why food waste matters. As key enablers of change, there is an investigating staff roles, expectations of staff, and staff practices, with the aim of understanding the intricacies of the social context of food service both for the patient and for the hospital food professional.

1.4.1. Historical insights into hospital foodservice: the diminishing importance of food as medicine and care

The role of food in health and healing has a long tradition: one that contextualizes some of the tensions in current foodservices. In early Christian times the ‘hospitium’ was a place of rest for weary and sick travellers on religious pilgrimages. For Park and Henderson (1991), the first western European hospital, in the modern sense of the word, was Santa Maria Nuova in Florence. In sixteenth century Santa Maria Nuova, food was central to hospitality, healing and wellbeing. In daily rounds, trained doctors prescribed not only medicines and surgical interventions, but also a specialized individualized ‘diet’¹⁰ tailored to medical needs¹¹.

While staff, including animal stock keepers, butchers, bakers, cooks, gardeners and a miller, provided high quality fresh food, the direct giving of care around meals was also vital. Each patient had their hands washed before meals, their hands warmed before eating in winter, and assistance offered if needed. Good quality, individually ‘prescribed’ food at Santa Maria Nuova was central to the recovery of patients, as was the care taken in its service, illustrating the importance of the social context of its provision.

Further historical studies illustrate continued links between hospital food and health. Florence Nightingale, for example, in using pioneering statistical techniques to analyse causes of death in the military, concluded that,

this disgraceful state of our Chatham Hospitals is only one more symptom of a system, which, in the Crimea, put to death 16,000 men – the finest experiment modern history has seen upon a large scale, viz., as to what given number may be put to death at will by the sole agency of bad food and bad air (Kopf 1916, p. 390)

By the 1940s, complaints abound on the issue of suitability, choice and variety in hospital food, as does the spectre of economics. Hospital food in this period was deemed ‘monotonous’, ‘distasteful’ and ‘unattractive’, and “entirely in the hands of the steward and

¹⁰ Although ‘diet’ was then a broader term, relating to the balance between six ‘non-naturals’ (external influences on health) of food and drink, air, emotions, exercise and sleep (Park and Henderson 1991) food and drink played a primary role

¹¹ Chicken broth, considered central to treatment, was served to the very ill before meals, new meals were made for those who failed to eat, and additional snacks, in the form of nuts and sugared almonds, were distributed three times a day.

his clerks, men so well trained to respect public money that they often see economy as a measure of efficiency” (The Lancet 1945, p. 19). In stark contrast to the supportive role nutrition played in treatment of the past, “in many cases the diet instead of supporting treatment, is in active conflict with it; and that the patient only begins to derive full benefit from the care of his doctors after he has gone home” (The Lancet 1945, p. 19). In this period solutions were sought through the employment of more dietitians, but also highlighted was the need for improved governance systems, with senior staff championing the importance of diet, better all-round integrated training, and better monitoring systems in hospitals (Kandala 1999). As a later chapter will show, 21st Century policy related guidance still draws on similar themes, and further examples of variable staff engagement are explored below.

1.4.2. Implications for nutritional health and economic sustainability

In contemporary times the hospitalised sick are unique amongst any group being catered for by the public sector: 75% of hospital patients rely on hospital food for all their nutritional needs (Allison 2003). Unlike those in prison or in the forces, who are ‘captive’ in terms of food, patients are in hospital because their health is threatened or diminished, and nutrition is considered fundamental to their care (Iff et al. 2008; Abayomi et al. 2009; Naithani et al. 2009; O'Regan 2009). As such, the implications of the HFSS on health are of greater significance than in any other public food system. Despite the acknowledgement that nutrition plays an important role in medical treatment (Lean and Wiseman 2008; Elia 2009), has substantial impacts on recovery from injury or illness (McWhirter and Pennington 1994), and that “food and nutrition are essential components of holistic patient care” (Walton et al. 2012, p. 222), literature tends to focus on the implications of poor nutrition in hospital rather than the conditions under which good nutritional health thrives.

Malnutrition (often used interchangeably with the term undernutrition) is defined as “a state of nutrition in which a deficiency, excess or imbalance of energy, protein, and other nutrients causes measurable adverse effects on tissue (shape, size, composition), function and clinical outcome” (British Association for Parenteral and Enteral Nutrition 2003). Malnutrition both causes and is caused by illness (Dupertuis et al. 2003; Lean and Wiseman 2008), and the elderly in particular are more vulnerable when malnourished (Lean and

Wiseman 2008; Tsang 2008). One in three hospital patients have some degree of malnourishment on admission, and yet in hospitals malnutrition is both under-recognised and under-treated (Elia et al. 2005; Elia 2009). Once in hospital the incidence of malnutrition is found to increase (McWhirter and Pennington 1994; Hickson et al. 2011), the number of people leaving hospital malnourished in England increasing by 85% in a 10 year period (Lean and Wiseman 2008). Malnutrition can be directly linked with poor food intake, yet poor food intake in hospital is not necessarily affected by illness, one study finding that medical treatment and disease caused meals to be left unfinished in just 26% of cases (Dupertuis et al. 2003).

Despite being given nutritionally adequate meals, the incidence of unfinished patient meals is considerable, Hiesmayr et al. (2009), in their analysis of 16,290 patients in the 2006 NutritionDay survey¹², finding that 60% of patients did not eat their full given hospital meal on the survey day. While literature shows that malnutrition is endemic within the community (Russell and Elia 2009), it is further compounded by hospitalization for reasons other than disease and appetite-suppressing treatment. In order to understand the context in which human health is undermined through inadequate nutritional intake in hospital, the following section will explore some of the implications of and reasons behind the lack of food intake, identifying gaps in research.

The medical, social and economic implications of malnutrition in hospital are well developed in literature (such as McWhirter and Pennington 1994; Allison 2003; Lean and Wiseman 2008; Abayomi et al. 2009; Dunne 2009; Elia 2009; Rüfenacht et al. 2010) and for the patient includes ill effects on physical and mental function, delayed recovery rate, an increase in comorbidity¹³, increase in infection rate and increased mortality. Economically, malnutrition places a burden on the healthcare provider, is linked to increased length of stay, increased costs of treatment (Correia and Waitzberg 2003)¹⁴ and increased readmission rates (Elia et al. 2005; O'Regan 2009). Diet and health-related costs are not associated with malnutrition

¹² a study including 16,290 patients from 25 countries

¹³ the presence of one or more disorders or diseases

¹⁴ By using a multiple logistic regression tool to eliminate the impacts of variables such as infection and disease, the effects of malnutrition alone were evaluated. The average length of stay was increased from 10.1 to 16.7 days for the malnourished patient, and daily expense rate increased from US\$138 to US\$228 per patient due to associated complications. When costs of additional tests and medications were added the undernourished patient cost 308.9% more than the well-nourished (Correia and Waitzberg 2003)

alone, as in the UK the costs to the NHS of treating diet-related ill health, including obesity is £5.8 billion (Scarborough et al. 2011). The social cost of malnutrition is also identified through a decrease in patient quality of life (Rüfenacht et al. 2010). Indeed a systemic whole life cost perspective is taken in literature that suggests hospital managers should consider the financial implications of nutrition-related impacts when costing their catering services (Donini et al. 2008).

In response to malnutrition in hospitals, literature suggests measures that lie beyond the domain of the HFSS. Adequate nutritional screening and clinical observation are vital first steps (Dunne 2009), and the incidence of malnutrition can be reduced in patients through clinical interventions such as individually tailored nutritional therapy (Rüfenacht et al. 2010) and the increased use of oral nutritional supplements (Elia 2009). Measures within the control of the HFSS, such as the provision of better quality hospital food, are also recognised as part of the solution to malnutrition in hospitals (Lean and Wiseman 2008; Abayomi et al. 2009). Yet more perhaps more fundamental is access to food, and suitability of food; while some initiatives have focused on improvements to hospital food quality, “if people are unable to eat food or eat the right type of food, the quality is irrelevant” (Abayomi et al. 2009, p.491). Indeed changes made to menus under the Better Hospital Food initiative have had little impact on the occurrence of malnutrition (Abayomi et al. 2009).

1.4.3. Have you eaten your dinner? Why some patients do not eat enough

The significance of hospital foodservice is growing in importance due to the consequences of malnutrition (Messina et al. 2013), as “one of the major factors causing weight loss among hospital patients is inadequate food intake resulting from the unsatisfactory nature of present feeding arrangements” (Donini et al. 2008, p. 109), otherwise known as catering service quality. Literature that sheds light on *what actually happens* in hospitals post-procurement, and the consequences of such practice provides insights into the sustainability of hospital foodservice systems more widely. While literature often focuses on the biological aspects of hospital patient nutrition, findings have significance for food intake and food waste, factors that impact on nutritional wellbeing, patient quality of life and economic and environmental sustainability. The following sections will unpack some of the

key issues around the failure of hospital foodservice systems to meet basic patient nutritional needs.

Creating the conditions in which hospital patients eat enough to meet their nutritional needs is fundamental to supporting health. The hospital meal is often the highlight of a patient's day (Edwards and Nash 1999; Hartwell and Edwards 2009), and hospital food represents a "significant element of comfort and quality of welcome offered by the institution" (Thibault et al. 2011, p. 289). Yet studies have shown that despite being offered meals that cover nutritional needs, many patients do not eat enough to meet their needs (Barton et al. 2000; Dupertuis et al. 2003). One study of 1707 patients, for example, recorded inadequate food intake in 70% of patients, and of those who were underfed, 59% was due to factors other than illness, such as poor food quality, inadequate meal service, inflexible catering systems and lack of feeding assistance (Dupertuis et al. 2003, p. 115). Such findings indicate that poor nutrition can be linked to the material aspects of food and the social aspects of organisational behaviour.

Methodologically, approaches to hospital food studies are diverse. Measuring patient satisfaction is an important tool in both understanding food service quality and providing evidence for its improvement (Capra et al. 2005). Patient satisfaction is used to investigate reasons for non-consumption (Dupertuis et al. 2003), to compare different catering systems (Hartwell et al. 2007), to measure the impact of illness (Naithani et al. 2010), identify the reasons for food waste (Edwards et al. 2000) and measure catering service quality (Donini et al. 2008; Johns et al. 2010).

In understanding the reasons why patients do not eat enough food in hospital, the following sections will draw from the major themes emerging in literature that relate to food intake. The section will follow in three parts: firstly looking at issues surrounding the food itself in order to investigate the impact of food quality on patient experience; secondly, exploring food service, as the social context within which organisational culture functions; and finally looking at food waste, a recognised indicator of food system sustainability.

a. Food quality and patient experience

Hospital menus are a key mechanism through which to meet patients' needs, and should be "planned according to patients' preferences, focusing on variety, quality and taste" (Messina et al. 2013, p. 730). Yet framing menus with other dimensions in mind (such as environmental) is rare in public settings, Reisch et al. (2013, p. 21) suggesting that "such choice restriction can trigger backlash and might be ineffective in the longer run".

Patient satisfaction/experience questionnaires are often used to gauge satisfaction with food and identify areas of concern, as will be discussed in greater detail in the methodology chapter. Although there is a link between multiple morbidity¹⁵ and decreasing satisfaction with food (Naithani et al. 2010), and as mentioned, one study shows that illness is a factor in not eating complete meals in just 26% of cases (Dupertuis et al. 2003). Other areas of dissatisfaction highlight inadequate temperature, variety and salt content (Donini et al. 2008).

While food quality is an important factor in patient satisfaction studies, Hartwell et al, (2007, p. 212) suggest that, "there is a complex relation between acceptability of food (liking) and intake. The first does not necessarily guarantee the second". Yet some link between acceptability of food and intake is evident, as shown in a study of 1707 patients in a Geneva Hospital by Dupertuis et al. (2003). Of those who did not eat all their lunch or supper, 19% and 17% respectively was due to 'inadequate taste', 11% and 6% to 'inadequate cooking' and 17% and 17% to inadequate choice (Dupertuis et al. 2003, p. 118). An updated study in the same location in 2011 (Thibault et al. 2011) shows yet more challenges: that despite improvements in taste and cooking there was no improvement in the number of patients eating complete meals.

There are notable limitations to studies addressing patient satisfaction with food quality. Firstly, patients have low expectations of hospital food (Edwards et al. 2000; Hartwell et al. 2007; Johns et al. 2010) so the benchmark is uncertain. Second is subjectivity: "food quality is problematic to define because it is dependent on the evaluation of the consumer; it is perceptually based and evaluative" (Hartwell et al. 2007, p. 212). Thirdly, methodological

¹⁵ Multiple morbidity is 'the coexistence of one or more secondary conditions in subjects with a given index condition' (Naithani et al. 2010, p.576)

approaches to questionnaires vary greatly. Many use pre-set categories, some simply ask about single issues such as 'inadequate taste' (Dupertuis et al. 2003), and others break down food quality into multiple dimensions (e.g. Capra et al. 2005). Johns et al.'s study (2010) asks open ended question, some of which are comparative, eliciting more individualized responses including on food quality¹⁶, comparisons with food from previous hospital stays¹⁷ and comparisons with national dishes¹⁸. Such variation in methodological approach impacts on the quality of data gathered and on opportunities for comparative data analysis.

Provenance of ingredients, while fundamental to literature on procurement, is rarely addressed in patient experience studies, yet two studies suggest that patients are interested in food provenance. Hartwell and Edwards (2009) found that while patients wanted healthy, nutritious and familiar meals, they were also concerned with what ingredients were used and where the ingredients came from, suggesting that patients would like to know more about the provenance of dishes on the menu. Another study illustrated the potential for greater engagement on provenance: "many patients take an interest in the provenance and preparation of food, and thus hospital meals could be enhanced by giving details of ingredients and preparation" (Johns et al. 2010, p. 185). With only two studies found linking patient experience with food provenance, a clear gap emerges for further study which will not be within the scope of this research.

b. Food service quality: implications for nutritional health

Moving beyond food quality, the quality of food service can also be measured through patient satisfaction (Hartwell 2007), can affect food intake and therefore nutritional health. Satisfaction around quality of service addresses areas such as meal timing (Edwards et al. 2000), variety of the menu (Donini et al. 2008), meal choice (Johns et al. 2010), meal presentation (O'Regan 2009), cultural considerations (O'Regan 2009) and portion control (Iff 2008). Also important for food intake is ward environment at meal times, food access and food service practice (Iff et al. 2008; Elia 2009; O'Regan 2009; Naithani et al. 2010).

¹⁶ for example "soup digestible" and "meats all taste the same"

¹⁷ "better than years ago"

¹⁸ "not enough traditional British food"

The social context within which food service operates is significant:

Patients' meal provision needs to be seen in the context of ward routines, medical treatments, consultant visits, family visits and clinical outcomes. It also occupies a significant place in the emotional landscape that patients make of their hospital stay (Johns et al. 2010, p. 185)

The busy clinical ward environment can impact negatively on patients' nutritional intakes (O'Regan 2009, p.35), literature recommending peaceful mealtimes that are uninterrupted by clinical requirements (Dunne 2009; O'Regan 2009). Protected mealtimes (PM), introduced under the Better Hospital Food Initiative, were introduced in the UK to minimize meal time interruptions (Abayomi et al. 2009), but two studies show mixed results: PM made little difference to the environment or patient experience, and the number of interruptions remained barely changed (Hickson et al. 2011). Some improvements were noted on the introduction of PM¹⁹, but energy intake remained constant and protein intake decreased for unclear reasons. Weeks' (2008) study, although much smaller, found few benefits to PM. Reasons for poor impact include a lack of supporting training (Hickson et al. 2011) and inadequate feeding assistance (Weeks 2008), both studies proposing that further research is needed.

Alternative approaches to eating on the ward, such as communal dining, may also have a beneficial effect on intake (Hartwell et al. 2013; Walton et al. 2013). Interviews with staff suggest that the social aspect of group dining encourages some patients to eat more: peer pressure encouraged intake, as had the desire not to waste food. Additionally staff felt that through having patients in one place, they were more able to encourage and monitor intake (Hartwell et al. 2013). A further systemic benefit was observed in the study as food quality and service quality improved too: with everyone in one place, food could be served quickly and efficiently, keeping it hot, and allowing courses to be served separately.

Access to food is considered an essential component of nutritional care, and consists of five key domains: hunger, physical barriers, organizational barriers, choice and quality (Naithani et al. 2009). Perhaps most fundamental are physical barriers, as some patients rely

¹⁹ Such as increased use of food and fluid charts, increased hand washing opportunities and cleaner less cluttered tables

completely on others for feeding assistance due to incapacity or special needs. Overcoming physical barriers is a vital function of food service, and can directly impact nutritional intake. Despite choosing a study cohort from a varied cross section of wards, Naithani et al. (2009) reported considerable physical difficulties among patients in the most basic of functions such reaching and cutting food, and a third of participants reported difficulties opening or unwrapping packaging. In addition to those who needed direct feeding assistance, 24% of respondents were not given enough time to eat everything that they wanted. In breaking down the findings by age, self-rated health and medical condition, those who experienced the greatest physical barriers were the elderly, those in the poorest health and those with the most physically limiting medical conditions²⁰. Again, this study shows that the most vulnerable are most at risk.

Another study on feeding assistance for the hospitalized elderly by Tsang (2008) compounds and further illuminates issues of food access for the most vulnerable: independent eaters wasted just 15.4% of their food, while for the totally dependent, 77.6% of food across the day's meals was wasted. While some of this was due to patients sleeping through mealtimes or refusing meals, two reasons are particularly troubling: firstly, adequate feeding assistance for totally dependent patients was limited by staff time pressures²¹; and secondly, inappropriate organizational procedures shortened feeding time²².

Such findings underline how food service can impact on nutritional outcomes: catering service can be moulded by organizational practices that in turn lead to low standards of care for the most vulnerable. While initiatives such as red tray feeding and voluntary dining companion support are considered beneficial to the most vulnerable patients (Davis 2007; Brown and Jones 2009), evaluation is at early stages. Benefits such as improved patient care, greater staff engagement and support of nutritional wellbeing are reported anecdotally by staff (Brown and Jones 2009), and improved awareness, monitoring and support of malnourished patients is reported by nurses who have implemented the red tray scheme (Davis 2007). Other literature suggests that in practice initiatives such as PM and

²⁰ This study group came from the stroke and elderly care wards

²¹ although 25 minutes was the optimum time for assistance, at dinner for example an average of just 10.8 minutes was given and 87.8% food waste was recorded for this meal among this group

²² the meal trolley had to be returned at a specified time, resulting in rushed feeding, or in some cases feeding was abandoned and the meal cleared before patients had indicated that they were finished

red tray have a low uptake record, responsibility for their implementation being unclear, and nurses time constraints remain a barrier to better practice (Abayomi et al. 2009).

c. Why Food waste matters

Food waste is inevitable in hospitals due to the nature of catering for the sick, the diverse range of patient profiles (Edwards and Nash 1999) and the need to ensure that enough food is available at all times (Goonan et al. 2014). Despite this, food waste in hospitals can be considered as a nutritional, economic and environmental issue. As such, food waste is a vital indicator of food system sustainability. Indeed for studies that are interested in food system sustainability, food waste is an integral part. Studies suggest that food service models, patient profiles and patient satisfaction can impact on both food waste and nutritional intake²³.

Studies that address nutritional intake often overlook the importance of food waste (Marson et al. 2003), and yet it is suggested that “food waste is an inverse measure of patient dietary intakes” (Marson et al. 2003, p. 792), and is therefore of clinical significance (Donini et al. 2008). This is demonstrated in a study by Dupertius et al. (2003), who do express wasted food in nutritional terms. They found that despite providing meals that met nutritional needs, 23.4% of all energy (kcal) and 26.4% of all protein provided was left uneaten, leaving patients undernourished, with acute care wards measuring considerably higher²⁴. These findings highlight the profound nutritional implications bounded within measurements of plate waste.

Academic studies that address hospital food waste differ in focus and methodology. Amounts of food waste are measured in differing ways and findings range from 5.9% to 66%, as is shown In Table 1. The implications of units of measurement differ: plate waste²⁵ directly suggests lost nutrition, and trolley waste²⁶ signifies potential operational failures, both carrying economic and environmental costs.

²³ i.e. nutritional intake through food rather than through the use of nutritional supplements

²⁴ at 26.5% of energy and 30.5% of protein provided being unconsumed

²⁵ plate waste is any food left uneaten on the plate at the end of mealtime

²⁶ Trolley waste, sometimes known as ‘tray waste’ is any food left unserved after bulk service is completed

Service type can impact on food waste. Despite patient preference for bulk service with regards to food quality and portion size (Hartwell et al. 2007), bulk food service appears to produce considerably more overall waste (Edwards and Nash 1999; Edwards et al. 2000; Sonnino and McWilliam 2011) due in part to the need to offer food choice to all at point of service. Indeed Edward and Nash (1999) find a significant difference between the amount of food ordered and the amount served under the bulk system. Findings for plate waste are inconsistent, some studies finding it lower under bulk service (Edwards and Nash 1999; Edwards et al. 2000; Goeminne et al. 2012) but Sonnino and McWilliam (2011) finding variation throughout wards using both bulk and plated systems. They observed a direct correlation between weights of food served and weights of food wasted, suggesting that portion sizes larger than patient appetites were consistently served regardless of food service type.

Table 1. Quantitative results from studies on hospital food waste

Literature Source	% range of food waste	Unit of measurement
Barton et al. (2000)	>40%	Of plate and trolley food wasted
Donini et al. (2008)	5.9-31%	Of dishes on menu that waste more than 20%
Dupertuis et al. (2003)	19.4-30.5%	Of nutritional value of meal lost through waste (does not include trolley waste)
Edwards et al. (2000)	42.37-55.17%	Of plate and trolley food wasted
Edwards and Nash, (1999)	13.78–64.72%	Of plate and trolley food wasted
Sonnino and McWilliam (2011)	19-66%	Of plate and trolley food wasted

Patient profile appears to influence food waste volumes, studies finding that plate waste volumes are particularly high in elderly wards (Edwards and Nash 1999; Barton et al. 2000)) reflecting the findings of Tsang (2008) who found adequate nutritional intake to be poorest among the physically dependent elderly.

Some studies that include measurements of food waste also look at patient satisfaction, asking for reasons for non-consumption (Edwards et al. 2000; Dupertuis et al. 2003; Thibault et al. 2011). Literature is inconclusive as to the absolute link between subjective patient satisfaction findings (e.g. taste and choice) and food left uneaten, being clearer instead in areas that relate to objective assessment, such as meal order accuracy and adequate meal

times²⁷, as considered by Donini et al. (2008). All studies of food waste are based on figures collected during general mealtimes, and as such are gathered in relation to a number of different dishes, with a number of variables in place around dish type. A methodological gap therefore emerges in the field: no study looks at food waste using a single dish as a control, and therefore the degree to which there are differing outcomes in relation to the same meal are unknown.

With regards to economic sustainability, food waste has a considerable impact (Allison 2003; Dupertuis et al. 2003), unserved meals in Welsh hospitals being costed at £1.5 million (Vaughan Thomas 2011), hospital food waste in England at £155 million²⁸ (Allison 2003) and healthcare food waste at £230 million²⁹ (Waste and Resources Action Programme 2013). Barton et al. (2000, p. 448), taking a broader systems approach, further propose that food waste also signifies nutritional shortcomings which in turn translate to more costly hospital treatment: money, they argue, which would be better spent on improved nutritional care.

Finally, food waste is of particular environmental significance for two reasons. Firstly, when committed to landfill it contributes considerably to GHG production through methane release. Avoidable food waste related to domestic consumption alone contributes 20 million tons of CO₂ annually (Waste and Resources Action Programme 2009), although no figure appears to be available for public sector food waste. Secondly, from a systemic perspective, wasted food “represents a waste of embedded GHG emissions” (Garnett 2008, p. 45) and as such has much greater environmental significance than literature usually suggests.

In conclusion, literature suggests that hospital food waste has multiple implications for the sustainability of the hospital foodservice system: plate waste reflects inadequate nutritional intake; waste can reflect the quality of food and food service; waste embodies the ‘environmental footprint’ of the food chain behind it; waste becomes a potential source of CO₂ emissions in its disposal; and finally, waste is a financial drain, taking money directly from the service provider. These themes are often fragmented in literature, and yet through

²⁷One study, for example, linked poor food intake on acute wards with lunch and supper service that patients considered be too early, and consequentially recommendations were made to improve this aspect of service (Dupertuis et al. 2003)

²⁸ based on a 40% wastage figure

²⁹including food procurement, labour, utilities and waste management costs

systemic approaches that connect HFSS elements, the significance of wasted food in hospital gains depth and value (Sonnino and McWilliam 2011; Goonan et al. 2014).

As has been illustrated above, literature clearly shows that to understand the potential for sustainable HFSSs, it is necessary to look beyond procurement. In addition to understanding the context and implications of food waste, menus, for example, play a key role, and to be effective, should reflect patient preferences (Messina et al. 2013). New areas of investigation are recognised that bring methodological approaches not usually associated with the hospital ward. Messina et al. (2013) recognise this change, and the social context of food service: the “hospital environment and pleasant helpfulness of nursing staff. This is a new qualitative approach to a complex problem” (Messina et al. 2013, p. 730). This broader approach recognises not only that food and nutrition are part of holistic care (Walton 2012), but that they sit in a complicated social context that is as important as the food itself.

1.5. Social practice, the role of the worker and the social context of the hospital foodservice system

While the sections above have highlighted the importance of food, nutrition and the complexities of food waste, two perspectives are explored below that frame the social context of the HFSS: the theory of social practice and street-level bureaucracy (Lipsky 2010). While there is an element of overlap and synergy, a tension also exists between these two approaches.

Practice is defined as:

a routinized type of behaviour which consists of several elements, interconnected to one another: forms of bodily activity, forms of mental activity, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational learning (Reckwitz 2002, p. 249).

Practices exist in multiple social contexts and in all domains of life, from the personal to the professional, from the private to the public. Shove et al. (2012) simplify practice into three elements: materials (things, objects, goods); competencies (knowledge, skills, and techniques); and meanings (purpose, emotions, ideas and motivations) (2012, p. 12 and p.

44). Under practice theory the relationship between these elements is fundamental, as “practices are defined as interdependent relations between materials, competencies and meaning... practices exist when elements are integrated” (Shove et al. 2012, p. 24), As such, practices disappear or change when any element goes or alters.

Particularly pertinent to studies that are systemic and organisational in nature is that practices do not act in isolation, instead acting in ‘bundles’ or ‘complexes’ of practice (Shove et al. 2012), Reckwitz emphasising interconnections by suggesting that “most social practices consist of routinized relations between several agents (body/minds) and objects” (2002, p. 253). The nature of the relationships between practices can differ: “some collaborative, some competitive, some weak, some strong. Whatever form they take, such relations matter for the trajectory of elements and individual practices of which individual bundles and complexes of practice are made” (Shove et al. p. 120). Indeed the consequences of varying practices and their outcomes are pertinent for policy makers due to potential tensions: “practices might amplify or compete with each other [which] implies that, in general, policy makers would do well to consider parallel tracks for the careers of practices they seek to change” (Shove et al. 2012, p.159).

Where the theory of social practice sees the practice as the unit of analysis (Shove et al. 2012), Street-Level Bureaucracy (SLB) differs, keeping the individual as the focus. Lipsky (2010), in an anniversary edition of his book from 1980, argues that the public workers, through everyday working practices, in essence ‘make’ the policies they are charged with implementing. Labelling workers ‘street-level bureaucrats’ (SLBs), Lipsky argues that “the routines they establish, and the devices they invent to cope with uncertainties and work pressures, effectively *become* the policies they carry out” (Lipsky 2010, p. xii). Despite this assertion, Hupe and Hill (2007, p. 279) suggest that SLBs do not work alone, instead functioning within “a micro-networks of relations, in varying contexts”, under multiple levels of accountability, both horizontal and vertical.

These relationships leave room for conflict and tension, Hupe and Hill (2007) pointing to differences in types of SLB, perhaps with differing ‘critical tasks’ within an organisation. Here, akin to practice theory, “services may depend upon collaborative arrangements” (Hupe and Hill 2007, p. 284), and there are multiple accountabilities in place dependent on

activities and governance mechanisms. Further challenge comes when roles are ambiguous and status of workers varies, as this can undermine collective goals, affect organisational direction and the achievements of individual workers (Lipsky 2010).

Two areas of conflict appear here between theories of practice and SLB, and within SLB itself: the role of the individual, and the framing of autonomy, as explored below.

Within the theory of practice,

The single individual – as a bodily and mental agent – then acts as the ‘carrier’ (Träger) of a practice – and, in fact, of many different practices which need not be coordinated with one another. Thus, she or he is not only a carrier of patterns of bodily behaviour, but also of certain routinized ways of understanding, knowing how and desiring. These conventionalized ‘mental’ activities of understanding, knowing how and desiring are necessary elements and qualities of a practice in which the single individual participates, not qualities of the individual (Reckwitz 2002, p. 250)

Where Lipsky’s focus is “in part a search for the place of the individual in those public services I call street-level bureaucracies” (2010, p. xi), Reckwitz reiterates that

For practice theory, social practices are bodily and mental routines. Thus, mental activities do not appear as individual, but as socially routinized; the ‘individual’ consists in the unique crossing of different mental and bodily routines ‘in’ one mind/body and in the interpretative treatment of this constellation of ‘crossing’ (Reckwitz 2002, p. 257)

Indeed individuality is recognised in practice, as Shove suggests that “not all enactments of practice are consistent or faithful and that each performance is situated and in some respect unique” (2012, p. 122). Yet differences between the framing of the individual in SLB and in practice theory have impacts for policy makers looking to incentivise greater sustainability: under Shove et al.’s framing (2012), practice change must consider materials, competencies and meaning, while policy seeking to incentivise individual behaviour change will clearly differ.

In partial conflict also are the framings of routine and autonomy. While routine is embedded in both practice theory and SLB, there is disagreement on autonomy. While Lipsky (2010) sees SLBs as fairly autonomous from organizational authority, recognition of the roles of

monitoring, performance measures and peer judgement (Hupe and Hill 2007; Lipsky 2010) bed SLBs in their wider social context. Reckwitz challenges autonomy completely:

As carriers of a practice, [agents] are neither autonomous nor the judgmental dopes who conform to norms: They understand the world and themselves, and use know-how and motivational knowledge, according to the particular practice (Reckwitz 2002, p. 256)

In the context of HFSSs, there is merit in exploring the role of the individual and of different disciplines, as practices are often trans-disciplinary, and issues may shift dependent on disciplinary focus. Diverse staff groups are involved in the foodservice system, and unlike some organisational contexts, different disciplines on occasion undertake the same practices³⁰. Some disciplines involved in the HFSS come in daily contact with the patient, and all may have some impact on outcomes, be they patient satisfaction, food intake or food waste levels. Indeed the fragmentation of different disciplines and the use of ubiquitous titles such as 'hotel services' or 'non-clinical services' limit interdisciplinary working and communication that could otherwise lead to improvements in food related care (Walton 2012). In order to understand the multidimensionality of the social and organisational context of food service, both for patient and professional, the following section will look in closer detail at studies considering staff roles, expectations of staff, and staff practices.

Food in hospitals, as discussed, provides much more than nutrition alone. No one service model prevails, and diverse staff disciplines are actively involved in ward level meal service and eating support including nursing, catering, dietitians and domestic staff. Hospital staff are held in high regard by patients, but studies differ on the balance of importance between food quality and staff interaction. Johns et al. (2010, p. 184) suggest that food service staff have a greater effect on patient experience than the food itself, but Messina et al.'s study (2013) shows that while the role of staff was the most positively ranked aspect of food service, food quality that was the most determining factor with regards to overall satisfaction³¹. Two underlying reasons for patients' positive views of staff are noted: gratitude (staff are respected, and food givers are associated with care), and familiarity

³⁰ In the following case study for example, three different disciplines co-ordinate patient food orders and two different disciplines serve patient food

³¹ questionnaires completed by over 600 patients

(patients are empowered and their experience normalised through ‘everyday’ discourse with catering staff, offering respite from the unfamiliarity of hospital life and the medicalised discourse associated with disease and treatment) (Johns et al. 2010).

A number of studies highlight differences in expectations of food-related issues *between* different disciplines, patient outcomes being perceived differently³² (such as Walton et al. 2012; Goonan et al. 2014). Within the same setting, different staff expectations emerged around the meeting of patients’ cultural, religious and dietary needs³³, and the adequate assessment of nutritional needs³⁴ (Walton et al. 2012). In addition, in looking for solutions to such problems, staff often looked outside their own disciplines and areas of control (Walton et al. 2012).

Staff attitudes and habits also impact on food waste generation (Goonan et al. 2014). While managers framed food waste as primarily a financial issue, kitchen staff were more conscious of the social implications of food waste. Differences in waste minimisation practice were attributed to the individual in a number of ways: to length of service³⁵, previous work experience³⁶ and daily engagement with waste production and management³⁷. Indeed Lipsky notes the significance of routines in practice, suggesting that in workers (SLBs), “routines and simplifications virtually are the policies to be delivered” (2010, p. 84).

These study findings illustrate a number of troubling implications for how practice is guided, and for the embedding of holistic approaches to foodservice. Firstly, if it is workers themselves whose practice *becomes* policy, what role does written policy play? Secondly, if disciplines perceive certain elements of practice differently, there is no clear benchmark from which to build practice improvement. Thirdly, if staff believe that solutions to foodservice problems lie with other disciplines, there is a devolution of responsibility and a barrier to creating integrated multidisciplinary solutions.

³² 218 nurses, dietitians and food service managers completed questionnaires in Walton et al. (2012)

³³ Agreement from 98% of food service managers, 58% of nursing unit managers and 48% of dietitians (Walton et al. 2012)

³⁴ Agreement from 87.5% of nursing unit and 60% of dietitians (Walton et al. 2012)

³⁵ Longer serving staff were perceived as more set in their ways and less likely to undertake waste minimisation practices

³⁶ attitudes and practices as developed elsewhere

³⁷ e.g. supervisors and cooks were perceived and observed to be minimising waste

Staff roles, practices and interactions are also shaped by the food service system in place. Table service at ward level offers opportunities for focused and interdisciplinary working, and outcomes are greatly enhanced by the proximity of patients (Hartwell et al. 2013). This facilitates greater interdisciplinary interaction and monitoring as staff are less likely to be drawn away and are more focused on the group (Hartwell et al. 2013).

In comparing prison and hospital food service systems, Johns et al. (2013) illustrate the detrimental impact of the compartmentalised and complex approach in hospitals:

Compared with the prison, the hospital food service process was fragmentary and ill-coordinated, with poor communication between kitchen, transport, service and patients. The different groups participating in the process included catering staff, porters, nursing and auxiliary staff, between whom there was no coherent cooperation. (Johns et al. 2013, p. 48)

Interdisciplinary tensions were noted in the study between catering and medical staff, as nurses could be pulled from their role in communicating patients' nutritional need by other work pressures. Drawing on Lipsky (2010), this illustrates the 'conflict perspective' of those with competing organisational goals (Lipsky 2010, p.18), and resource rationing within organisations that limits both staffing ratios and staff time (p. 29).

In conclusion, practice theory may offer an effective framework within which to investigate HFSSs, and it helpfully highlights the importance of practices. Yet a number of sector specific conditions point to street-level bureaucracy as a more suitable approach in the investigation of practice linked to HFSSs. Shove et al.'s (2012) elements of practice rest uneasily with HFSS working practices: within the same practice (e.g. dishing up food), materials, competence and meaning may shift dependent on the organisational conditions, chains of practice and on the individual. In addition, due to the transdisciplinary and multidisciplinary nature of the HFSS, individuals and disciplinary approaches are important. Under SLB, staff are the workers, (often at the front line of foodservice), who actualise the policies and procedures in place (Lipsky 2010). As such, their role in creating the foodservice system through everyday practice, and their impact on outcomes, including patient satisfaction, is implicit. Yet interdisciplinary goals can be fragmented and contradictory, and the lack of interdisciplinary engagement is a barrier to improving the HFSS. That disciplines perceive current practices differently, looking to other disciplines for solutions (Walton et al. 2012) illustrates a fragmented and compartmentalised organisational landscape. Despite this,

studies have shown that elements of the HFSS can be modelled to facilitate improved interdisciplinary working and improved outcomes, such as communal dining at a table. While Lipsky (2010) has identified the importance of the role of the worker in practice, and literature has shown that hospitals have a particularly fragmented interdisciplinary workforce, as yet no studies have investigated HFSS workers through the lens of street-level bureaucracy.

1.6. Ecological Public Health: a new metric for foodservice systems research

That themes in literature relating to food in public sector settings, and in particular hospital food, are fragmented is clear. Public food research often frames procurement as the mechanism to achieve greater sustainability. In addition, the prevalence of food related literature that investigates compartmentalised issues such as environmental impact (Edwards-Jones 2010), or social and economic impact (Thatcher and Sharpe 2008) illustrate the difficulties of research in the sustainability arena. Taking a systems approach to food studies has a strength in its “attention to comprehensiveness, connections, juxtapositions, places of leverage, and potential feedback” (Hindrichs 2010, p. 26), and some public food literature that draws on the sustainability discourse has begun to move beyond procurement. Morgan and Sonnino (2007, p. 134) for example hint at the potential for menu planning to promote sustainability, and some hospital food literature has illustrated the importance of food service on both nutritional outcomes and on food waste. Sonnino and McWilliam (2011) aim to address the gap in systems thinking, contextualising procurement, food service and food waste as parts within an interconnected system. Here the environmental and economic implications of the HFSS become clearer, and it is suggested that practice change could deliver greater sustainability³⁸.

Despite this, discourse on sustainability in food systems can still be fragmented in nature. Ecological Public Health (EPH) (Rayner and Lang 2012), offers a connected yet fresh framework within which to understand food systems differently. Grounded in evolutionary

³⁸ E.g. through reducing food waste, savings could be reinvested in more sustainable forms of procurement

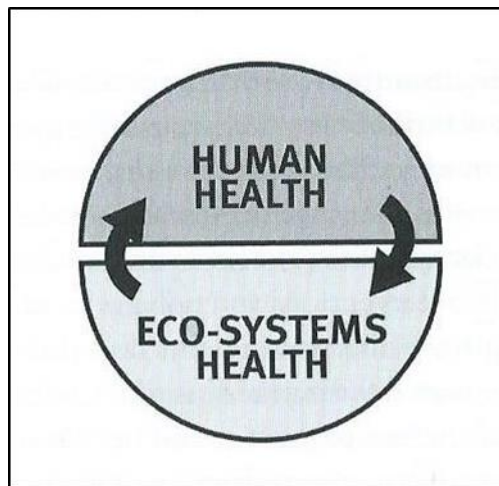
theory in the nineteenth century and sustainable development in the twentieth century, EPH in the twenty-first century acknowledges the unsteady relationship between human and environmental health that has been highlighted through growing ecological crises (Rayner and Lang 2012) (p. 12).

Originally framed in relation to the obesity crisis (Lang and Rayner 2007), EPH makes the link between human and ecosystems health explicit (see Figure 2):

here human health is above and depends upon, eco-systems health. They interrelate, interact and are in tension. For us, this is the one core dynamic tension at the heart of what we call Ecological Public Health (Rayner and Lang 2012, p. 52)

In an era of escalating food-related health crises, this paradigm may have much to offer in deepening understanding of organizational foodservice systems and signposting news ways in which both human and ecological health can be addressed.

Figure 2. The dynamics of Ecological Public Health: a simple model



Rayner and Lang (2012, p. 52)

EPH is firmly rooted to sustainability, but argues that “health sits at the heart of any notion of sustainability. Human bodies live off the natural environment, and without that environment they would not exist” (Rayner and Lang 2012, p. 352). Although patient food is

not seen as a public health issue³⁹, the definition of EPH (see Figure 3) resonates with emerging issues in hospital food literature⁴⁰.

Figure 3. Definition of Ecological Public Health

In the twenty-first century, the pursuit of public health requires the analysis of the composite interaction between the material, biological, social and cultural dimensions of existence. This demands a new mix of interventions and actions to alter and ameliorate the determinants of health; the better framing of public and private choices to achieve sustainable planetary, economic, societal and human health; and the active participation of movements to that end. Ecological Public Health is about shaping the conditions for good health for all

Rayner and Lang (2012, p. 353)

In mapping how the principles embedded in EPH may illuminate and aid interrogation of the gaps and opportunity inherent in HFSS research, a number of key areas emerge.

Firstly, EPH argues for a systemic approach. This systemic approach has two routes in that connections and tensions in different stages of the chain are investigated (e.g. procurement and food service), and that “in the place of single issue standards⁴¹, which can be traded off against each other, an integrated system is required in which the goal is improvement in all factors” (Lang et al. 2009, p. 299). Sustainability, as a framing mechanism, has failed to stimulate systemic approaches in public food studies in the main, yet studies have shown that HFSSs are complex and multidimensional in relation to human and eco-system health. There is a gap in studies that take systemic and multidisciplinary approaches to HFSSs, and a clear failure to fully understand how elements of the system interconnect and conflict. Transposing the dimensions of existence proposed under EPH, the material, biological, social and cultural (see Figure 3 and explored in more detail in Figure 4), the connections become clearer: literature has shown that nutritional health (a biological dimension) can be closely entangled with the social circumstances in which hospital food operates (through food service), with the experience and expectation of the individual (the cultural dimension), and with material dimensions of food service (such as food waste, the food itself, and use of equipment such as communal dining tables and red trays). The framework

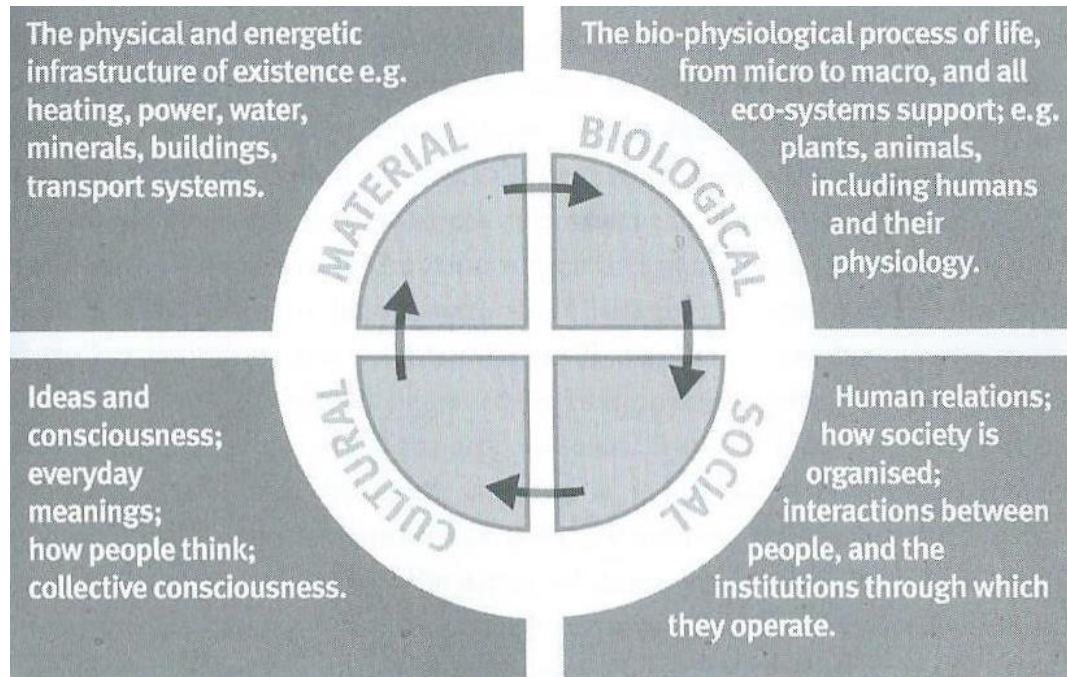
³⁹ Public health is defined by the UK Faculty of Public Health as “the science and art of promoting and protecting health and well-being, preventing ill-health and prolonging life through the organised efforts of society” (The UK Faculty of Public Health 2010) level and is generally applied at population level

⁴⁰ i.e. hospital food for patients, rather than for staff, which is seen as a public health issue

⁴¹ E.g. environmental

proposed by EPH stimulates a multidimensional approach which adds explanatory power to an otherwise fragmented field.

Figure 4. The four dimensions of public health



Rayner and Lang (2012, p. 65)

Secondly, EPH calls for the reframing of nutrition science, and its integration with sustainability, asking that “the moral compass for nutrition science is recalibrated, providing the reason to help resolve humanity’s need to eat within ecological space” (Lang and Barling 2013, p. 9). As explored earlier, hospital food studies are often nutrition-centric, with a focus on under-nutrition. Lang and Barling (2013) suggest a merging of previously fragmented nutrition traditions: the dominant life science approach⁴², social nutrition⁴³ and eco-nutrition⁴⁴. While the life sciences approach dominates in hospital food studies, there is evidence of some integration, particularly on the impact of social context on nutritional intake. Despite this, no hospital food studies integrate all three nutrition traditions, and no studies emerge that connect nutrition and sustainability.

⁴² In the life sciences tradition, nutrition is framed in bio-physiological terms

⁴³ Which frames nutrition as a product of social context

⁴⁴ Eco-nutrition contextualises nutrition in its biophysical environment, as part of and dependant on the earth’s natural carrying capacity e.g. soil fertility, access to water

Thirdly, the issue of choice is given prominence under EPH, which asks for “the better framing of public and private choices to achieve sustainable planetary, economic, societal and human health” (Rayner and Lang 2012, p. 353). A number of academic studies recognise the potential power of choice in relation to sustainability, such as procuring food with health and sustainability in mind (Sattler and Hall 2007) and using ‘nudge’ approaches, such as organisational choice editing, as one of a number of mechanisms for increasing food system sustainability (Reisch et al. 2013, p. 15). Public sector food systems also act as a choice framing mechanism for the end consumer (e.g. the pupil, hospital patient and prisoner). Yet no academic studies investigate choice empirically in connection with nutrition and sustainability in the hospital setting. Chapter two will explore the role of choice maximisation in hospital food policy, suggesting that choice provides a lens through which a number of tensions may emerge in relation to nutrition and sustainability in HFSSs.

The fourth area in which there are strong connections between the principles underlying EPH and the conditions in which HFSSs operate is policy. EPH provides policy makers with a linking concept for fields that may otherwise remain disconnected (Lang and Rayner 2007), bridging gaps and connecting agendas (Morris 2010). In public health policy, Lang and Barling argue that the key challenge is bringing nutrition and sustainability together to address “how to feed huge populations equitably, healthily, and in ways which maintain eco-systems on which humanity depends” (2013, p. 1). Also embedded in food and health policy is the consumer-centric pro-choice agenda (Lang 2009), a potential conflict for nutritional health and sustainability goals. As this chapter has shown, in practice HFSSs can fail on nutrition and sustainability grounds, yet no studies investigate the hospital food policy landscape in this way. In addition there is a gap in the investigation of choice within the HFSS, both in relation to practice and policy.

Finally, in the recognition of competing demands inherent in food systems, EPH asks for the development of new methodological approaches. Given the converging of global environmental, social and economic issues, Lang proposes the development of “‘omnistandards’, a pooling of currently separate criteria by which food is judged, a summative system of value codification” (Lang, 2010, p.1824). Indeed omnistandards may serve as a useful lens through which to focus and clarify the potential of food purchasing, but methodologies that connect elements within a food system, such as the HFSS, are scant.

Indeed the importance of systemic approaches in the development of the EPH research agenda is recognised (Lang 2009; Morris 2010), but the field of research is young. To date, in EPH food related research, there has been a focus on identifying policy gaps, and advocating for the reshaping of policy in specific areas such as obesity (Lang and Rayner 2007) and food and health (Lang 2009; Lang and Barling 2013). Yet the study of policy alone builds a partial picture as “the gaps between evidence, policy and practice are often frustratingly wide” (Lang et al. 2009, p. 305). In relation to HFSSs, the connections between policy, evidence and practice are unexplored, and there are no methodological blueprints for such investigations.

1.7. Conclusion

Literature has shown that there is a move towards acknowledging the potential of food systems to support human health through good nutrition, and to build links between human health, eco-system health and sustainability. This shift has come in response to growing crises in food-related human and planetary health domains, alongside debates on sustainability. Despite this, studies tend to compartmentalise issues, few taking an integrated approach to human and eco-system health. EPH is emerging as a paradigm within which to frame these relationships, and study using its principles is in its infancy.

Some literature argues that the state has a particular role to play in supporting more sustainable food systems, and that policy can be a mechanism to stimulate change. While studies have investigated aspects of sustainability and nutritional care in public food, these rarely take a systemic approach: procurement often takes a central focus, and hospital food studies tend to focus on nutrition and under-nutrition. While practice theory constructs practice as a combination of materials, competencies and meaning (Shove et al. 2010), the individual is framed simply as a carrier of practice. For Lipsky (2010), the individual worker takes centre stage, and he argues that in public institutions, the practices of this worker or ‘street-level bureaucrat’ can over-ride the intention of policy. In this way Lipsky argues that “the decisions of street-level bureaucrats, the routines they establish, and the devices they invent to cope with uncertainties and work pressures, effectively become the public policies they carry out” (p. xiii).

The HFSS is a key arena in which the principles within the EPH agenda could be embedded, due to its unique relationship with nutrition and its endemic unsustainable practices, and yet no studies have been found that connect nutrition, ecological health and sustainability in this setting. Hospital food is studied from many diverse perspectives, and selective narrow routes through are common. As will be discussed in detail in the methodology chapter, systemic approaches are advocated as “in order to understand an organized whole we must know the parts and the relation between them” (Von Bertalanffy 1972, p. 411). In the context of the principles of EPH, the HFSS clearly addresses more than the characteristics of the food procured, embracing a wider systems perspective where other systemic elements, such as menu planning and food service, can be explored. While EPH has been explored in a number of ways, including through historical investigations of sectors and problems (e.g. the food sector and the obesity crisis) (Lang and Rayner 2007; Lang et al. 2009), through its emergence in policy (Lang and Barling 2013), and through its bridging of health and the environment within policy (Morris 2010), as yet the paradigm principles have not been used in detail as a framework to empirically investigate a food system in practice.

As such the following study will address the gaps identified, in that it will develop a methodological approach centred on the principles of EPH to empirically investigate a complex food system, the HFSS. Complexity, Rayner and Lang propose, does not mean ‘complicated’, but rather,

Complexity occurs when the elements of a system interact on a non-linear fashion, that is to say there is no necessary proportionality between causes and effects and when it is impossible to predict system behaviour from only knowledge of the elements themselves. In a complex system there may be sensitivity to initial conditions, as well as numerous feedback loops and multiple chains of interaction (Rayner and Lang 2012, pp. 52-53)

In addressing the gaps identified, the following study will take a systemic approach, both in relation to the subsystems within the HFSS, and the different dimensions of existence (see Figure 4), and it will investigate the role of choice, both in policy and practice. The study will also explore the relationship between governmental policy and practice on the ground, drawing on the practices of workers. The policy framing is particularly pertinent as the forthcoming study took place in a time of policy change. Indeed the policy context will be further explored in chapter three, following a fuller exploration of the methodological approach in the next chapter.

Chapter 2: Researching the hospital foodservice system: research strategy and methodology

Patient food is particularly complicated for a number of reasons: as literature has shown, hospital food has a fundamental role to play in the biological and social wellbeing of patients, and yet studies show it can fail on both counts. Hospital food systems rest in the hands of many and can be fragmented in nature, hospital food systems are particularly unsustainable due to high food waste, which often goes under-recorded (Sonnino and McWilliam 2011), and as will be discussed in chapter three, policy frameworks often work in silos and can be weak.

The previous chapter identified EPH as a paradigm whose underlying principles resonate with the complexity of the HFSS, and help to frame the research gaps identified: gaps in knowledge between policy and evidence; compartmentalised approaches to the study of HFSSs, which tend to be nutrition-centric; lack of systemic studies of public food that draw nutrition and sustainability together; and the lack of methodologies that address the EPH-related research gaps identified by Lang (2009) (as shown in Figure 1). This study aims to address these gaps by developing a methodology using the principles of EPH, so that approaches are: systemic and multidimensional; investigate the integration of health/nutrition and sustainability; investigate the framing of choices with regard to sustainable planetary, economic, societal and human health; and explore the link between policy commitments and outcomes in practice. These key principles are used to investigate policy and practice in a HFSS at a time of policy change, and explore successes and challenges of embedding the principles of EPH in practice. The study explores how policy shaped practice, illuminating systemic synergies and tensions, and providing findings of relevance to policy makers, researchers and practitioners. In addition, in using EPH to frame an empirical investigation for the first time, the value of the paradigm in investigations that move beyond the policy sphere was tested.

The following study takes a case study approach, based in a Welsh Health Board (HB). The study is sited in the country of Wales due to its legislative commitments both to SD and to improving hospital food. Wales has SD as a statutory requirement (Government of Wales Act 2006) and has shown its commitment to improving patient food and drink provision in a relatively new policy, the 'All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients' (the Standards) (Welsh Government 2011b).

2.1. Research questions

The study asks three research questions, the first asking:

Under what conditions is change driven in a complex public foodservice system, and what are the complexities of embedding the principles of Ecological Public Health?

In addressing this question, policy and practice is explored. Policy takes the form of the ground-breaking Standards (Welsh Government 2011b), and the accompanying Implementation Plan (IP) (Welsh Government 2011a), both of which drove change in the case study site. The Standards prompted menu development to meet its requirements, and as such, the menu planning process provides the main focus of enquiry for this first question.

The second research question asks:

At the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are their implications for the principles of Ecological Public Health?

In addressing this question, the study moves onto the wards, where ward level food service provides the main focus of enquiry. The study looks at what policy change meant for practice on the front line, how patients' experience of food service measured up against expectations of policy makers and of the HB, and how workers' practices affected outcomes, particularly around the theme of choice. As primary indicators of nutritional health and sustainability, food intake and food waste were also investigated.

The third research question asks:

In what ways do the principles of Ecological Public Health enhance theoretical and practical understanding of a complex public foodservice system?

This research question will be addressed in the conclusion. Although unusual for a thesis, the conclusion offers the space to reflect on the use of the principles of EPH in a framework for empirical research, exploring how they open up a fuller understanding of complex food systems.

2.2. A case study approach

The research takes a case study approach, focusing on one Welsh HB. It investigates the changing national policy context, how this was accommodated within the HB, how policy played out in menu planning and practice at ward level, what the impact was for patients, and in what way the conditions for EPH may or may not have been accommodated. In this way the study is replicable across a variety of foodservice systems outside the home. Nevertheless, the HFSS is arguably the most complex of all public food systems for a number of reasons: its scale; the technical challenges of serving food across multiple wards in hospital sites; the importance of food to hospital patient wellbeing and recovery; multi-stakeholder involvement; and the multidimensional policy framework within which HFSSs work.

A case study approach was chosen as the research was concerned with investigating and explaining a contemporary phenomenon in depth within a particular institutional setting. As Yin (2009) suggests, the case study “allows investigators to retain the holistic and meaningful characteristics of real-life events” (Yin 2009, p. 4), placing the phenomenon clearly within its individual context. Case studies are also suitable for many study circumstances, including the organizational and institutional settings, the study of group, individual and organizational behaviour (Yin 2009) – all elements of relevance to this study.

Case studies are empirical in nature and “seek to explain some present circumstance (e.g., “how” or “why” some social phenomenon works)” (Yin 2009, p. 4). Case studies focus on relationships and processes which within the social setting are considered to be

“interconnected and interrelated. To understand one thing it is necessary to understand many others and, crucially, how the various parts are linked” (Denscombe 1998, p. 31). The suggestion here that case studies are particularly suited to systemic approaches fits well with methods compatible with an exploration of EPH: Rayner and Lang propose that EPH’s key research methods include “systems analysis in order to manage social transitions and create healthy habitats” (2012, p. 101). Case studies are well suited to research that takes a systems approach, as they “deal with the case as a whole, in its entirety, and thus have some chance of being able to discover how the many parts affect one another. In this respect, case studies tend to be ‘holistic’ rather than deal with ‘isolated factors’ ” (Denscombe 1998, p. 31).

George and Bennett (2005, p. 31) suggest that “case study researchers are more interested in finding the conditions under which specified outcomes occur and the mechanisms through which they occur, rather than uncovering the frequency with which those conditions and outcomes arise”. This implies the general suitability of qualitative research methods, although as will be discussed, data collection will focus on both qualitative data and descriptive statistics in order to add depth to analysis.

Criticisms of case studies suggest a potential ‘lack of rigor’ including a failure to use ‘systematic procedures’, the unconsidered use of biased data upon which to build analysis and conclusions (Yin 2009, p. 14), lack of representativeness (George and Bennett 2005), the difficulty of generating generalizable findings (George and Bennett 2005; Yin 2009) and the complexity of distilling the findings into a digestible form (Yin 2009). Such weaknesses can be overcome by careful and robust planning, and by fair and considered reporting of evidence and findings (Yin 2009).

2.2.1. Case study selection

The selection of case study sites is vital, as Yin suggests that “you should choose the case(s) that will be most likely to illuminate your research questions” (2009, p. 26) and within which access is likely to be high, yet George and Bennett (2005) note the possibility of selection bias in which researchers actively select cases that may exhibit more of the behaviours that they wish to study. For this research, case study locations were chosen from within the country of Wales for two reasons: the country’s statutory commitment to SD (Government

of Wales Act 2006) and the adoption of a new hospital food standard, which offered the opportunity to focus on change.

As is usual in case study research conducted in sensitive fields, the HB case study site remains anonymous, yet rigour was applied in its selection. Wales currently has seven HBs, and exclusions were made for a number of reasons: one HB bought main meals from an external catering company⁴⁵, one had multiple menus in place across sites⁴⁶, and three HBs were excluded as they were currently participating in alternative food research⁴⁷. The remaining two HBs were approached. The first HB agreed to host the case study in principle, and at a preliminary meeting it became apparent that their working practices could facilitate a methodological approach that could yield relevant findings: they were due to develop a new HB-wide menu for the first time, but had different ward level delivery systems. As such, with the same menu in place, variations in ward level practice and patient experience could be analysed against the backdrop of a shared menu, which in theory was offering consistent food quality to all patients across the HB. In this context, practice and outcomes could be investigated in richer detail, allowing for new comparative approaches during analysis.

2.2.2. Defining research parameters

Sayer suggests that “so much depends in social research on the initial definition of our field and on how we conceptualize key objects” (1992, p. 2). Therefore, before investigating the different research methods, data collection techniques and analytical approaches used, the following section will investigate some of the framing concepts that help to define the parameters of the study: a systems approach, EPH and street-level bureaucracy (Lipsky 2010). As discussed, Rayner and Lang (2012, p. 101) propose that an exploration of EPH is suited to systems analysis ‘in order to manage social transitions and create healthy habitats’. This study, although not based at a societal level, proposes that the principles of EPH may translate into an organisational context. The following section will look in more detail at systems approaches, will introduce a model of the hospital foodservice system (HFSS), and will finish by refining how the principles of EPH are explored in this study.

⁴⁵ This study is concerned with HFSSs that cook food within the HB as it is the internal decision making process that are of interest

⁴⁶ A degree of menu uniformity across the HB was desired to facilitate a limitation of variables

⁴⁷ Participation in two studies could be confusing for participants and could lead to poorer quality interview data

2.3. Systems theory: an introduction to differing perspectives

In a move away from science that reduced research down to the study of causality or relationships between limited variables, Von Bertalanffy developed systems theory, suggesting that “in order to understand an organized whole we must know the parts and the relation between them” (Von Bertalanffy 1972, p. 411).

The emergence of systems thinking in an organizational context grew in the 1960s in response to gaps in appropriate scientific frameworks with which to address the issues and challenges of management situations (Checkland and Holwell 2004). Accepted into many academic fields including mathematics, I.T. and engineering, it has also been embraced within the field of organizational behaviour (such as Brooks 2006; Buchanan and Huczynski 2010), operational research (Checkland and Holwell 2004) and foodservice literature (Sullivan and Atlas 1998; Gregoire 2010).

For some research within organizational contexts, objectives are central to systems approaches, as systems are “a collection of interrelated parts or subsystems unified by design to obtain one or more objectives” (Gregoire 2010, p. 2). In the fleshing out of a set of proposed ‘rules’ for system conditions, five elements are proposed:

- A system must be ‘designed’ to accomplish an objective
- The elements of a system must have an established arrangement
- Interrelationships must exist among the individual elements and these must be synergistic in nature
- The basic ingredients of a process (the flows of information, energy, and materials) are more vital than the basic elements of a system
- Organizational objectives are more important than the objectives of its elements, and thus, there is de-emphasis of the parochial objectives of the elements of the system

(Luchsinger and Dock 1976, reprint 1988, in Lilley et al. 2004, p. 36 and Gregoire 2010)

Two additional systems conditions are worth noting for foodservice research: that a system is composed of both human and non-human elements, and that within a system there are often multiple and conflicting objectives underpinning the need for a compromise to achieve the overarching central objective (Jenkins 1969, in Lilley 2004, p. 37). With regard to compromise, Jenkins proposes that “to function at maximum efficiency, a system must be designed in such a way that it is capable of meeting its overall objective in the best possible way” (1969, in Lilley 2004, p. 37). Hence there is an implication that trade-offs may be necessary between multiple subsystem objectives to achieve overall objectives, but quite how these trade-offs might be made in practice is less clear.

In critiquing the potential of systems approaches in operations management, distinctions are made between hard and soft systems (Kirk 1995). Hard systems have specific objectives, defined boundaries, can be investigated using quantitative methods and can be mathematically modelled to express specific changes in the environment. Soft systems on the other hand are used “particularly in relation to human activity systems where there is unlikely to be agreement about the precise objectives of the system” (Kirk 1995, p. 14). Indeed soft systems have:

- no agreement about the precise objectives of the system
- qualitative rather than quantitative objectives
- no single solution, but a range of equally valid alternative solutions
- a need for involvement of all those affected by the system

(Checkland 1981, in Kirk 1995, p. 14)

Socio-technical systems theory developed from an open systems perspective, arguing that if systems were commercially productive then the interaction between technical and social factors was of primary importance (Emery and Trist, 1960 reproduced in Emery and Trist 1981). It is through the use of socio-technical systems approaches that the majority of operations management decision making takes place, as both the technical and human considerations are needed for change to be embedded (Kirk, 1995). This approach is used commonly in an environment in which the people and technology are fundamentally

independent (e.g. IT systems), and there is an outwardly commercial goal, and as such will not be used in this study.

Authors advise caution in undertaking systems based research. They recognise the complexity and scale of systems approaches and the boundless nature of systems research: to investigate each property or implication of systems, in particular open systems where boundaries are fuzzy and exchange between system and environment is complicated, a limitless series of investigations could be made (Lilley et al. 2004, p. 39). Brotherton and Wood both entice and repel the would-be researcher with their views on systems theory: “systems theory constitutes a fascinating, if contested, area of intellectual endeavour and anyone who chooses to write about ‘systems’ of any kind is asking for trouble” (in Turner 2008, p. 34).

2.3.1. Foodservice systems

Foodservice refers to the provision of meals outside the home (IGD 2005), and in the hospital context has three target groups: patients, staff and visitors. This study is concerned with foodservice for patients, as they are the only group for whom the organisation has a duty to provide for all daily food needs and for whom there no monetary exchange.

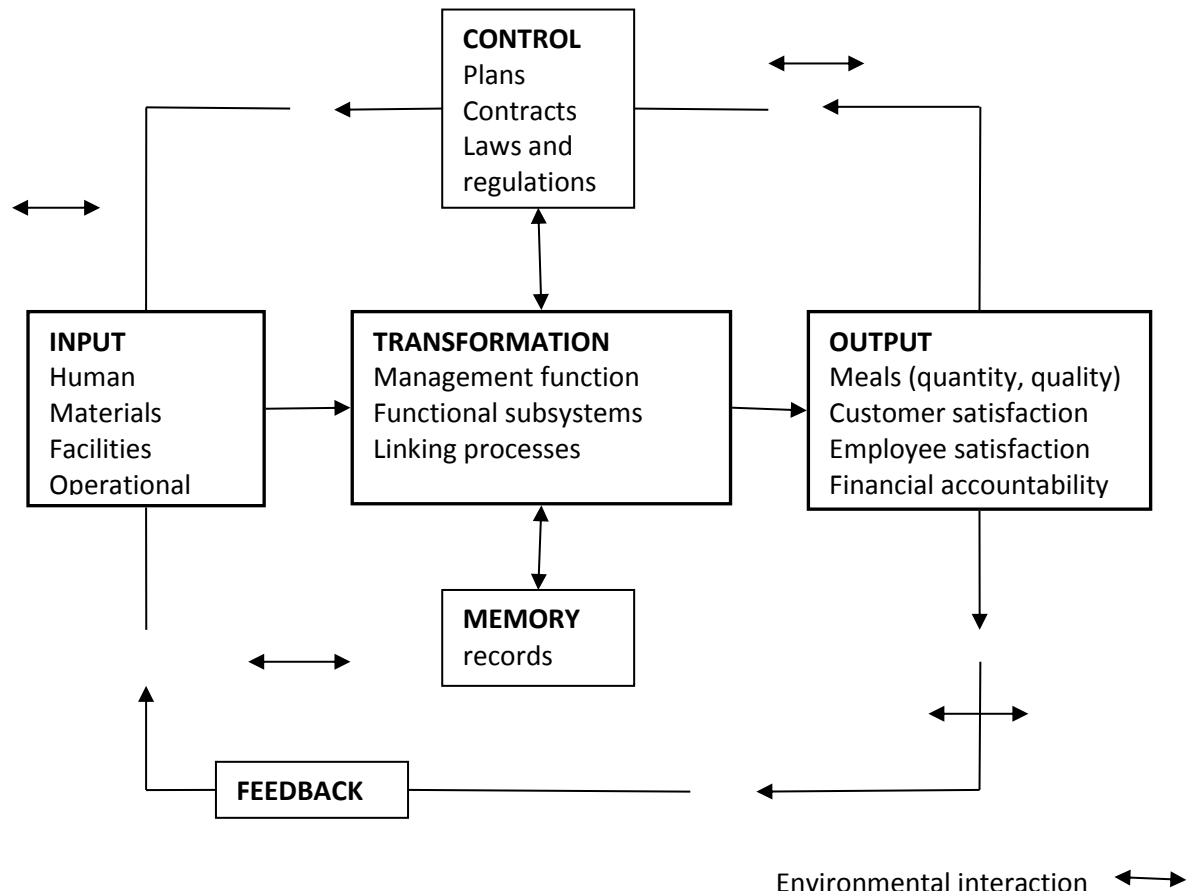
Although a full investigation of academic approaches to foodservice is beyond the scope of this study, literature on foodservice falls into two categories: the first, a set of ‘how to’ textbooks that use systems approaches to describe effective foodservice from an organizational and management perspective (Sullivan and Atlas 1998; Gregoire 2010), and the second uses systems approaches and methodologies to critically investigate aspects of foodservice through theoretical and empirical research.

This first set of literature, although not critical in any sense, provides a useful framework for those unfamiliar with organizational systems thinking and the relationships between foodservice subsystems. Gregoire proposes that a system is a “collection of interrelated parts or subsystems⁴⁸ unified by design to obtain one or more objectives” (2010, p. 2). The systems perspective, she argues, allows for a focus on the system (or organisation) as a

⁴⁸ A subsystem is “a complete system in itself but not independent, is an interdependent part of the whole system” (Gregoire 2010, p. 5).

whole, and on the relationships and connections between the parts, rather than considering the separate parts in isolation. She presents an organizational systems model which is then expanded to represent a foodservice systems model (see Figure 5).

Figure 5. Foodservice system model



Foodservice system model (adapted: Vaden 1980 adapted in Gregoire 2010, p. 6)

Gregoire (2010) puts at the core of her foodservice system model the notions of input, “any human, physical, or operational resource required to accomplish objectives of the system” (Gregoire 2010, p.2); transformation, “action or activity to change inputs into outputs” (Gregoire 2010, p.2), and output, the “result of transforming input into achievement of a system’s goal” (Gregoire 2010, p.2). The control element, in integrating internal and external plans, policies and laws, provides a framework within which to set and measure operations and performance. Memory, the facility to store all associated records, provides the historical context within which

to benchmark practice, and feedback provides reflexive mechanisms with which to measure performance and, if necessary, prompt change. Open in nature (as shown in the model as gaps in the arrows), with explicit reference to environmental interaction, this model suggests some form of interaction between human and technical systems through the systems inputs, transformation processes, memory and feedback elements. The purpose of the systems approach, within the context of Gregoire's book, is to produce better foodservice managers and provide a framework within which to aid problem solving and decision making processes.

Yet elements of Gregoire's model are troubling, due perhaps to its linear nature. The menu, for example, considered "the hub of the system, with sub-systems interrelated and interdependent on its purpose, process, and content" (Sullivan and Atlas 1998, p. 3) is a 'control mechanism'. Yet menus are formed by human input, in turn dictate procurement (deemed a 'functional subsystem' by Gregoire), which in turn dictates the inputs of food. Gregoire does acknowledge the interdependent nature of system parts, so perhaps the weakness falls simply to the use of inadequate visual modelling techniques rather than any conceptual failings.

Interestingly, Gregoire frames foodservice system outcomes in their social context, moving away from traditional economic efficiency models. For her, "the production of food is to satisfy the expectations, desires, and needs of customers, clients, or patients" (2010, p. 7). While she recognises the importance of food quality and quantity, (p. 3), there is no reflection on potentially conflicting subsystem objectives. She sees subsystems as interdependent "each part mutually affect[ing] the performance of others", leading to interaction, and in turn to integration, "in which the parts of the system share objectives of the entire organization" (Gregoire 2010, p. 4). This foodsystem model does not cater for alternative objectives, nor is there any critical engagement with foodsystems in practice.

In order to facilitate a more open approach, this research uses Sullivan and Atlas's (1998) foodservice model as a basis, which proposes that hospital foodservice is unique: its principal objective is "to provide direct individualized, total nutritional care for patients" (Sullivan and Atlas 1998, p.1). Nutrition takes a more central role than in other settings, the consequences of failure impacting on patient welfare. Feedback mechanisms are key: unless

meals are acceptable to patients, the system will ultimately fail (Sullivan and Atlas 1998, p.2), yet academic literature has shown two areas of complexity: patients have low expectations of hospital catering to begin with (Johns et al. 2010), and the relationship between acceptability of food and food intake is troublesome, one not guaranteeing the other (Hartwell et al. 2007, p. 212). As such, this study will in one part look at the connection between cultural acceptability of food (through patient satisfaction) and the biological consequences of eating (through food intake), through the investigation of one meal (lasagne), as served across multiple wards.

Sullivan and Atlas (1998) define a system as “the integration of parts into an organized whole that functions within a larger environment for a specific purpose” (p.2). Within are seven parts (or ‘subsystems’) (see Figure 6): menu planning, equipment selection and design, food purchasing (often referred to as procurement), food production, food service, personnel and finances. These subsystems have distinct aims of their own while also functioning in an integrated way to achieve the system goal.

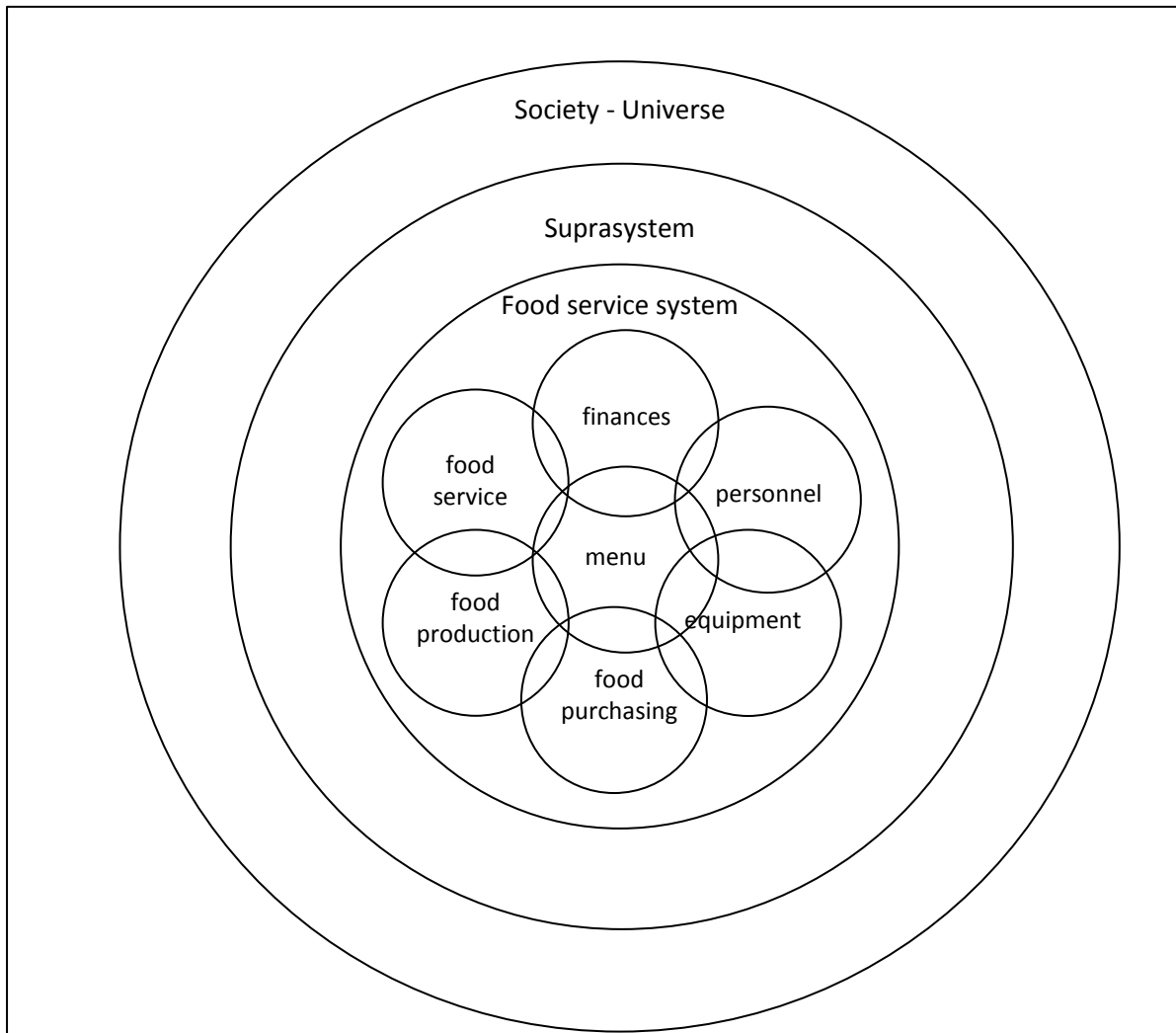
In turn the system operates within the environment or suprasystem (see Figure 6), represented by the hospital. Equally foodservice itself forms a subsystem within the hospital system, alongside subsystems such as medical care and physical therapy, all serving patients at the centre of system.

What Sullivan and Atlas (1998, p.3) consider vital is “how effectively and efficiently the subsystems interact and are integrated into the system for the purpose of achieving the goals of the system and the environment”. Again, there is no discussion of the possibility of differing or contradictory foodservice subsystem goals, but there is acknowledgement that the output of the foodservice system (in the form of patient food), is an input into the larger suprasystem of the hospital. This positioning of a system within multiple suprasystems⁴⁹, termed ‘simultaneous multiple containment’ (Ball 2008) is particularly pertinent in the hospital context, which operates in a broad policy framework, as will be discussed in the following chapter. Here Sullivan and Atlas note two implications: firstly, a more complex systems web of interdependencies is created, making systems analysis more difficult; and secondly, the likelihood of conflict between alternative system aims and outputs is

⁴⁹ such as a hospital trust, a trade association, the local labour market,

increased. What becomes clear, through a systems approach to foodservice, is that the consequences of poor foodservice systems that fail to nourish patients appropriately and fail to consider sustainability are felt at the hospital suprasystem⁵⁰ level, which in turn reflects on society, demonstrating interconnections beyond the setting itself.

Figure 6. Conceptual model of foodservice system relationships within their wider context



Sullivan and Atlas (1998, p.3)

Academic studies on foodservice have used systems perspectives to explore a wide range of subjects such as hospital foodservice quality (Kim et al. 2010), food safety (Ozilgen 2010), cost efficiency (Assaf and Matawie 2010), comparative delivery systems in hospitals (Edwards and Hartwell 2006) and productivity in foodservice systems management (Puckett

⁵⁰ E.g. malnourished patients spend longer in hospital, and there are the financial and staff resource implications of dealing with excess food waste

et al. 2005). No study could be found investigated the ecological implications of foodservice and no consistent conceptualization of a foodservice system is adopted, as boundaries vary. Methodological approaches include foodservice quality frameworks (Kim et al. 2010)⁵¹, input/output models (Puckett et al. 2005; Assaf and Matawie 2010), and a production and service focus (Edwards and Hartwell 2006). The application of systems thinking within foodservice research tends to be incomplete, focusing instead on a selected number of interrelated subsystems with particular relevance to specific issues such as nutritional intake or productivity. Study boundaries tend to be narrow, the complete foodsystem (such as that shown in Gregoire 2010) and the interdependent nature of each subsystem (as proposed by Sullivan and Atlas 1998) is not explored.

Issues around objectives are unclear in studies, such as: to what degree whole system objectives and/or subsystem goals govern system design and function; how and why objectives may differ, complement or conflict; how objectives emerge and adapt over time; and how reflexive systems can be to changing objectives. Indeed, the critical investigation of objectives is weak in empirical studies, and literature has suggested, but not explored, multiple overarching goals and outcomes from foodservice operations.

2.4. Ecological Public Health as a methodological approach

In developing a methodology that addresses EPH, a mixed methods approach was designed to facilitate accessing data that could shed light on the complexities, synergies and tensions that operate within the HFSS, including the role of policy and the role of practice. Indeed Morris (2010, p. 39), in using a model that draws on EPH to develop policy that links health and the build environment, suggests that success for policy makers can only come when synergies and disconnects in policy and action are recognised. Methods used will be mentioned briefly in this section to illustrate the development of the approach, and will be discussed in more detail in this and following chapters. Methods used included interviews, documentary analysis, ward level observation, patient questionnaires, waste data collection

⁵¹ the primary focus being on meeting nutritional needs, and analysis considering the impact of menu planning production and service on nutritional intake

and an in-depth study of one meal (lasagne). Data was therefore numerical⁵² and qualitative⁵³, dependent on the theme or area under investigation. As such, the study encompasses approaches that are both rooted in the social and natural sciences.

Key principles of EPH, as discussed earlier, were drawn on in developing the methodology. Firstly, under EPH, methodologies are to be systemic and multidimensional (Lang 2009). In setting the systemic parameters, Sullivan and Atlas's HFSS model (see Figure 6) was adapted (see Figure 7), and finance and personnel subsystems were subsumed within the other subsystems. In the early stages of research, an open focus was kept as to the systemic scope of the study, but as the research developed, the menu and food service provided the richest data and strongest themes from which to draw. Although focus moved from the other subsystems, the importance of operations in these areas was still drawn on where relevant. This will be explored in more detail as a limitation in the thesis conclusion.

As EPH was used to frame an in-depth empirical study for the first time, some key multidimensional terms were unpacked to aid the interviewing process and the analysis. To help guide HB interviewees, four simple thematic domains of interest (sustainability issues, nutritional issues, environmental issues and finances) were identified to frame some of the concerns of EPH in a simplified form, using Appendix 1 as an explanatory and thematic tool in the field. Examples linked to the thematic domains were on occasion given by the researcher during interviews to help frame and guide interviewees⁵⁴.

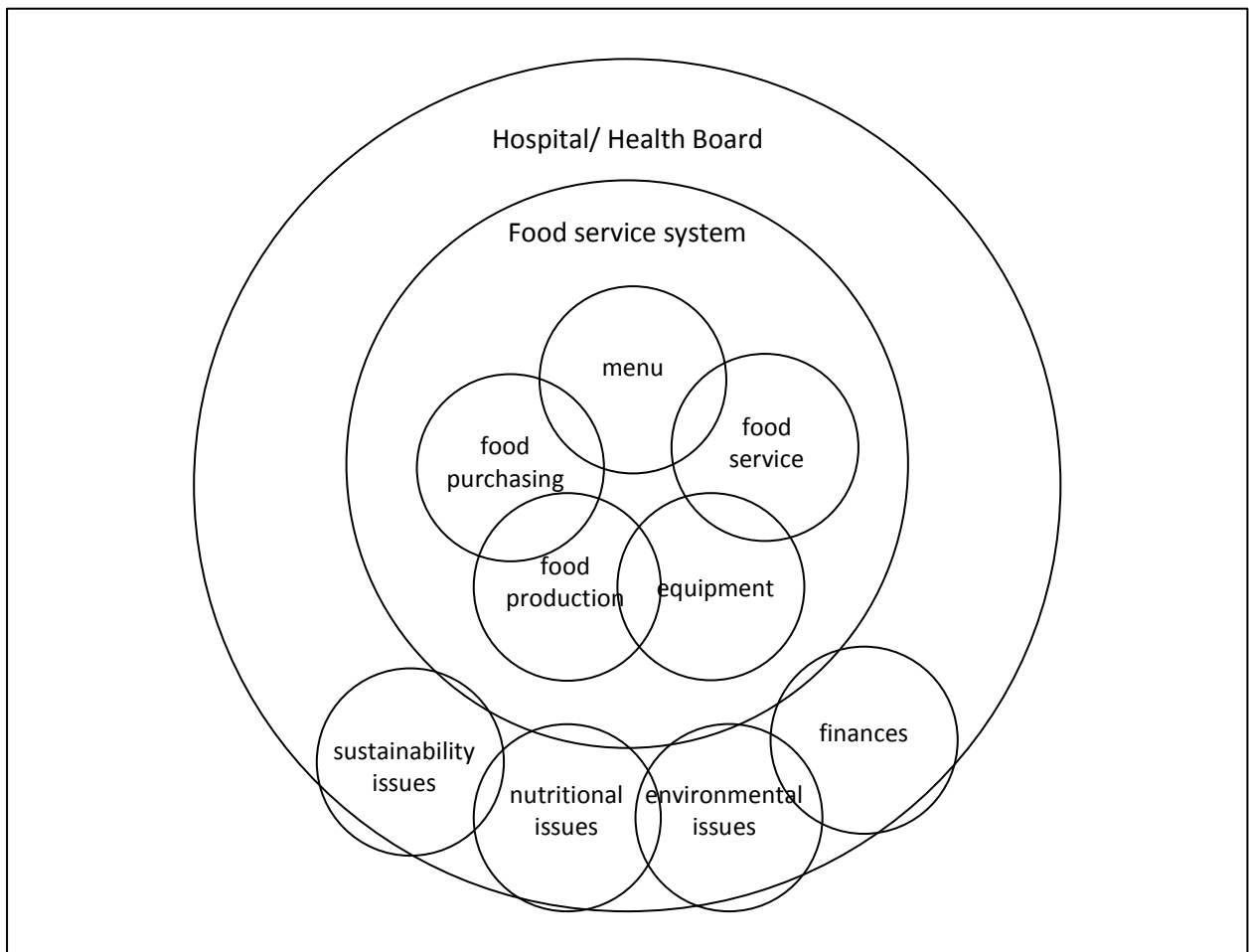
A multidimensional approach was also used to provide an analytical framework, drawing on both the dimensions of existence (see Table 2) and the areas of health (Table 3) put forward by Rayner and Lang (2012).

⁵² such as patient numbers and wasted meals

⁵³ such as patient satisfaction and staff attitudes

⁵⁴ For example, food provenance was mentioned in relation to sustainability and food waste in relation to environmental issues

Figure 7. Domains of interest within the Health Board



Adapted from Sullivan and Atlas (1998, p.3)

Table 2. Four dimensions of existence

Dimension of existence	Definition
Material	the physical and energetic infrastructure of existence e.g. matter, heating, power, water, minerals, buildings, transport systems
Biological	the bio-physiological process of life, from micro to macro, and all eco-support systems; e.g. plants, animals, including humans and their physiology
Social	Institutions created by between people and expressed in terms of laws, social arrangements, conventions, and the framework of daily living generally living outside of individual control
Cultural	ideas and consciousness; everyday meanings; how people think; collective consciousness, the sphere of interpersonal relations

Rayner and Lang (2012, p. 315)

A second principle of EPH is the integration of health and sustainability. Here policy framing was investigated, as was practice through the exploration of outcomes during the service of one meal, lasagne. In its simplest form, the lasagne micro-study plots food intake (an indicator of nutritional health) and waste, and sets this within its social context through the use of patient experience questionnaires.

Thirdly, EPH asks that choice is framed to “achieve sustainable planetary, economic, societal and human health” (Rayner and Lang 2012, p. 353) (see Table 3). Choice emerged as a key theme in the literature. In providing food, choice can be driven by price, safety and convenience (Lang 2010), the choices made by staff for hospital patients can have implications for both human and ecological health (Sattler and Hall 2007), and yet restricting choice on ecological grounds can trigger consumer backlash (Reisch et al. 2013). Lack of choice for patients is linked to low patient satisfaction (Johns et al. 2010), and to poor consumption (Dupertuis et al. 2003), and poor management of choice-giving during food service can lead to excess food waste (Sonnino and McWilliam 2011). In order to investigate choice within this study, choice was explored in the context of policy content, HB practice and patient experience.

Table 3. Areas of health, definitions and context for research

Areas of Health	Definition and context for research
Planetary health	relates to ecological health. Hospital foodservice systems will have, by their nature, complex relationships with and consequences for ecological health through mechanisms such as menu design, procurement, food production, and outputs such as waste.
Economic health	has meaning both internally and externally to the organisation. The organisation makes decisions on how to allocate budgets internally, and on which suppliers to procure from externally; both types of decision making have potential impact on economic health, both within and outside the organisation.
Human health	defined as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, 2011), human health is broad and inclusive in nature. As the focus of the research is foodservice, and there is no access to patients’ medical records, the focus on human health will be nutritional and twofold: firstly, in addressing the availability of food to meet patient’s nutritional needs; and secondly, whether those nutritional needs are met in practice.
Societal health	links closely with the ‘public’ element of ‘Ecological Public Health’, drawing on planetary, economic and human health, while recognizing the importance of social justice/equity. As the research focus is primarily within an organisation the study will exclude a specific focus on societal health, instead presuming an implicit acknowledgement of the impact on societal health of planetary, economic and human health.

Finally, studies aiming to develop the EPH research agenda should narrow the gap between evidence and policy (Lang 2009) and provide a framework through which to investigate policy. Rayner and Lang proposing that EPH acts as

a means for sharpening arguments in public policy in two ways: first by addressing natural and human ecology together, acknowledging their separateness but also their crossovers, and through the simplifying mechanism to address complexity. The simplifying mechanism identified is the process of testing or auditing both the policy contexts and policy strategies through the 4 domains that represent the fundamental parameters of human life (Rayner et al. 2008, pp. 153-154)

As such, the changing policy context in Wales, with the introduction of the Standards, provides an ideal context within which to investigate policy and practice through the lens of EPH. This was explored in a number of ways. Firstly through policy analysis and a thematic analysis of menu planning minutes. The impact on the patient of this policy change, and of subsequent HB changes was explored through patient experience questionnaires. The practice of workers or street-level bureaucrats, framed as the actualisation of policy by Lipsky (2010), was explored through observation.

Finally, reflecting on the systems approach used, the research does not fall neatly into either soft or hard systems approaches, and nor does it fit the context of socio-technical research, as the interaction between technical and human factors was not of primary importance in this study. The themes under investigation required a multi-dimensional approach, as is promoted by Lang (2009, p. 332), and as such, the methodological approach did not follow the path of previous systems-based research. Literature has suggested that subsystems can operate with multiple and conflicting goals, but these are rarely, if ever, explored. As EPH promotes systemic methodological approaches (Rayner and Lang 2012), the results intend to unearth where systems goals may complement, challenge and contradict each other.

2.5. Epistemology

Rayner and Lang propose that EPH requires different forms of knowledge: “Ecological Public Health requires interdisciplinary knowledge if it is to be able to examine the natural and human worlds critically and hopefully. Knowledge of value for Ecological Public Health is never reducible to one approach or epistemology” (Rayner and Lang 2012, p. 336). Indeed in

looking at research that takes a systemic approach, Checkland and Holwell (2004) propose that hard and soft systems perspectives have fundamentally differing philosophical foundations. Hard systems are based on positivist philosophical foundations of the natural sciences, where the external world “may be objectively investigated empirically, by disinterested observers, to create true knowledge based on empirical data from repeatable experiments” (Checkland and Holwell 2004, p. 53). The rigidity of the philosophy underpinning hard systems thinking does not allow for the rich and diverse nature of soft system approaches and data collection methods, and most crucially, challenges the soft systems belief that in social situations, individuals perceive things differently, in line with constructivist or interpretivist philosophical perspectives (Checkland and Holwell 2004, p. 54).

This research does not fit ontologically within either tradition (positivist or interpretivist) due to its use of multiple methods, its connection with both the natural and social sciences, and generation of diverse data sets. Data collected, for example, included personal perspectives (interviews), precise numerical outputs (food waste volumes), and descriptive statistics (patient experience questionnaires), maximising opportunities for comparison and triangulation between multiple data sets during analysis. As such, another philosophical route has been sought in the critical realist (CR) tradition.

Collier (2005), following Bhaskar, calls on the concept of causality to argue against the logic of a positivist ontology, both within the natural and social sciences. For Collier there is only one place within which the causal law of ‘constant conjunction’⁵⁵ can be seen: scientific experiments within controlled conditions that have no possibility of augmentation by incidental human intervention. In all other contexts causality is not guaranteed due to the fluidity and uncertainty of nature and society. In this respect, Collier argues, “natural laws should not be expressed as conjunctions... but as tendencies” (2005, p. 329). CR also counters the interpretive philosophical view that the world exists only through human knowledge, Sayer proposing that the recognized fallibility of human knowledge renders a knowledge-dependent view of reality as senseless (2000, p. 2). CR, developed in the 1970s by scholars such as Roy Bhaskar, Rom Harré, Russell Keat and Ted Benton, therefore offers

⁵⁵ i.e. the action of A will cause the action of B

“an alternative to empiricism and conventionalism in the philosophy of natural sciences, and to the positivism and interpretivism in the philosophy of social science” (Sayer 2000, p. 4).

Mingers (2000) suggests that CR is a particularly appropriate philosophical approach for research that is systemic in nature, such as Operations Research and Management Science, as “Critical realism... successfully addresses the major divisive issues within the philosophy of science – natural vs social, positivist vs critical, realist vs constructivist, structure vs agency” (p. 1256).

Collier (2005) outlines several ways in which CR approaches reality:

1. that solid objects in the natural world (such as people, animals and plants) are real regardless of our knowledge of them
2. that forces are real within society even if they are not exercised, in that “hidden mechanisms, unexercised powers, and unrealized possibilities are all real and can have effects”
3. that “there is a *plurality* of mechanisms conjointly determining events”, in that science uses a multitude of techniques to determine what is happening, that each technique is valid, independent, and reality is as a result “many-layered”
4. That reality not only exists in what *is*, but in what *isn't*, so that “absences have effects, and what has effects must be real”

(Collier 2005, pp. 335-336)

Collier (2005) suggests therefore that CR has a ‘maximalist’ ontology: it is holistic in nature and “holds that a rainforestlike profusion of different kinds of reality exists; things, events, experiences, natural mechanisms, social structures, possibilities, absences, and so on” (p. 336).

Central to CR is also the device of explanatory critique: “an explanation that criticizes what it explains, not in addition to but by virtue of the explanation” (Collier 2005, p. 337). As such it has considerable implications for methodology as it not only explores aspects of society, but how such aspects are conceptualized by those within the society. As Collier suggests, the researcher may discover that beliefs held about certain aspects of society may indeed be false, and secondly that such false beliefs could be ascribed to a specific social structure that

is complicit in perpetuating false beliefs in the pursuit of other goals, such as the maintenance of a compliant workforce. The further implication of using explanatory critique is that it can generate “a value judgment and a practical prescription out of purely factual premises” (Collier 2005, p. 337). In methodological terms, both data gathering and analysis are key for explanatory critique: knowledge gathering should consider both subjective and objective data, and analysis should unpack any difference between findings e.g. stakeholder expectations of food waste and actual food waste volumes.

In following a systems perspective, Arbnor and Bjerke (2009, p. 39) suggest that the researcher is making a particular set of philosophical assumptions that can be both objective and subjective. For the researcher, ‘reality’ is bound both in objective facts relating to systemic structures, and in the subjective nature of human opinions within the system, also considered as facts (Arbnor and Bjerke 2009, p. 39). As such, both objective and subjective data are considered to be factive, and it is this ‘factive reality’ that is the principal research focus. Additionally, an issue should not be considered in an isolated context, but instead within its full context (e.g. within the institution, rather than a department), with analysis considering emerging “different wholes and patterns” (p. 39). These wholes and patterns are viewed objectively, and some research may be geared towards system knowledge for the sake of modelling system improvement objectively.

Here the interdependent nature of systems reality is highlighted, in that

systems reality is assumed to consist of components that are often mutually dependent on others – which means that they cannot be “summed up”. The structure of these components brings about *synergistic effects*. This means that not only the content of the individual components, but also the way they are put together, provides information” (Arbnor and Bjerke 2009, p. 63)

The broader setting is therefore of primary importance as “in order to explain or to understand an individual component it is not enough to study the component itself in isolation. A creator of knowledge must put the component in context (Arbnor and Bjerke 2009, p. 114).

2.6. Mixed-method approach

Case studies in particular allow and encourage a great variety of methods to be employed, yet are not prescriptive, allowing the researcher to best match method/s to the individual study through the use of a research strategy (Denscombe 1998). As the HFSS is complex, and EPH is multidimensional and asks for a systemic and cross-disciplinary approach, a multi-methods approach was used to capture the multifaceted nature of the HFSS and unpack the multiple elements that had synergies with EPH. The data gathering methods had to work in a multi-level context (at HB, hospital, ward and individual level), and with multiple actors (the multidisciplinary groups seen in Table 4) and patients. Mixed-methods can generate increased volumes of data, allow for the comparison and contrasting of differing sets of data during data analysis, and allow for corroboration or questioning of certain findings, improving the validity of the findings (Denscombe 1998, pp. 84-85). This diversity and wealth of data was actively sought as a route to opening up the research site and maximising opportunities for investigating synergies, tensions, connections, challenges, and framing findings with respect to the concerns of EPH. Robust and diverse data sets then facilitated comparison and triangulation within and between data sets at the analytical stage, as will be discussed later.

Yin (2009, p. 99) suggests that there are six sources of evidence available to those using case studies: documents, archival records, direct observations, participant observation, interviews and physical artefacts. Many of these are considered to be well suited to research set in organizational contexts (Buchanan and Huczynski 2010). Additionally, in taking a systems perspective, it is suggested that data should be sought that investigates systemic goals and objectives (Arbnor and Bjerke 2009), such as policy documents and interview data.

One of the criticisms of case studies is that they can be perceived as 'producing soft data', focusing on qualitative data, considering processes without outcomes and being descriptive rather than evaluative (Denscombe 1998, p. 40). In response to this, the research strategy included collecting qualitative data and descriptive statistics.

As mentioned, the case study worked at multiple levels, and data was collected using a number of approaches including interviews, documents, observations, patient experience

questionnaires, food waste data, and data linked to a one meal (lasagne) micro-study, as is shown in Table 4. These methods will be explored in the following sections, and the specifics relating to data collection in the field, such as participant numbers, will be discussed in the data presentation chapters four and five.

Table 4. Data collection methods as used at multiple levels within the Health Board

Level for data collection	Data collection method					
	documents	interviews	observations	Patient experience questionnaires	Food waste data	Lasagne micro-study (multi-methods)
Wales	yes	yes				
HB	yes	yes				
hospital	yes	yes		yes (secondary data from 2010 Wales Audit Office study)	Yes (secondary data from the HB)	
ward	yes	yes	yes	yes	yes	yes

2.6.1. At the regional and local level: data collection at the Health Board

At HB and hospital level, interviews were undertaken and documents were gathered. Interviews were conducted, as the researcher was interested in collected detailed information from a small number of actors within the case study setting. Indeed it is suggested that “interviews yield rich insights into people’s biographies, experiences, opinions, values, aspirations, attitudes and feelings” (May 2001, p. 120). Interviews were used as a methodological approach at HB and hospital level, as the nuances of hospital foodservice could not be addressed by questionnaires or documentary means, and reasons behind behaviours and norms could not be discerned through observation.

The purpose of the interviews was fourfold: to fact find, gaining a greater understanding of working practice; to explore themes⁵⁶; to investigate interviewees' experiences and opinions; and, through a second interview, to explore change after the Standards were introduced.

Structured focused comparison (George and Bennett 2005, p. 67) was used to gather interview data and aid analysis. The structure came through setting out general and job-specific questions in an interview schedule (Appendix 4), used at 26 interviews, addressing the themes of the study. A tailored set of questions exploring change was developed for seven follow-up interviews (see Appendix 14). This approach helped guide and standardize the data collection, aiding analysis and allowing for solid comparison both within and between interviews and themes.

The 'focus' came through selecting themes, which in this research context related to the dimensions of EPH and centred around three key issues: nutritional wellbeing of patients, environmental/ecological issues, and an exploration of budgetary considerations. The study was also interested in the effect of new policy (the Standards) on the key themes. These three key issues were distilled to aid a consistent approach through all interviews and to frame the research question in a way that might resonate with interviewees. The word 'sustainability' was purposely not used, and instead the researcher used more universally understood concepts such as 'environmental', and themes such as 'budget', 'waste', 'local'. The three key issues were discussed in different contexts dependent on the working practices and organisational level of the interviewee⁵⁷. The interviews themselves were semi-structured, in that the interview schedule (Appendix 4) was as a guide, but adapted flexibly if new connected issues arose or if the sequencing of questions fell into a new pattern. Some questions were open ended in nature, allow the interviewee to expand on their areas of interest (Denscombe 1998; May 2001). Interviews were recorded for accuracy using a digital recorder and transcribed in full into a word document.

⁵⁶ Themes explored included sustainability issues, nutritional issues, environmental issues, finances, the menu planning process, practice at ward level, the roles of different workers, patient experience and the impact of the Standards

⁵⁷ e.g. the Head of Support Services discussed all elements of the HFSS, and the stores' manager focused on food purchasing only

It is usual to undertake a pilot study, but given the difficulty of gaining access to the hospital environment, the busy working environment and the limited nature of case study sites it was not possible to undertake pilot interviews. With this in mind, much consideration went into the research design, but allowances were made once in the field. The interview schedule for example was adjusted slightly to aid flow once interviews had begun.

As a final note, Denscombe (1998, p. 112) proposes that “the contents of an interview are more or less taken at face value for what they have to tell the researcher about the particular topic being discussed”, although some external validation is advised. Despite this, Checkland and Holwell (2004, p. 51) note that “multiple conflicting objectives from multiple stakeholders are the norm in human situations”, hinting at the diversity of responses that can be expected.

Arbnor and Bjerke (2009) suggest that systems based research can be complex and broad, potentially involving many participants. The use of secondary data, such as documents, is therefore particularly important as a mechanism to build a wider picture (Arbnor and Bjerke 2009), and to compare observation with recorded accounts (May 2001). Indeed this data gathering approach is replicable in many other public food system contexts. The research used a variety of documents, including those from the national policy context, from the local level, including internal HB policies and documents⁵⁸, and from ward level. Documents chosen related to the HFSS and issues linked to EPH. On the surface, government documents may be considered authoritative, objective and factive, but this is often dependent on the data they contain (Denscombe 2010). Indeed the validity of all documentary data should be checked for authenticity, representativeness, meaning and credibility (Denscombe 2010).

In taking a systems approach, HB policies and documents were identified relating to a number of foodservice subsystems (see Figure 6) including menu planning, catering, nutrition, environment and waste. Documents came in the form of policies, standards, strategies, action plans, guides, frameworks, agreements, procedures, reports, surveys, sheets, forms and minutes. Minutes of the menu planning group meetings were gathered,

⁵⁸ The three hospitals previously had differing policies, but since amalgamating in the current HB, policies were going through a process of standardisation

as minutes can “contain a pretty systemic picture of things that have happened”, and are both detailed and accurate (Denscombe 1998, p. 161). In addition, completed daily order sheets for patient meals, and waste reporting sheets were gathered to allow an insight into daily working practices. Although many documents were collected, allowing the researcher to gain a broad overview, due to the narrowing of the research focus onto menu planning and food service in particular, only those listed in Table 5 (numbers 1-9) were used in the final data presentation and discussion chapters.

2.6.2. Onto the wards: multiple methods

Research question two asks about practice, and was investigated at ward level using a variety of methods including informal interviews, informal working documents, observation of food service, patient experience questionnaires, food waste measurement and an in-depth study of one meal, meat lasagne. Nine wards were selected (three in each of the three HB hospitals) to mirror wards used in a 2010 Wales Audit Office Study (Anon 2010b). For anonymity these hospitals are named H1, H2 and H3, with wards numbered as H1W1, H1W2 etc. These wards were diverse in their medical profiling and included patients undertaking rehabilitation, elective orthopaedic surgery, general operative care, and gastro-intestinal care, among others. A weekly menu was in operation, and for consistency in the menu cycle, the same two consecutive days were spent on each of the nine wards.

a. Ward level interviews

Informal and semi-structured interviews with staff involved in food service were undertaken ‘on the go’ to fit around busy working patterns. Food service staff varied across hospitals and wards, interviewees including qualified nurses, Healthcare Assistants (HCAs) and Ward Based Caterers (WBCs).

An interview schedule was in place (included in Appendix 5), and was used flexibly. The interview questions explored practice (e.g. ordering systems, protected meal times, training undertaken, food chart protocol, multidisciplinary engagement), knowledge (of the new Standards and of the new menu), job pressures (how foodservice fitted with other responsibilities), experience, and personal opinion (e.g. on the new menu and on food waste).

Unlike the HB and hospital level interviews, these interviews were not recorded, as the researcher and interviewees were mobile and the interviews often fragmented. Responses were written down 'on the go', in some cases selectively captured, and were typed up on the evening of the interview.

b. Ward level documents

Data from ward level documents was gathered to build a picture of ward level guidance and practice, including ordering and delivery systems. These documents included: static signs displaying information (menus, hygiene practices, work protocols, protected mealtime signs), daily working documents which were discarded or altered on a daily basis (e.g. bed plans, menu ordering sheets for bulk service⁵⁹, patient meal order sheets⁶⁰, food delivery sheets and patient nutrition information boards), and record keeping documents that were cumulative in nature (e.g. trolley waste sheets, food temperature sheets). Although each hospital had similar protocols and working documents, they could also differ from ward to ward.

Data from these documents was gathered in a number of ways: through photography, by collecting the actual document in hard copy, and by noting down the relevant contents of the document.

c. Ward level observation of food service

Observation has benefits as a research method as it considers what people do, rather than what they say they do (Denscombe 1998). Observational data gathered was qualitative in nature, designed to help "understand the culture and processes of the groups being investigated" (Denscombe 1998, p. 139). As the researcher was 'outside' the field of work, and had no participatory role, they remained neutral yet were in the heart of the field, collecting primary data within its natural setting.

Observation was carried out primarily around the theme of choice for a number of reasons: choice framing was identified as a key principle of EPH; choice had emerged as a key theme

⁵⁹ Meals are ordered in 'bulk': food arrives in multi-portion trays and is plated for each individual patient at ward level

⁶⁰ These could be pre-printed bedplans that staff filled in noting patient requests, or could be informal working notes made by staff on blank paper or on the back of napkins

in the Standards; was a key theme in early analysis of HB and hospital level interviews; and was embedded in a number of Wales Audit Office patient experience questionnaire questions (Vaughan Thomas 2011). An observation schedule was drawn up (included in Appendix 5) to capture verbal staff/patient interaction around choice during ordering and service, along with notes on the general eating environment. This schedule was used by the researcher as a basic prompt sheet, and a bed plan was used⁶¹ (see Appendix 12) to note down interaction (both physical and verbal). This allowed observational data to be cross referenced with patient experience questionnaire responses at an individual level during analysis.

Daily reflections from the ward studies were captured thematically, as shown in Figure 8, along with reflections on the researcher's own positionality while on the ward.

Figure 8. Themes for post-observation reflection

Meeting individual patient needs
Time pressures
Pressures of other responsibilities
Technical issues
Perceptions of food
Presentation
Attitude to foodservice
Variation/ consistence (in approaches to ordering, in attitude)
Plate waste
Ordering and trolley waste
Reflections on researcher's role
Patients' response to researcher
Reflection of researcher's position

For ease of data management, all notes made during interviews and observations, and post observation reflections were captured in a template laid out in the ward protocol document (Appendix 5). All manual notes were kept for cross reference and validation purposes during data analysis.

⁶¹ A bed plan was drawn up by the researcher each morning and included ward and bed layout, noting patients to be excluded from the questionnaire

d. Measuring patient experience: ward level patient questionnaires

Measuring patient experience⁶² through questionnaires is a popular methodological tool in hospital foodservice research, providing key indicators of how hospital catering is working from the patients' perspective, along with gathering basic patient profiling information. Questionnaires, or surveys "aim to describe or explain the characteristics or opinions of a population through a representative sample", and are a frequently used research tool in social research (May 2001, p. 89). Usually factive and attitudinal in nature (Denscombe 2010), in this study both types of data were gathered. Advantages to questionnaires include the standardisation of approach, the pre-coding of answers and the ease of carrying them out (Denscombe 2010). Disadvantages include unsuitability for all subjects (Bryman 2004), such as those too sick or cognitively unable to take part. In addition, where the answer is an opinion, no mechanism tests or challenges the response (Denscombe 2010).

Patient experience is multidimensional in nature (Hartwell et al. 2007; Fallon et al. 2008), findings often used to illustrate outcomes in particular settings. Findings may in turn guide quality improvement initiatives (Wright et al. 2003), which may in turn lead to improved outcomes, such as food waste reduction (Donini et al. 2008), and increased nutritional intake (Freil et al. 2006).

Patient experience is generally used comparatively. Existing studies compare experience at a macro level by food service type (Edwards and Nash 1999; Marson et al. 2003; McLymont et al. 2003; Edwards and Hartwell 2006; Freil et al. 2006; Hartwell et al. 2007; Kuperberg et al. 2008; Goeminne et al. 2012) both within the same setting (Williams et al. 1998; Wright et al. 2003), and between settings (Hartwell and Edwards 2003), at one period of time (Hiesmayr et al. 2009; Agarwal et al. 2012) or over time (Freil et al. 2006; Donini et al. 2008; Fallon et al. 2008; Thibault et al. 2011).

In investigating the impact of the Standards on patient experience of the menu, of food service, and of connected issues, a 'before' and 'after' measure was needed. The results of the 2010 Wales Audit Office (WAO) "Patient Questionnaire about hospital meals" (Anon 2010b) was used as a 'before' measure. This was an in-depth audit of hospital catering

⁶² also termed patient satisfaction, catering service quality and foodservice quality

across all Welsh Health Board, and results were reported at HB level⁶³. This 2010 questionnaire is referred to hereafter as PE10. As an 'after' measure, the 2010 questionnaire (Appendix 7) was reproduced and rerun in the HB with the agreement of the WAO, and named PE13 hereafter (Appendix 8). Questions were grouped in sections related to health needs, the menu, hygiene and comfort, help when eating, and the meal itself. Not all questions were relevant to this study, but for consistency the complete questionnaire was rerun.

To test methodological rigour, a literature review of hospital foodservices studies was undertaken to examine the comprehensiveness of PE10. Gaps identified include elements relating to personal profile (e.g. age, sex), the food (e.g. texture and adequacy of cooking), service (e.g. did the patient receive what they ordered?), including perceptions of staff (e.g. were staff clean/ helpful / courteous / polite?). Despite these gaps, only small alterations were made for PE13⁶⁴.

e. Ward level food waste

As is consistent with Sonnino and McWilliam (2011), main course trolley waste data was collected. For consistency, data was collected at lunch on the same day on each ward so that data on the same menu options was collected. Only data on the main course items was collected as this is particularly significant nutritionally and economically: these dishes are the primary source of protein, have the highest economic value and take the longest time for staff to make. As such, waste carries a nutritional, economic and social cost. Pre-service, portions were counted using delivery sheets and visual methods, and photographic records were made. Post-service, visual methods were used to count the number of portions left unserved: again, photographic records were made. Once service was complete, where staff noted wasted portions, these self-reported figures were recorded by the researcher.

⁶³ Including details broken down by hospital and ward

⁶⁴ Additional demographic questions were added (age and sex). Question 3 was altered to read "how long have you been in hospital?", the accompanying information sheet was altered to reflect the involvement of Cardiff University, and wording was altered in the comments section to reflect that the study was interested in experiences *within the hospital only* rather than experiences of hospitals in Wales.

2.6.3. Under the microscope: the Lasagne micro-study

The study of one meal, lasagne, was undertaken in part to address a complex area of food research that has particular relevance to nutritionally vulnerable hospital patients: the link between satisfaction and intake. Until the 1980s it was assumed that if people were given food they liked, they would eat it (Meiselman 2003). Challenging this belief, two longitudinal studies (unreferenced and Hirsh & Kramer 1993 in Meiselman 2003) showed that food intake was setting-dependent and that intake could remain low despite high satisfaction.

In addition, where PE13 addressed general experience of food service, the lasagne study tested some of the principles of EPH in a focused and in-depth way. Using lasagne as a 'control' dish, the study aimed to connect nutrition and sustainability, and explore the principles of EPH by looking specifically at choice, satisfaction with food, intake and plate waste. Methods included a patient experience questionnaire (LSQ) and a plate study (LSP). This micro-study is particularly relevant in the policy context, as increasing nutritional intake and decreasing food waste are both fundamental policy goals of the Standards. Although no existing study using this methodology was found, literature was drawn on to inform the methodological design.

The study considered only issues relating to one main course primary dish for three reasons: minimising variability; the nutritional significance of the primary dish, as it is expected to provide the majority of protein and calories in a meal (kcal) (Welsh Government 2011a); and its economic significance as the most costly meal element. Any waste therefore signified proportionately significant lost nutritional potential and financial costs, along with the environmental burdens associated with both the wasted food's production and its disposal. It is also rare for hospital food studies to gather patient experience of single dishes, many studies looking at the general menu and Hartwell et al. (2007), for example, asking for patient opinions of single ingredient items (such as carrots and poached cod).

The lasagne questionnaire (LSQ) (see Appendix 9) asked about the specific food qualities of temperature, flavour, portion size and texture, along with an open question on general experience of the lasagne, following the methodology employed in Hartwell et al. (2007) for testing patient experience of individual food items in hospital. Such qualities are deemed to be integral to patient satisfaction in many studies (including Capra et al. 2005, Donini et al.

2008, and Goeminne et al. 2012), and food appearance also appears in studies (such as Freil et al. 2006; Naithani et al. 2009; Goeminne et al. 2012). Deviating from Hartwell et al.'s approach, a 5 point scale was used (responses from excellent to very poor), to aid consistency with PE13. In addition LSQ asked for personal information on age and gender. Studies are mixed on the significance of age and gender, Dupertius et al. (2003) suggesting that men are more likely to be underfed than women, with age as an unrelated factor, while Naithani et al. (2009, p. 629), note that increasing age is often linked to a decreasing appetite and poorer access to food, as older patients are generally less physically able.

If food was left uneaten, LSQ asked why in an open question, allowing for fuller responses. Literature shows numerous reasons for plate waste. Some studies look at the reasons for plate waste or poor intake specifically using quantitative analysis, asking about physical reasons for altered intake (Goeminne et al. 2012)⁶⁵, food quality (Agarwal et al. 2012)⁶⁶ and food service quality (McLymont et al. 2003)⁶⁷. As one of the primary aims of the Lasagne study was to explore any link between patient experience, perceived food quality and food intake/waste, an open question approach was used to allow for the collection of flexible data to complement the quantitative nature of physical food waste data. A number of questions on food service, including choice, were included to mirror PE13. Two questions on staff were asked: one on helpfulness (as is consistent with Capra et al. 2005; Fallon et al. 2008; Kuperburg et al. 2008) and a second on respectfulness, which is recognised as being an essential element of care within the Dignity in Care Campaign (Dignity in Care 2013).

The lasagne study also measured intake (what was eaten), and plate waste (what was left) noting the size of portion served as a fraction of a whole portion (1, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$) and noting remaining food post-service in the same manner. The difference represented the lasagne consumed (nutritional intake from the main course dish), as is consistent with a number of studies (for example Barton et al. 2000; Edwards and Hartwell 2006; Freil et al. 2006; Kuperberg et al. 2008). Studies use two ways to measure intake/plate waste: by weight (Barton et al. 2000; Edwards and Hartwell 2006; Goeminne et al. 2012) and through visual methods (Giampaoli and Khanna 2000; Marson et al. 2003; Kuperberg et al. 2008; Hiesmayr

⁶⁵ Such as sickness, pain, swallowing or chewing difficulties

⁶⁶Such as disliked taste and disliked smell

⁶⁷ E.g. patient did not select meal, and portion too large

et al. 2009). Visual methods employ fractions (Hiesmayr et al. 2009) and percentages (Giampaoli and Khanna 2000). Although visual methods are recognised as less exact than weighing (Giampaoli and Khanna 2000), Williams and Walton (2011, p. 6), in reviewing hospital plate waste studies, suggest that visual methods have been validated against studies using weighing, and provide relatively good approximations⁶⁸.

2.7. Analytical approach

As discussed, multiple types of data were collected from multiple sources. At analysis stage, those shown in Table 5 were considered.

Table 5. Study data sources and data type

Data source no.	Data sources	Data type
1	All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients (Welsh Government 2011b)	Document
2	All Wales Nutrition and Catering Standards for Food and Fluid for Hospital Inpatients. Concise Guide and Implementation Plan (Welsh Government 2011a)	Document
3	Health Board menus (historic menus x 3)	Document
4	Health Board menu (new menu x 1) (Appendix 21)	Document
5	Wales Audit Office report of patient experience (PE10) (Anon 2010b)	Document
6	Health Board menu planning minutes x 9	Documents
7	Health Board Modernization strategy (Anon 2010a)	Document
8	Health Board Menu planning policy	Document
9	Health Board Report on the Standards (The Health Board 2013b)	Document
10	Health Board staff x 35 (Health Board and hospital level staff, not ward level staff)	Interview transcript
11	Patient experience questionnaires (PE13) x 104	Questionnaires
12	Ward level practice x 9 wards, informal interviews x 33, observations x 18 meal services	Observations notes & informal interview transcripts
13	Trays of food on trolley, pre and post service x 9 lunch services	Numerical: Food portions
14	Patient experience questionnaires of 1 dish (lasagne) (LSQ) x 38	Questionnaires
15	Plates containing 1 dish (lasagne), pre and post service (LSP) x 48	Numerical: Food portions
16	HB reported food waste	Document
17	HB costings of food waste	Document

⁶⁸ A study by Williamson et al. (2003), which tested the validity of digital photography as a means of measuring portion size against weighing and direct visual estimation, found a high correlation between portion size as visually estimated and weighed, with an average variation of just 6 grams per portion.

As Yin (2009) suggests, in case studies a wide variety of evidence is often considered, and must then be gathered in a triangular form for analysis. In this study, individual data sources (see Table 5) yielded data of interest to the case. To aid clarity, as shown in Table 5, data source here refers either to single items (such as a document), or to a collection of items of the same type (such as a set of interview transcripts). Three analytical stages took place which will be described in greater detail within the following section. Firstly, raw data was worked into a manageable form through coding, theme development and descriptive statistics. The following two stages were guided by a series of issues underlying each research question, as shown in Table 6: thematic and comparative analysis took place *within* data sources, and finally there was triangulation *between* data sources. This stage of analysis drew on themes relevant to the research questions, the concerns of EPH, and the working practices of SLBs as identified by Lipsky (2010). Undertaking analysis *within* data sources before using triangulation *between* sources facilitated a fuller understanding of the meaning of key findings within sources (e.g. any differences in patient experience between hospitals), and then allowed the richness of the systemic approach to show itself by exploring relationships, connections and gaps *between* sources. In turn, the analysed data is presented in two areas within the thesis: as Table 6 shows, some analysed data appears in data presentation chapters four and five, and some in data analysis chapter six.

Table 6. Analytical Framework

Research Question 1: Under what conditions is change driven in a complex public foodservice system, and what are the complexities of embedding the principles of Ecological Public Health?		
Investigated in data presentation chapter	Data source (see Table 5)	Analytical approach
The difference between the three historic menus: Analysis of menu composition, how do they differ?	3	Comparative and thematic analysis within source
Opinions of staff e.g. Drivers of change Experiences of menu planning Expectations of different staff roles	10	Comparative and thematic analysis within source
Benchmarking: Patient experience in 2010 in relation to the themes in the Standards, and how does patient experience in key areas (e.g. meeting needs, choice) vary between hospitals?	1,5	Methodological triangulation (between methods)

Opinion of staff on issues linked to EPH: Benchmarking staff understanding of and opinions of EPH, and how this informs or fails to inform menu planning practice	10	Comparative and thematic analysis within source, theory triangulation
Comparisons & finding the gap between HB menu planning policy and Standards/IP in relation to EPH	1,2,8	Methodological triangulation (within methods), theory triangulation
What has changed between the old and interim menus	3, 4	Methodological triangulation (within methods)
Menu planning process - themes, gaps, tensions, prioritizations, drivers	4, 6, 9, 10	Methodological triangulation (between methods), theory triangulation
Investigated in discussion chapter	Data source (see Table 5)	Analytical approach
Drawing together themes as developed above	1,2,4,6,10,1 1, 12,13	Methodological triangulation (within and between methods), theory triangulation
Research Question 2: At the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are their implications for the principles of Ecological Public Health?		
Investigated in data presentation chapter	Data source (see Table 5)	Analytical approach
Patient experience under the interim menu: Experiences of individuals, by ward, hospital, length of stay, age group, dependent on service staff	11	Comparative and thematic analysis within source
How ward level practice may impact on patient experience, e.g. around choice	11,12	Methodological triangulation (between methods)
How patient experiences reflect the aspirations of the Standards/IP	1, 2,12	Methodological triangulation (between methods)
How the interim menu reflects the aspirations of the Standards/IP	1,2,4	Methodological triangulation (within methods)
Change in patient experience pre and post Standards	5, 11	Data triangulation
How staff expectations reflect patient experience	10, 11	Methodological triangulation (between methods)
How observations reflect patient experience	11, 12	Methodological triangulation (between methods)
Staff practices: the individual, group practices, any difference	12	Comparative and

in approach dependent of discipline/role		thematic analysis within source, theory triangulation
How expectations of staff practice reflect staff practices observed	10, 12	Methodological triangulation (between methods)
Trolley waste levels: comparing wards, hospitals and staff	13	Comparative analysis within source
The connection between staff practices and trolley waste levels	12,13	Methodological triangulation (between methods)
The connection between expectations of staff and trolley waste	10,13	Methodological triangulation (between methods)
The difference between HB reported trolley waste and researcher recorded trolley waste	13,16	Methodological triangulation (within methods)
Patient experience of lasagne: comparing responses by individual within a ward, between hospitals, if offered a choice of portion size, opinions on quality, reasons for not eating	14	Comparative and thematic analysis within source
The connection between patient experience of lasagne and observations	12, 14	Methodological triangulation (between methods)
Lasagne intake, including comparing by sex	15	Comparative analysis within source
The connections between satisfaction with lasagne and intake, and reasons for not eating everything on the plate	14,15	Methodological triangulation (between methods)
The cost of researcher measured trolley waste	13.17	Methodological triangulation (between methods)
Investigated in discussion chapter	Data source (see Table 5)	Analytical approach
Drawing together themes as developed above	1,2,5,6,10,11,12,13,14,15,16	Methodological triangulation (within and between methods), data triangulation, theory triangulation
Research Question 3: In what ways do the principles of Ecological Public Health enhance theoretical and practical understanding of a complex public foodservice system?		
Investigated in discussion chapter	Data source	Analytical approach
In what ways do the principles of Ecological Public Health enhance theoretical and practical understanding of a complex public foodservice system?	all	Theory triangulation

Before looking at the methodological approaches to comparison and triangulation, the following section will look more closely at the coding techniques used, the thematic approach and the use of descriptive statistics.

2.7.1. Themes and codes

Qualitative content analysis was used for analysis of interview, documentary, observational and open ended questionnaire data. Qualitative content analysis “comprises a searching-out of underlying themes” within the data (Bryman 2004, p. 392) which are represented by a series of codes. Coding is understood to be a “general term for conceptualizing data; thus, coding includes raising questions and giving provisional answers (hypotheses) about categories and about their relations. A code is the term for any product of this analysis, (whether a category or a relation among two or more categories” (Strauss 1998 in May 2001, p. 138). A code therefore can be multi-functional in that it can refer to the individual and collective dimensions of data.

Analysing qualitative data, such as interview material and observations can be difficult due to the volume and nature of data: as data is usually a “large corpus of unstructured textual material” (Bryman 2004, p.398) analysis can be complicated. The identification of themes and relationships was therefore essential, and

a vital part of the reflections undertaken by the qualitative researcher will be an attempt to identify ‘patterns and processes, commonalities and differences’ (Miles and Huberman 1994:9). When revisiting the field notes, transcripts or texts, the researcher should be on the lookout for themes or interconnections that recur between the units and categories that are emerging (Denscombe 1998, p. 221)

In addition, as discussed, structured data collection techniques (e.g. semi-structured interviews and observation schedules) were used to facilitate analysis, and allowed structured focused comparison (George and Bennett 2005) during analysis. Regardless of the diversity of response, certain themes were predetermined, such as interviewee’s perceptions of nutrition adequacy, environmental impact, and the role of the Standards. Themes were developed into a set of code words, and interview transcripts and minutes were coded using an Nvivo software package. Themes/codes included HFSS stages (e.g. food service, procurement), and perspectives on these. Other themes included nutrition, staff issues, patients and patient issues, choice, organisational issues and feedback, money

pressures and transition, environment and waste. Other codes developed organically during the coding process such as accountability, multi-disciplinarity, integration, and control.

As the interviews were coded, and the focus of the research narrowed, it became clear that the menu planning process was a key mechanism through which change was being facilitated. As such, an Nvivo keyword search was undertaken using the coding themes of 'menu planning', 'menu planning group', 'multi-disciplinarity' and 'interdisciplinarity'. The resulting report was then hand coded and themes pulled out using a form of mind mapping. The manual coding and mind mapping process allowed the researcher to pull themes together, plot out connections, identify themes that were persistent throughout, such as multi-disciplinarity and choice, and to make interconnections (for example balance versus compromise, and compliance versus cost). Mind maps are a recognised tool for the researcher, and are usually applied around a centralised theme or topic in a hierarchical fashion (Eppler 2006). As can be seen in Appendix 10 and Appendix 11, the researcher used mind maps in a less hierarchical fashion, as a visual connecting tool enabling themes to be mapped out and cross references to be visualised in one centralised sheet, which was then used as a reference point when writing up analysis. Documents (as shown in Table 5) were also hand coded in relation to themes, such as menu planning, sustainability, food service standards, procurement, waste and nutrition. Manual mind mapping was again used (see Appendix 10 for mindmapping of the Standards) to show themes and interconnections between themes.

Choice, a key concern within EPH, emerged as a clear theme. Choice was also pre-set as a theme within the ward study protocol (see Appendix 5). All choice related themes were pulled from the observations, e.g. 'simplified dish', 'guess the dish', 'choosing for patient' and 'a bit of everything on the plate'. Again this was mind mapped by hand on one sheet allowing staff, ward and hospital patterns to be clearly see, allowing cross reference to the behaviour patterns of street level bureaucrats, as identified by Lipsky (2010), and facilitating easy access back to the primary data source (observation notes) for cross reference (see Appendix 11).

Finally, thematic approaches were used to categorising qualitative responses within questionnaires. Patient experience questionnaires PE13 and LSQ yielded qualitative data

through open questions, and through additional patient comments. Responses were grouped in excel cells by question, with reference to each individual patient respondent number and profile so that cross reference could be made to ward, age, number of days in hospital, sex and other responses.

Coding is not without limitations, authors suggesting that both the context and narrative flow of what is said can be lost, and that the coding will take on the interpretation of the researcher (Bryman, 2004, p. 411). In part, hand coding and manual mind maps were used as a means to remain connected to the original data source, as they prompted multiple revisits to the data.

Bryman also notes that coding is just part of analysis. He suggests that

you must still interpret your findings, which means attending to issues like the significance of your coded material for the lives of the people you are studying, forging the connections between codes, and reflecting on the overall importance of your findings for the research questions and the research literature that have driven your data collection (Bryman 2004, p. 409).

Indeed this interpretation of findings post-coding will be explored in detail in the sections on comparative analysis and triangulation.

2.7.2. Descriptive statistics

Some data was collated in numerical form, such as results from patient experience questionnaires PE10, PE13 and LSQ, the menus (when broken down into numbers of dishes), food waste date, lasagne intake and lasagne plate waste. Descriptive statistics was the analytical technique employed as the data sets were relatively small and not applicable at population level. Descriptive statistics are “procedures that describe a set of data for a group to enlighten one of the characteristics of that group alone” (Black 2002, p. 97), and utilise tables, charts and graphs to display findings. Inferential techniques, whereby findings are used to make inferences about larger groups (populations) were not be used due to the scale of findings and the nature of the research.

In this study, numerical data was input into excel format, and excel software was used to represent data in a number of different ways such as frequency distribution and percentages of responses. Comparative techniques were used to illustrate for example

differences in responses between 2010 and 2013, between different hospitals, between age groups and between lengths of stay, as is shown in Table 6.

Scatter plots were used in just two cases to explore findings in the lasagne study. Although the sample sizes were too small to infer anything generalizable, the researcher was interested in exploring if there was any relationship between age, days in hospital and the amount of lasagne eaten. Findings were intended to hint at areas worth investigating in further studies.

2.7.3. Analysis within and between sources

Once the raw data had been themed and coded, and descriptive statistical methods had been applied, the findings were then analysed in three ways: analysis within the data source thematically, analysis within the data source comparatively, and triangulation between the data sources, as shown in Table 6 and as will be explored below. In deciding which data sources to draw from and which analytical approach to use the researcher was guided by the three research questions, and an analytical table was drawn up (see Table 6).

Firstly, **thematic analysis within a data source** took place. In taking a systems perspective, the researcher was “looking for regular patterns, interactions and relations. However he/she also allows him/herself to bring in irregular aspects of the context into the picture as well” (Arbnor and Bjerke 2009, p. 39).

In thematic analysis of documents, May (2001) proposes caution, suggesting that documents also are simply “representative of the practical requirements for which they are constructed”, (2001, p. 182) implying the need for greater critical engagement with their context and function, and a recognition of what May describes as the document’s “underlying social pattern or use value” (2001, p. 182). Records may provide a selective view of what happened, and some documents (such as government publications and government statistics), whilst being authoritative and factive (Denscombe 1998) may be questionable in relation to objectivity and general representativeness (May 2001).

George and Burnett (2005, pp. 99-100) in addition propose a set of considerations that were borne in mind when assessing the value of the evidence held within documents:

1. Researchers can have an inherent bias when choosing, reading and analysing documents, focusing on those which reinforce their own research perspectives and ignoring data that may challenge their perspective
2. A distorted interpretation of documentary data can result from analytical or political bias
3. All documents have a purpose, and that the purpose is set within an historical context and within a set of circumstances under which it was produced
4. A document is a “type of purposeful communication” (George and Burnett 2005, p. 99) with a specified producer of the communication (e.g. the Government, the Health Board, the department), and a specific audience for the communication

In addressing point one and two above, the researcher revisited the primary documents (the Standards and IP) at many stages throughout data presentation, analysis and discussion, testing, adjusting and at times altering analysis accordingly. In addressing point three, the researcher contextualises policy documents within their wider multi-level policy context in the following chapter. Point four was explored through analysis of the menu planning minutes and interview transcripts, where the impact of the key documents on differing disciplines, and their views of this impact were drawn out.

The second approach to analysis was a **comparative approach within data sources**. Comparisons can be used within a single case study and between different cases, therefore creating the “strongest means of drawing inferences” (George and Bennett 2005, p. 18). Comparison was used within many data sources (see Table 6) to compare, for example, attitudes to sustainability⁶⁹, approaches to choice⁷⁰, differences in patient experience between ward and hospitals⁷¹, differences in patient experience of one dish (lasagne)⁷² and differences in food intake (lasagne)⁷³.

⁶⁹ Using interviews as a data source

⁷⁰ Using observations as a data source

⁷¹ Using PE13 responses as a data source

⁷² Using LSQ responses as a data source

⁷³ Using findings from LSP as a data source

Once analysis within sources was undertaken, **triangulation between data sources** took place (see Table 6). This helped develop a new level of understanding, fundamental to the systemic nature of the study: the linkages and disconnects between elements of the HFSS and dimensions of EPH became clearer, and the impact of the practices of everyday ward level workers became more evident. Denscombe proposes that:

triangulation involves the practice of viewing things from more than one perspective... the principle behind this is that the researcher can get a better understanding of the thing that is being investigated if he/she views it from different positions (Denscombe 2010, p. 346)

Triangulation improves accuracy if findings are validated, and a fuller picture is seen through the use of complementary data. This is particularly relevant in research that is multidimensional and considers systems, as “researchers can use triangulation to get a fuller version or a version that incorporates different facets of the thing being studied” (Denscombe 2010, pp. 348-349). While noting that a risk of triangulation is that findings challenge each other rather than validate each other (Denscombe, 2010), this study found conflicting findings of interest, and an indication of areas worthy of exploration, either within this study or in future studies. Indeed in taking a systems perspective it is just these tensions that would remain hidden unless a mixed methods approach was taken and triangulation was used.

Triangulation can be applied in a number of different ways during analysis (Denscombe 2010, pp. 346-348), this study using four techniques, as illustrated in Table 6:

methodological triangulation (between methods) allows the findings of one methodological approach to be contrasted against another (such as qualitative and quantitative) allowing findings to be validated or questioned (e.g. between observations and food waste data).

methodological triangulation (within-methods) allows for the comparison of data collected using similar methodological approaches (e.g. results from patient experience questionnaire PE13 compared with results from lasagne questionnaire LSQ)

data triangulation (using contrasting sources of information) allows data on a similar theme but from different sources to be compared to test the validity of findings. This can be data from different informants (informant triangulation) (e.g. food waste figures from the

HB versus food waste figures gathered by the researcher), or gathered at different times (time triangulation) (e.g. patient experience in 2010 (PE10) against 2013 (PE13))

theory triangulation, which allows the use of differing theoretical frameworks to test data. To aid theory triangulation, three approaches were taken. Firstly themes drawn out in EPH (see Table 2 and Table 3) were used proactively in preliminary research design to frame the lines of enquiry and the data gathering methods. Secondly the principles of EPH were used within the analytical framework (Table 6) and to identify and explore gaps. Thirdly, in the case of SLB, the explanatory nature of Lipsky's (2010) approach was drawn on after data had been gathered and preliminary analysis had taken place to unravel the intricacies of the behaviour of workers and the context and nature of hospital work.

Denscombe (2010, p. 349) points to the limitations of triangulation as a data gathering and analytical approach in research. He proposes that:

triangulation cannot prove that the researcher 'got it right'. In nature of the view of social reality and the nature of social measurement devices, triangulation's potential needs to be seen more cautiously as 'providing more support', 'increasing confidence' and 'reducing the probability of error (Denscombe 2010, p.349)

Given the volume and diversity of data collected, an approach actively sought given the nature of the principles drawn on from EPH, managing data into cohesive and thematic chapters came over time. As data was analysed and triangulated, themes emerged, gaps became clear and new underlying questions arose. New lines of analysis within the collected data were then undertaken accordingly. What is described above explains a methodological process that both guided and developed during the research process.

The forthcoming data presentation chapters (chapter four and five), which follow from a chapter on policy and current practice, present data that is in part quite raw and descriptive (e.g. trolley waste data), and in part that has been through a more developed analytical process (as shown in Table 6). For the discussion chapter six, the researcher revisits the research questions and draws on the data collected and presented to address research questions one and two. In the thesis conclusion, EPH is returned to in response to research question three.

2.7.4. Analysis and the systems perspective

Some advocate that in systems based research, cause and effect relationships between component parts of a system should not be considered⁷⁴ as the concern is discovering “forces that influence the system as *a whole* (or results which the system as a whole will contain)” (Arbnor and Bjerke 2009, p. 64). Such ‘forces’ may be within the system structure and may take different forms, for example,

- A particular subset of component parts within the system that may have varying levels of success in responding to a desired system outcome in comparison to a different subset of component parts
 - A goal, as accepted by the system
 - The practice or aspirations of actors within the system
- (Arbnor and Bjerke 2009, p. 64),

Despite such cautions, this study did not presume that the HFSS under investigation had one accepted goal, or indeed that there was no link between cause and effect. Indeed, a change in policy through the Standards caused changes at hospital level by stimulating menu planning, and the difference in patient experience was then investigated. Here, the change in policy could be deemed a ‘force’ that influenced the system, and the importance of specific ward level practices could be seen as a component part.

As a final point, knowledge generated by studies using the systems view is not considered to be widely generalisable. Instead it is considered to be ‘system-dependent’ knowledge, relational to the system/context studied, and perhaps to the type of system studied (Arbnor and Bjerke 2009, p. 67). In this respect it is the methodological approach that is tested in this study, and may provide value in other settings. While the findings may not be generalizable in some senses, they are of value in better understanding the complexities of the intersection between policy and practice, the opportunities and challenges in using the principles of EPH to frame research, the tensions and successes in HFSSs, and the opportunities for practice and policy change.

⁷⁴ a systems approach does not consider variables, independent or otherwise

2.8. Ethical considerations

As is usual, PhD research is bound by internal ethics procedures and was dependent on ethical approval before fieldwork began. Cardiff University's School of Planning and Geography's internal ethical approval procedures were followed: approval was in two stages, as the initial methodological approach expanded to involve direct patient contact through questionnaires. The following documents were submitted for approval:

- Ethical approval forms (version 1 at Appendix 2 and version 2 at Appendix 3)
- Project proposal
- Participant information sheets (patient information sheet at Appendix 18 and Appendix 19, interviewee participation sheet at Appendix 15 and ward staff at Appendix 17)⁷⁵
- Interviewee consent form (Appendix 16)

In preparing these documents, Economic and Social Research Council (ESRC) guidelines (Economic and Social Research Council 2010) were drawn on, and their six key principles were followed (see Figure 9). In addition, guidance was followed on the preparation of consent forms (Social Care Institute for Excellence 2010).

Figure 9. Six key principles of ethical research

1. Research should be designed, reviewed and undertaken to ensure integrity, quality and transparency.
2. Research staff and participants must normally be informed fully about the purpose, methods and intended possible uses of the research, what their participation in the research entails and what risks, if any, are involved. Some variation is allowed in very specific research contexts for which detailed guidance is provided in Section 2.
3. The confidentiality of information supplied by research participants and the anonymity of respondents must be respected.
4. Research participants must take part voluntarily, free from any coercion.
5. Harm to research participants must be avoided in all instances.
6. The independence of research must be clear, and any conflicts of interest or partiality must be explicit.

Economic and Social Research Council (2010, p.3)

⁷⁵altered to anonymize the identity of the HB

Moving beyond the requirements of Cardiff University, research approval is complicated and time consuming to obtain in the hospital context. Three routes in were essential for all elements of the research to begin: firstly, establishing connection and trust with the primary gatekeeper (the Head of Support Services) and establishing joint consensus that the proposed study was of value both independently and in the potential for reflexive learning for the HB. Secondly, NHS ethical approval protocol was followed, which asks for key gatekeepers⁷⁶ to approve the research. Finally, once permission was granted, a further set of gatekeepers, the ward level managers, controlled access to the wards, and permission was sought directly from this group by the researcher.

All studies taking place within the NHS must be categorized using approved guidance routes, and protocols followed accordingly. The purpose of this additional reviewing process is to “protect the rights and safety of research participants and enables ethical research which is of potential benefit to science and society” (National Research Ethics Service 2009, p. 2). Using National Research Ethics Service (NRES) guidance, the study was classified as ‘service evaluation’ as the study was “designed and conducted solely to define or judge current care” (National Research Ethics Service 2009, p.3). As ‘service evaluation’, the study was not regulated by the NRES as it “involve[s] minimal additional risk, burden or intrusion for participants” (National Research Ethics Service 2009. p.1).

‘Service evaluation’ however does require approval by the HB Research and Development (R&D) team. A similar set of documents as those prepared for Cardiff University ethics approval were forwarded to the HB R&D team⁷⁷. As a final administrative procedure that is usual in this field, the R&D team at the HB were required to issue a ‘research passport’ for the researcher. This was co-ordinated by the Human Resources team at Cardiff University, and required the completion of a ‘research passport’, a Criminal Records Bureau check, curriculum vitae, official identification documents, two references, evidence of qualifications, verification of permission to work/study in the UK and occupational health

⁷⁶ in this case the Head of Support Services and the Head of Patient Experience

⁷⁷ The primary difference in communication with the HB in comparison with Cardiff University’s ethics panel was the use of the terms ‘foodservice evaluation’ to describe the study and the use of ‘sustainability’ (to include nutritional sustainability) rather than ‘Ecological Public Health’. This decision was undertaken by the researcher to aid clarity and simplify communication as the concepts are similar in nature within this context, and EPH is as yet not a commonly understood paradigm. To aid transparency, the differences in terminology were made explicit in communications with the R&D department, but not discussed with potential research participants

screening approval. Following this process, approval was granted, covering a two year period, confirming the categorization of 'service evaluation'.

In line with the ethical protocol documents submitted, all semi-structured interview participants were forwarded a participant information sheet via email before the interview (Appendix 15), a paper copy was gone over with the researcher, and consent form (Appendix 16) signed before the interview took place. Anonymity was given to study locations and participants, coded names used in data gathering, transcription, analysis and data presentation. Participants were advised that they could access their interview transcriptions at any point, and if they withdrew from the study, they could request that all interview data be destroyed and non-public data shared could be excluded from the study.

Before conducting ward level data collection, direct permission was sought from the ward manager⁷⁸, an explanatory letter emailed to the ward (Appendix 17), and a research date was agreed. Due to shift patterns and irregular working hours the researcher made a courtesy call the day before data gathering for a final check, and to note the name of the manager available on the data gathering days. Two days were spent on each ward, and on both days, on arrival at the ward, a tour was made to identify patient exclusions, which were noted on a bed plan (see example at Appendix 10). Patient exclusions were made by the ward manager on the basis of cognition, severity of illness and nutritional status (those who were not eating solid food from the main menu were excluded). Further exclusions were made when patients were in isolation, e.g. if they had a contagious condition.

In addition to the printed materials sent to the ward manager, the study was explained verbally to staff members and verbal consent was sought before any informal interviews and observation took place. All potentially participating patients were given information sheets (see Appendix 18 and Appendix 19) and due to the varied conditions and ages of the patients, the information sheet was explained verbally by the researcher. As well as ensuring consent robustly, the verbal exchange allowed the researcher also to exert judgement on the suitability of the patient for inclusion in the study. As Table 7 shows, 104 patient experience questionnaires (PE13) were completed. 63 patients were excluded by staff and a further 58 were excluded by the researcher. In the majority of cases this was

⁷⁸Job titles varied and could include Ward Manager, Sister and others

because they had been in hospital for less than a day, or had not eaten. In a small number of cases patients were not cognitively able, were sleeping or had been transferred and had completed the questionnaire in another ward. Four patients chose not to participate.

Table 7. Patient experience questionnaire, PE13: patient numbers

Patient number, PE13 ⁷⁹	Hospital and ward number									TOTAL
	H1, W1	H1, W2	H1, W3	H2, W1	H2, W2	H2, W3	H3, W1	H3, W2	H3, W3	
No. beds on ward ⁸⁰	12	30	30	32	26	24	31	29	25	239
No. excluded by staff	0	0	16	1	14	5	9	6	12	63
No. excluded by researcher	4	8	6	20	1	1	5	6	7	58
Total patients excluded	4	8	22	21	15	6	14	12	19	121
No. didn't want to participate	1	0	0	0	0	2	1	0	0	4
No. completed PE13	7	13	12	12	10	15	14	15	6	104
Total completed PE13 by hospital	32			37			35			104

For the lasagne micro-study, to eliminate bias, before the meal, patients were not told that the study would be about lasagne, or that it would be looking at plate waste. In addition, staff were not told that that lasagne was the dish being studied. As shown in Table 8, 38 patients took part in the questionnaire LSQ: ten patients were excluded in line with previous exclusions. As no patient contact was needed to record food served and left uneaten, this plate data (shown as LSP) was unaffected by exclusions, and data from all 48 plates was recorded.

Table 8. Lasagne micro-study: patient numbers

Lasagne study: patient numbers	Hospital and ward number									TOTAL
	H1, W1	H1, W2	H1, W3	H2, W1	H2, W2	H2, W3	H3, W1	H3, W2	H3, W3	
No. who ate a main hot lunch	3	11	19	9	22	18	27	23	22	154
No. who chose lasagne	2	6	5	5	1	7	7	13	2	48
% of hot meals served that were lasagne	67%	55%	26%	56%	5%	39%	26%	57%	9%	31%
No. excluded by staff/researcher	0	0	0	2	0	1	1	4	0	8
No. ate LS but didn't want to participate	0	0	0	0	0	2	0	0	0	2
No. completed LSQ	2	6	5	3	1	4	6	9	2	38

⁷⁹ Where patient numbers do not add up in this table, it is due to unoccupied beds and to the change in patient numbers over the two day study period on each ward

⁸⁰ Not all beds were occupied during the study period, and occupied bed numbers could change over the two day study period on each ward. Overall, 88% of beds were occupied on the case study wards during the research period. This figure is low as H1W2 was operating at just 50% capacity as the consultants related to that field were undertaking training

For patient questionnaires PE13 and LSQ, the researcher completed the questionnaires with the patient, talking them through the questions and gathering Likert scale responses using a large font prompt sheet. As well as facilitating rich data collection from the qualitative responses, and capturing incidental data, this approach allowed the researcher to treat each patient participant as an individual, being mindful of suitability both for the robustness of data and for patient wellbeing. This was an ongoing reflexive process throughout every face to face questionnaire. On one occasion the questionnaire was stopped as the patient was clearly confused, and on another, the questionnaire was completed in two parts as the patient felt unwell. As it is often the most vulnerable in hospitals who are least able to participate in such research, a final benefit of this face to face approach was that it encouraged such participation: data was gathered from one elderly blind participant, from a number who were unable to speak, and from some whose manual motor skills limited self-completion. In this way, the researcher ensured maximum participation from as broad a patient group as was possible given the limitations of the situation.

2.9. Data protection and data use

Data is held in the form of recorded interviews, field notes, transcripts, questionnaires and institutional documents, and is kept in accordance with the UK Data Protection Act 1998. Only original formal interview documents include respondents' names – all other data, with the exception of HB documents, was anonymised. The data is held on a password protected home computer and in hard copy form in a secure environment. Some data was procured and/or saved via email communication. In this case the email account is protected by passwords and only accessible to the researcher.

As stated on the participant information sheet, the data collected was used to support a PhD Thesis at Cardiff University, to which the participants can have full access. The final document will be available through Cardiff University's online digital repository for research output, Orca, and some data may be used in future academic journals, publications and other formats following the same confidentiality arrangements. The researcher also used the data to produce two reports for the HB (McWilliam 2013a, b). In addition a PowerPoint

presentation of the findings was produced by the researcher and shared with the HB at a two hour seminar in September 2013. Many of the interviewees were present. The reports and the presentation were shared via email with the Head of Support Services, and permission was granted by the researcher for their use internally. Due to further commitments, the researcher had to decline the invitation to present the findings more widely to internal HB teams, but the HB chose to circulate these resources themselves internally and at an external forum⁸¹.

⁸¹ In later correspondence with the HB, they confirmed that the data has stimulated a number of behaviour change initiatives, particularly around the monitoring and reduction of waste. The HB chose to share the findings at a wider Welsh Catering forum, and are planning to work with the Waste and Resources Action Programme (WRAP) on waste reduction measures

Chapter 3: The policy and practice of the hospital foodservice system: business as usual or towards Ecological Public Health?

As discussed in Chapter one, there is a role for the state in promoting greener practices (Eckersley 2004) and greater EPH (Lang et al. 2009), in particular through mechanisms directed at the public sector (Morgan 2008). Public policy reflects the state's commitments, and "is concerned with how issues and problems come to be defined and constructed and how they are placed on the political and policy agenda" (Parsons 1995, p. xv). While many governments commit to sustainable approaches in policy, including Wales, where sustainable development is embedded at the legislative level, literature shows that sustainability is often approached in fragmented ways.

A new role is suggested for policy frameworks in relation to food systems: one that combines nutrition and sustainability. In this new framing, the "moral compass for nutrition science is recalibrated, providing the reason to help resolve humanity's need to eat within ecological space" (Lang and Barling 2013). Here the policy role is redefined as a mechanism connecting previously fragmented areas of concern, and providing direction and guidance for food systems, bringing the concerns of nutritional wellbeing and sustainable practices together. Yet policy fields, particularly in areas relevant to food, are often fragmented and disconnected:

Not only do nutrition and food policies, environmental policies, and health and social cohesion policies seldom link to one another, but explicit policies for sustainable consumption in general and for food consumption in particular are uncommon (Reisch et al. 2013, p. 17)

In order to understand the mechanisms through which EPH in hospital food systems may be addressed, this chapter explores policy and practice in hospital food systems. The chapter starts with an overview of multi-level governance in the policy context around two themes, which at times may interconnect: nutritional care in hospital food, and sustainability in the hospital foodservice system. The section will include a more detailed look at key Welsh

Government and NHS Wales policy, as this forms the context for the following case study. Later in the chapter, examples of hospital foodservice systems (or elements from within the system) will be explored, and consideration will be given to how practice reflects the policy context.

3.1 Multi-level governance in the hospital foodservice system

Multi-level governance (MLG) is defined as:

a system of continuous negotiation among nested governments at several territorial tiers – supranational, national, regional and local – as a result of a broad process of institutional creation and decisional relocation that has pulled some previously centralised functions of the state up to the supranational level and some down to the local/regional level (Marks 1993, p. 192)

Although policy is often most powerful at national level, food related policy is often active at multiple levels, driven also by the international and local policy context (Lang et al. 2009). In addition, actors can be multiple, working both within and beyond the state. As such, this section will explore the drivers of sustainability and nutritional care in hospital food systems through the framework of multi-level governance (MLG), as a means to investigate the complex, connected and potentially fragmented policy landscape, and look beyond to the role of non-state actors.

As discussed, the HFSS is considered by Sullivan and Atlas (1998) as comprising of seven interconnecting subsystems⁸². To provide focus to the case study, a number of key subsystems are explored: menu planning (including the role of procurement in the menu planning process) and food service. Throughout this chapter key themes relating to sustainability and nutritional care in hospital food systems may reflect, or indeed unearth, gaps in relation to these key subsystems.

The MLG landscape will consider the European and selected national UK governance structures in relation to nutritional care and sustainability in the HFSS. Responsibility for

⁸² Menu planning, equipment selection and design, food purchasing, food production, food service, personnel and finances

health care in the UK falls to each individual government, and is overseen by the National Health Service in England, NHS Wales, NHS Scotland and Health and Social Care Northern Ireland (HSCNI). As such, elements of governance relating to hospital food and nutrition are devolved and may differ across the UK nations. At UK level, the chapter will focus on England and Wales at the national scale. Wales, being the focus of the case study explored in following chapters, will provide the fullest exploration of governance systems, and England is also explored as an opportunity to illustrate the nature of different national approaches. The following examples towards the end of the chapter will draw more broadly from across the globe where possible to highlight how practice on the ground is being delivered, and what mechanisms underpin delivery.

3.1.1. Nutritional care and sustainability in hospitals in the EU

The European Union (EU) does not have sizable administrative responsibilities in the area of health care. Despite the lack of binding European legislation on nutritional care in hospitals, the Council of Europe⁸³ recognised the importance of hospital food through its 2003 resolution on food and nutritional care in hospitals (Council of Europe 2003). In a forum convened in 2001 under the Directorate General for Social Cohesion⁸⁴, the aim was to put forward a set of recommendations designed to address widespread undernutrition in hospital patients. The context and aspirations were summed up in the welcoming address to the forum:

We should no longer tolerate excuses on cost grounds for not delivering adequate nutritional care to patients since the benefits of preventing undernutrition clearly outweigh the moderate costs of proper food service. Hospital administrations should acknowledge responsibility for the nutritional care of patients and foster co-operation among staff and patients to ensure that recommendations are carried out. It is high time that we deliver to the European hospital patient on this point (Council of Europe 2001, p. 19)

The resulting recommendations were formalized into a resolution, which although not legally binding, were designed to add political weight (Council of Europe 2001). The resolution, summarised into ten key characteristics of good nutritional care in hospital (shown in Figure 10), illustrates the multidimensional nature of nutritional care.

⁸³ Europe's leading human rights organisation with 47 member states and 28 EU members

⁸⁴ the Directorate General for Social Cohesion addressed problems in the social and health arena, and now operates under the European Commission for Social Cohesion

Figure 10. Ten key characteristics of good nutritional care in hospitals

- All patients are screened on admission to identify the patients who are malnourished or at risk of becoming malnourished. All patients are re-screened weekly.
- All patients have a care plan which identifies their nutritional care needs and how they are to be met.
- The hospital includes specific guidance on food services and nutritional care in its Clinical Governance arrangements.
- Patients are involved in the planning and monitoring arrangements for food service provision.
- The ward implements Protected Mealtimes to provide an environment conducive to patients enjoying and being able to eat their food.
- All staff have the appropriate skills and competencies needed to ensure that patient's nutritional needs are met. All staff receive regular training on nutritional care and management.
- Hospital facilities are designed to be flexible and patient centred with the aim of providing and delivering an excellent experience of food service and nutritional care 24 hours a day, every day.
- The hospital has a policy for food service and nutritional care which is patient centred and performance managed in line with home country governance frameworks.
- Food service and nutritional care is delivered to the patient safely.
- The hospital supports a multidisciplinary approach to nutritional care and values the contribution of all staff groups working in partnership with patients and users.

Council of Europe (2003)

In order to deliver sound nutritional care, the importance of the systemic approach (characterised as a chain), along with integrated multidisciplinary approaches was seen:

Several actions must take place, and many in a coordinated way, to secure the patient an adequate food intake during hospital admission (Kondrup 2001). These include: 1) screening of patients to identify those at nutritional risk, 2) the monitoring of dietary intake, 3) modifying the hospital menu according to patient preferences, 4) ensuring that serving and ambience of mealtimes are focused on the patient with reduced appetite, and 5) proper food preparation and distribution. It is a complex set of tasks that can be depicted as a food chain. A weak link in the chain may have negative consequences on the food intake of the patient and ultimately on patient outcome (Allison & Stanga 2000). Consequently, a prerequisite for proper hospital nutrition is that all stages in the provision of food from nutritional risk screening and menu design to distribution and serving must be dealt with adequately.

It is important to realise that food is more than therapy (the domain of the physician). Food is also care (domain of the nurse), taste (domain of food service), cost (domain of the administration) and joy (domain of the patient). The involvement of the many stakeholders in hospital food effectuation highlights one major challenge of how to cooperate to prevent undernutrition. (Dr Lars Ovenson in Council of Europe 2001, p. 46)

Here menu planning and food service are considered fundamental to nutritional care, although food quality is framed solely in relation to post procurement practices, namely taste, as related to food service practices. The importance of local organisational mechanisms and practices that promote multidisciplinary involvement in supporting nutritional care are explicit. Dr Overson notes the importance of the social and cultural nature of hospital food itself: food as joy (the cultural dimension) and food as care (the social dimension) (Dr Lars Overson in Council of Europe 2001, p. 46).

Pan-European work began in 1999 when the Council of Europe formed a group on Nutrition Programmes in Hospital, tasked with reviewing current practice, suggesting multidisciplinary routes forward, and issuing guidelines (see Council of Europe 2001). This group identified five consistent barriers to adequate nutritional care in European hospitals:

1. Lack of clearly defined responsibilities in planning and managing nutritional care.
2. Lack of sufficient educational level with regard to nutrition among all staff groups.
3. Lack of influence of patients.
4. Lack of cooperation between different staff groups.
5. Lack of involvement from the hospital administration.

Council of Europe (2001, p. 48)

The Council of Europe work does not signpost any set nutritional standards or sustainability criteria for hospital food, instead contextualising adequate nutritional intake as linked to a more holistic set of characteristics: the ten key characteristics for nutritional care in hospitals (see Figure 10). These characteristics clearly suggest that guidance on nutritional care should be set at local level, but in asking that such guidance be included in a hospital's Clinical Governance arrangements, the status of, and accountability for hospital food is given parity with other clinical concerns.

3.1.2. The European level: policy framing for sustainable hospital foodservice systems

The European landscape appears to dominate generally in two areas linked to sustainability in HFSSs: procurement and food waste, although there is evidence of systemic approaches.

Guidance exists that both links these areas (e.g. 'resource efficient Europe' (European Commission 2011)) and treats them separately (e.g. through directives).

Europe 2020, the EU's ten year growth strategy asks that European growth be smart, sustainable and inclusive, and includes a greenhouse gas reduction target of 20%⁸⁵. One of seven flagship initiatives, 'resource efficient Europe' (European Commission 2011) is particularly relevant to hospital food systems, in identifying food as a primary user of resources⁸⁶, recognising the importance of resource efficient products and services, and highlighting waste reduction as a mechanism for resource efficiency. The document recognises the systemic nature of resource efficiency:

Resource-efficiency policies need to address appropriately trade-offs. In order to make the right choices both now and for the longer term, we need to consider the whole life-cycle of the way we use resources, including the value chain, and the trade-offs between different priorities. (European Commission 2011, p. 4)

Literature suggests that trade-offs in the arena of hospital food can be explored through procurement, menu planning, choice availability and food waste patterns, and can only be collectively addressed through systems approaches.

In their roadmap communication on resource efficiency, food is a key sector:

The food and drink value chain in the EU causes 17% of our direct greenhouse gas emissions and 28% of material resource use, with our consumption patterns having global impacts, in particular related to the consumption of animal proteins. It is a major user of high-quality water, which is essential for its success. However, in the EU alone, we waste 90 million tonnes of food every year or 180 kg per person. Much of this is food, which is still suitable for human consumption (European Commission 2011, p. 17)

The communication proposes that by 2020 incentives should be in place to encourage public authorities to choose the most resource efficient products and services⁸⁷, and a clear milestone sets out the role for procurement and food waste reduction initiatives, directly linking health and sustainability:

Milestone: By 2020, incentives to healthier and more sustainable food production and consumption will be widespread and will have driven a 20% reduction in the food chain's resource inputs. Disposal of edible food waste should have been halved in the EU (European Commission 2011, p. 18)

⁸⁵ against 1990 levels

⁸⁶ E.g. water

⁸⁷ Through pricing and clear display of environmental information

Procurement is mostly widely framed as the primary mechanism for embedding sustainability in hospital food systems, as discussed in the literature review, and is the element of hospital foodservice most heavily dominated by European legislation. In January 2014 EU rules on public procurement were updated under the Public Contracts Directive 2014/24/EU to allow for awards on environmental and social grounds, and to include innovation as a consideration in the award process. The aim of the changes was also to encourage more SME engagement and to allow public authorities to procure goods and services in line with local priorities.

With new criteria underpinning the conditions for the 'most economically advantageous tender' (MEAT), contracts can be awarded on terms other than cost, allowing quality, social and environmental issues and innovation to be given greater emphasis. The implications were highlighted positively by the European Parliament's rapporteur for procurement, Marc Tarabella: "the new criteria will put an end to the dictatorship of the lowest price and once again make quality the central issue," (European Parliament News 2014).

That EU procurement rules have blocked more sustainable forms of procurement has been a central theme both in academic literature and in practice, Reisch et al. (2013) noting their use in countering national initiatives: Sweden was asked by the EU to remove its proposed guidance on climate-friendly food choices as they were seen to run counter to free trade within Europe (European Parliament 2011). Just what difference the 2014 changes to EU legislation makes to national and local policy remains unknown.

Food waste, an indicator of the sustainability of food systems (Garnett 2008), falls under the legislative framework of the EU Waste Framework Directive (2008/98/EC). Governing waste disposal methods that limit harm to humans and the environment, the directive also highlights the use of the waste hierarchy structure under which member states must firstly encourage the prevention or reduction of waste. In a paper on EU food waste prevention (European Union Committee 2014), the British Government's European Union Committee recognises the implications of food waste, the importance of the EU and an integrated multi-level approach:

The waste of environmental and economic resources represented by food waste is a serious cost to society that needs to be urgently addressed. At a strategic level, this is a task for the European Commission, working with the Member States, but it is also one that can be

tackled at a local and, even, individual level. There is much to do, but we were nevertheless encouraged by examples given during the inquiry of actions that have already been taken. There is clearly plenty of emerging willpower to address the issue. What is now required is coordination of those efforts within a clear and urgent framework for action. (European Union Committee 2014, p. 5)

A number of recommendations on food waste prevention are made in the paper that are particularly salient in the HFSS context: that across Europe food waste reporting mechanisms should be reformed to allow for more transparent identification of waste patterns; all elements within the food chain must be included in waste reduction initiatives; and that at EU level, consideration be given for the setting of ‘aspirational targets’ for waste reduction within food chain levels.

Such documents illustrate the importance of Europe as a legislative leader (e.g. in procurement), as a signposting service for models of good practice (the waste hierarchy) and as a promoter of systemic thinking in relation to food (‘resource efficient Europe’). Documents also illustrate that this area is in transition, with developing knowledge networks and a number of mechanisms at its fingertips. The amended procurement directive for example has clarified that price should not dominate procurement decision making, and the European Union Committee has identified knowledge gaps and identified regulatory initiatives⁸⁸ that could drive practice change.

The following section will now explore how nutritional care and sustainability in HFSS is embedded in the UK. Due to the devolved nature of UK governments, policy governing HFSSs operates at national level, and as such the following section will focus firstly on England and then on Wales. To aid focus, the policy context in Scotland and Northern Ireland will not be covered.

3.1.3. The UK: policy frameworks for nutritional care and sustainability in hospitals

a. England

That hospital food in England is an area under intense scrutiny into the 21st century is clear from Sustain’s report, ‘Yet more hospital food failure’ (Dalmeny and Jackson 2010). Charting a period beginning in 1992, but primarily focusing on the years 2000 to 2010, a picture

⁸⁸ E.g. binding waste reduction targets and voluntary initiatives such as waste reduction agreements

emerges of well intentioned, but ill-fated, state-funded initiatives which have cost the public purse around £54 million. Initiatives vary in their focus and illustrate the multidimensional nature of hospital food, many using the mechanism of procurement as a tool to promote more sustainable practice⁸⁹, some aimed at improving the consistency of high quality and nutritious food⁹⁰ and some intended to improve patient nutrition and fluid intake⁹¹.

Despite the robust intentions behind many of the hospital food initiatives outlined, there were numerous reasons for their failure: initiatives were unwieldy, went unnoticed in hospitals, were poorly understood, lacked direction on accountability for implementation, suffered due to dwindling financial support, had limited take-up, failed to become embedded in practice, lacked adequate staffing capacity and were voluntary rather than mandatory (Dalmeny and Jackson 2010). While the consequences of these failures represents a cost of £54 million on the surface, their full cost is inestimable with regards to lost potential for: economic development through local procurement strategies; improved biodiversity and social capacity through ethical procurement; improved environmental impacts through related menu planning, procurement, production and waste management techniques; and the multi-impact potential of improved patient nutritional intake.

State developments in England have until recently centred on producing more guidance around hospital food and continue to shun specific standards, which are in place in both Wales and Scotland. A set of eight principles for hospital food (see Figure 11), announced by Jeremy Hunt, Health Secretary, in October 2012 showed attention to nutritional care through food quality, choice and access, and had implications for sustainability through the Government Buying Standards (GBS) for Food and Catering. In light of the lack of mandatory standards, Lady Cumberlege introduced a private members bill, the Health and Social Care (Amendment) (Food Standards) Bill [HL] 2013-14, in a bid to establish mandatory legislation. Despite having passed through the House of Lords to the House of Commons, without current governmental support the Bill will not pass into law, but it has raised the profile of hospital food in both media and policy circles.

⁸⁹ Such as the PSFPI (Public Sector Food Procurement Initiative) (run by Defra, 2003-2009) and the Sustainable Procurement Task Force

⁹⁰ Such as the Better Hospital Food Programme (costing £40 million, run by the NHS from 2001-2006)

⁹¹ Such as *Nutrition Now!* (run by the Royal College of Nursing in 2007)

Figure 11. Principles of NHS hospital food, England

- nutritious and appetising hospital food and drink is essential
- patients get a choice from a varied menu - including meals suitable for religious needs
- all patients should have access to fresh drinking water at all times, unless it contradicts clinical advice
- food and drink should be available at all times, not just planned mealtimes
- hospitals should promote healthy diets to staff and visitors
- the Government Buying Standards for Food should be adopted as standard whenever possible
- hospitals should regularly evaluate their food service and act on feedback from patients
- the NHS as a whole should look for and reward excellence in hospital food.

Department of Health (2012a)

In response to the national cry for guidance on hospital food, the Department of Health made explicit the Government's route of choice: it intends to embed improvement in hospital food through 'instruction, incentives and inspection' (Department of Health 2014a), convening the Hospital Food Standards Panel⁹² (HFSP) to guide elements of this work. Reporting their recommendations on 29th August 2014, the HFSP report (Department of Health 2014b) marks a new chapter for hospital food in England.

The HFSP's aim was not to create new standards, the report signposting five existing standards as 'required practice' in all NHS Hospitals⁹³. Another three tools and schemes are 'recognised' "to support improvement and reward excellence"⁹⁴ (Department of Health

⁹² The Hospital Food Standards Panel was made up of public sector organisations, professional bodies and NGO organisations whose role it was to categorise existing standards

⁹³ The 10 key characteristics of good nutritional care from the Nutrition Alliance, the Nutrition and Hydration Digest (The British Dietetic Association), the Malnutrition Universal Screening Tool (British Association of Parenteral and Enteral Nutrition) or equivalent validated nutrition screening tool, Healthier and More Sustainable Catering – Nutrition Principles (Public Health England), the Government Buying Standards for Food and Catering Services from the Department of Environment, Food and Rural Affairs

⁹⁴ The Plan for Public Procurement of Food and Catering Services – Balanced Scorecard, a number of Responsibility Deal Pledges and the Soil Association's Food for Life Catering Mark assurance scheme

2014b). The outcomes from the HFSP, to be formalised in the NHS Standard Contract (with which compliance is mandatory), along with Care Quality Commission⁹⁵ guidance, are now the primary mechanisms for ‘instruction’ on improving hospital food in England. Within the report, for the first time, three elements of good food in hospital have been identified together that frame food in hospitals more widely, and are pertinent for the principles of EPH. These three elements cover the nutrition and hydration needs of patients, healthier eating for the wider hospital community (including staff and visitors), and the sustainable procurement of catering services and food (Department of Health 2014b, p. 3), demonstrating a broad commitment to patient, staff and visitor health and wellbeing, public health, sustainability, and the interconnections between all three.

In developing a deeper understanding of MLG, Bache and Flinders (2004) propose a number of additional conditions of MLG, three of which are worth noting in the context of current development on the governance of hospital food in England. Firstly, the increased participation of non-state actors at multi levels is recognised. Indeed there are numerous examples of non-state actors in current state-recognised hospital food improvement mechanisms, such as the participation of professional bodies, NGOs and private companies on the HFSP. A new ‘incentive’ launched in early 2014, the CQUIN⁹⁶, also supports the participation of non-state actors. The CQUIN for improving hospital food allows the embedding of improvement targets within commissioning frameworks. While developed by the state (through the Department of Health), CQUINS signpost non-state initiatives⁹⁷ and professional body guidance⁹⁸ alongside governmental standards⁹⁹ to provide guiding frameworks against which a CQUIN can be awarded for improving hospital food. Finally, non-state actors are key in delivering state-endorsed inspection mechanisms: patients are

⁹⁵ Care Quality Commission guidance is underpinned by regulations. “All healthcare organisations must register with the CQC, whose powers are enshrined in law. The department is currently updating the CQC’s registration requirements to include new fundamental standards of care that all providers will have to meet, and the CQC is developing compliance guidance” (<https://www.gov.uk/government/news/hospital-food-standards-sustain-campaign>)

⁹⁶ CQUIN stands for ‘commissioning for quality and innovation’. Each CQUIN relates to a key area for improvement, and in commissioning through a CQUIN, a proportion of the annual budget is released to an English NHS Trust in relation to key pre-set milestones being reached during the annual period of the commission.

⁹⁷ Such as the Soil Association’s Food for Life Catering Mark

⁹⁸ Such as the British Dietetic Association’s Nutrition and Hydration Digest

⁹⁹ The Government Buying Standards for food

key in leading on Patient Led Assessments of the Care Environment (PLACE) inspection regimes.

A second consequence of MLG is that “the identification of discrete or nested territorial levels of decision making is becoming more difficult in the context of complex overlapping networks” (Bache and Flinders 2004, p. 197). Indeed those outside traditionally state dominated domains (i.e. policy making) are recast as actors in multi-level territories: e.g. the NGO Soil Association sits as a representative on the Hospital Food Standards Panel (HFSP), their initiatives are recognised as incentives and at inspection¹⁰⁰, and they are delivery agents on hospital improvement on the ground. In addition the general shift in food production methods towards an outsourcing model has fragmented the supply chain and delivered more diffuse and less transparent working practices where governance systems may be dominated by the interests of private companies rather than state motivated standards.

Thirdly, Bache and Flinders propose that “in this changing context the role of the state is being transformed, as state actors develop new strategies of coordination, steering, and networking to protect and, in some cases, enhance state autonomy” (2004, p. 197). Indeed this is well reflected in current state approaches to improving hospital food in England where the state has blocked the development of new standards and of legislation, instead co-ordinating steering through networks such as the HFSP. Yet arguably, despite the proliferation of non-state actors, the state is maintaining its autonomy through mechanisms that are state controlled such as the GBS and the CQUIN.

Currently in England, the Government Buying Standards (GBS) for food and drink (Department for Environment Food and Rural Affairs 2013) will become the required procurement standards for hospital food, due to their inclusion in the HFSP report (Department of Health 2014b). Holistic in approach, the GBS frame sustainable food procurement as: contributing to a healthy diet (e.g. reduced fat and salt); supporting a thriving and competitive food industry (e.g. SME engagement); promoting high animal health and welfare standards; and delivering improving environmental impact throughout

100 Through the Food for Life Catering Mark

the lifecycle of the product or service (e.g. waste reduction and energy efficiency) (Department for Environment Food and Rural Affairs 2012).

The importance of sustainable procurement within the healthcare system is fortified in England by the Sustainable Development Unit. The Unit's 2014 'Sustainable Development Strategy for the NHS, Public Health and Social Care System' (Sustainable Development Unit 2014b) is ground breaking in that it joins these three domains (the NHS, public health and the social care system) for the first time, and sees them as explicitly interconnected. The document makes clear that responsibility for more sustainable practice works at multiple levels including local government, within organisations, in communities and at individual level, and without such integration, overarching healthcare objectives are threatened:

We are clear that we need to work in partnership not only within and across our organisations but also with our communities, to unleash the opportunities and benefits needed to improve genuine health and wellbeing. Unless we make working sustainably a priority all our other priorities could be undermined. (Sustainable Development Unit 2014b, p. 2)

Although carbon-centric in places, the strategy does generally take a wider interpretation of sustainability, acknowledging both environmental limitations and social welfare, proposing:

A sustainable health and care system works within the available environmental and social resources protecting and improving health now and for future generations. This means working to reduce carbon emissions, minimising waste & pollution, making the best use of scarce resources, building resilience to a changing climate and nurturing community strengths and assets. (Sustainable Development Unit 2014b, p. 5)

The strategy is clear that local priorities must drive, and its modular guidance documents are designed to facilitate the support of localised approaches. Clear in the procurement module is a strong commitment extending the impact of spending beyond the purely economic, in that "Every pound spent enables positive health, social and environmental outcomes" (Sustainable Development Unit 2014a, p. 2). Indeed, measures of success¹⁰¹, as shown in Figure 12, reflect new EU procurement legislation, and in the context of HFSSs suggest a landscape within which the concerns of EPH could be met.

¹⁰¹ i.e. how success will be measured in 2020

Figure 12. Commissioning and procurement: the measures of success by 2020

- Commissioning of programmes and services realise wider environmental and social benefits
- A responsible, whole lifecycle approach is taken to procuring products
- Commissioning organisations are key partners in enhancing the environmental, social and economic wellbeing of local areas
- Assessment of business cases, option appraisals and models of care redesign include social and environmental impacts alongside financial impacts

Sustainable Development Unit (2014a, p. 2)

Non-Government Organisations also have a leading role in waste reduction. Under the EU Waste Framework Directive (2008/98/EC), member states are obliged to produce waste prevention programmes, and in England, resource efficiency is a key driver: the waste prevention programme for England (H M Government 2013) signs initiatives to drive waste prevention¹⁰². Research funding for waste reduction in the NHS is pledged, and key partners in research and intervention initiatives across many sectors are not-for-profit organisation WRAP (the Waste and Resources Action Programme). Their 'Hospitality and Food Services Voluntary Agreement' is supported by all central government departments, and they have developed specific guidance for the healthcare sector (Waste and Resources Action Programme 2013).

While there is clearly an understanding that good nutritional care and sustainable hospital food practices have wide interconnected benefits, it is too early to say what impact the HFSP report will have. Where Scotland and Wales have one central policy each that condenses precise requirements for hospital food (augmented by other policy guidance), in England the HFSP report (Department of Health 2014b) has signposted five required standards and guidance documents that are diverse in nature. Just how these standards translate into practice change remains to be seen, particularly given the reliance on elements of self-reporting, and a slim inspection regime.

¹⁰² The GBS for food and drink has a mandatory requirement that 'Any contractor must take steps to minimise food waste in its on-site operation using the guidance provided to help decide what action they will take. Contractors should set out what they will do, and feed back to clients on progress and results' (<http://sd.defra.gov.uk/documents/spec-food-Nov2013.pdf>)

The following section will explore the governance landscape in Wales, the setting for the following case study.

b. Wales: Nutritional care and sustainability in hospitals

The Welsh Government (WG), known as the Welsh Assembly Government (WAG) until 2011¹⁰³, is the devolved government for Wales. Established under the Government of Wales Act 1998, greater powers and responsibilities were issued under the Government of Wales Act 2006. This included a statutory duty towards SD, and Wales remains one of the few countries in the world to have such a duty. There are 20 key areas in which Wales has devolved power from the UK government, many of which have significance for EPH such as: agriculture, fisheries, forestry and rural development; economic development; environment; food; and health and health services. In its devolved status, healthcare sits under NHS Wales, which consists of seven Local Health Boards and three NHS all-Wales Trusts¹⁰⁴. As a nation with powers over health and social services, the environment and SD, local government and communities, governance of Welsh HFSSs at the sub-European level operates independently from England. Before looking at practice, as the case study is sited in Wales, the chapter will now look at governance in Wales as linked to nutritional care and sustainability in the HFSS.

NHS Wales itself signposts the current WG SD Scheme, “One Wales: One Planet” (Welsh Assembly Government 2009) as its active reference point¹⁰⁵. The Scheme clearly presents the public sector as a vehicle within which to pursue more sustainable pathways, and the NHS is given a key role, action 14 stating that

We will ensure that sustainable development will be made a core objective for the restructured NHS in all it does, by giving clear duties to the new bodies to demonstrate best practice in planning and design, building, transport, waste management, and in the use of energy and water (Welsh Assembly Government 2009, p. 65)

Despite this mandate, links to procurement are not spelled out and there is a clear emphasis on hard facilities functions as mechanisms for more sustainable practices.

¹⁰³ In the following writing, for the sake of consistency, Welsh governmental documents will be referred to in the text as coming from the WG regardless of their authorship under the WAG or WG. The references will cite the original author.

¹⁰⁴ Public Health Wales, the Welsh Ambulance Service and Velindre which has responsibilities for specialist cancer services

¹⁰⁵ Referenced in NHS Wales governance e-manual in May 2014

Legislative change is in motion in Wales, as the Wellbeing of Future Generations (Wales) Bill, which encompasses SD, was laid before the National Assembly for Wales in July 2014. Drawing on extensive stakeholder engagement around Wales, open to individuals and all sectors, the Bill is directly applicable to the public sector placing a duty on public bodies (including the WG, local authorities and health boards) to meet its goals for a prosperous, resilient, healthy, equal, culturally vibrant and cohesive Wales (Welsh Government 2014a).

The Bill makes clear the goal of legislation for embedding sustainability into the long term aspirations and practices of the public sector:

The Bill confirms the aim of public bodies to improve the economic, social and environmental well-being of Wales in accordance with the sustainable development principle (Welsh Government 2014c)

That multiple levels of governance and differing mechanisms are intended is clear. The Bill itself sets top level goals and puts them into law, providing the overarching legislative framework. Named public service organisations then set their own objectives and undertake their own achievements locally, guided by the goals, thereby allowing local governance mechanisms to operate. Statutory partnerships are envisaged to support working at local level, and a range of other tools and mechanisms are envisaged such as the Sustainable Development Charter and sustainable procurement guidance and policy. These in turn facilitate closer working relationships with non-state actors such as the third sector and SMEs (Welsh Government 2014b).

The short-term future vision for NHS Wales is put forward in “Together for Health. A Five Year Vision for the NHS in Wales” (Welsh Government 2011c), developed with the input of many including the NHS, its partners, Trade Unions and Local Government. The document puts forward a vision for the newly reformed NHS Wales, including an early, clearly stated commitment to sustainability:

Sustainability lies at the heart of our agenda and good health is vital to the creation of a prosperous, successful, sustainable Wales. It will require action on many fronts not just in the traditional health sector. (Welsh Government 2011c, p. 1)

Despite this, sustainability is not specifically revisited within the document. Instead, seven key areas for change are proposed, some of which have implications for EPH within the HFSS

such as: a shift from treating sickness towards improving health; a focus on ‘excellence everywhere’ including better patient experience and reduced waste; and ‘making every penny count’, which considers the long term impacts of spending decisions.

Unlike England to date, Wales has hospital food and fluid standards that include nutrition. Introduced in 2011 the “All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients” (the Standards) (Welsh Government 2011b), drew strongly from Scotland’s standards. Underpinned by Standard 14 of the Standards for Health Services in Wales (see Figure 13) (updated in Welsh Government 2012), the Implementation Plan (IP) (Welsh Government 2011a) takes a stepped approach, and compliance was to be fully achieved by April 2013. The Standards heralded the culmination of years of governmental and public sector work to strengthen the position of nutrition and catering services in Wales, including a raft of historical policy making (outlined in Welsh Government 2011b, pp. 2-3). The Standards were also heralded in the press as a positive step towards improving nutritional outcomes in hospital patients and as a blueprint for good practice across the UK. These standards form part of a new wider Nutrition and Catering Framework for Welsh NHS hospitals, which includes the All Wales Nutrition Care Pathway for hospitals¹⁰⁶ (Welsh Assembly Government 2008a), All Wales Food Record Charts, and Daily and Weekly Intake and Output charts, designed to improve nutritional screening and monitoring throughout the patients’ hospital stays.

Figure 13. Standards for Health Services in Wales: Standard 14: Nutrition

Organisations and services will comply with legislation and guidance to ensure that:

- a) patients’ and service users’ individual nutritional and fluid needs are assessed, recorded and addressed;
- b) any necessary support with eating, drinking or feeding and swallowing is identified and provided;
- c) breastfeeding is promoted and supported.

Where food and drink are provided:

- d) a choice of food is offered, which is prepared safely and meets the nutritional, therapeutic, religious and cultural needs of all; and
- e) is accessible 24 hours a day.

Welsh Government (2012)

¹⁰⁶ introduced in 2009 on the recommendation of the “Free to Lead, Free to Care” report

The Standards (Welsh Government 2011b) (to be explored in more detail in Chapter 4) propose a new status for hospital catering, in aiming to raise the position of food provision in line with medical care and to establish catering as a clinical support service (Welsh Government 2011b, p. foreword). In this way, what was traditionally perceived as a vertically integrated (and poorly integrated) system, with catering perceived as lower in status than clinical care, has been reframed as a system that should be horizontally integrated at the local level.

The Standards document embeds a raft of measures designed to support nutritional care through, for example, adequate nutritional provision (e.g. standardized nutritionally analysed meals), monitoring mechanisms (e.g. assessing patient food needs and tracking intake), individualized nutritional care plans and feeding support, good eating environments and interdisciplinary working practices. Illustrating broad systems thinking akin to the proposals of EPH, the Standards also recognise the potential for increasing sustainability. Minimizing the environmental impact of hospital catering is highlighted in three ways: through appropriate menu planning, procurement of sustainable goods and waste reduction. As a further nod to integrating systems thinking, the document proposes that at menu planning and procurement stages there are many issues that should be considered for more sustainable catering services, including transport, packaging, energy and water use both outside and within the hospital in the making, processing and storing ingredients, and in the cooking and storage of meals (Welsh Government 2011b, p. 10). Also seen as key are high food service standards, which the document suggests may impact positively on patient satisfaction, such as menu variety, choice and portion size, the availability of hand washing facilities, eating implements and support. Local good practice systems thought to benefit patient intake, such as red trays and protected mealtimes, are also signposted.

Through these systemic elements there is a hint towards the concerns of EPH: the interconnectedness of social mechanisms, as enacted in food service; the embedding of environmental concerns in menu planning, procurement and production; the health impact of improving patient nutrition; and the economic recognition that “the cost of malnutrition to both patients and the Health Service cannot be overstated” (Welsh Government 2011b, p. 1).

Despite this holistic framing of catering impacts and the recognition of the potential to minimize negative impacts, there are some potentially contradictory elements. The principles of food choice and access enshrined in the Standards in particular have the potential to run counter to other agendas: with eight choices per main meal required¹⁰⁷ and three jugs of fresh water to be delivered daily to every patient, the scale of food and water waste could be enormous on a national scale¹⁰⁸. It is clear therefore that what the Standards embed is primarily nutritional in nature.

c. The changing procurement landscape in Wales

Procurement guidance in Wales clearly recognises the potential of public food to address social, economic and environmental impacts. In particular, the WG Sustainable Development Scheme (Welsh Assembly Government 2009) suggests that public procurement helps achieve two particular goals: lower resource use (through the selection of more sustainable products and waste reduction), and increased economic impact (through local sourcing). In an early sign of its commitment to procurement change, the WG launched the Welsh Procurement Initiative in 2004. The guidance document “Food for Thought” (Welsh Assembly Government 2004) recognized ‘value’ as a multi-dimensional term:

The public sector has a duty to make the best use of public funds, and get the best value from the money it spends. That does not mean lowest price, it means getting the widest possible benefit from where the money is spent and on what. (Welsh Assembly Government 2004, p. 1)

Recognising multiple benefits of a broader approach to procurement, the document notes benefits such as good supplier relationships, improved ingredient quality, nutritious meal provision, overall economic savings, service improvement and furthering the SD agenda (Welsh Assembly Government 2004, p. 1). This extensive and optimistic set of goals puts nutrition firmly within the sustainability agenda.

Three further challenges for sustainable food procurement practice noted in ‘Food for Thought’ stand out: firstly, that developing local supply chains can run counter to anti-discriminatory EU procurement legislation, creating complex and contradictory governance

¹⁰⁷ two first course, three main and three puddings, plus vegetables as extra

¹⁰⁸ Welsh hospitals cater for almost 4 million inpatient days annually (calculated using figures at NHS Wales 2012)

frameworks; secondly, that differing objectives within the sustainable food agenda are not always mutually supportive; and thirdly, that budget redistribution may be necessary (Welsh Assembly Government 2004). Such challenges illustrate the difficulties of operationalising sustainability, but also highlight the opportunity that a systems approach to foodservice may offer in balancing environmental, social, economic and nutritional outcomes within a broader systemic context.

Organizational structures and regulatory mechanisms for procurement in NHS Wales have changed in recent years, the NHS Wales Shared Services Partnership (NHSSP) Procurement Services subsuming Health Board procurement departments, along with Welsh Health Supplies. The amalgamation was completed in 2012 and policy frameworks are in development. Such is the economic scale of public sector procurement, at £4.3 billion annually (Welsh Government 2013a), that running alongside the NHSSP-Procurement Services is Value Wales, a division of the WG which works with the public sector providing strategy and guidance to promote best practice and value for money. Both bodies provide a detailed raft of guidance and policies to support sustainable procurement in general and food procurement in more detail.

Within these organizations there is a clear drive to develop capacity to support sustainable procurement, through the provision of well-resourced on-line presences providing general guidance and supportive policies and tools¹⁰⁹. Embedded within the resources is a raft of guidance (see NHS Wales Shared Services Partnership 2011b), much of it developed collaboratively, which highlights a multitude of issues such as transport and packaging policies, guidance on engaging with SMEs, and procuring food with nutritional health in mind (see Welsh Government 2013c). One document in particular, the NWSSP-procurement services CSR policy (NHS Wales Shared Services Partnership 2011a) demonstrates the multidimensional agenda of procurement, by setting commitments around 12 key objectives that address social, environmental, ethical, equitable and economic issues. The document is powerful in a second way, in that it moves away from generalized guidance

¹⁰⁹ such as Value Wales's Food Procurement Route Planner (Welsh Government 2013b)Welsh Government. 2013b. *Procurement route planner. Food* [Online]. Available at: <http://prp.wales.gov.uk/planners/food/sustainfoodbuying/> [Accessed: 21 March 2014]. and NWSSP-Procurement Services Corporate Responsibility policy (NHS Wales Shared Services Partnership 2011a) and links to two tools: the Sustainable Procurement Assessment Framework (SPAF) and the Sustainable Risk Assessment Template (SRA).

(that is so common in similar documents) towards more explicit recommendations and aims, providing a more detailed framework for action with concrete measurable targets.

Despite the strengths of current procurement guidance, a number of weaknesses are clear. Firstly, mandatory standards are lacking: no mandatory requirements relate explicitly to environmental, social or economic goals. Secondly, there is a narrow legislative focus: the primary legislative focus highlights EU anti-discriminatory procurement directives, food safety and traceability, signalling weakness in mandating for sustainability.

Finally, in the context of sustainability, references to food waste minimisation are peppered through various documents (such as NHS Wales 2010; Welsh Assembly Government 2010). No specific guidance is evident, but there is a suggestion that the agenda is developing, the Standards proposing that “reduction of waste, particularly food waste, will become a key target for all public sector bodies in the near future” (Welsh Government 2011b, p. 10). Despite these predictions, at time of writing¹¹⁰, no such targets were in evidence despite the 2013 Waste Prevention Programme for Wales (Welsh Government 2013d) recognising the importance of the public sector in demonstrating leadership with regards to waste minimisation. The Waste Prevention Programme does commit as a priority to working with the public sector as an exemplar, but with a clear focus on waste reduction through the mechanism of procurement¹¹¹ there are gaps evident in terms of internal waste producing practices within the health service, e.g. the waste due to overproduction of meals or to excessive plate waste.

The WG and its divisions are clearly leading on embedding SD at the highest level both through legally binding legislation and through policy and guidance documents. Despite such top down mandates, there is flexibility built in and encouragement of local interpretation. What is less clear is the role of non-state actors suggested in the MLG framework, although the Well-being for Future Generations Bill hints at ‘statutory partnerships’ that are envisaged to support working at local level. Just how these will be taken forward, and what role non-state partners will have remains to be seen. The Standards and IP provide a much stronger framework for hospital food than England around nutrition, but less so in relation to procurement, as the GBS will be effectively mandated in

¹¹⁰ June 2014

¹¹¹ E.g. procuring goods that can be recycled or that use less packaging

England. Waste reduction is highlighted in both countries, but lack specific waste reduction targets. In its framing of hospital food the Standards raise the status of food in line with clinical care, and support a horizontally integrated approach to hospital food at local level.

While it appears that the state in Wales is facilitating a MLG structure where it is firmly in charge, the state is also empowering and facilitating both horizontal and vertical integration of policy, actors and mechanisms across multiple levels, including within and between the WG itself, NHS Wales, Trusts and hospitals. How this plays out on practice will be explored in subsequent chapters through the case study findings, which will explore in more detail the impact of the Standards and IP on the development of mechanisms to enable its own implementation.

Moving on from a policy focus, the following section looks at evidence on the ground in relation to hospital food practice, and will focus in particular on findings that have implications for nutritional care and sustainability within HFSSs. It will draw on examples from England and Wales in the context of the MLG structures already explored. The section will also look beyond to Europe and America to examples of practice elsewhere that illustrate principles of EPH through nutritional care and sustainability. One of the following sections will investigate the issues of food service and food waste together, in order to understand what the nature of the links might be.

3.2. A poor starting point: malnutrition in British hospitals

In practice, the nutritional wellbeing of hospital patients is troubling. The number of malnourished hospital patients is considerable, and across the UK numbers are rising in some cases. During the time period 1997 to 2007, 2656 people in England were reported as having died *of* malnutrition in hospitals and care homes, although this makes up just 0.5% of those who died in hospital *with* malnutrition (Lishman 2009). Annual nutritional screening shows an increasing number entering UK hospitals already malnourished, measured at 34% in 2010 (Russell and Elia 2011)¹¹². Levels in those admitted from institutional settings were

¹¹² based on 9668 patients screened on admission to hospital

particularly high: 41% of those admitted from another hospital were malnourished, 38% of those admitted from another ward and 59% from care homes (Russell and Elia 2011, p. 3). There were variations by UK country¹¹³, and elderly patients were most likely to be malnourished on admission. While the use of nutritional screening on hospital admission is recognized as being a fundamental benchmark in assessing patient needs, nutritional information on malnourished patients is not always included on discharge forms (Russell and Elia 2011). This lack of discharge nutritional benchmarking suggests a failure of complete accountability and a lost opportunity to examine the effectiveness of nutritional care.

Despite some failings in noting malnutrition on discharge, in England the HES (Hospital Episodes Statistics) have compiled statistics on malnutrition at admission and discharge (Hospital Episode Statistics 2012). Although their methodology is not made clear, and vastly downplay the findings of Russell and Elia (2011) discussed above, figures shown in Table 9 highlight a number of interesting issues. Firstly, there is a clear increase in the numbers diagnosed with malnutrition between 1998/99 and 2008/09, a figure perhaps due to better nutritional screening tools (also suggested by BAPEN (British Association for Parenteral and Enteral Nutrition 2010). Secondly, in all cases there is an increase in the numbers of patients who are diagnosed with malnutrition on discharge, as compared with admission. The HES suggest that this does not imply that patients are becoming malnourished during their hospital stay for a number of reasons: the symptoms of malnutrition may be attributed to other medical causes at the time of admission, formal diagnosis of malnutrition only being made later; multiple admissions and discharges for the same person may skew the data; and as there can often be a delay between final diagnosis and discharge, patient condition at time of discharge is not truly known (Hospital Episode Statistics 2012). Despite this, it is clear that an increasing percentage of patients are discharged with malnutrition (compared with admission rates) between 98/99 figures and 2008/9 (see Table 9) and the HES's cautions as above do not explain this occurrence.

¹¹³ Wales had just below average rates of malnutrition on admission (33%), Scotland had the lowest (27%) and Northern Ireland the highest (38%)

Table 9. Patient numbers with malnutrition in English hospitals: admission and discharge figures

Year	Primary diagnosis of malnutrition			Primary or secondary diagnosis of malnutrition		
	Patient numbers: admission	Patient numbers: discharge	% change on discharge	Patient numbers: admission	Patient numbers: discharge	% change on discharge
1998-99	271	276	+1.8%	1302	1415	+8.7%
2008-09	378	390	+3.2%	3161	3633	+14.9%

Adapted from Hospital Episodes Statistics (2012)

In Wales, data on malnutrition levels at hospital admission and discharge is not publically available. A request under the freedom of information act drew out data that has been shown in Table 10 with percentages calculated by the researcher.

Table 10. Patient numbers with malnutrition in Welsh hospitals: admission and discharge figures

Year	Primary diagnosis of malnutrition		
	Patient numbers: on admission	Patient numbers: on discharge	% change on discharge
2009	181	224	+23.8%
2010	281	305	+8.5%
2011	242	279	+15.3%

Adapted from data as requested under freedom of information act. NHS Wales Informatics Service (NWIS) 2012 (% change on discharge calculated by researcher)¹¹⁴

Evident from Table 10 are two issues: incidences of increasing levels of clinical malnutrition on hospital discharge in Wales vary significantly year on year, and a notably larger percentage of patients leave hospital more clinically malnourished than on admission in Wales compared with England. Reasons for both these issues are unclear. Data released under the freedom of information act also reveals that 0.03% of patients admitted to Welsh hospitals in 2010 and 2011 had a diagnosis of malnutrition. If, as Russell and Elia (2011) have shown, 34% of hospital patients enter hospital malnourished in the UK, there is clearly a considerable flaw in mechanisms that account for malnutrition. Despite this, it will be interesting to see how such figures play out over time in Wales with the introduction of the Standards (Welsh Government 2011b), and how these figures will compare with English

¹¹⁴ NHS Wales Informatics Service note: "Data may be incomplete as we may still receive further submissions from the Trusts"

hospitals, now tasked with meeting the HFSP report recommendations (Department of Health 2014b), particularly in light of Dalmeny and Jackson's (2010) claim that initiatives are undermined if their status is not mandatory.

3.3. Planning the hospital menu for sustainability

Evidence of menu planning (rather than procurement) in the UK that encompasses elements of sustainability appears to be narrow in focus, with an emphasis on seasonality. In practice, menus are commonly fixed within Trusts and HBs, working on rolling one to three week systems, with a number of differing choices offered at each meal service. Although this may aid standardized buying habits, ease of nutritional assessment and meal production planning, it gives little flexibility to respond to seasonal fresh food availability. Although English NHS guidance documents propose that food can be part of a carbon reduction agenda through seasonal menus, reductions in meat and dairy, and the lowering of supplier impacts (NHS Sustainable Development Unit 2009, p. 45), in practice there appears to be a limited uptake of flexible approaches to menu planning. Exceptions are Trusts in England where local food procurement is embedded such as Nottingham, North Bristol NHS Trust and the Royal Brompton Hospital. North Bristol NHS Trust has seasonal summer and winter menus in place (Soil Association 2011), and the Royal Brompton's menu consists of 30% local and seasonal produce (Royal Brompton and Harefield NHS Foundation Trust 2012).

In Nottingham University Hospitals NHS Trust, Catering Manager John Hughes has a flexible approach to menus that revolve around local produce availability. Instigating an innovative traffic light ordering system¹¹⁵, menus are adjusted to accommodate local availability (mostly of vegetables) within budget requirements, and matched to nutritional needs. The flexibility inherent in this system allows the Trust to procure locally as much as possible¹¹⁶, and their cook-freeze system allows them to take advantage of seasonal low-cost produce gluts, freezing excess produce for later months. Also key is their good working relationship with the dietetics department (Hughes 2012). Here a number of approaches appear key to

¹¹⁵ the weekly supplier produce lists are colour coded to represent distance of food production from the Trust. Green = in season within the East Midlands, orange = in season within the UK, red = from beyond the UK

¹¹⁶ during the harvesting season most vegetables are in the green zone, and 95% of meat is in the green zone annually

planning menus with sustainability and nutritional health in mind: flexibility in menu planning; strong working relationships and clear operating systems with external suppliers; a combined catering and procurement role; and horizontal integration between essential disciplines (catering/procurement and dietetics).

Despite such innovative approaches to procurement and menu design, there is a gap in relation to low carbon menus in the UK. Some academic research (such as Edwards-Jones et al. 2008) argues that local and seasonal food is not necessarily low in carbon. Hospital menus designed to reduce ingredients with high carbon footprints (such as red meat) and maximize low carbon ingredients are not in evidence in the UK, despite a requirement for the NHS to reduce its carbon footprint.

One city is emerging as a global leader in sustainable public food systems: Malmö in Sweden is working towards 100% sustainable purchasing across the public sector including schools, hospitals and public buildings (City of Malmö 2010). Their City policy sets out ambitious commitments that by 2020 all public food will be organic, and that food related GHGs will have reduced by 40%¹¹⁷. The social environment around foodservice is key, as is consumer engagement and feedback. The 'SMART' model, developed in the Stockholm area by the Institute of Public Health, puts a combination of nutritional and environmental considerations at its core, and has clear implications for menu planning: it asks for smaller amounts of meat, fewer 'empty calories', seasonal fruit and vegetables and an increase in nutritionally dense vegetables. In relation to procurement it asks for organic produce and efficient transport systems. Such guidelines provide the closest model for menu design that reflects principles of nutritional care and sustainability in use in the public sector. It is this systems approach in addressing food in the round that may provide the basis for future food systems that contribute to greater EPH.

Beyond Europe, the American organisation Health Care Without Harm is leading on sustainable practices throughout healthcare as a whole, and in particular around food. Running a series of initiatives through their 'healthy food in health care' (HFHC) program¹¹⁸ they demonstrate an open ended flexible approach that signposts a 'menu of options' for improving food (Health Care Without Harm undated).

¹¹⁷ Reduction against 2002 levels

¹¹⁸ E.g the healthy food challenge, Balanced Menus, Local & Sustainable Purchasing and Healthy Beverages

Like many initiatives, procurement practice is key, but the acknowledgement that hospital practices have an impact on broader public health outcomes is clear:

The program aims to leverage the significant purchasing power and health expert status of hospitals to promote a healthier food system. By purchasing foods that are produced, processed and transported in ways that are protective of public and environmental health, hospitals can make a profound difference in the food system and in their own food environments. (Health Care Without Harm 2014)

Their 'menu of options' provide perhaps the most comprehensive example of a practical programme that aims to empower health care providers to challenge current food practice and optimise health and sustainability benefits. They recognise that engaging multiple actors both from within the health care setting (including staff and patients) and from other sectors (including the food sector and public health) is key to facilitating enthusiasm, shared goals and ultimately change. Also clear is their commitment to network building and modelling best practice as mechanisms to incentivise behaviour change in others: external awareness raising events and conferences are advocated, as is the use of case studies to illustrate best practice (see Health Care Without Harm 2013).

3.4. Sustainable procurement in action

In practice there is conflicting evidence on the embedding of sustainable procurement within the public sector and NHS Wales, with variable practice noted in the oral report on evidence given to the National Assembly for Wales on the assimilation of SD (National Assembly for Wales 2011). Within the report it is clear that while environmental systems are in place and developing, and that work is ongoing on sustainable procurement, there is less clarity on how procurement services are performing with regards to sustainability in practice. There is also concern that in times of austerity, procurement may focus on short term, low cost objectives. While collaborative procurement is seen as positive by representatives of the directorate, also noted by Leanne Wood, WG Assembly Member is the concern over large-scale contracts. Finally, in the oral reports, the Minister and directorate speakers are questioned on how embedded SD concerns are at NHS HB Board level, answers revealing that SD concerns in general are poorly reflected, current concerns are financial in nature, but that understanding is developing throughout certain areas of the

workforce, such as Welsh Health Estates¹¹⁹. Revealing is the comment by Christopher Riley, Strategic Advisor from the then Department of Health and Social Services that,

we are trying to get to a situation where people do not talk about sustainable development – they just do it....it is about everyday good practice in the health service... We would rather them [NHS staff] not to talk abstractly about sustainable development, but to work with us on practical initiatives (National Assembly for Wales 2011, p. 8)

In this respect, Mr Riley echoes the previously noted move from less rhetoric towards more action, but how well action meets the ethos of SD without some talking and supportive frameworks is harder to gauge, and clear measurable success with environmental initiatives may suggest that some areas are more developed than others.

Despite such cautions, findings in the 2013 ‘Public Sector Food Purchasing Survey’ (Strategic Marketing 2013) suggest a successful local procurement agenda in action. The Welsh public sector food spend¹²⁰ for 2012 was over £74 million, the NHS making up a quarter. A tiered system of accounting appears, reflecting the complexity of the supply chain in relation to provenance. NHS Wales spent 77% of its budget, £14,153,320 out of £18,397,517, on purchases from Welsh companies¹²¹; the highest spend proportion of the public sector organisations. A further line of accounting shows spending on products of Welsh origin¹²², i.e. those known to be produced, processed or manufactured in Wales, as £8.13million for NHS Wales: a sizable increase from the £3.95m spent in 2003. Yet a further rung in supply sits under these figures that only detailed methodological approaches would unravel: Ilbery and Maye (2005) argue that local produce is in fact often facilitated by many non-local inputs (e.g. imported animal feed, non-local flour used to make local bread etc.), and as such, terms such as local are hazy. Differing methodological approaches yield conflicting findings: a study unpacking the ingredients used to provide lunch on a Welsh hospital ward showed that just part of one out of 25 separate ingredients used was produced in Wales¹²³ (Sonnino and McWilliam 2011). Data underlying this study (McWilliam 2010) showed that ingredients were from 10 different countries: including 2% Welsh, 30% other UK and 48% in the rest of Europe, with Italy and the Netherlands providing three ingredients each. In

¹¹⁹ now within the NHS Wales Shared Services Partnership

¹²⁰ Including local authorities, the NHS Wales, further and higher education, police, military and fire services, and other.

¹²¹ companies based in Wales as either producers or distributors

¹²² Data on 11 food categories is included, including meat, milk and bread

¹²³ Beef, half of which was Welsh and half English

addition to the geographic spread of ingredients, food journeys from country of provenance to hospital were fragmented: five steps for tinned produce between Italy and the hospital, and even the most local product, beef, had three steps, from farm to abattoir to processor to the hospital, illustrating the circuitous nature of food supply (McWilliam 2010).

Underlying the strong results on public sector local spend are a number of mechanisms through which local supply chains have been developed, in line with governmental guidance such as “Opening Doors. The Charter for SME Friendly Procurement” (Welsh Assembly Government 2008b). The Welsh Procurement Initiative, established by the WAG in 2002, saw public sector organisations¹²⁴ develop local food supply chains, including the sourcing of local beef for hospitals in North Wales (see Welsh Assembly Government 2005). Mechanisms to encourage tender bids from local food suppliers in Wales are also in evidence, such as supplier development initiatives. The role of partnership working across sectors in encouraging the procurement of more local food is clear, such as the Best Food Forward project¹²⁵ in 2011. The project aimed to build skills to support NHSSP procurement collaboration with the Welsh dairy sector (see Forum for the Future 2012), was managed by NGO Forum for the Future, and involved collaborative working with other public sector actors including further education¹²⁶.

Barriers against working with the Welsh public sector remain for some organic producers: they cannot compete economically against conventionally produced goods; providing a constant reliable supply would be difficult; and distribution is a challenge (Menter a Busnes 2012). Routes identified to boost organic supply include sub-contracting and collaborative partnerships (Menter a Busnes 2012).

Indeed empirical literature generally shows that collaboration, support and creative thinking lie behind all successful sustainable procurement initiatives, and also that key individuals within the hospital environment have been instrumental in championing change, demonstrating that in many cases individual vision and drive is as essential as collective inter-organizational support.

¹²⁴ including councils, further education and Welsh Health Supplies

¹²⁵ Funded through the Waterloo Foundation

¹²⁶ the Eco Design Centre, Swansea City Council, Cardiff University and Eco Studio.

The procurement of sustainable food in practice within the NHS at a larger scale appears stronger in England through initiatives led by NGOs such as the Cornwall Food Programme (supported by the Soil Association) and the Hospital Food Project (supported by Sustain). Both initiatives supported local supply chains and were funded for a finite time. Additionally eight English hospitals have received the Food for Life Catering Mark, whose standards mandate seasonal freshly prepared food, higher animal welfare standards, and health related standards such as the elimination of trans fats and additives harmful to health. As a commercial scheme¹²⁷ the Catering Mark and associated support is not tied to external funding, and therefore continues as a vehicle for change at the organisational level. This difference between piloting change through funded support and recognising change through commercial certification is fundamental: pilots are the test beds, and commercial certification works as a recognition of compliance and as a market mechanism to drive change (or reward existing good practice). As has been discussed, as a market mechanism the Catering Mark has been used in a number of different ways in the hospital food context: within Trusts to drive improvements in practice (e.g. North Bristol working from Bronze level to Silver), by Trusts as a requirement for suppliers (e.g. as written into foodservice tenders), by foodservice companies to offer point of difference (e.g. ISS Healthcare in Rotherham District General Hospital), and by NHS England as a benchmark against which CQUIN payments may be measured. Working from national to local level, through state, NGO and business channels, the embedding of the Catering Mark as a lever for change in hospital food systems demonstrates multi-level governance structures at their most powerful.

3.5. Food service and waste

As suggested in previous chapters, hospital food service, i.e. the service of food to patients at ward level, may have impacts on both nutritional care and sustainability in that it can affect nutritional intake and food waste volumes. How to account for food service and impact in practice is complex, and could include measures of food quality, eating environment, patient satisfaction, nutrition intake and food waste volumes. Indeed there is no one recognised model for good practice around food service in relation to the delivery of good nutritional care, but academic literature in chapter one has illustrated some key

¹²⁷ Run by Soil Association Certification, the commercial arm of the Soil Association charity

features: multidisciplinary working, nursing staff fully engaged at meal times, family and volunteer support at meal times, communal dining areas, and many of the features highlighted by the Council of Europe in ‘Ten key characteristics of for good nutritional care in hospitals’ (Council of Europe 2003), shown in Figure 10.

A 2010 audit of hospital catering in Wales by the Wales Audit Office (WAO) (Vaughan Thomas 2011) sheds insights into interconnected elements of foodservice and the impact this may have on food waste. Undertaken before the introduction of the Standards, the results reflect past practice and serve as a useful tool in understanding the context for the forthcoming case study. Foodservice on 62 wards across seven Welsh HBs and Velindre NHS Trust were audited, outputs including an overarching report (Vaughan Thomas 2011) and 8 individual reports for each HB. Selected findings are shown in Table 11 below.

Table 11. Selected findings from 2010 Welsh Audit Office audit of Welsh hospitals

Issue	Findings (from observation, staff interviews and patient surveys)
Food choice	96% of patients could understand the menu always or mostly
	73% of patients were offered enough choice always or mostly
	65% of patients could choose portion size always or mostly
	A small number of patients found menus repetitive, with poor or unclear choice available for those with special dietary requirement
	Not all patients had the opportunity to order for themselves
	Ordering time varied from more than 24 hours before the meal to at the time of meal service
Satisfaction with food	On trolley service where patients didn't pre-order, choices often ran out
	54% of patients found food taste excellent or good, 28% acceptable, 17% poor or very poor
Preparation for meals	56% of patients found food appearance excellent or good, 28% acceptable, 16% poor or very poor
	95% of patients reported that where they ate food was clean and tidy
Help with eating	75% of patients that needed help to get comfortable for meal time received help always or mostly, 15% never.
	34% of patients that needed eating aids rarely or never received them
Mealtime experience	24% of patients who needed help with eating received it rarely or never
	88% of patients found meal time free from other disturbances
	97% of patients given enough time to finish their meals

Collated by researcher from findings in Vaughan Thomas (2011)

While generally few areas stood out where poor practice was the norm, detailed findings suggested variation between HBs and between hospitals within the same HB. Mixed service quality was in evidence, with areas of very good practice¹²⁸ and areas with considerable room for improvement¹²⁹. Troubling also was the emerging picture that auditing and benchmarking practices across Wales were failing in a number of ways:

- benchmarking indicators were interpreted in different ways in different hospitals and HBs
- data gathering was sometimes poorly undertaken
- findings were not always utilized as tools for improvement
- findings were poorly reported at board level: they were often generically reported and reported only on an annual basis
- there was no standardized benchmarking system across Wales¹³⁰
- differing measures of patient satisfaction were sometimes undertaken by differing disciplines within the same hospital (e.g. caterers and nurses), with findings rarely shared (Vaughn Thomas 2011)

This lack of standardized and integrated benchmarking approaches and poor use of findings at strategic level was a lost opportunity for the NHS Wales to pursue best practice.

Economically, three findings stand out in the WAO's Wales-wide report (Vaughn Thomas 2011). Firstly there was a huge variation in daily costs of food and drink¹³¹ between hospitals and HBs for unexplained reasons. Secondly, no link appeared between the cost of food and drink and patient satisfaction. Indeed the Trust with the lowest reported costs¹³² had the highest patient satisfaction levels for food. Thirdly, internal budgeting structures

¹²⁸ such as cleanliness of eating areas

¹²⁹ such as help when needed, consistent provision of eating aids, and overall improvement in taste and appearance of meals

¹³⁰ e.g. a variety of differing patient satisfaction record mechanisms existed

¹³¹ The average daily spend on food and beverages was £3.16 across the Welsh hospitals included in the study¹³¹. The lowest spend was £1.15 per day in Velindre NHS Trust and the highest, £5.23 per day at Royal Glamorgan Hospital, the WAO report (Vaughn Thomas 2011) suggesting that further research is needed into such variation

¹³² Velindre NHS Trust, where meals are outsourced

were poor, with costs for patient and non-patient catering budgeted from the same pot. In all but one hospital, staff and visitor catering ran at a loss, and was being subsidized by £2.5million, equivalent to 92p extra on every patient's catering costs (Vaughan Thomas 2011, p. 42).

While the audit did not consider nutritional intake, the adequate recognition of patients' nutritional needs was considered. The main report found that despite improvements, key information was often overlooked during nutritional screening, there was a lack of joined up systems to monitor and improve services with respect to improving nutrition, over half of patients considered nutritionally at-risk did not have a care plan in place, and food intake charts were not always completed (Vaughan Thomas 2011, p. 9). While these findings may have implications for patient nutritional intake and wellbeing, it remains to be seen if the Standards (Welsh Government 2011b) will overcome such issues.

Further audit findings showed endemically high food waste volumes¹³³ across all HBs with WAO figures far exceeding institutionally recorded levels. More in-depth analysis drawing on HB level reports¹³⁴ showed that across Welsh HBs, unserved meals¹³⁵ ranged from 8%-38%¹³⁶ of food cooked, and 15%-33% of food served was left as plate waste¹³⁷ (with a 22% average). While some waste was considered inevitable, reducing unserved meal wastage to 9% across the 62 wards studied would save £758,000 annually (Vaughan Thomas 2011) signifying the huge saving potential for NHS Wales were such targets achieved and plate waste reduced across all Welsh wards.

Beyond Wales, there are examples of hospitals in which great food and service is the cornerstone of good nutritional care, such as the Royal Brompton in London. Visited by Age Concern during their investigation of hospital food practice, comments by Gordon Deuchars (Policy and Campaigns Manager at Age Concern London) sum up the Royal Brompton's approach:

¹³³ Food waste was visually assessed and recorded

¹³⁴ References not listed to preserve the anonymity of the case study Health Board

¹³⁵ food cooked and unserved

¹³⁶ The study average was 15%

¹³⁷ percentage of food served onto the plate but left uneaten

The food looked and smelt amazing and proper consideration was given to the difficulties patients can experience around mealtimes, such as not being able to open packets, lift heavy jugs or reach their food if it's placed too far away. We were also pleased to see the red tray system being intelligently implemented and followed up on and we were incredibly impressed that the staff canteen was serving the same food as patients were receiving - a simple step but massively telling.

We left inspired and rather hungry. We might well be back to have lunch with you all soon! (Deuchars in Forse 2010, p. 11)

Food quality, and care and consideration for patients' physical needs stand out in the quotation above, as does the symbolic significance of everyone eating the same food. In addition, the Royal Brompton has very low levels of unserved meals (trolley waste) at about 3-4% (Duckett 2012). Mike Duckett, Catering Manager, suggests that ward level liaison and reflective practice are essential to waste minimisation: identifying and meeting patient needs through ward level liaison, and in turn matching this with careful food production, minimizing over-production. Despite this, plate waste is not measured, so levels are unknown. Food waste is all recycled, the income generated from used oil sales (for biodiesel) paying for half of the food waste composting fee (Duckett 2012). As such, what food waste is generated is well managed both environmentally and economically.

3.6. Conclusion

As the first chapter explored, EPH is a holistic paradigm that links sustainability and health in the food agenda, and calls for research that is systemic in nature. This chapter has explored how key elements of nutritional care and sustainability may be considered in the HFSS, with particular focus on Wales, by unpacking selected overarching policy frameworks and systems of governance, and looking at delivery in practice. What emerges is a diverse picture with pockets of good practice: integrated policy thinking is evident, addressing issues embedded in the dimensions of EPH, but in other areas there is evidence of business as usual approaches through silo thinking within narrow boundaries. In areas where policy, frameworks and guidance best reflect dimensions of sustainability, such as procurement and waste reduction, evidence on the ground tells a patchy story in practice

Currently there is a lack of academic evidence showing local food to be of higher quality than distant, or that the procurement of local food leads to higher nutritional intake or

lower amounts of food waste. The complexity of the HFSS, and the many variables involved in feeding patients may make such connections difficult to prove with certainty, or indeed may suggest that such connections are reductive in nature. Despite this, in practice some hospitals are engaging in positive change to HFSSs. More local and seasonal procurement and greener menu planning are supporting more sustainable HFSSs and providing social, nutritional, economic and environmental benefits. Despite such benefits, challenges remain. Kirsty Edmondson-Jones, a NHS Trust Deputy Director of Facilities Management¹³⁸ notes the “complex mix of conflicting, confusing and at times competing policy, guidance and agendas” (2010, p. 32) at play when procuring locally yet being driven by EU legislation. Limited budgets mean that trade-offs are made, and there are multiple models of food service with no consensus on best practice.

In Wales, hospital nutrition may improve as a result of the Standards and mandatory IP, but empirical evidence has shown that despite policy in support of more sustainable food systems, and the apparent high percentage of Welsh ingredients served on Welsh patient menus, there are barriers in practice. In addition, studies illustrate that hospital food waste is high and under-reported by Health Boards (Sonnino and McWilliam 2011; Vaughan Thomas 2011).

Policy frameworks and mechanisms of governance affecting nutritional care and sustainability in HFSSs are complex and multiple. Not all could be addressed in this chapter, but governance frameworks supporting the local economy, SD, the environment, nutrition, carbon reduction, waste reduction and procurement, for example, all have a bearing on the HFSS. Integration of such elements is rarely seen, and evidence of good practice on the ground in NHS Wales hospitals is slim. Despite the argument made here that procurement is only part of the story of HFSSs in relation to nutrition and sustainability, in practice those embracing more sustainable procurement approaches often are developing approaches in other areas, for example planning menus for greater sustainability. There is also some anecdotal evidence that impacts are being felt in greater patient nutritional wellbeing and lower food waste, for example at the Royal Brompton. And yet, good practice case studies, as represented in NGO literature and governmental reporting, are often one-dimensional in nature (e.g. focusing on increased local procurement). Only through telephone interviews

¹³⁸ at Northern Lincolnshire and Goole Hospitals NHS Foundation Trust

with selected hospital caterers and facilities staff has the researcher discovered the broad engagement of exemplary HBs and hospitals in wider HFSS change.

The following study, by taking a systemic approach to investigating a HFSS in a selected Welsh HB, and in using EPH as a framing tool, aims to address a number of research gaps identified in Chapter one and reinforced within this chapter on policy and practice. Wales is a particularly important research site as a country not only constitutionally committed to SD, but also committed to improving hospital nutrition through its policy framework. The following study uses a systemic and multidimensional approach, lacking in much policy and practice: it explores the integration of nutritional health and sustainability, as is evident in the Standards; it investigates the implications of choice, as choice maximisation is embedded in the Standards and IP; and it explores the relationship between policy and outcomes in practice.

Chapter 4: Planning the patient menu

In the next chapter data will be presented in response to the first research question which asks:

Under what conditions is change driven in a complex public foodservice system, and what are the complexities of embedding the principles of Ecological Public Health?

The following chapter will explore aspects of change in a Welsh hospital foodservice system (HFSS) at a time of policy transition, during which a new menu was introduced. With the introduction of the Standards (Welsh Government 2011b) just prior to the research period, Health Boards for the first time had a set of principles and standards to work to in planning menus. These Standards had a phased implementation plan (Welsh Government 2011a) running from January 2012 to April 2013, predating and spanning the research period.

The chapter will firstly introduce the case study HB and methodological details. An investigation of selected elements of the historic HB menu, in place before the introduction of the Standards in 2011, provides a benchmark, drawing on WAO audit data from a 2010 patient survey (PE10) (Anon 2010b) undertaken nationally and within the case study HB. Staff perceptions of this historic menu¹³⁹ are also drawn on using interview data. The chapter will continue by looking at the key drivers of change in the case study: the local modernisation process and the 2011 national Standards. It will look in detail at the menu planning process as a mechanism to enact change using menu planning minutes and drawing out themes from staff interviews. Barriers and institutional constraints to enacting change, as regulated within the Standards, will be explored, as will the HBs attempts to prioritise change in response to operational challenges. Throughout the chapter, in places attention will be drawn to where the principles of EPH are or are not acknowledged or accommodated, and the theme of choice will be central, although these elements will be explored in greater detail in the data analysis chapter.

¹³⁹ The historic menu was in place in 2012 when this research began, and was the same menu as had been in place during the WAO study.

4.1. Setting the Scene

4.1.1 Introducing the Health Board and the hospital foodservice system

Following a restructure within NHS Wales, the case study HB became operational in October 2009 through the amalgamation of a number of pre-existing Welsh Local Health Boards and Trusts. The HB is large, with a considerable patient base, an annual budget of over £1 billion, and consists of a number of major and community hospitals and broader community health centres, treatment centres and clinics. On its formation, the HB inherited a range of differing foodservice system practices used within the different major hospitals, including differing procurement contracts, production methods and food service models. Also inherited were existing staffing teams, differing monitoring systems and diverse policy frameworks.

At the beginning of the research period¹⁴⁰ the HB had yet to fully harmonise its catering in practice, and different menus were in place throughout its three major hospitals (referred to as H1, H2 and H3). Despite this, the HB had integrated its organisational structures as follows: the catering function was classified as one of the 'support services'¹⁴¹ and fell under Directorate A, nursing staff sat under Directorate B, and the Nutrition and Dietetics service sat under Directorate C. Although the HB had a small number of procurement staff working on day to day matters, generally procurement staff sat outside the organisational structure of the HB, working at an all-Wales level, from within the Shared Services Partnership. From within Shared Services Partnership, large all-Wales procurement tenders for food stuffs were drafted and contracts awarded. Finally, at the time of research, an All Wales Menu Framework Task and Finish Group were developing a Standards-compliant hospital food recipe bank. This group was led by Public Health Wales and involved staff from across all Welsh Health Boards.

¹⁴⁰ The main contact with the HB began in June 2012 once final ethical approval had been given

¹⁴¹ 'Support services' includes portering, domestics, car parking, accommodation and transport

Within the HBs the three differing 'historic' menus continued to be operational until November/ December 2012, when they were replaced by a new single HB-wide menu¹⁴², to be discussed in more detail later in this chapter. In addition, different production and food service methods were in place historically (as is seen in Table 12), and did not change over the research period.

Table 12. Food production and service models in three Health Board hospitals

Process	Hospital 1	Hospital 2	Hospital 3
Primary cooking method ¹⁴³	Cooked in H1 kitchen	Cooked in H2 kitchen	Cooked in H3 kitchen
Dish storage	Frozen in trays	Frozen in trays	Chilled after cooking
Secondary cooking method ¹⁴⁴	Cooked/regenerated in trolleys. Trolleys are loaded in the central kitchen	Cooked/regenerated in trolleys. Trolleys are loaded at ward level	N/A: loaded onto heated holding trolleys where food is kept warm
Food quantities ordered by	Menu Clerk	Ward Based Caterer	Nurse or HCA ¹⁴⁵
Patient food order system	Nurse or HCA at meal time (trial on ward 3 – a hostess takes orders after breakfast)	Ward Based Caterer. Orders taken after breakfast	Nurse or HCA at meal time
Dishes plated by	Nurse or HCA (trial on ward 3 – Ward Based Caterer plates meals)	Ward Based Caterer	Nurse or HCA
Dishes brought to patient by	Nurse or HCA	Nurse or HCA	Nurse or HCA
Dishes cleared by	Domestic	Ward Based Caterer	Nurse or HCA

As can be seen in Table 12, the hospitals did not operate a uniform system: H1 and H2 operated a cook freeze system¹⁴⁶ and H3 operated a mainly cook chill system¹⁴⁷, although both served vegetables that were cooked from frozen. Heated trolleys (see Figure 14) were

¹⁴² Not implemented in one HB hospital which operated under a PFI as it had an external foodservice provider delivering catering. This fourth HB hospital was not included in the study.

¹⁴³ This refers to dishes that are made from scratch from basic ingredients e.g. lasagne. Some main dishes are bought in pre-prepared, such as omelette and burgers. Some side dishes such as mashed potatoes and certain vegetables are bought in frozen and are cooked before service.

¹⁴⁴ Secondary cooking takes place after dish storage and before food service. Secondary cooking is mainly a process of reheating dishes that have gone through a primary cooking process, called regeneration when frozen meals are cooked. In some cases (e.g. with frozen vegetables), this will be the first time the food has been cooked.

¹⁴⁵ Health Care Assistant

¹⁴⁶ Under the 'cook freeze' system, meals are cooked in-house and frozen, to be reheated/regenerated before service

¹⁴⁷ Under a 'cook chill' system, meals are cooked, chilled down and reheated on subsequent days

used for food delivery at ward level. These trolleys cooked/regenerated the food in internal integrated ovens in H1 and H2¹⁴⁸ and kept the food warm in H3. All trolleys had top surfaces from which the food was served and kept warm during service under lights (see

Figure 15).

Figure 14. Catering trolley



Figure 15. Trolley top with trays of food laid out for service



¹⁴⁸ 'Regeneration' refers to heating through pre-cooked food, and 'cooking' refers to cooking food from its raw state (e.g. vegetables)

4.1.2. The interview approach: identifying multidisciplinary participants

Semi-structured interviews were undertaken with selected HB and hospital level staff, (see Appendix 13). Interviewees were either directly linked to the HFSS, or linked to elements that might connect with the EPH agenda, such as waste management and environmental management. Indeed the Standards (Welsh Government 2011b) recognise the role of different healthcare professionals in the provision of food and fluid to patients, and the need for multidisciplinary team, Table 13 outlining the responsibility of each discipline. Interesting to note is that the role of chef – the person with the technical skill to actually make the food, is not recognised by the WG in Table 13.

Interviews were broad based, as the researcher was interested in understanding a number of things: how the HFSS worked as a whole; how each of the parts (subsystems) worked individually; how integrated these parts were or were not in relation to the concerns of EPH (see Table 2 and Table 3); what policies and practices were in place, and the impact of these on the concerns of EPH; opportunities recognised by the interviewee on how the HFSS could improve the concerns of EPH, both before and after the introduction of the Standards; and the barriers to such change. Further details are available in the methodology chapter and in Appendix 4.

Similar approaches were taken in the interviews at HB and hospital levels, the primary difference being the context: at HB level the context invited responses that tended to be more strategic in manner, with more generic and top line responses around practice in hospitals. At hospital level, the responses, while often exhibiting full awareness of the policy and strategic context, also drew more specifically on the local hospital context.

35 semi-structured interviews were undertaken in all: two at all-Wales level¹⁴⁹, ten at HB and 23 at hospital level¹⁵⁰, with six in H1, eight in H2 and nine in H3 (see Appendix 13). In all there were 28 interviewees, seven being interviewed twice to explore the impact of the new menu, introduced across the HB during the study period in response to policy change.

¹⁴⁹ The Head of Procurement and Consultant Dietitian for Public Health. The two all-Wales interviews will not be drawn on in this study as these related mainly to procurement and to the All-Wales menu planning process.

¹⁵⁰ more informal interviews were undertaken at ward level

Table 13. The role of Healthcare Professionals in the provision of food and fluid to patients

- **Catering Manager:** Producing and / or procuring meals, menu planning, management of the catering team, food safety and hygiene, training and development, waste monitoring and management, and patient satisfaction.
- **Chief Executive:** ensuring the implementation of these standards and monitoring performance against them; ensuring delivery of a safe and nutritious catering service, even when this service is contracted out.
- **Dental hygienist:** help patients having surgery or complicated orthodontic treatment, or those with particular medical conditions to maintain a healthy mouth, thereby optimising ability to meet nutrition needs.
- **Dietitians:** Assessing patients' nutritional requirements, prescribing and advising on therapeutic diets, menu planning and procurement, training and development.
- **Doctors:** Recognising that appropriate nutritional care is fundamental to clinical practice, awareness of the impact of nutritional problems on the clinical outcome of disease process and how to manage it, leading specialist nutrition support teams.
- **Executive Board Member:** a single Board level Director leading for catering, nutrition and food hygiene, supporting implementation of these standards.
- **Health Care Support Worker:** Where trained, undertake nutrition risk training. Assist with food choice and serving. Assisting patient to eat and drink where required, monitoring food and fluid intake.
- **Occupational Therapist:** Ensures correct seating and positioning to support safe eating. They enable independence by helping patients to feed themselves, for example, by providing adapted eating utensils.
- **Pharmacist:** Member of specialist Nutrition Support Team, training and development.
- **Physiotherapist:** advises on appropriate and timely positioning for function, including the provision of suitable seating to enable the person to sit comfortably and with good posture for eating and swallowing
- **Porters:** Delivering food to ward, removal of trolleys after mealtimes.
- **Procurement and Supplies Officers:** Liaise with multidisciplinary team to ensure procurement of food and drinks from sustainable and safe sources which meet the diverse needs of hospital inpatients.
- **Registered Nurses:** Responsible for Nutrition Risk Screening and identification of dietary needs of patients, ensuring patients receive appropriate food and assistance to eat where required, monitoring their food and fluid intake. When trained, to undertake basic swallow assessment. Protecting the mealtime and referring to specialists as required.
- **Senior Nurse:** Leading on nursing policy and operational procedures relevant to patient nutrition care plans. Monitoring performance at ward level against standards.
- **Specialist Nurse:** Advising on nursing policy and operational procedure in regard to nutrition, member of specialist Nutrition Support Team and training and development.
- **Speech and Language Therapist:** Specialist swallow assessment and advice on patient need, training and development and menu planning for texture modification.
- **Ward Level Caterer:** safe delivery of patient meals and beverages; ensuring food is presented in an attractive and appealing manner.
- **Ward Sister/Charge Nurse** – Accountable for the management of the patients nutritional requirements through ensuring all patients receive Nutritional Risk Screening, identification of dietary needs of patients, ensuring patients receive appropriate, well-presented food and assistance to eat where required, implementing and managing protective mealtimes and referring to specialists as required.

Welsh Government 2011b (2011b, pp. 8-9)

The following section will look in more detail at the historic menu in place at the beginning of the research period. It will continue by exploring the policy context and the HBs response to this context, in particular through the menu planning process.

4.2. Exploring the benchmark: historic menus

4.2.1. Patient experience

As the research is in part about change, benchmarking allows for comparison over time. As explored earlier, the WAO undertook a catering audit across all Welsh Health Boards in 2010 (Anon 2010b). This included a patient experience questionnaire, named PE10 in this study (Appendix 7), from which some data will be used as a benchmark.

At the time of the WAO report, each of the three hospitals offered a different standard menu, referred to here as ‘historic’ menus, working on a two week rolling cycle. The historic menu design was the result of a flexible ongoing process, and according to staff interviews, was designed to offer variety, reflect patient likes and dislikes and fit within the technical and budgetary constraints of each site. 45 hot main meal choices appeared over the two weeks in H1 and H3, and 51 in H2. There was some repetition of dishes over the two week cycle, and the hospitals were relatively similar, offering between 27 and 30 meals. Vegetarian choices were on the menu daily (included in the figures above), and variety differed considerably: H1 offered 12 different vegetarian dishes over the two weeks and H3 offered 24¹⁵¹. The production methods and recipes for each dish varied between hospitals, and could vary dependent on the cook (particularly with regards to seasoning)¹⁵². In addition, as procurement procedures allowed a degree of flexibility, each hospital had the capacity to use different suppliers and different specifications for the same food ingredient. There were no standards in place in 2010 relating to nutritional requirements, and although the menus catered for different dietary and cultural needs, nutritional analysis had not

¹⁵¹ The figures in this section related to the printed menu. As the following chapter will show, dishes that appear on the printed menu are not always offered in practice

¹⁵² During the research period H1 and H2 were working on standardised recipes

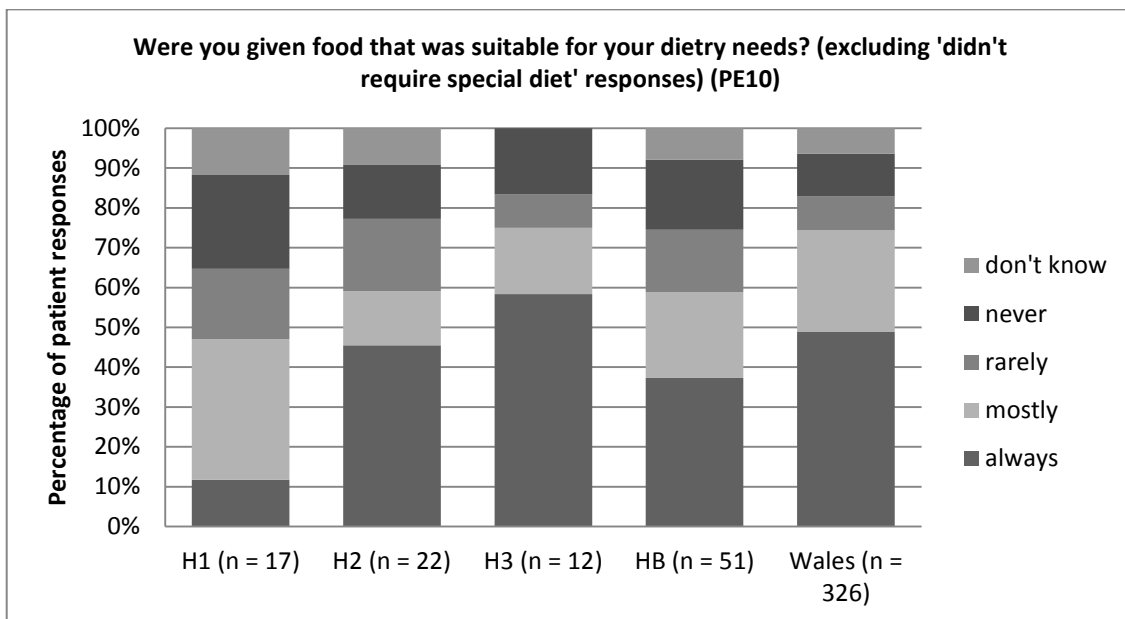
taken place. As such, there was no way of knowing if the menu met the nutritional needs of patients¹⁵³.

Despite this gap in knowledge around the nutritional value of meals, PE10 asked patients their opinion on the suitability of food for their dietary needs, asking:

- Have you been given food that was suitable to your dietary needs? (for example nutritional supplements, sugar free food, low-fat food, etc.)¹⁵⁴

While over half (52%) of respondents said that they did not require any kind of special diet, of the 51 who remained, the satisfaction levels within the HB were below the Welsh average, with 59% of the remaining respondents saying the food was always or mostly suitable for their dietary needs against 74% in Wales. Although the participant numbers were small, a noticeable difference is visible between hospitals, each of which operated a different menu (see Figure 16) with H3 performed best and H1 showing the poorest results, although small numbers undermine the reliability of this data.

Figure 16. Were you given food that was suitable for your dietary needs? (excluding 'didn't require special diet' responses), PE10



¹⁵³ i.e. patients with standard nutritional needs

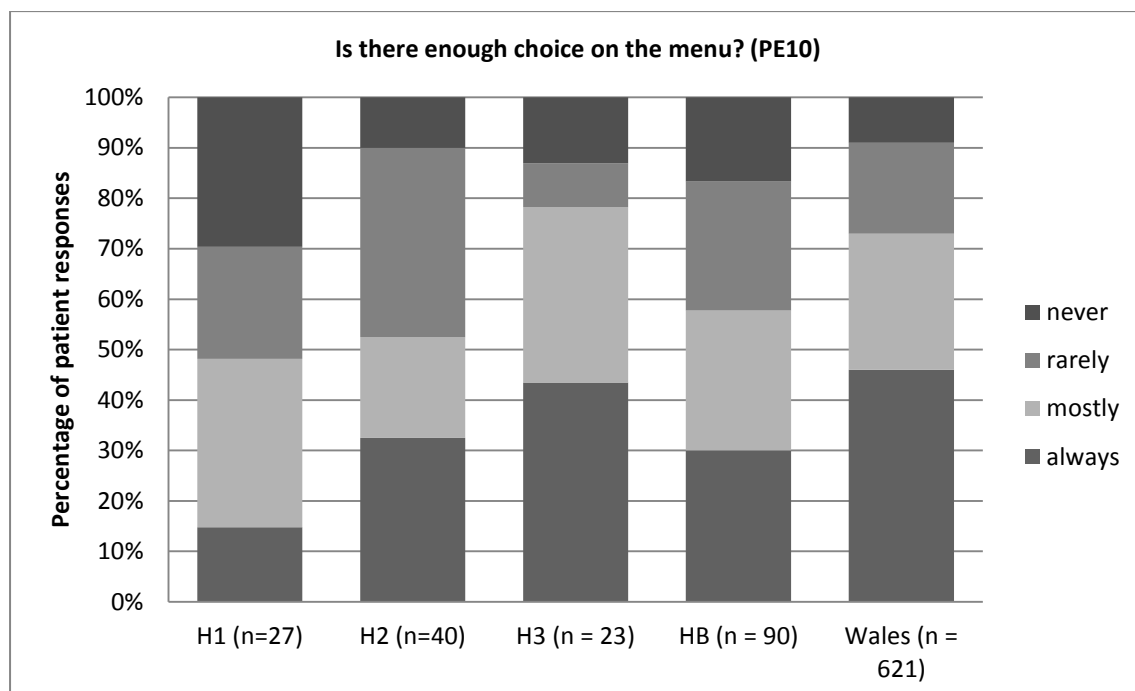
¹⁵⁴ Q. 7 in PE10

Under the historic menus, different ranges and choices of dishes were available within each hospital. Two questions relating to choice were asked in PE10, results as explored below. Firstly patients were asked:

- Is there enough choice on the menu?¹⁵⁵

Again, in relation to patient experience of choice, the three hospitals combined (shown as the HB) performed below the Welsh average (see Figure 17), 58% of the 90 respondents saying there was enough choice always and mostly, and 42% rarely and never (compared to a Welsh average of 73%/27%). H1 and H2 had similar combined ‘always and mostly’ responses, but H3 again had a higher satisfaction levels (78% saying there was enough choice always or mostly). The audit results also showed that H3 registered the highest satisfaction rates with regards to meeting the dietary needs of vegetarians, vegans, and those with food allergies¹⁵⁶.

Figure 17. Is there enough choice on the menu? PE10



¹⁵⁵ Q. 8c in PE10

¹⁵⁶ Asked in Q. 10 to Q. 14 in PE10

Contradictory data is found in the WAO's HB report (Anon 2010b), which presented the questionnaire results and reported on wider audit findings. Despite H3 showing the highest level of patient satisfaction with choice, the report text suggests that the H3 actually had a very limited menu choice¹⁵⁷. As printed menus show a wider range choice range, this can only suggest that ward level practice diverged from what the printed menu suggests. There was no mention in the WAO report of a special menu for those with food allergies, but of the 6 patients who had food allergies in H3, all noted there was enough choice to meet their needs always or mostly. Just why H3, identified by the WAO as the hospital with the least available choice, has the highest measure of satisfaction as regards choice is unclear, and may be representative of the methodological issues associated with small sample sizes.

Overall patient satisfaction with choice was inconsistent across the hospitals (Anon 2010b). This difference is perhaps reflective of the different menus on offer, but may be related to food service issues which will be discussed in the following chapter.

A second question in PE10 on choice, which relates to variety, asked:

- Does the menu change often enough? (for example you don't see the same food options every few days)¹⁵⁸

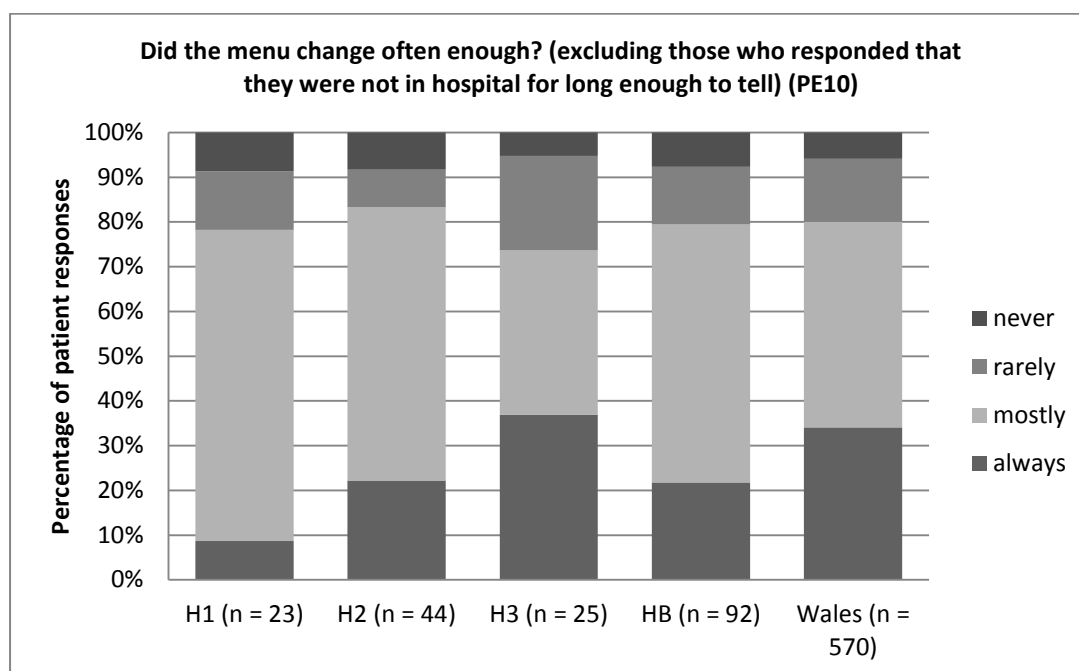
In response to this question, as can be seen in Figure 18, 80% of those who said they were in hospital long enough to tell¹⁵⁹ responded yes always/mostly, matching the Welsh overall average, suggesting that the two week menu cycle offered a fairly good level of patient satisfaction for those in hospital for a longer time. As the WAO data was not presented at individual level, no correlation could be made between length of stay and satisfaction with the changeability of the menu.

¹⁵⁷ offering one meat dish and one vegetarian dish per meal service, compared with two meat and one vegetarian in H1 and H2

¹⁵⁸ Q.9 in PE10

¹⁵⁹ 92 respondents

Figure 18. Does the menu change often enough?¹⁶⁰ PE10



4.2.2. Insights from staff interviews

Although initial staff interviews were undertaken in 2012, two years after the WAO audit, the historic menus served had not changed in any significant way over that time. Staff perceptions of the historic menu were positive. Variation *between menus* in hospitals was seen as necessary for two reasons: differing patient populations had different needs, and differences in kitchen equipment dictated different dishes¹⁶¹. Variation *between dishes* was also acknowledged by interviewees and was attributed to a number of reasons: the use of non-standardised recipes; chefs' individualised approaches to seasoning; the need to substitute ingredients if the stores had run out; and the differing production methods¹⁶².

The historic menu, and indeed menus in general, were framed as living documents that were subject to change and adaptation, a H2 Deputy Catering Manager noting that "it is surprising how many times you look at that menu and you could always change something or other". There was evidence of multidisciplinary engagement over the historic menu,

¹⁶⁰ excludes 17 responses from patients who said that they were not in hospital for long enough to tell

¹⁶¹ e.g. H2 did not have the equipment to cook pies

¹⁶² cook freeze and cook fresh systems require some differences due to the effect of molecular changes in some ingredients that the freezing and regeneration processes bring about. Without such alterations, texture quality can be poorer in some dishes under cook freeze

although not always successful. In the past, dietitians had led a drive to alter the menu by removing minced meat dishes. The motivation for this change was to move away from stereotypical hospital dishes that dietitians felt underpinned negative associations of hospital food. In practice this change was unsuccessful: at ward level this had led to reduced choice for those who needed softer food, and subsequently mince dishes were reinstated. Menu adaptations were also governed by the popularity and balance of dishes. Interviewees noting that ward based feedback and food waste figures helped highlight the least popular dishes, and common sense governed the balance of dishes, for example moister accompaniments (e.g. baked beans) would be put with drier mains (e.g. pie) and the most popular dishes were spread throughout the menu.

Although there were no nutrition standards that governed historic menus and no nutritional analyses undertaken of menus within the HB at the time of initial interviews, a number of catering staff felt that the menus did offer sound nutrition to patients. Newer delivery mechanisms such as food trolleys were seen as instrumental to this:

I think we are very nutritional, very nutritional, the service we have got compared to what we had years ago is so different, and is far better to what we...used to do, [which was] plated¹⁶³. These wagons, the regen ovens¹⁶⁴, the quality of food is far better, more variety in what we do (H3 Head Chef)

In relation to nutrition and budget limitations there was a mixed response with respect to the historic menu. For lower level catering managers it was felt that budget had not compromised nutritional capacity as nutritional needs were met through good basic food:

I suppose if we had more of a budget you could have sirloin steaks for patients, but do they want it? Our meat is top-quality. And as I say our veg [is good] (H2 Deputy Catering Manager)

More senior staff, including the Head of Facilities and the Lead Dietitian, felt that budget squeezes, particularly during the price spike of 2010/ 2011, had impacted on nutrition, particularly in the case of vitamin C. The primary source of vitamin C had been individual

¹⁶³ Plated service is when meals are plated in the central kitchen and delivered to the ward in this manner. At the time of this research a 'bulk' service model was used in which multi-portion trays of each dish are available on a heated trolley and meals are plated at ward level at the time of service.

¹⁶⁴ 'Wagons' refers to the heated trolleys used at ward level (H3) and 'regen ovens' refers to trolleys in which frozen food is regenerated (H1 and H2)

cuplets of orange juice. As prices had become squeezed, these had been removed from the menu, and it was recognised that this left a nutritional gap. A second organisational issue also underpinned the decision to remove orange juice: four members of staff interviewed noted that historically orange juice cuplets were particularly susceptible to staff theft and in some cases orange juice had not reached patients.

4.3. A changing era for the hospital menu

Moving on from the historic menus in place during the time of the WAO audit, which were still in place at the beginning of the research, two drivers of HFSS change dominated in the case study site: the HBs own strategic modernisation process and the new policy landscape that came with the introduction of the national Standards, both of which will be explored below.

At the time of the NHS Wales restructuring in 2009, a number of hospitals that are now within the HB were already working towards standardising and harmonising catering practices. Elements of good practice, such as the development of a cohesive policy framework and the multidisciplinary nature of catering and nutrition working groups, were recognised in the WAO 2010 audit (Anon 2010b) and were part of the HB's ongoing 'modernisation' initiative. The audit also highlighted areas for improvement, in particular the standardisation of catering services, the need for a review of recipes, the nutritional assessment of recipes and menus, and the need to take action on patient feedback (Anon 2010b). A single HB wide menu was not a recommendation, but menus were already under review within the HB at that time.

A catering strategy sub-group was established and tasked with the modernisation process. Seemingly mono-disciplinary in nature, consisting of catering staff from all main hospital sites including catering managers, supervisors, provisions stores staff, dining room and kitchen staff (Anon 2010b), the group reported on their main modernisation proposals:

- implementation of ward-based catering staff across the Board
- harmonization of catering practices and structures

- implementation of a Catering Strategy to include standardized patient menus, improved patient choice, and capital investment for the improvement of both kitchen facilities and ward environments
- standardization and centralization of procurement, catering administrative services and job specification

Anon (2010a)

Embedded in the above list was a recognition that ‘modernisation’ and service improvement was multi-dimensional in nature, including organisational rationalisation of systems (e.g. procurement, administration), of structures (e.g. policy and menus), and a commitment to improve food service delivery at ward level (through ward-based catering staff).

As this modernisation process was underway, the Standards (Welsh Government 2011b) were published, setting a new policy framework for the hospital menu across the HB and all Wales. Published seven months after the WAO Wales-wide Hospital Catering report (Vaughan Thomas 2011) the Standards were intended as “technical guidance for caterers, dietitians and nursing staff responsible for meeting the nutritional needs of patients who are capable of eating and drinking” (Welsh Government 2011b, p. 2). As discussed in the previous chapter, the Standards did a number of things relevant to the concerns of EPH: they acknowledged the systemic and multidimensional nature of the HFSS, raising the status of catering by framing it as a clinical support service, and requiring integrated multidisciplinary engagement in the HFSS; and they proposed a HFSS that integrates nutritional care and aspects of sustainability. While specific nutritional requirements were required, minimizing the environmental impact of hospital catering was also highlighted through the signposting of appropriate menu planning, procurement of sustainable goods and waste reduction. Despite this, inherent tensions within the Standards proposed are evident, such as the choice maximisation and waste minimisation.

The Standards were supplemented by an implementation plan (IP) (see Appendix 20) (Welsh Government 2011a)¹⁶⁵, with phased implementation stages running over four dates from

¹⁶⁵ There are additional Implementation Plan Standards, such as foodservice, that will be discussed in the following chapter. Other Standards, such as snacks, milk and special diet and nutrient requirements are beyond the remit of this study, and as such will not be drawn on

31st January 2012 until 30th April 2013. These Standards and the IP had significant implications for the HB as their historic menus became non-compliant.

As a mechanism for change, the Standards presented three categories within the IP with direct implications for menu planning: recognising the nutritional needs of the hospital patient, menu planning, and the menu framework standards. Table 14 lays out these categories below, showing in standard text the elements addressed in this study and in light grey the elements beyond the reach of the study.

Table 14. Categories and implementation dates as relevant for menu planning within the ‘All Wales Nutrition and Catering Standards for Food and Fluid for Hospital Inpatients. Concise Guide and Implementation Guide’

	Implementation date and standard specifications			
Standard category	Phase 1 By 31 st Jan 2012	Phase 2 By 30 th April 2012	Phase 3 By 31 st Oct 2012	Phase 4 By 30 th April 2013
Recognising the nutritional needs of the hospital patient	<p>There must be local assessment of the dietary needs of each hospital population¹⁶⁶</p> <p>The All Wales Nutrition Care Pathway should be followed¹⁶⁷</p> <p>An assessment of each patient’s dietary needs should form part of the nutritional care plan</p>			
Menu planning	<p>A multidisciplinary group must take responsibility for menu planning</p> <p>Menu planning must be undertaken using recognised menu planning principles</p>	<p>Standard recipes must be used</p> <p>Patient groups must be consulted before new menus are introduced</p>		<p>There must be a current nutritional analysis of all menus, undertaken by a registered dietitian.</p>
Menu Framework		<p>The mid-day and evening meal must allow the choice of 3 main courses to</p>	<p>Both the mid-day and evening meal menus must include the</p>	

¹⁶⁶ Standard text denoted elements tested in this study

¹⁶⁷ Light gray text denotes elements beyond the reach of this study

		<p>comprise:</p> <ul style="list-style-type: none"> -2 first course items -3 main course items, of which at least 2 should be hot -3 dessert courses of which at least one should be hot <p>Fruit juice should be offered as a first course item on 2 occasions to meet the minimum vitamin C specification of 40mgs</p> <p>There must be a vegetarian option at each meal</p> <p>There must be a combination and balance of foods from the 5 food groups</p> <p>There must be meal choices that meet health eating principles</p>	<p>following:</p> <ul style="list-style-type: none"> -A main meal course providing a minimum of 300kcal, 18g protein 912g for vegetarian option) -A fortified or high calorie option to provide minimum 500kcal and 18g protein -At least one fortified or high protein high calorie dessert to provide a minimum of 300kcal, 5g protein 	
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Adapted from Welsh Government (2011a)

Firstly, in mandating that assessing the needs of the hospital population is essential, the Standards facilitate in principle a HFSS that addresses both the biological and social, in that nutritional needs are recognised within the wider social context. Secondly, the IP recognises the importance of a multidisciplinary approach, the Standards signposting a broad range of disciplines for involvement in menu planning including Catering Managers, Dietitians, Speech and Language Therapists, Senior Nurses, Doctors, Patient Representatives and Procurement professionals (see Table 13) (Welsh Government 2011b). The importance of the material and cultural appeal of the menu plan is also clear, as is the impact that this may have on the biological nature of food intake: the Standards propose that planning the menu

around qualities such as dish familiarity, quality of ingredients and appeal of textures and colours impacts on patient experience, and in turn on food intake (Welsh Government 2011b, p. 18). Indeed this approach nods to food systems thinking highlighting the connections between menu planning and hospital foodservice system (HFSS) outcomes. Finally, the menu framework requests set choice numbers at meal times. Drawing from Scotland's 2008 guidance on hospital food (Scottish Government 2008) it is proposed that:

food is more likely to be eaten and nutritional requirements more likely to be met when patients are given the opportunity to choose their own food from a varied menu where choice is maximised (Welsh Government 2011b, p. 16)

Indeed 16 different choices were required in the IP: two starters, three mains (minimum two hot) and three puddings (minimum one hot) at both lunch and dinner. How this was to be managed was not stipulated, but the IP does ask that "food choice should be allowed as close to time of service as possible" (Welsh Government 2011a, p. 2). While the Standards do not make any explicit connection between choice availability and waste, there was a clear expectation that waste minimisation was to be prioritised for environmental reasons, and that thought should be given when ordering and when planning the menu as to "what the minimum capacity would be to meet the demand while avoiding wastage" (Welsh Government 2011b, p. 10). How this balance between choice and waste plays out in menu planning and in practice will be explored in later sections.

As illustrated above, the three Standards categories that relate to the menu, should they be implemented as intended, provide a framework that is materially, culturally, socially and biologically engaged: patients' individual needs and likes should be acknowledged, as should the collective social context and the thrust for variety through choice; dishes should have material appeal and meet the nutritional requirements of patient groups; and full multidisciplinary engagement should maximise organisational cohesion. What is less clear is the degree to which issues relating to sustainability are embedded in the process of menu planning. As explored in a previous chapter, the Standards have clearly signposted their commitment to sustainable hospital food, as expressed below:

The Welsh Government encourages all public sector premises that provide catering to identify opportunities to support and promote sustainable healthier foods where possible.

By choosing sustainable foods and minimising wastage, hospitals in Wales can have a significant local and global environmental impact (Welsh Government 2011b, p. 10)

Procurement managers are seen as the key stakeholders in their facilitation of access to sustainable food, and the multidisciplinary MPG is seen as the forum in which these issues connect: “involving procurement at an early stage of menu development to ensure appropriate and sustainable commodities can be sourced” (Welsh Government 2011b, p. 9). Yet, unlike nutrition and choice, which are tightly specified in the IP, no standards relating to sustainability and waste minimisation are stipulated in the IP. Without any specific requirements set around sustainability and waste, the Standards are at threat of remaining simply tokenistic in this respect. An exploration of the menu planning process within the HB and ward level practice throughout the rest of this thesis will in part explore this issue.

While the intentions of the Standards are clear in relation to the menu, the HB then was tasked with setting these principles into practice. The following section briefly looks at the HBs own menu planning policy and the resulting menu planning process within the HB as a mechanism to enact change. It uses menu planning minutes and draws out themes from staff interviews. Barriers and institutional constraints to meeting the Standards will be explored, as will the HBs attempts to prioritise change in response to operational challenges. Finally, what this prioritisation means for the principles of EPH will be explored.

4.4. Planning the new menu: the Health Board’s approach

While the Standards and IP represented the Welsh Government’s vision for a nutritionally appropriate integrated hospital food and fluid system, the HB’s Menu Planning Policy (The Health Board 2011a) represented an organisation wide commitment. The following section will look in more detail at the HBs own policy before moving into an investigation of menu planning in practice.

For the HB, the menu sits at the heart of catering and nutrition:

The menu is the most important plan in catering and nutrition management. It is a statement of intent and the base line from which many tasks needed to feed and serve patients are set (The Health Board 2011a, p. 3)

The HB's own Menu Planning Policy reiterates key themes in the Standards, develops other themes and in some cases shifts focus, illustrating an individualised organisational culture within the HB. The strongest parallels relate to the standards laid out in the IP (Welsh Government 2011a), in particular the formation of a multidisciplinary team and the need to meet set nutritional framework specifications relating to choice and nutrition. The Menu Planning Policy also clarifies the HBs intention to meet the needs of the individual, and honour the local social context through one main menu¹⁶⁸, although it notes that consideration must be given to other specialist groups unable to eat from this main menu. What the policy does not do is signpost issues relating to sustainability: procurement is not mentioned for example, nor is meat reduction (as has been seen in public procurement in Malmö, Sweden), nor are there any reference to the consideration of waste minimisation within menu planning principles. Again, the fragmentation of sustainability within traditional catering perspectives is evident.

The broader significance of meeting nutritional needs in hospital is well recognised both in social and economic terms within the Menu Planning Policy. Recognising the menu's significance for enhancing recovery, increasing patient wellbeing, lowering medical costs associated with malnutrition and offering opportunities to encourage healthy eating practices, the holistic and whole-life cost implication of good patient nutrition is made explicit. Also noted is the role of available resources, the policy suggesting that the menu must operate "within the parameters of the functional environment and financial constraints" (The Health Board 2011a, p. 3). Here the policy makes explicit that although nutritional wellbeing for all is at its heart, menu design in practice must consider existing operating systems, available budgets and available staff. If and how these issues may produce tensions can only be considered through an investigation of the practice of menu planning, which will follow in this chapter.

A further three interlinked themes worthy of note emerge from analysis of the Menu Planning Policy. Firstly, the policy suggests that menu planning is more than a formulaic scientific exercise: it is also an art and must consider the role of balance. The intricate multi-dimensional nature of what a menu must deliver is evident:

¹⁶⁸ proposing that this menu must meet the needs of the nutritionally well, the nutritionally at risk and vegetarians

balance providing accommodation of the variable needs of the consumers, adequate variety and choice from the 5 food groups, a variety of cooking methods, the opportunity to select from nutritionally sound diets, and produced in a safe manner within the prescribed costs with minimum wastage (The Health Board 2011a, p. 5)

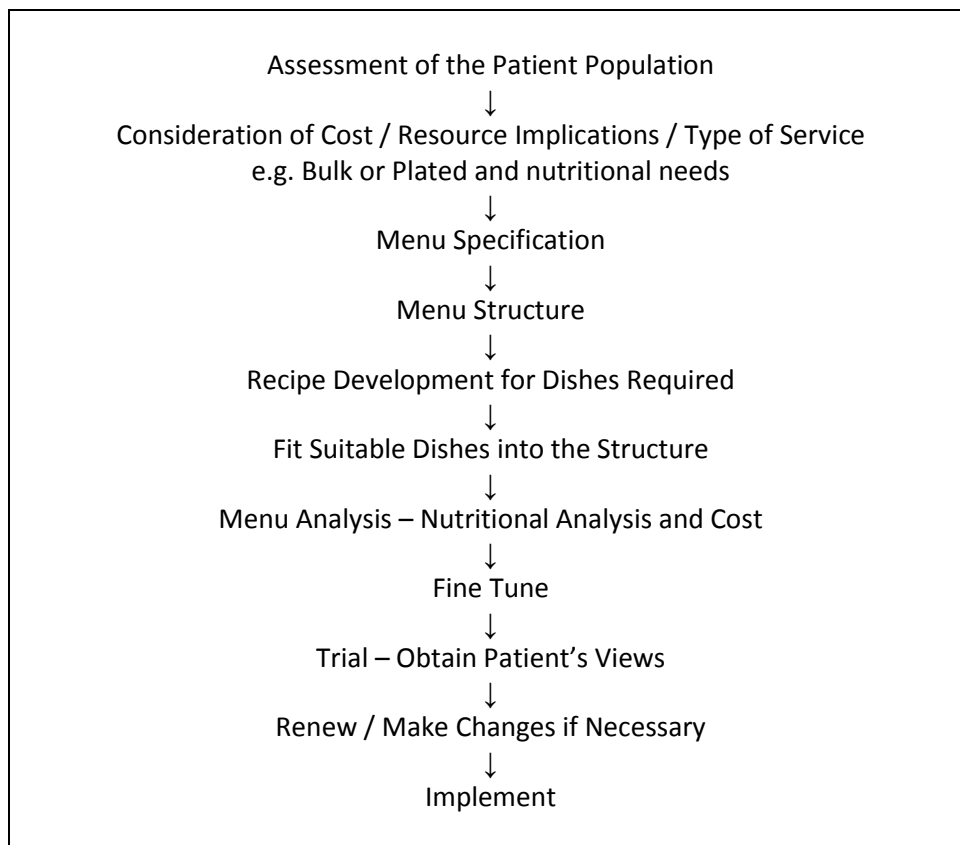
Covering a broad range of criteria, the flexibility and responsibility inherent within the menu planning process becomes clear. As such, cohesive multidisciplinary engagement that draws nutrition and catering together is central to menu planning.

Secondly, in line with the Standards, the HB Menu Planning Policy recognises that the successful menu emerges from reflexive practice:

the process of finding suitable dishes is a combination of developing and testing menus for palatability, checking the nutritional content i.e. nutritionally analysed by dietitians, calculating cost and then making the required changes to each of the dishes until this is resolved (The Health Board 2011a, p. 6)

The processes involved in menu planning (see Figure 19) illustrate the reflexive feedback loops that exist, including consideration of the balancing of patient acceptability, nutritional composition, cost and resources, further reinforcing the art of the menu planning process.

Figure 19. The Menu Planning Procedure



The Health Board (2011a, p. 18)

Finally, the Menu Planning Policy recognises the distinction between a well-planned menu and such a menu in practice, noting that “the real test of adequacy of any menu is whether or not the people eating it are all adequately nourished” (The Health Board 2011a, p. 5). Two routes towards encouraging nutritional intake are signposted within the document: good menu planning and good food service. At menu planning stage, maximising the appeal is key, ensuring the availability of adequate variety and choice of meals, and testing dish palatability, colour and texture in development phases with staff and patient feedback. Here material, social and cultural dimensions of hospital food are recognised.

Food service relates to ward-based experience, and although it will be considered in detail in a following chapter it is worth noting that in framing menu planning and food service as interconnected in the aim of having well-nourished patients, the Menu Planning Policy recognises the systemic nature of a HFSS.

4.4.1. Planning the new menu in practice

While the previous sections have outlined the policy landscape for patient food in Wales at national and HB level, the following section explores the resulting menu planning process within the HB as a mechanism to enact change by examining the menu planning group (MPG) meeting minutes and drawing out themes from staff interviews. The MPG was chaired by the HB’s Lead Dietitian, and the minutes from nine meetings, spanning November 2011 to February 2013 are drawn on. Barriers and institutional constraints to meeting the Standards will be explored, as will the HBs attempts to prioritise change in response to operational challenges.

Although the HBs own modernisation process signposted a number of routes through to foodservice system change, the Standards were the key driver in menu redesign within the HB. Three elements in the Standards were essential components of the HBs menu planning process in practice:

- Meeting the set nutritional requirements
- Meeting the set choice requirements
- Multidisciplinary working through a menu planning group (MPG)

The benefits of the Standards and these embedded principles were explicitly recognised by HB staff. Firstly it was recognised that good nutrition was of vital benefit to the recovery process, and that the knowledge and understanding of the role of good nutrition had grown:

If I am honest, going back a few years ago, nutrition was always important, but I don't think it was highlighted as much as it is today, and I think now we are focusing more and more on the nutritional quality of the menu plan, of the food that patients eat (Head of Facilities)

Obviously we want to provide the best quality nutrition we can. It is well documented, well versed that nutrition aids recovery, [patients] should get better, be in hospital less time, that all saves money down the line, less medication, it all saves money down the line. (Head of Facilities)

The Standards were seen by many interviewees as a powerful vehicle that had raised awareness, mobilised change and incentivised multidisciplinary approaches, as illustrated by comments from the Head of Facilities and the Lead Dietitian:

I certainly think there has been more focus on nutrition from all disciplines...[the Standards have] created awareness at Ward level which is where we need it... in-house it has made us take more note of what we are producing, and how we are producing, and what the end product should look like. I think from a nutritional analysis point of view it has put more focus on [the fact that] we need to do this element of work... it is about really having a better overview... perhaps joined up thinking, to take the whole process forward (Head of Facilities)

I think [the menu planning process] has given more impetus and power, I suppose, to the request for the menu that we believe will meet the Standards. It has also been the vehicle where we have been able to test out and introduce radical ideas that might have been difficult before to introduce... like the idea of the one week menu (Lead Dietitian)

In practical terms, multidisciplinary input was considered key to the successful planning of the new menu. The Head of Facilities noted the roles taken by different disciplines: speech and language therapy staff led with guidance on suitable texture modified meals; dietetics led on compliance to the nutritional specification of the Standards; nursing staff were framed as potential ward level food champions; a patient representative led on patient experience. Benefits of the multidisciplinary MPG were also noted by the Head of Nursing:

I think it is just working; we have a multidisciplinary team approach there, so we do have different views from different members of staff, so it is all getting together really and having that understanding, because we have all got things to bring to the table (Head of Nursing)

The lay member of the MPG, the patient representative, also saw the benefits:

I can see the genuine aim of the whole group actually to improve services within the means and the directives whatever from Cardiff... I can see that people are striving to get there, and that is encouraging to me (Patient Representative)

Perhaps most importantly, the multidisciplinary approach was fundamentally seen to benefit the patient:

I think in terms of a multidisciplinary team, obviously we have to make sure every agenda and every criteria that we are trying to work to, from an operational point of view, works and happens, and that the patient sees the benefit of that... The end goal is that the patient benefits. Everybody within the subject that we are looking at has interaction with the patient at some point in time, and I think that because of that we do need that multidisciplinary approach, just to make sure that that communication line is there and the patient sees the end benefit (Head of Facilities)

4.4.2. Planning the menu: into the detail

While the principles mentioned above guided the top level themes around menu design, exploration of the MPGs decision making processes, the interdisciplinary approaches and the outcomes sheds light on the complexities of operationalising menu planning.

Moving into the granular detail of decision making around the menu format, fundamental was the decision around menu length. As mentioned, prior to the menu planning process a two week menu operated across all three hospitals, and the MPG moved to replace this with a single one week menu. The primary reason for this change was the belief that length of stay was shortening (noted as 7-8 days by the Head of Facilities), coupled with the fact that greater choice selection would offer variety for longer stay patients. Added operational benefits were also identified:

I think [a one week menu] is a lot easier for our guys to cope with too in terms of consistency, in terms of making the dish. I think it's easier in terms of storage, easier for nursing staff who perhaps have to serve the food to get more familiar with the dishes and see it perhaps more regularly. I just think generally it fits in with what we are trying to achieve (Head of Facilities)

Despite this, some concern was raised during interviews as to whether longer stay patients would be content:

I do sometimes think that perhaps a one week cycle, is there enough?... There are people here for two or three weeks. I know they are looking at shipping people out quicker, but in an acute hospital like perhaps [H1], injuries and so forth, they are only probably in for a week, but some of our patients, you know like, you know we feed XXXX¹⁶⁹, it is their home, but yet if there is enough choice on [the new menu] each day, probably that will help. It is like swings and roundabouts (H2 Deputy Catering Manager)

The challenge of menu planning was evident in interviews, particularly in light of the range of hospital patient needs. The H1 Production Manager explained the variety of needs:

We try to vary, where you have got your meat protein, you have got your vegetarian options, you have even got your snacky options, like a lot of people just want a salad. You have got to provide that. Then you have got your soft options, then you have got your pureed options for patients. You have got your elderly that like your roast dinner, but are not capable of eating it, so you do it as a minced option for them, and then the pureed option which is for the soft option. But you have got your religious people to take into account. It all comes into the circle of what we are producing, and it's a hell of a lot of work to do, you know, to put in a new menu (H1 Production Manager)

Despite the interdisciplinary nature of the team, in practice the catering staff drove the development of the initial menu framework, the Head of Facilities commenting that a focused approach was needed:

I was very conscious that if you have 12 people around the table and say we are going to draw up a menu I think you could be there until a week next Tuesday and have only populated a few sections because everybody will have a different idea. So I wanted to take a common sense approach to that, and what I asked the caterers to do was to go away and develop the menu (Head of Facilities)

This pragmatic approach was founded on two primary considerations that emerged in interviews: knowledge and technical capacity. Caterers were felt to “know their business, they know what the popular dishes are, they know what goes well” (Head of Facilities), and secondly, caterers were aware of the technical capacity availability, “there is no good in saying you are going to produce this if you haven't got the equipment to produce it” (Quality Control Manager). With the catering team leading on dish selection, and with a one week menu agreed, the choice and balance of dishes throughout the week was now considered.

Within the menu planning process, the Standards request a local assessment of hospital patients' dietary needs as an essential starting point, illustrating a commitment to working

¹⁶⁹ An outlying psychiatric hospital

within the social context of the hospital population. Indeed staff, when talking about the three different historic menus in operation across H1, H2 and H3, had mentioned that differing patient profiles were contributory to the differences between these historic menus. In the spirit of multidisciplinary working, the assessment of patient needs was tasked to dietetic and speech and language staff, but this process appeared to focus on tangential elements (such as the availability of cutlery and crockery and the need for a suitable diet for one specific patient group¹⁷⁰), overlooking a broader hospital-wide approach. Instead, staff interviews showed that populating the menu with dish choices was governed by two preliminary drivers:

- offering dishes already known to be popular in the hospitals
- meeting the choice requirements set down in the Standards

The general consensus among staff was that ‘traditional’ dishes were popular with patients and would stay on the menu, but also that more ‘modern’ dishes had their place:

What you find is that people look for the comfort foods, the cottage pies, the dinners, things along that line (H2 Catering Manager)

People’s tastes have changed, I mean they might want a curry, so I think our [historic] menus are a bit dated (H3 Deputy Catering Manager)

In practice, menu analysis of H1, H2, H3 and the new menu dishes shows that the new menu was not in fact driven by what was popular across all three hospitals, as the MPG suggested. Only 11 main meal dishes¹⁷¹ out of 93¹⁷² on the historic menus were shared across the three hospitals, therefore a consensus on the most popular existing dishes in all locations would have offered limited scope for the new menu. Instead, the new menu was developed using a variety of existing dishes (mostly dishes served in both H1 and H2, who were already streamlining their menus), and a number of new dishes, some of which were drawn from the All Wales Menu framework.

While the Standards set down strict nutritional requirements for the menu, in practice the HB’s historic menu dishes had not been analysed, as was the case in many Welsh hospitals.

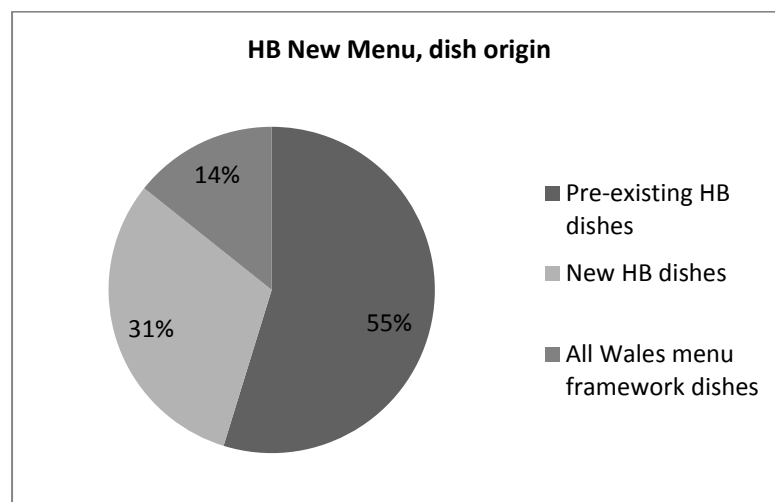
¹⁷⁰ Haematology patients

¹⁷¹ seven meat/fish dishes and four vegetarian dishes

¹⁷² 56 different meat and fish main course dishes and 37 vegetarian dishes

In recognition of this problem the WG, through Public Health Wales, supported the development of a bank of recipes (the All Wales Menu Framework) developed by the All-Wales menu planning group. Comprised of members from every HB, procurement and dietetics staff, this framework consisted of a list of dishes, many put forward by individual HBs, whose recipes were then tested for nutritional content and for palatability. The outcome was a database of recipes that met the Standards and could be drawn on by all hospitals¹⁷³. It was from this framework that the HB drew a number of new dishes (six in total). Overall the new menu was made up of 23 existing main course HB dishes (55%), six from the All Wales Menu Framework (14%), and 13 (31%) were newly developed (see Figure 20) As such, the HB clearly had confidence that some pre-existing dishes from the historic menu were still very much fit for purpose, despite having no nutritional assessment. The low take up of All Wales dishes was not explored in interviews¹⁷⁴, but during Wales-wide interviews, the all Wales Consultant Dietitian flagged issues of ownership and independence, noting that “I think the major challenges are people accepting to use other people's recipes”.

Figure 20. Health Board new menu (January 2013), dish origin



Consideration of environmental issues or sustainable sourcing was barely acknowledged in the menu planning process, despite being clearly signposted in the Standards, as discussed

¹⁷³ The All Wales menu Framework was launched online in January 2013, during the course of this study

¹⁷⁴ the HB were made aware of the All-Wales menu group quite late in the development of their own menu

earlier. Staff felt that such issues were beyond the remit of the MPG and lay with procurement:

It is not on our hands to make those choices and I think that is where the procurement, all procurement processes if you like are quite complex really, because it is not in our gift to have exactly what we would like, what the caterers would like (Lead Dietitian)

Indeed attendance at the MPG by procurement was poor, only one out of nine sets of minutes analysed showing procurement staff to be present. These minutes showed no reference to sustainability issues, and when interviewed separately, the HB's Procurement Manager noted that the Standards had principally driven the need for tighter nutritional quality tender specifications. He framed sustainable procurement as driven at national level through centralised tenders, leaving no flexibility at local level.

For the Lead Dietitian, the MPG's driver was patient choice over and above environmentally framed menus¹⁷⁵:

we try and get a balance between the different meats, fish, so you have got your red meat, your poultries, you have got your different fish, so we try and get the balance anyway (Lead Dietitian)

Two staff members commented on their hopes for ingredients and menus to develop in ways sympathetic to sustainability: the Head of Nursing advocating local purchasing, and the H1 Production Manager noting the potential for seasonally adjusted menus. Both noted the potential economic benefits, believing seasonal and local menus would achieve the best value for money.

As another dimension of more sustainable HFSS practice, in interviews food waste minimisation was generally attributed to food service issues (as discussed in the following chapter), but in the menu planning process, waste minimisations was seen as an outcome of ensuring the palatability and appeal of dishes through recipe testing. Indeed it was recognised that meeting the nutrition standards alone would not be enough to ensure dish appeal, as the social acceptability of dishes was vital too:

[If] we are going to have on the menu something which is nutritionally adequate but we know a lot of our patients don't like... and waste, and that is not a sensible use of our resources (Lead Dietitian)

¹⁷⁵ Such as menus that reduced reliance on animal based protein

4.4.3. Interdisciplinary dynamics

Despite greater awareness of the importance of nutrition, and the interdisciplinary nature of the MPG, more troublesome in the menu planning process was the interplay between cultural and biological dimensions of dish development, and how this played out between disciplines. In this regard, a key challenge was how to produce recipes that guaranteed nutritional compliance while being palatable at ward level. As the Lead Dietitian explained:

[Palatability] is really something that the caterers need to address, almost before we analyse a recipe. It is difficult; this is a bit of a debate. Should we go as far as to analyse a recipe? because there is little point them moving forward with it if it doesn't meet the standards, or do we say, as I maintain, you need to know that recipe is actually tasty before I bother to analyse it, because if it is horrible, we are not going to [serve it]. It is a difficult one, it is a genuinely difficult one. What comes first really, should we not be looking at the taste of the recipes before we analyse? (Lead Dietitian)

In practice there was evidence that dietitians and caterers did actually work together at early planning stages, the dietitians taking a guiding role in directing the *potential* for meeting standards. Indeed some popular dishes (e.g. Mediterranean pasta) were excluded from the new menu due to their poor nutritional performance. This issue of sequencing also hints at responsibility, and there was an underlying sense from catering staff that this relationship between dish development and nutritional analysis, and between the responsibilities of caterer and dietitian, was at times uneasy. Two issues were at the root: firstly that nutritional analysis and recipe development created a causal dilemma, and secondly that dietitian's resources (both time and financial) to analyse recipes was limited.

In relation to multidisciplinary working, in interviews the relationship seen as most fragile historically was undoubtedly that between catering and nursing staff. There were many areas of catering that nursing staff and Health Care Assistants (HCAs) were actively involved in on a daily basis (see Table 12), and at ward level, service in particular was taken out of the caterer's hand in H1 and H3. The resulting interdisciplinary tensions will be explored in more detail in the next chapter, but overcoming this divide was considered essential:

I think it is always handy to have nursing staff on board because they are such a big factor in terms of what we are trying to do, and I think many years ago communication between nurses and caterers probably wasn't there and it was very much seen as two separate teams (Head of Facilities)

The powerlessness of caterers to effect change by themselves was acknowledged by the Lead Dietitian, and for her, the politics underpinning the introduction of the Standards was hugely significant:

the impact of the value of having the whole team [in the MPG] is that if what is going wrong is because nurses aren't doing what they should be doing, you have got senior nurses [in the MPG] to identify it and say something. Caterers can't do that on their own, it is not fair. Caterers can only look at the food, and they can observe that there are problems, but what influence are they going to be able to have. So the MPG exercise is putting value in that, and that is something that I am very pleased has improved, so that has improved enormously, and that is down to Welsh government pressure, accounts committee, Welsh audit office... that was hugely influential in politicians making demands, saying this is important (Lead Dietitian)

Despite benefits being seen in integrating catering and nursing at MPG level, it was noted that at ward level there were still barriers, particularly when it came to getting menu feedback:

On the wards that have joined in on [food tastings], it has gone down very well. You have still got this stigma, a lot of nursing staff won't get involved, [thinking that] it is nothing to do with them. Those are the wards where you are just hitting a brick wall. Because they don't look upon [food] as part of medicine (H1 Production Manager)

Evidence was also forthcoming that ward level nursing staff were poorly informed about the menu changes: when asked about the opportunity to liaise with catering on the suitability of dishes for patients, a nurse from H2 responded:

We don't do that [laughs]. Somebody decides, I don't know who, and then they come up with this wonderful plan [the new menu]... I think perhaps they tried it in the beginning because of the waste, perhaps thought a different menu [would help] (H2 nurse)

While the benefits of the multidisciplinary approach of the MPG were recognised and indeed embedded in policy¹⁷⁶, in practice attendance was not always representative. Over the nine meetings analysed¹⁷⁷ only catering, dietetic and speech and language staff attended all. The greatest proportion of staff members in attendance were caterers (45 attended the meetings), followed by dietetics (14 attended) and nursing (10 attended). Of

¹⁷⁶ The Standards required a core membership for MPGs to include senior catering staff, nurses, dietitians, a doctor, patient representative, other associated health professionals and procurement staff at early stage planning

¹⁷⁷ The nine MPG meetings spanned from November 2011 to February 2013. The researcher did not gain access to any meeting minutes prior to Nov 2011, but as this coincides with the N&C Standards publication date, information of primary importance was available within the minutes accessed

the other groups, there was a patient representative at seven meetings and nursing staff at six. Procurement staff were just at the first meeting (an agreement was reached that procurement would be co-opted to meetings if a specific procurement issue arose¹⁷⁸) and a medical doctor was never present (apologies were received from this staff member on three occasions). As such, there were no meetings where staff composition complied with recommendations in the Standards.

4.4.4. Beyond the Standards

Moving beyond meeting the Standards, a number of other factors were evident in shaping the menu planning process, such as technical capacity and menu balance, but cost in particular had a primary role.

At the beginning of the HBs menu planning process, no extra funds had been released at Board level to enable menu implementation. Some of the Standards, such as planning, scoping and development exercises could be met without extra investment: these included the formation of the MPG, the local assessment of dietary need, the development of standardised recipes, and the designing of the menu. An early procurement scoping exercise, reported in the MPG minutes of December 2011 (The Health Board 2011b), had hinted at the financial implications of purchasing food items with compliant nutritional content: the cost of purchasing compliant cheese, yogurt and sausages, for example, would add £20k to the annual budget. By January 2012, easily introduced initiatives (such as the provision of bedtime snacks and providing a third jug of water a day) were held back due to lack of funding (The Health Board 2012d). By April 2012 a full report on the cost of implementing the new menu and meeting the Standards had been drafted for the Board by the Head of Facilities (The Health Board 2012a). Overall the extra cost of implementing stage one and two of the Implementation Plan was estimated at over £1.25 million, broken down as is shown in Table 15.

¹⁷⁸ Noted in the MPG meeting of January 2012

Table 15. Health Board costs to implement Stage 1 and 2 of Standards Implementation Plan

Additional needs to comply with the Standards	
Stage 1 of Implementation Plan	Cost per annum
Snacks	70k
Additional 250ml milk per patient per day (250ml already provided)	150K
Increase in beverages & extra water jug change	170k
Microwaves (for the provision of hot milky drinks)	53k
Reintroduction of fruit juice	70k
Stage 2 of Implementation Plan	Cost per annum
Modifying and increasing the nutritional standard of the menu (costed at an extra 41p for each patient's daily meal provision)	£750k

The Health Board (2013b)

By the following MPG meeting (May 2012), with the historic menu still in place across hospitals, a new menu was formally agreed. At the same meeting it was also confirmed that no extra funds were available at Board level for implementation despite the timeframes for phase 1 and phase 2 in the IP having passed. Throughout the menu planning process, until this point, the focus had been on meeting the Standards in terms of dish choice, along with a long term commitment to implementing nutritionally adequate dishes¹⁷⁹. In essence the new menu and supporting staffing infrastructure planned by the group represented 'the ideal' way forward, but the financial position of catering was already tight:

What we have to realise as well is that from a provisions point of view we are underfunded anyway. We struggle to keep that budget line where it needs to be, and that is because commodities have gone up, prices have gone up, different foodstuffs, different food groups, and you don't get the inflationary rises required, or we might get 2% inflationary rise, but nobody takes into account that perhaps red meat has gone up by 25% (Head of Facilities)

Faced with no budget increase to account for the Standards, the MPG, directed by the Head of Facilities, revisited their menu plan. Driven by prioritising what they felt would be most beneficial to the patient, the group slimmed by back choices (removing starter options) and put on hold their commitment to nutritionally upgrade dishes if there was a cost implication. A new (interim) menu, following these principles, was 'reluctantly agreed' by

¹⁷⁹ This food element of this study focuses on main dishes. Other elements of meeting the Standards, such as the provision of drinks, are not included in this study

the MPG (The Health Board 2012b). The compromise was acknowledged by the Head of Facilities, but the value of the new slimmed back menu as a key to unlock funding was emphasised:

We still obviously have a lot of other key priorities to implement, but we just felt [the new 'interim' menu] was a good starting point for that. If we do get that investment we can show our executive team and the finance guys how we are spending that money wisely (Head of Facilities)

The benefits of this new menu were seen as multiple: the menu was a statement of intent, an improvement on the existing historic menus, and a logistics pilot for the future compliant menu:

Moving forward to a 1 week menu [is] showing some evidence of progression of implementation of the Welsh Standards. [The] Interim menu will offer patients more choice, [is] easier for production and from a CPU¹⁸⁰ point of view [will] give an idea if a full menu would be achievable (The Health Board 2012b)

Despite the funding barriers and the adoption of the new menu, the MPG continued to operate, demonstrating their commitment to progress by costing out the implications of nutritionally upgrading dishes, developing recipes, conducting food tastings and contributing to the All Wales Menu Framework development process. This ongoing developmental work was framed with budget release in mind:

As the funding comes in... it's an easy transition really where we just introduce new recipes, introduce new products that actually meet the Standards (Head of Facilities)

4.4.5. Re-prioritising in times of austerity

Despite non-compliance with the Standards in relation to nutritional analysis of dishes and range of dish choice at the time of this study, due primarily to lack of funding, the menu planning process continued (see Table 16: areas of non-compliance in bold italic text). In light of the funding deficit, the MPG undertook a prioritisation exercise designed to make

¹⁸⁰ Central Production Unit

Table 16. Health Board compliance with 'All Wales Nutrition and Catering Standards for Food and Fluid for Hospital Inpatients. Concise Guide and Implementation Guide' (Welsh Government 2011a) by June 2013¹⁸¹

Bold italic text = areas in which the HB was non-compliant by June 2013

Standard category	Implementation date and standard specifications			
	Phase 1 By 31 st Jan 2012	Phase 2 By 30 th April 2012	Phase 3 By 31 st Oct 2012	Phase 4 By 30 th April 2013
Recognising the nutritional needs of the hospital patient	There must be local assessment of the dietary needs of each hospital population			
Menu planning	A multidisciplinary group must take responsibility for menu planning	Standard recipes must be used Patient groups must be consulted before new menus are introduced		<i>There must be a current nutritional analysis of all menus, undertaken by a registered dietitian.</i>
Menu Framework		The mid-day and evening meal must allow the choice of 3 main courses to comprise: -2 first course items -3 main course items, of which at least 2 should be hot -3 dessert courses of which at least one should be hot Fruit juice should be offered as a first course item on 2 occasions to meet the minimum vitamin C specification of 40mgs There must be a vegetarian option at each meal	<i>Both the mid-day and evening meal menus must include the following:</i> <i>-A main meal course providing a minimum of 300kcal, 18g protein 912g for vegetarian option)</i> <i>-A fortified or high calorie option to provide minimum 500kcal and 18g protein</i> <i>-At least one fortified or high protein high calorie dessert to provide a minimum of 300kcal, 5g protein</i>	

¹⁸¹ Standard specifications not considered in this chapter have been excluded from Table 16

best use of a potential partial budget release to move towards Standards compliance (The Health Board 2013a). This re-evaluation moved away from the issues laid down in the IP, formulating a new set of priorities as follows:

- Enhanced and nutritionally analysed fresh soups and accompaniments (i.e. a roll and butter)
- Development of main course recipes (45% of recipes to be worked on)
- Higher energy snacks for patients at moderate to high nutritional risk
- General snack items for adults and children

The Health Board (2013b)

These priorities were costed at £520k¹⁸² and were based on biological and social priorities: meeting patient preferences (soup was a popular choice), bolstering the nutritional content of dishes (soups and main dishes) and offering easy items to bolster nutritional intake (snacks). This work was ongoing at the time of ward based data gathering, and as partial funding was confirmed after the data gathering was complete, these priorities had not been implemented at the time of this research.

Finally, HB staff noted inherent weaknesses in the implementation of the new menu and the finalisation of All Wales Menu Framework dishes. Neither of these was seen as the final goal of the menu planning process. Continuous improvement and flexibility instead were proposed as the principles underpinning successful menu planning:

We should then be pushing our guys on the shop floor to develop new recipes to be implemented on to [the All Wales Menu Framework] as well, so that you don't just stop with a bank of 40 recipes. It continues. You can take some off, or you can take them to seasonal, you can do various things because cost changes all the time as well. Products might be cheaper to buy now, some costs might start to rise and then you have to pull that product off. If recipes are there that are not being used for whatever reason we should have a mechanism where we pull that recipe off because nobody is using it (H1 Production Manager)

¹⁸² Almost the same amount that had been costed to meet stage one of the Standards (see Table 15)

4.5. The new menu: from planning to ward based practice

This chapter has introduced catering in the case study HB and identified the menu as a primary HFSS subsystem through which the concerns of EPH could be explored. The first research question asked about the conditions of change for the HFSS, and the HBs own modernisation process, along with the introduction by the Welsh Government of the national Standards for hospital inpatient food and fluid were identified as key drivers of change. The Standards, termed as technical guidance.(Welsh Government 2011b, p.2), had a phased implementation plan (Welsh Government 2011a) which spanned the research period, after which compliance was mandatory for all Welsh Health Boards. As a benchmark, patient experience of the historic menus (in place across three differing HB hospitals at the beginning of this research) was explored, in particular patient experience of choice and nutritional suitability, drawing on data from the 2010 WAO audit (Anon 2010b). Results showed great variation between hospitals, and under-performance in relation to Welsh results, but sample sizes were recognised as small.

As the key route to implementing the national Standards within the HB, the menu planning process was explored. In line with principles of EPH, which ask for systemic and multidimensional approaches, the multidisciplinary nature of the group was perceived as a key strength by staff. Yet in practice, multidisciplinary endeavours were not always successfully operated: tensions were noted between catering and dietitians in relation to undertaking nutritional analysis – a fundamental requirement in the Standards, without which here was no guarantee of the nutritional adequacy of the menu. In addition, attendance at menu planning meetings by differing disciplines was patchy, with significant gaps in procurement and no senior doctor in attendance. These implications will be further explored in the data analysis chapter.

Multiple factors underpinned the menu planning process, with choice maximisation prioritised, and a gap is evident in the consideration of sustainability and waste minimisation at menu planning stage. As a result of funding deficits, it was clear that compliance with the Standards in relation to menu planning could not be achieved. Two newly planned menus were discussed: the ideal new menu (a Standards-compliant menu) and a second slimmed down new 'interim' menu, designed as a pragmatic response to

budget constraint. In addition, a re-framing of priorities was identified as underpinning short term future menu planning processes, although the outcome of this phase ran beyond the timescale of this research. Again, the findings presented in this chapter will be analysed in greater detail in response to the research question in data analysis chapter six.

While a pragmatic approach saw a new interim menu agreed within the MPG, the systemic nature of this menu was recognised by the HB Menu Planning Policy: “the real test of adequacy of any menu is whether or not the people eating it are all adequately nourished” (The Health Board 2011a, p. 5). What was agreed in principle therefore could only be tested through patient outcomes, and staff themselves recognised that in practice things could be different:

I think everyone is aware that [patients] will only eat what they want to eat, and having all the standards, yes they are brilliant as a guide, but again you can't force people can you?
(Lead Dietitian)

Creating appetising meals had been considered and tested during the menu planning process though recipe tastings, but as the Head of Facilities explained, getting the whole cycle of food provision right was vital:

Hopefully what we want to do is give the right nutrition to get [patients] better, but within that we have got to make it attractive, we have got to make it taste nice, and I think we have got to get the service elements right as well. It is the whole process. It is not bit parts (Head of Facilities)

A number of members of catering staff had spoken of the importance of ward level food service, and of the impact of different models of food service on patient experience and delivery standards. Nursing and dietetic staff had also recognised the differing workplace pressures on staff who served food. As such, the following chapter will investigate a second HFSS subsystem, food service, by moving the research site onto the wards and addressing research question two.

Chapter 5: Onto the wards

Ward level practice/food service has an important role to play in HFSSs in ensuring that principles and policies are met in practice, that patients are well nourished, that patient experience is positive, and that systems are sustainable through minimising waste.

This chapter will present data in response to the question:

At the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are their implications for the principles of Ecological Public Health?

As discussed previously, practice was investigated in nine wards over three hospitals. Where possible, the same wards were chosen for data collection inclusion as had been used in the 2010 WAO study¹⁸³ (Anon 2010b). Two of the nine wards had changed in the intervening years, and under the guidance of the Head of Nursing, substitute wards were chosen to best match the patient profile of the original study wards. For consistency, two consecutive days were spent on each ward, and the same two days of the week, Wednesday and Thursday, were used on each ward so that all data was gathered at the same point in the menu cycle¹⁸⁴. On these wards multiple methods were employed: food service was observed; 33 informal staff interviews took place, many in the form of short exchanges during the working morning; patient experience questionnaires PE13 were administered; and food waste data was collected. In addition a lasagne study was undertaken on day two of each ward visit, as will be explored in more detail in a following section. The chapter will present data in three sections, and analysis in relation to EPH will take place primarily in the subsequent data analysis chapter.

Firstly, as the Standards were identified as the main driver of change for menu redesign, the following section draws out key Standards that relate to food service in practice from the IP

¹⁸³ Four HB hospitals were audited in 2010, and ward based observations and patient experience questionnaires (called PE10s in this study) were focused on three wards within each hospital. As mentioned earlier, this study focuses on three of these hospitals as a PFI agreement was in place in the fourth.

¹⁸⁴ The HB operated a one week menu

(see Appendix 20). Complementary data from PE13 is presented, and through comparison with the HB Wales Audit Office study PE10 (Anon 2010b), change in patient experience under the historic and new menus is explored, identifying if change matches expectations for improvement. Staff practices around food service are then explored through observations and informal staff interviews. Choice is important in this study as explained previously, and choice arrangements may affect patient satisfaction and food waste, a potential tension between the two occurring. In theory, the new menu acts as a control mechanism with regards to choice, as the menu was standardised across the three hospitals. Despite this standardisation, the HB did not issue written menus to patients¹⁸⁵, leaving staff as verbal gatekeepers of the menu, and of choice.

The second section therefore draws choice and waste together, presenting data to explore the relationship between staff practice and on waste levels. Indeed, as discussed previously, Lipsky (2010) proposes that staff act as 'street-level bureaucrats': through their practices, policies are 'made'. Lipsky also proposes that workers often operate with competing objectives, in that they "characteristically work in jobs with conflicting and ambiguous goals" (2010, P. 40). As such, observing ward level practice and informally interviewing staff aimed to draw out key tensions. Ward level food waste is also investigated from a purely quantitative perspective, exploring any gap between researcher-measured food waste and HB reported levels, and putting an economic value on the waste. This is particularly important for two reasons. Firstly, there was a gap between aspiration and incentivisation in policy: without any waste minimisation targets set in the Standards or elsewhere, internal HB auditing systems were the only monitoring mechanism. As the HB macerated its ward level food waste within one hour of food service, physical food waste quickly became 'invisible', having no measurable associated costs in waste disposal. Secondly, as the previous chapter showed, budget was a main barrier to implementing the Standards. As such, the financial implication of wasted food provides a counterpoint when looking at the economic sustainability of the HBs catering from a systemic perspective.

Finally, data from the lasagne study are presented. This study proposes that one measure of success of a HFSS is in the intersection between patient satisfaction, adequate nutritional

¹⁸⁵ A4 sized black and white printed menus were displayed on notice boards on all wards studied, but during observation no staff member or patient was seen looking at this menu

intake and minimised waste¹⁸⁶: a HFSS is successful when patients are satisfied, have eaten enough to fulfil their biological needs, and waste is minimised. In an organisational context, in bringing these key elements together, some of the principles of EPH are tested. In looking at one meal across all nine wards, at patient experience of this meal, at food intake and at what was left uneaten, a fuller understanding will be sought of the relationship between these three elements, addressing a gap in literature.

Ward level data was collected between April and June 2013 and a pilot study was undertaken in March 2013. The researcher did not trial the general patient experience questionnaire (PE13), as this replicated the WAO's 2010 patient experience questionnaire¹⁸⁷. Two lasagne questionnaires were trialled: one delivered with the meal with a focus on food quality, and one delivered after the meal with a focus on reasons for food left uneaten. Photographic methods were also trialled to record pre and post meal plates of lasagne. A number of methodological changes were made following the pilot. Having two lasagne questionnaires was overly complicated, and this was reduced to a single questionnaire, LSQ, to be administered after post-meal. Pilot ward staff had ordered extra lasagne as they were aware of the lasagne study, skewing results, so subsequently staff were not told which meal was involved. Photographing plates to assess food waste proved unreliable given the speed of service, and visual methods were used thereafter. In addition, logistics, hygiene practices and dress code were altered¹⁸⁸ as a result of the pilot.

On each ward the following tasks were undertaken, with data types and volumes collected as shown in Table 17, supported by the ward study protocol (see Appendix 5):

¹⁸⁶ It was beyond the scope of this study to look at the procurement processes and production methods behind this dish, but broadening the lasagne study to include these elements would allow for a fuller understanding of the HFSS in operation within the framework of EPH

¹⁸⁷ In not trialing PE13 an important detail was overlooked. On the first day of the actual study, patient experience questionnaires were left for patients to complete in their own time, and a number of patients left sections incomplete. On all subsequent days the researcher read the questions out to patients and filled the questionnaires in accordingly

¹⁸⁸ The researcher subsequently dressed to be bare from the elbow down, used a wipe clean cross-body bag for data gathering material such as pens, questionnaires, study information letters, prompt sheet and camera, and used a wipe clean clipboard to minimise the potential for contamination.

Day one

- Introductions, drawing up bed plan and noting patient exclusions (see sample at Appendix 12)
- Observation of food service practices (around the lunch service)
- Patient experience questionnaires PE13 (Appendix 8)
- Informal staff interviews

Day two

- Introductions, drawing up bed plan and noting patient exclusions
- Measurement of trolley waste (main course items only)
- Patient experience questionnaires (PE13) (any missed from day 1)
- Observation of food service practices (around the lunch service)
- Lasagne patient experience questionnaires (LSQ) (undertaken after lunch service) (see Appendix 9)
- Observation of lasagne plate waste (LSP) (undertaken at and after food service)
- Informal staff interviews

In addition, ward based documents were observed and photographed, and food trolley contents were photographed before and after service as supplementary evidence.

Table 17. Ward based data collection

Data Type	Data source and volume
Informal interviews	33 staff
Observations	9 wards
Patient Experience Questionnaires (PE13)	104 patients
Lasagne Patient Experience Questionnaires (LSQ)	38 patients
Lasagne intake/plate waste (LSP)	48 patients
Trolley waste	9 lunches

5.1. Beyond the menu: food service and the policy landscape

In addition to its menu planning focus, the Standards recognise the importance of ward based practice and food service. Drawing on key documents, the Standards outline a series of commitments that address choice, dignity at mealtimes¹⁸⁹, patient-appropriate portion sizes, flexible service, missed meal provision, specified meal gaps, assistance with eating and staff training (Welsh Government 2011b, p. 16). These are translated into a series of implementation standards, as shown in the IP (see Appendix 20)¹⁹⁰.

As discussed previously, due to a lack of resources, some elements of the IP were not met within the new HB menu: reduced choices were available at each meal and no nutritional analysis was undertaken within the HB. Despite this, in order to track change under the new menu, and investigate to what extent patient experience reflected the aspirations of both the Standards and the MPG, elements of the IP (shown in Table 18) are explored.

Table 18. Standards within the Implementation Plan for further investigation

Standard category	Implementation date and standard specifications			
	31 st Jan 2012	30 th April 2012	31 st Oct 2012	30 th April 2013
Recognising the nutritional needs of the hospital patient	There must be local assessment of the dietary needs of each hospital population The All Wales Nutrition Care Pathway should be followed An assessment of each patient's dietary needs should form part of the nutritional care plan	n/a	n/a	n/a
Food service	Patients should be given the opportunity to choose their own food from a varied menu A choice of portion size should be offered	n/a	n/a	n/a

¹⁸⁹ such as well prepared eating areas, hand washing and the provision of eating aids

¹⁹⁰ Missing from the IP was the required implementation of protected meal times. Protected meal times set aside a period of time (usually one hour) over the meal service during which patients should not be interrupted and the ward should be free from activity unrelated to the meal (e.g. cleaning). Visitors are usually encouraged when they assist or encourage a nutritionally vulnerable patient to eat. Often considered essential in facilitating an environment that maximises both food intake and positive patient experience, as protected meal times are unsuited to all wards, particularly those with a high turnover (such as maternity wards), their implementation may have been seen as a local decision and therefore not required through the IP.

5.1.1. Recognising the nutritional needs of the hospital patient

Nutritional and dietary needs of hospital patients are much more diverse than other public sector organisations (Welsh Government 2011b, p. 5). A thorough understanding of patient needs at group and individual levels therefore underpin the HB's ability to meet needs. Three implementation standards were put forward in this area, as shown in Table 18. Firstly, the IP asks for the local assessment of dietary needs of each hospital population, and as discussed, this was undertaken poorly by the MPG in December 2011. The IP then focuses on the individual level, asking that the All Wales Nutritional Care Pathway should be followed and that an assessment of individual dietary needs should inform a patient's care plan. In turn, the Care Pathway asks that all patients are weighed and screened within 24 hours of arrival to assess for malnutrition or risk of malnutrition.

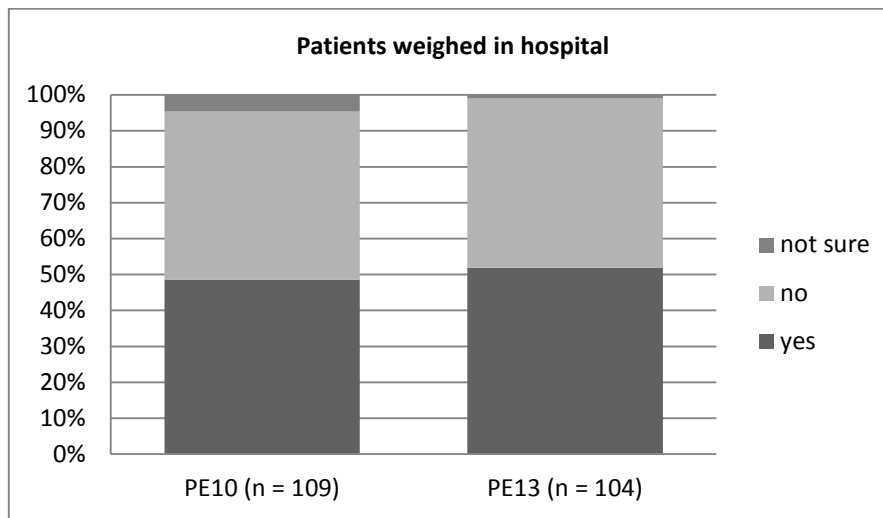
To explore change in practice around these areas from the patient perspective, three questions from the PE10 and PE13, as shown below, were analysed, and additional patient responses considered:

- Have you been weighed during your time in hospital?
- Has a member of staff talked to you about your dietary needs? (for example nutritional supplements, sugar free food, low-fat food etc.)
- Have you been given food that was suitable to your dietary needs? (for example nutritional supplements, sugar free food, low-fat food etc.)

Results to the question, '**have you been weighed during your time in hospital?**' show little change in the proportion of study patients reporting being weighed¹⁹¹ (see Figure 21). At hospital level, H1 wards showed some improvement (30% in 2010, 53% in 2013), H2 wards remained fairly static (57% in 2010, 59% in 2013), and H3 ward figures fell (55% in 2010, 43% in 2013) (see Appendix 23). Figures varied greatly between wards: just 2 out of 15 (13%) were weighed in H3W2 while 5 out of 6 (83%) were weighed in H3W3. In H3W2, of those who reported that they weren't weighed, four were in their eighties and had been in hospital for a week or more; this group are a high malnutrition risk, and therefore practice in this ward was failing the most nutritionally vulnerable. As this study did not allow access to personal patient documentation, self-reported data could not be corroborated.

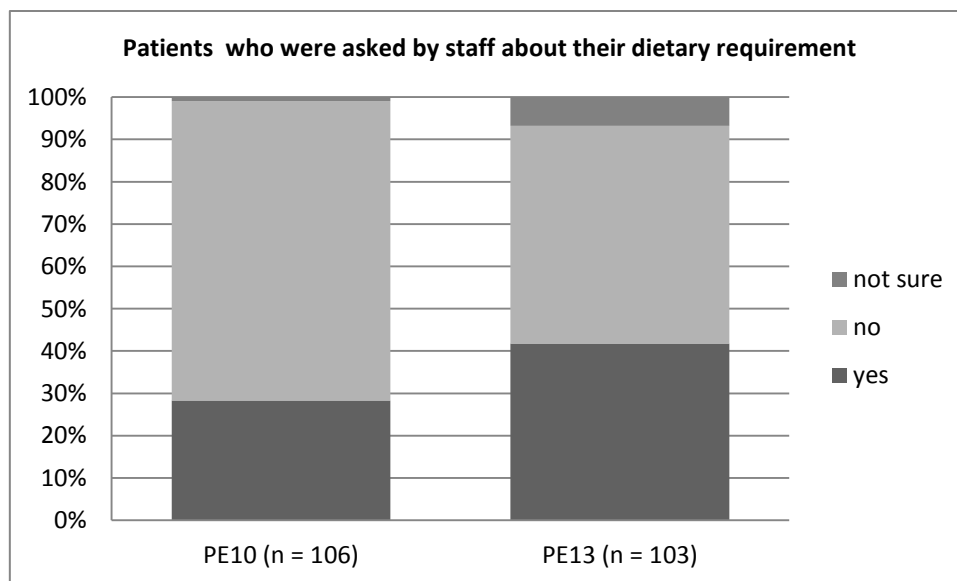
¹⁹¹ 52% of respondents reported being weighed in 2013 and 49% in 2010

Figure 21. Have you been weighed during your time in hospital? PE10 and PE13



When asked ‘has a member of staff talked to you about your dietary needs (for example nutritional supplements, sugar free food, low-fat etc.)’, patient experience in 2013 showed some improvement¹⁹² (see Figure 22).

Figure 22. Has a member of staff talked to you about your dietary needs? PE10 and PE13



At hospital level, H1 wards showed the greatest improvement¹⁹³, H2 wards remained static¹⁹⁴ and again, H3 wards showed a drop¹⁹⁵. Again, there was wide variation between

¹⁹² 42% responding that they had been asked about their dietary requirements in 2013, against 28% in 2010

¹⁹³ 20 out of 32 (63%) respondents reporting that they had been asked in 2013 when just 4 out of 34 (12%) reported the same in 2010

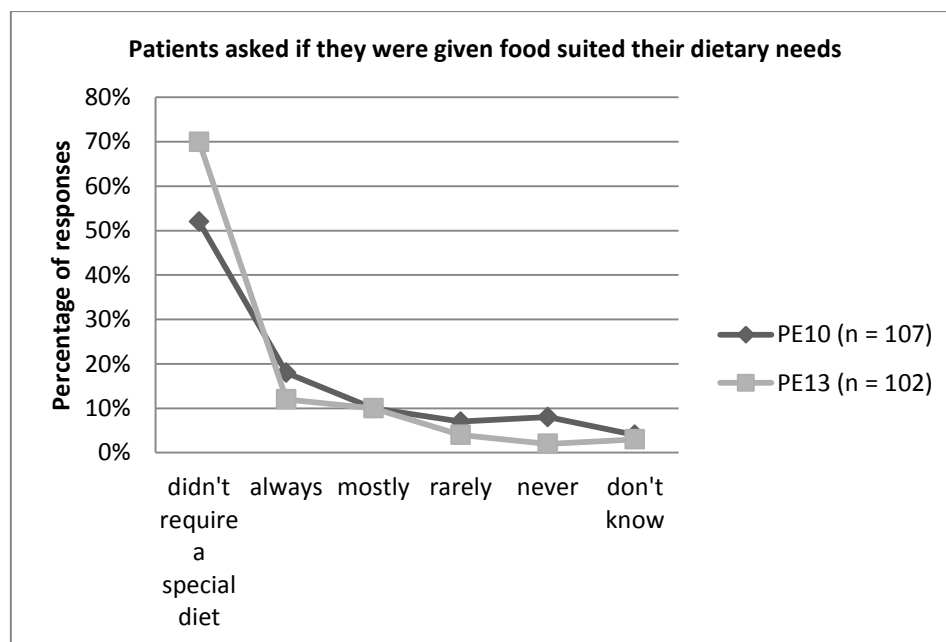
¹⁹⁴ 32% reporting that they had been asked about their dietary requirement in both years

wards: just 1 out of 10 (13%) were asked about their dietary requirements in H2W2 while 5 out of 7 (71%) were asked H1W1. The proportion of patients who were unsure if they had been asked about their dietary requirement rose considerably, from 1 patient in 2010 to 7 patients in 2013 but no clustering of these responses was apparent¹⁹⁶.

While the previous question reflected to what extent an assessment was made of a patient’s dietary needs, when asked ‘**have you been given food suited to your dietary need?**’, the response reflected to what extent the patient believed their dietary needs were met. The proportion of patients reporting that they did not need a special diet increased from 52% in 2010 to 70% in 2013, perhaps due to the methodological approach¹⁹⁷.

Although the majority of respondents felt they had been given food suitable to their dietary needs, six patients out of 102 reported rarely or never receiving food that was suitable to their dietary needs¹⁹⁸ (see Figure 23), half from H3W1, responses as explored overleaf.

Figure 23. Have you been given food suited to your dietary need? PE10 and PE13



¹⁹⁵ from 43% in 2010 to 32% in 2013

¹⁹⁶ these patients came from 7 different wards

¹⁹⁷ in 2013 most of the questionnaires were conducted face to face. The researcher’s first question was “do you have any special dietary needs?”. If the answer was no, the researcher moved to the next question. The methodological approach for 2010 is unknown

¹⁹⁸ P.31, P.14, P.15 and P.94 responded rarely, P.2 and P.13 never

H3W1 was a Cardiac ward, staff and patients noting the unsuitability of the menu for patients' medical profile. Staff mentioned that on this ward the standard menu was used despite having patients whose condition would benefit from a healthier eating approach: *"fish and chips, sausage and mash: you've just had a heart attack – the irony isn't lost"* (HCA H3W1). These sentiments were echoed by patient 2 (P.2)¹⁹⁹ in a conversation with the researcher at lunch service:

Look at my plate, [sliced roast pork] mashed potato, one green and gravy. Look at that [points to crumble and custard]. I shouldn't be having that; I should be having a salad. I can't ask for a salad – look at that [points to the hot trolley] (P.2, H3W1)

The above verbal exchange, overheard by ward staff, prompted a HCA to say *"I can get you a salad if you want"*, a fact that the patient had previously been unaware of. These feelings were reiterated by the same patient in the PE13 questionnaire, also noting additional failures in communication between him and staff on nutritional issues:

I am in a cardiac ward having had a heart attack. The food served is very good, but the direct opposite of the food I have been advised to eat by the hospital aftercare person who is not at all interested in what I have to say (P.2, H3W1)

A second patient on the ward (P.14²⁰⁰) felt her dietary needs were rarely met. While the reasons were primarily medical, the underlying causes of her dissatisfaction were non-medical. The patient had difficulty swallowing meat and would sometimes order a vegetarian sandwich to avoid meat. For unknown reasons, hummus sandwiches tended to be brought, but she did not like these. Consequently her husband would bring in sandwiches from home. Additionally the patient was diabetic, but despite her condition being controlled pharmacologically, she remained confused about the suitability of the hospital diet:

I thought I might see someone with a diabetic [knowledge]. You're left to sort it out for yourself. They say [the food] is suitable for diabetics. The staff and nurses, fair play, but they're not dietitians (P.14, H3W1)

¹⁹⁹ P.2 was a 75 year old man, 6 days into his stay on H3W1

²⁰⁰ P.14 was a 92 year old woman, 18 days into her stay on H3W1

This confusion was mirrored by a 97 year diabetic patient on the ward who noted that she was unsure of the food's suitability, but added that "*I always eat what I'm given*" (P.9²⁰¹, H3W1).

Diabetic diets in general were a recurring theme in patient responses throughout the study, many mentioning that their diabetes was tablet controlled and that their hospital diet was therefore unaffected. Occasionally, as the quotes above show, diabetic patients were uncertain or were concerned about the suitability of the diet. This concern was occasionally echoed by ward based staff, particularly as the old menus offered separate diabetic puddings. Indeed the amalgamation of historically specialist diets into the main new menu may have taken place without training to support understanding of dietary suitability.

5.1.2. The new menu: choice and patient experience

Although not policy compliant, the new menu was designed to reflect choice positively in a number of ways. The MPG had designed the menu to reflect patient likes by offering meals that were popular on the historic menu; to meet some nutritional requirements by using recipes from the All-Wales menu framework; to meet some of choices set out in the menu framework (achieved with mains, but not starters or desserts); and to offer variety over a course of time, as delivered through a one week menu. Yet at ward level, no patient actually saw a menu: these were pinned to ward notice boards, but during observation no patients or staff were observed looking at these menus. As the menu was verbally disseminated in practice, the following section, when discussing 'the menu', refers to the menu as verbally communicated to each individual patient by differing staff members within the ward environment rather than the physical menu, as shown in Appendix 21.

Choice and appeal of hospital meals was seen as fundamental in meeting patients' needs, the Standards suggesting that the

provision of a menu that meets the nutritional requirements outlined for hospital patients must also be a menu that provides choices of dishes that tempt patients to eat and which they enjoy (Welsh Government 2011b, p. 11)

²⁰¹ P.9 was a 97 year old woman, 2 days into her stay on H3W1

In order to explore how well the new menu met these needs, two questions from PE13 are explored and results compared with responses to the Wales Audit Office PE10 study:

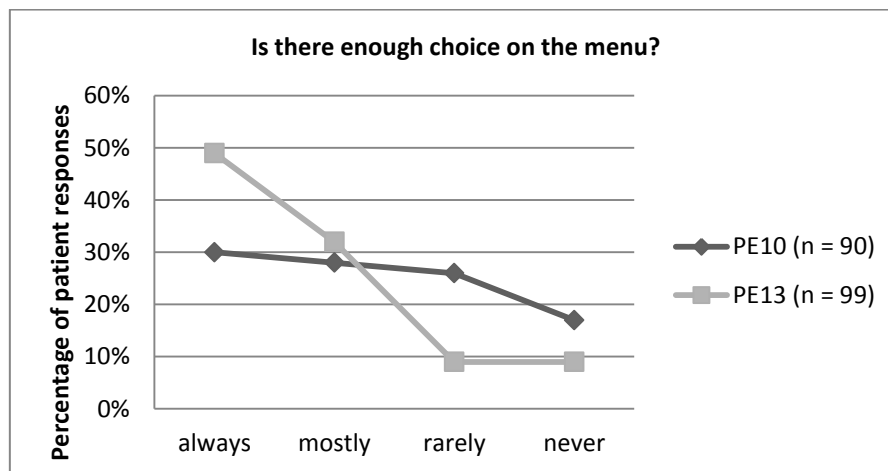
- Is there enough choice on the menu?
- Does the menu change often enough? (you don't see the same food options every few days)

In addition, two micro case studies explore wards where patients reported very different experiences of choice. As the underlying menu (Appendix 21) theoretically remained the same in all wards, the reasons for these differences will be explored.

a. Menu choice

Despite the new menu not providing the number of choices required by the IP²⁰², Figure 24 illustrates that patient experience under the new menu showed a marked improvement in satisfaction with choice when compared to the historic menu²⁰³.

Figure 24. Is there enough choice on the menu? PE10 and PE13



As the sample responses show below, there were a wide variety of reasons underpinning the data. Negative responses suggest limited variety – an either/or scenario, with no facility to access alternatives for long stay patients. Such responses suggest that patients were not in fact being offered the full range of choices as shown on the printed menu, as will be investigated in more detail through ward observations.

²⁰² The new (interim) menu failed to offer any starter choices

²⁰³ 81% of respondents noting that there was always or mostly enough choice, compared to 58% in 2010

ALWAYS had enough choice on the menu: *“I’d had a good meal before I came so I had a choice of sandwiches [when I arrived]. It was fine for me”*²⁰⁴

MOSTLY had enough choice on the menu: *“Chicken pie has been on twice in four days”*²⁰⁵

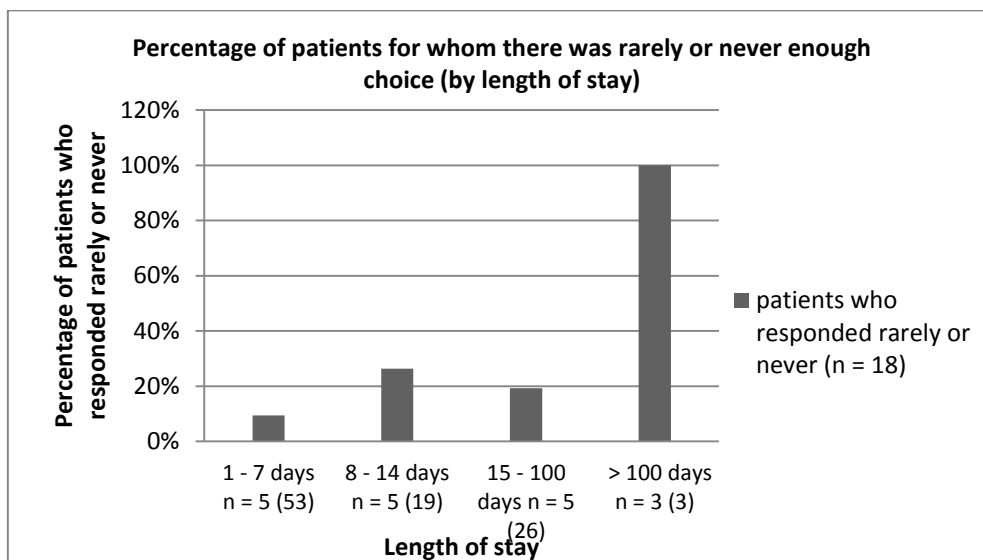
RARELY had enough choice on the menu: *“I don’t like curry or pasta. Then I’m offered a sandwich and I don’t like them, so I have a pudding. If you don’t like what’s on the trolley you don’t get anything else. My daughter will bring me a sandwich in the evening”*²⁰⁶

NEVER had enough choice on the menu: *“Usually there’s either/or and I’m not fussed. I’d like 3 or 4 choices”*²⁰⁷

Between the three hospitals there was a fairly even spread of ‘always’ enough choice answers, and although the proportion of dissatisfied patients had fallen, 18 patients (out of 99) responded that there was rarely or never enough choice under the new menu.

Although sample sizes were small, as Figure 25 shows, those in for under a week were least likely to respond that there was rarely or never enough choice. Conversely all three patients in for over 100 days²⁰⁸ responded that there was rarely or never enough choice.

Figure 25. Percentage of patients who answered that there was rarely or never enough choice, by length of stay. PE13



²⁰⁴ P.44 is a 65 year old woman, 3 days into her stay on H1W2

²⁰⁵ P.48 is a 68 year old man, 6 days into his stay on H1W2

²⁰⁶ P.31 is a 71 year old woman, 112 days into her stay on H3W3

²⁰⁷ P.67 is a 45 year old man, 10 days into his stay on H1W3

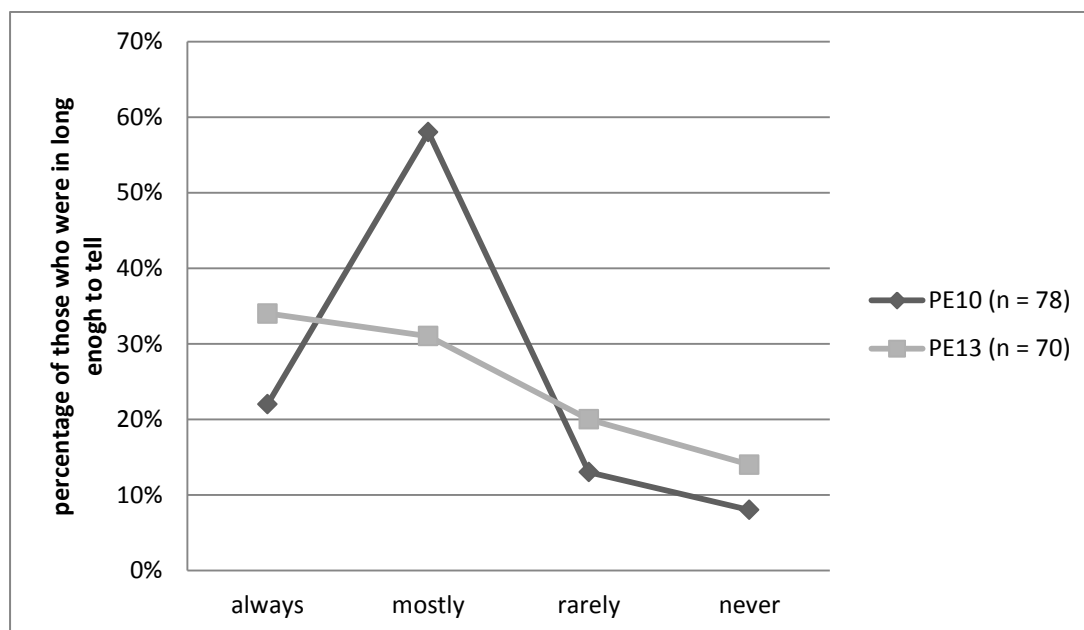
²⁰⁸ 112, 205 and 510 days respectively

b. Changeability of menu

In asking 'does the menu change often enough? (you don't see the same food options every few days)', the question referred to the changeability of the menu rather than choice on a daily basis per say. Of those who responded, a number said they had not been in hospital long enough to tell, Figure 26 showing responses to the remaining 70 replies.

There were mixed results when comparing PE10 and PE13. Although a larger proportion of patients felt that the new one week menu always changed often enough in 2013²⁰⁹, when combined with the 'mostly' responses, there were lower levels of patient satisfaction²¹⁰.

Figure 26. Does the menu change often enough? (with responses to 'I have not been in hospital long enough to tell' excluded). PE10 and PE13



34% (24 out of 70 patients) rarely or never felt the menu changed often enough in 2013, representing a proportionate rise in dissatisfaction²¹¹ under the new one week menu. When compared with length of stay, as Figure 27 shows, the longer the stay the greater likelihood of a negative response to the question²¹². Such findings show two things: that the one week

²⁰⁹ 34% in 2013 Vs 22% in 2010

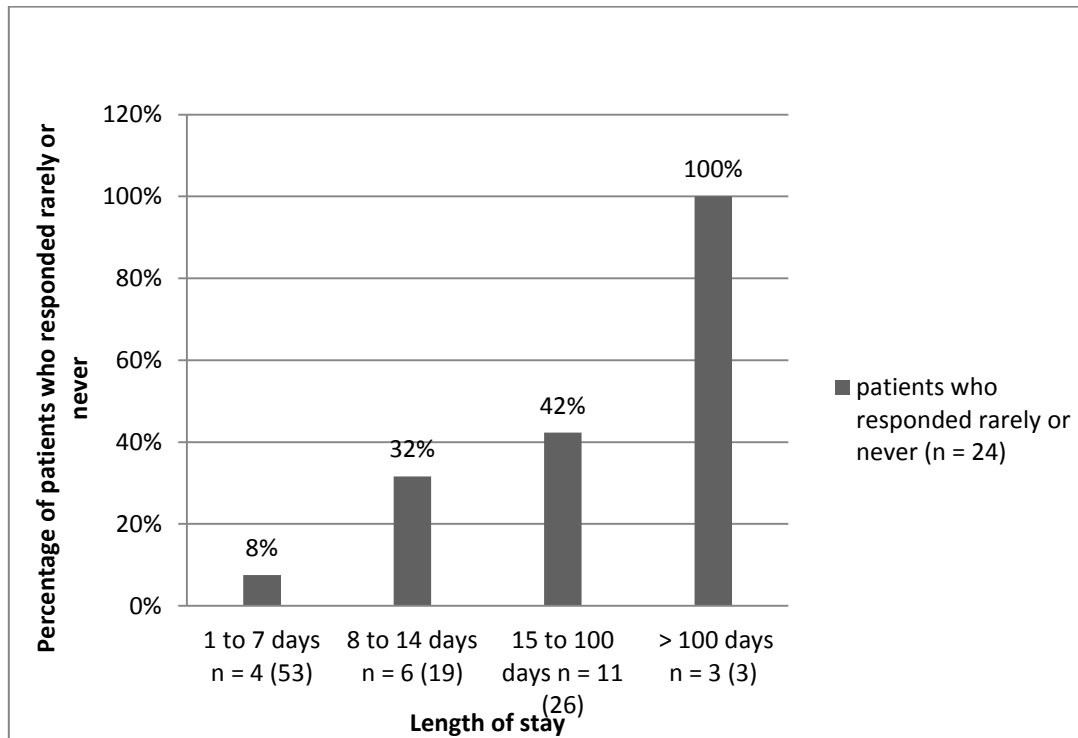
²¹⁰ 65% always/mostly in 2013 and 80% always/mostly in 2010

²¹¹ 34% of respondents noted that the menu rarely or never changed often enough in 2013 Vs 21% in 2010

²¹² Note the small number of participants in the study.

menu failed to offer the changeability that the MPG had expected, and that the MPG had failed to recognise the proportion of longer stay patients²¹³.

Figure 27. Menu rarely or never changed often enough (by length of stay). PE13



Patient comments made through PE13 illustrate that for longer stay patients the new menu became monotonous:

"I could tell you what's for dinner every day. Some pie again I expect" (P.22²¹⁴, 30 days in to stay)

"seems to be the same thing every week. It's fish every Friday, every Sunday it's a roast" (P.26²¹⁵, 26 days in to stay)

"I'm sick of seeing it" (P.103²¹⁶, 510 days in to stay)

²¹³ This hypothesis was borne out when the researcher presented the findings of this study to the HB. The average length of stay of patients in this study was 22 days (15 days with the three longest stay patients excluded). This finding was a great shock to those at the presentation who had worked on the presumption that the average length of stay was around a week. As would be expected, length of stay varied greatly between wards and ranged from 4 days on H1W2 and 67 days on H3W3 (skewed by one patient who had been in hospital for 510 days). Overall H3 participants had the largest proportion of longer stay patients: 50% had been in hospital for 2 weeks or more

²¹⁴ P.22 is a 65 year old man, 30 days into his stay on H3W2

²¹⁵ P.26 is a 43 year old man, 26 days into his stay on H3W2

To further explore underlying variations between patient experience of choice, two wards with contrasting results will be investigated. H1W2 had the strongest results: it was the only ward where all respondents said there was always or mostly enough choice. H3W3 had the poorest results with four out of six²¹⁷ finding there was rarely or never enough choice.

c. Case study of choice: H1W2

H1W2 was the only ward where all respondents said there was always or mostly enough choice: eight answering always, the remaining five answering mostly. On this ward all patients had been in for a week or less: the largest proportion of short stay patients studied.

The ward was elective orthopaedics, with patients either pre or post-operative. Food service was undertaken by nurses and/or HCAs, and patients were offered a choice of meal from a trolley at service time. In this hospital Menu Clerks (MCs) ordered bulk quantities of food for each ward, usually phoning the ward each morning to note special requests (e.g. soft diets). In H1, MCs were instructed by the Catering Manager not to send a vegetarian option unless specifically requested, and without vegetarian dishes, on observation days just two main dish choices were sent for each lunch service.

At lunch services observed, all was calm and organised, but the ward was unusually at half capacity due to consultant training days. On both days a nurse or HCA entered each bay offering a choice of two mains, but approaches were quite different each day.

On Wednesday the language used varied dependent on the member of staff e.g. roast pork was offered as “pork dinner” or “roast pork dinner” and chicken tikka masala as “chicken curry” or “chicken tikka masala”. Accompaniments (rice, vegetables, gravy) were automatically given, although one nurse passed on a patient’s request for no mash. At pudding there was some confusion: ignoring the delivery sheet, staff guessed the crumble (peach and raspberry crumble) saying to each other “I think it’s apple crumble or some sort of crumble”, and offering it to patients as “fruit crumble” and “mixed fruit crumble”.

²¹⁶ P.103 is a 62 year old woman, 510 days into her on H2W3

²¹⁷ There were low response rates on this ward due to high levels of cognitive impairment. Of the other patients, three had taken part in the study on a previous ward, had been moved to this ward for rehabilitation and were therefore excluded. Two patients did not feel well enough to take part, two were sleeping and all others participated

Thursday lunch was quite different: the leading nurse gathered staff around and read out the options. Staff then mirrored her terminology using the full dish titles when offering choices, i.e. “chicken and mushroom pie”²¹⁸ and “beef lasagne”. Food quality problems arose: the mash arrived badly burnt in one corner, the plastic tray melting into the food (see Figure 35), and it was discarded. All meals were therefore served with herbed diced potatoes and mixed broccoli and cauliflower, with gravy automatically served on all pie.

Two puddings were sent on both days, but just one patient chose the second option. All unserved puddings (four yogurts on Wednesday and two strawberry slices on Thursday) were returned to the kitchen unopened and were binned despite the fact that the ward could have kept them for patient snacks later in the day.

Although fewer choices were offered on H1W2 than the new menu suggests (two rather than three main choices, no vegetarian option, and limited vegetables on Thursday due to burnt mash), patient satisfaction with choice remained high.

d. Case study of choice: H3W3

H3W3 showed the poorest results of all nine case study wards, with four out of six respondents finding there was rarely or never enough choice. On this ward, five respondents had been there for 14 days or longer: the largest proportion of long stay patients in the study. The ward had a split patient profile with half under shared care (under the joint care of a physician and a psychiatrist) and the other half were physical rehabilitation patients (e.g. post stroke, falls etc.). Due to high levels of cognitive impairment, just one questionnaire was completed by shared care patients.

On this ward, nursing staff ordered food the night before and also served food. Informal interviews established that nursing staff ordered what they thought patients would choose, favouring the ‘traditional dishes’. In H3, food was cook chilled, and the majority of dishes came to the ward in unlabelled metal containers. As such, the delivery sheet was the main mechanism through which staff could check what was on the trolley. During observations, staff did not check delivery sheets, and when asked how they identified the dishes, responded “*we have to guess*”.

²¹⁸ Indeed on seven out of the nine wards studied ‘mushroom’ was excluded in meal descriptions despite being on the printed meal name

On Wednesday, just two portions of chicken tikka were ordered by nurses as they believed roast pork would be popular. The chicken tikka was initially missing (a kitchen mistake), and all shared care patients were served pork. When the tikka finally came it was split between five patients, and ran out before the end of service. A vegetable moussaka was ordered, but misidentified by nurses as *“cauliflower cheese”* and then *“aubergine and mince”*. The moussaka was not offered, but instead was automatically given to one patient on a soft diet. For pudding no choice was offered: yogurt was given to those on soft diets, and peach and raspberry crumble (described as *“raspberry and blackcurrant”*, *“blackcurrant”* and *“peach and blackcurrant”*) was given to all others.

On Thursday, kitchen mistakes were made again, and although staff did not notice this time (again they did not check the delivery sheet). The wrong trolley was sent and food was notably different from that ordered²¹⁹. In addition the lasagne was burnt. All 11 shared care patients who were eating were again routinely served, all being given pie, one scoop of mash, vegetables and gravy. On the rehabilitation side, with the remaining disparate choices, one HCA oversaw service taking a flexible ‘mix and match’ approach to the menu choices and making the best of the circumstances: she split a large baked potato in two to make it more appetising, adding butter to mashed potato and vegetables (in place of the burnt lasagne which was the intended soft meal), salvaging what was left of the burnt lasagne for two patients and offering assortments of pie and vegetables to remaining patients.

One choice was held back for two patients at the far end of the ward who were known to like curry. The dish was in fact vegetarian stroganoff, and staff discussed its contents:

HCA 1 *“are you sure this is curry?”*

HCA 2 *“I think this is vegetarian curry, but it doesn’t smell like it”*

This meal was then given as curry, leaving no remaining non-meat option. One patient remained who did not eat meat, and the HCA improvised by offering the remaining baked potato and tuna.

²¹⁹ 17 portions of pie, 5 lasagnes, a nut roast and a Mrs Gills soft meal were ordered. 16 portions of pie, 2 lasagnes (burnt), one vegetable stroganoff, a jacket potato, rice and a tuna portion were sent

The desert on Thursday caused particular dissatisfaction among patients. Rice pudding, wrapped cakes and a single fruit pot were available. The fruit pot was selectively given to the patient who missed the vegetarian meal, as compensation for the poor main course. Other patients on the same bay then asked for fruit pots. On being told there were no more, the same patients asked for mousse, but in turn were told these were only available for patients on soft diets. Patients were overheard grumbling amongst themselves, but staff made no attempt to find alternatives. On the final bay, the wrapped cakes were offered for the first time, and it was unclear why these had not been offered earlier.

During an informal interview, the ward sister mentioned that one of the benefits of longer stay patients was that staff could get to know patient likes and dislikes, and were able to access other foods from the canteen to suit the individual. In practice this was not observed, and the comments from a long stay patient on the ward (112 days) expressed a different experience:

I don't like curry or pasta, then I'm offered a sandwich and I don't like them so I have a pudding.. If you don't like what's on the trolley you don't get anything else... my daughter will bring me a sandwich in the evening²²⁰

5.2. In the hands of many: choice and waste on the wards

As the two case studies above show, in two wards operating the same new menu there were very different outcomes for patient experience of choice. In part this was governed by ordering systems, by trolley issues (accuracy and quality of contents), by the quality of face to face service, and in addition, length of stay may have had an effect. In these two wards different disciplines had foodservice roles, and the following section will explore food service practice across the nine studied wards looking more closely at staff roles, staff practices and the relationship with twin concerns in the Standards that resonate with principles of EPH: food choice and the minimisation of food waste. In addition, Lipsky (2010) recognises that workers at the 'street-level' approach their jobs in a multitude of differing ways, even when from the same discipline.

²²⁰ P.31 is a 71 year old woman, 112 days into her stay on H3W3

Different staff undertook different roles at ward level dependent on hospital and ward level practice, and as is shown in Table 19, Menu Clerks (MCs), ward based caterers (WBCs), nurses and healthcare assistants (HCAs)²²¹ all had a role.

Table 19. Stages of and staff involved in food service

Hospital	Orders dishes for trolley	Loads trolley	Takes patient order	Dishes up food	Brings food to patient
H1W1	Menu Clerk	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA	Nurse/HCA
H1W2	Menu Clerk	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA	Nurse/HCA
H1W3	Menu Clerk	Kitchen staff	Ward Based Caterer (c. 10am)	Ward Based Caterer	Nurse/HCA
H2W1	n/a	Ward Based Caterer	Ward Based Caterer (c. 10am)	Ward Based Caterer	Nurse/HCA
H2W2	n/a	Ward Based Caterer	Ward Based Caterer (c.8.30am)	Ward Based Caterer	Nurse/HCA
H2W3	n/a	Ward Based Caterer	Ward Based Caterer (c. 10am)	Ward Based Caterer	Nurse/HCA
H3W1	Nurse/HCA	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA	Nurse/HCA
H3W2	Nurse/HCA	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA	Nurse/HCA
H3W3	Nurse/HCA	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA	Nurse/HCA

The role of differing healthcare professionals in the provision of food and fluid to patients was discussed in the methodology, Table 20 illustrating how the responsibility of the key disciplines observed was framed. The role of Menu Clerk was not identified in the Standards, but a basic description is added to Table 20.

Table 20. The role of healthcare professionals observed at ward level

- **Health Care Support Worker (Health Care Assistant):** Where trained, undertake nutrition risk training. Assist with food choice and serving. Assisting patient to eat and drink where required, monitoring food and fluid intake.
- **Registered Nurses:** Responsible for Nutrition Risk Screening and identification of dietary needs of patients, ensuring patients receive appropriate food and assistance to eat where required, monitoring their food and fluid intake. When trained, to undertake basic swallow assessment. Protecting the mealtime and referring to specialists as required.
- **Ward Sister/Charge Nurse²²²** – Accountable for the management of the patients nutritional requirements through ensuring all patients receive Nutritional Risk Screening, identification of dietary needs of patients, ensuring patients receive appropriate, well-presented food and assistance to eat where required, implementing and managing protective mealtimes and referring to specialists as required.
- **Ward Level Caterer (Ward Based Caterer):** safe delivery of patient meals and beverages; ensuring food is presented in an attractive and appealing manner.
- **Menu Clerk:** collating ward level food orders for the kitchen; liaising with patients over individual food needs; advising and training ward based staff on food service²²³

Adapted from Welsh Government (2011b, pp. 8-9)

²²¹ Job titles have been changed to preserve anonymity, with the exception of nurses and HCAs

²²² During observation the distinction was not made between ward sister/charge nurse and registered nurse

²²³ Role description based on Catering Managers summation

During semi-structured interviews with staff across the HB and the three hospitals (see Appendix 13 for list of interviewees) it became clear that expectations of staff actively engaged in food service at ward level, as shown in Table 20, differed greatly. It is these expectations that are considered against observed practice below. In addition, in order to explore the themes of food choice and food waste, a systems approach has been taken, and food service has been considered through the stages shown in Table 19: ordering dishes for the trolley, loading the trolley, taking patient orders, dishing up food and taking the food to the patient.

5.2.1. The Menu Clerk

The Menu Clerk (MC) role operated in just H1, which had a cook freeze system. A part of the catering team, the MC completed daily bulk order sheets²²⁴ for each ward, and in theory acted as ‘go-between’ ensuring special orders were passed from ward to kitchen. Two MCs worked every day, visiting or phoning each ward every morning. Orders were then supposedly tailored accordingly.

Benefits of the MC role were conceptualised by Catering Managers as:

- **offering a ward level connection between nursing staff, dieticians and catering, allowing patient needs (e.g. cultural, medical and personal preferences) to be accurately communicated to the kitchen**
- **tailoring food quantities to match ward needs**
- **a person with whom the patient could directly discuss their dietary issues and who could manage complaints**
- **delivering advice and food service training to nursing staff**

In practice each ward had pre-set historic orders for standard menu items tailored to bed numbers²²⁵ and patient profile²²⁶. Order sheets were delivered to the kitchen by the MC the evening before service with any alterations so that kitchen staff could load trolleys at 8.30am. Regeneration began at 10am, food was ready by 11.30am, and trolleys delivered to

²²⁴ The MC did not collect individual patient orders, but it was their role to ensure that those on ‘special diets’ such as soft or low sodium had a meal ordered

²²⁵ larger wards had more food

²²⁶ wards with older patients had more of the ‘traditional’ dish

wards around 11.45am. Consequently alterations to orders were difficult to make on the day of service, MC1 noting *“this is just juggling, guess work”*. Although food volumes were based on historic levels, interviews revealed that MCs altered quantities for the following reasons:

- **under filled trays:** *“they don’t fill [the mashed potato trays] very much – they sink a bit so I’ve ordered another two”* (MC1 on H1W1 orders)
- **pre-set tray portion numbers were inadequate for appetites:** *“Roast pork – it’s meant to be for eight but I don’t think there’s enough – maybe if you have old ladies, so I’ve ordered two more”* (MC1 on H1W1 orders)
- **belief that standard portion sizes were nutritionally inadequate:** *“They should be having 3-4 ounces of protein. I think there’s no way that pie would have that much protein [in a single portion]. This is their recovery. Everybody needs proper nutrition; you’ve got to get your protein and your vitamins”* (MC1 on H1W1 orders)
- **waste reduction:** unless a vegetarian patient was on the ward, MCs had been told by the catering management to reduce food waste by not ordering vegetarian meals

In the mornings, liaising directly with wards, the MC completed a form²²⁷ noting patient numbers, ‘special’ meals needed (e.g. low sodium, halal, vegetarian and soft) and soup or sandwiches requests, then liaising with the kitchen. Starting at 9am, one MC1 came in at 8.30am to keep on top of things. Timing was an issue: *“you’ve got to keep thinking – I know a jacket will take an hour, you are always thinking, thinking”* (MC1). Nil by mouth patients were not noted, so the number of eating patients remained unknown. When asked why this was, the staff nurse of H1W3 commented *“it’s not worth phoning them every day... If we have someone who’s celiac or vegetarian we let them know... otherwise I’d be onto the kitchen all the time”*.

At meal time in H1 there was no catering involvement, nursing staff asking patients what they wanted, dishing up food from the trolley and bringing it to patients. Nurses/HCAs in H1 noted that the ordering system did not always work: sometimes too little food was sent,

²²⁷ the ‘daily patient meal requirement’ form

leaving nurses to call the kitchen or take leftovers from nearby wards; sometimes choices ran out; and often too much food was sent. One nurse noted the inconsistency:

The amount of waste is quite incredible – often people just have a sandwich or a bowl of soup... sometimes you run out of stuff and [patients] say I'll just have a bowl of soup instead. If they were asked beforehand perhaps they would get [the orders] right (Nurse N, H1W1).

As a consequence, two wards in H1, including H1W3, had introduced bed plans²²⁸ to better identify food volume needs, yet it was difficult to get order quantities right: *“yesterday [patients] went for steak pie and we had to send for more. I had to send all the chicken fricassee back”* (HCA H1W2).

Ward based staff and MCs were generally happy with their interaction: *“I think we have quite good communication”* (Nurse H1W2). Yet observation and informal interviews showed that communication was inconsistent, and information transfer could be ambiguous, resulting in orders that poorly reflected needs. Two mechanisms facilitated communication: notice boards displaying patient status and verbal exchanges. In practice, notice boards were not always updated and did not reflect all dietary needs *“the soft diet is not usually on the board. [The patient] might have been nil by mouth yesterday and somebody forgot to take it off”* (Nurse N, H1W1). Verbal exchange then became key, but nurses suggested they were not always proactive *“we wouldn't think about it 'til [the Menu Clerks] ask”* (Nurse H, H1W1). MC1 also described unclear systems for information transfer:

We go down and usually wait around for a while. Hopefully 2 or 3 nurses will walk past and see us and tell us what they need... they might say we have a soft, a diabetic...a lot of the time we could look at the board but none of them could be eating (MC1, H1W1)

MC ordering methods and poor communication had implications for food waste. H1W1 had the largest proportion of wasted main portions of all nine wards, 81% (13 out of 16), for reasons outlined below:

- **Unclear information from the nurse:** *“there were 12 [patients]; four sandwiches for those who are coming back from theatre”* (Nurse H H1W1). The MC kept the

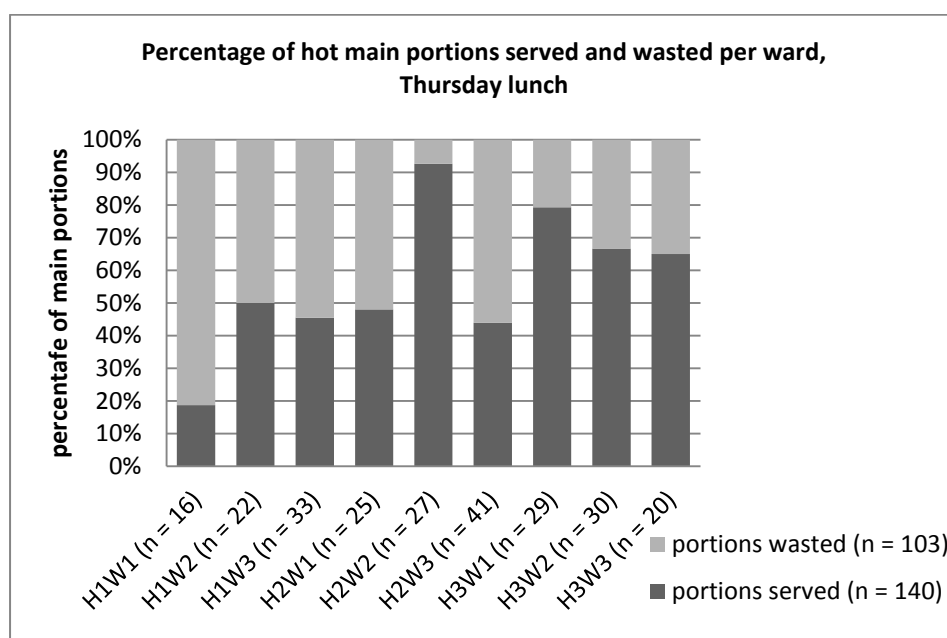
²²⁸ Bedplans were sheets on which patients' food orders were taken early in the morning with the intention that kitchen orders would be accordingly adjusted

standard 14 meal order²²⁹, added a meal for a vegetarian patient (only available in a double portion size) and ordered four sandwiches: enough food for 20

- **Failure to identify how many patients were nil by mouth:** At meal service, six of the 12 patients were nil by mouth
- **Patients not wanting a hot meal at lunch time:** Of the remaining six, three did not eat a hot main meal, including the vegetarian patient²³⁰

In addition, Figure 28 shows other H1 case study wards also had large amounts of main course waste: 50% on H1W2 and 55% on H1W3.

Figure 28. Percentage of hot main portions served and wasted per ward, Thursday lunch



Two further issues affected H1 patient choice: food sometimes arrived burnt and was unservable (observed on H1W2), and orders were incorrectly fulfilled (no sandwiches were sent on H1W2). As ward staff did not receive a copy of the order sheet with the trolley, they were unaware of any mistakes. Indeed no checking mechanisms were in place, the kitchen in H1 having sole responsibility for accurately fulfilling the order.

²²⁹ 8x chicken and mushroom pie, 6x lasagne and 2x vegetarian stroganoff

²³⁰ This patient told the researcher she had never eaten the vegetarian meal as she preferred soup, but this information had not been passed to the MC

Figure 29. Trolley waste, Thursday lunch, H1W3



5.2.2. The Ward Based Caterer

In H2, each ward had a WBC. H2 had a cook freeze system, the WBC deciding volumes, picking trays directly from central freezers and loading trolleys for regeneration at ward level. WBCs served teas and coffees through the day, took patients' orders and dished up food, which nurses then brought to patients. H1W3 had a WBC trial because of its nutritionally complex patients: here the MC controlled food volumes as previously described, the WBC liaising directly with patients and dishing up food.

The WBC role was highly praised by staff across all three hospitals²³¹, advantages seen as:

- **Continuity for nursing staff and patients:** one WBC as the primary ward level catering contact
- **Greater multidisciplinary integration at ward level:** Catering becomes an integrated part of ward level care
- **Dedicated focus on catering, and a role independent of other ward pressures:**

it is very difficult if you are serving food and obviously if a patient is calling you to ask you for something else, it is a conflict for yourself as a nurse, whereas if you are a [WBC] you wouldn't have that conflict so much, and you would probably have a better understanding of the food because as a [WBC] you would be involved in the whole process from the beginning to the end (Head of Nursing)

²³¹ Staff in H1 and H3, where WBCs were not in post (with the exception of the pilot in H1W3), aspired to having WBCs

- **More personalised service:** the WBC has time to get to know the patient better, can offer and explain food choices, catering for patients' personal needs, likes and dislikes

- **Higher patient satisfaction and increased positive social contact:**

Where we have [WBCs] the perception of not only the food service, but the food itself, and the catering service as a whole seems to be far far better, and the experience that people have seems to be more of a pleasant nature (Catering Manager H1)

- **Increased positive social contact:**

[Patients] think of the catering staff as something nice. Food, cups of tea, you know, you have got that different role. They look forward to seeing you because you are not the baddie, you are not coming to give them something, you know like injections and things (Catering Supervisor H2)

[Patients] enjoy the experience, they enjoy the food, they enjoy the interaction with the [WBC], because some patients are just sitting in bed, they may not see somebody for quite a number of hours, so to have somebody come around with tea trolley, bringing them a cup of tea (Catering Manager H1)

- **Higher quality standards for regeneration and food service:**

For the WBC, this is a dedicated part of their job: the food regenerated to the way it should be regenerated... the presentation is so much better because you are talking about trained people... it is quite smooth operation compared to when you have the nurses giving a diet (Deputy Catering Manager H2)

- **Improved monitoring of food intake**

The WBC will say, [a patient] hasn't eaten very much, which is really good ... they pass on their concerns (Nurse H2)

- **Reduced trolley waste:** WBC picks food volumes to match patients requests

- **Better nutritional intake:**

your meal can be as nutritious as dieticians want, but unless it is consumed, the patient is not getting any of that nutrition... these [WBCs], they get to know the patients, they get to know, right, don't put a big meal in front of Mrs Jones because she won't eat it, put a small meal and she will eat it (Catering Manager H3)

In practice, WBCs had a pivotal role with regards to choice. During observations, lunch pre-orders were taken in the morning, the WBC offering all main choices verbally, including the vegetarian dish, but rarely offering accompaniments. During meal service there was no patient interaction: the WBC dished up in the ward corridor matching patient pre-orders. Accompaniments (including gravy) were automatically served, tailored to dietary need (e.g. mash for soft diets)²³². Nurses brought the plate to the patient, giving feeding help if required.

WBCs were observed offering a more personalised service than on wards where nurses controlled catering²³³, particularly through the offering of alternative choices. WBC comments suggested that encouraging eating was important to them, and where other items could be offered, they were:

We've always got a sandwich here if the patient doesn't like [the menu] they can have that. If a patient is here a long time we do try and give them something different like soup... we do try – we get to know them (WBC H2W1)

xxxx didn't eat breakfast this morning...I've persuaded him to have an egg sandwich... it's like a café here!... I don't mind. It could be me laying in that bed and I hope that somebody treats me like that (WBC H2W2)

She'll have a drop of gravy as she won't eat it otherwise (WBC H2W3 adds gravy to a special low sodium diet)

Despite the offering of alternatives noted during observation, these were limited to soup (often served with bread and butter), sandwiches, and to baked potatoes and salads when specially ordered from the main kitchens. At lunch time soup was tinned²³⁴, kept in the ward kitchen, and heated by microwave. Alternative soup flavours were offered at lunch except when stocks were low. One WBC was observed improvising, commenting to the researcher: *“one chicken and one mushroom. It's all they had. It's pot luck. I had to mix it”* (WBC H2W2). While bringing the soup to the patients, the nurse asked its flavour, the WBC responding *“I don't know – it's pot luck. What's left over”*.

Also noticeable on wards with WBCs was the flexible use of ward kitchen stocks to offer extra pudding choices beyond those on the menu. Often the WBC or nurse would go to the

²³² During ward observation days, accompanying dishes shown on the printed menu were unavailable at kitchen level in two out of six days, and substitutions were made

²³³ Nurses were the first point of contact with patients around food choice in H1W1, H1W2 and all H3 study wards

²³⁴ Only lunch service was observed, but fresh soup was usually sent at tea time

ward kitchen and get a special dessert (usually yoghurt, jelly or fruit pot) for those who did not want either menu choice. Indeed keeping a well-stocked and ordered fridge was mentioned as an advantage of the WBC system by the H1W3 Sister, who implied nurses fulfilled this task less well.

In practice, the WBCs' approach sometimes differed from the expectation of interviewees, particularly around tailoring food regeneration volumes to match patient needs, which in turn impacted food waste. H2W1 for example was a surgical ward with some day patients, and the WBC had a standard rolling order. Timing dictated practice: doctors undertook mid-morning rounds, and the ward had patients with fast changing dietary needs: *"by the time I go and get the food I wouldn't know [who is going to eat] and neither would the nurses"* (H2W1 WBC)²³⁵. The WBC was concerned with food waste: *"I don't know how many people will be having lunch. I tend to bring food up for 15 to 20 people. The last people [on the ward] may have less choice otherwise I'd have to bring a load up"*, yet at Thursday lunch she picked enough food for 25 hot main meals (plus sandwiches) and 13 (52%) remained unserved (see Figure 28).

On H2W2 the WBC was more integrated into the ward team, and was present at the ward handovers exchanging information on patients' specific dietary needs. This was partly due to the challenge of patient needs associated with the patient profile (longer stay stroke rehabilitation patients). Indeed 5 of the 10 patients who completed PE13 had been in for over two weeks, against 1 in 12 (8%) in H2W1. The WBC asked patients what they wanted after breakfast, and unlike H2W1 she regenerated quantities to match. In practice, like H1, she adapted volumes to allow for variations in appetite and to overcome skimpy portioning: *"there are 6 portions to a box, but sometimes they can be a bit skimpy and you think, god, have I got enough food?"*. Additionally, extra portions were picked as smaller trays were unavailable²³⁶. At Thursday lunch, trolley main course waste was very low: just 2 out of 27 hot main portions (7%) remained unserved (see Figure 29).

²³⁵ Doctors would do their rounds at 8.30am, and as a medical ward, patients would often be identified for discharge. As the food had to be picked by 9am to begin regeneration by 9.45, the Hostess did not have up to date patient numbers.

²³⁶ trays of curry were just available in portions for six, so on Wednesday the WBC took 2 x 6 portion trays for the seven patients who ordered curry

H2W3 had the second highest main course waste figures in the study²³⁷. Patients' orders were taken just after breakfast and food volumes picked accordingly. The usual WBC was on holiday, a cover taking her place. Here volumes picked did not match patient orders taken for various reasons: lack of communication between nursing staff and WBC resulted in over-ordering on soft diets: two patients were soft diet, but the WBC was not told one was NBM. Unavailability of small trays resulted in wasted vegetarian meals: a six portion tray of vegetable stroganoff was regenerated and five were wasted. In addition, despite seven patient orders each for hotpot and lasagne, for unknown reasons the WBC picked 14 of each²³⁸.

5.2.3. The Nurse or Health Care Assistant

Nurses and HCAs were involved in food service in all three hospitals (see Table 19), and for ease the word 'nurse' will be used for both roles below. Although there are differences in responsibility levels, as shown in Table 20, with regards to catering practice observed, their roles and duties were interchangeable²³⁹.

Nurses played the biggest role in ward level food service across the three hospitals: they ordered food in H3, dished up in H1 and H3 (except in H1W3 where there was a trial WBC), and brought the meal to the patients' bedside in all wards observed. In H3 wards the nurse had the greatest responsibility for catering, being involved in all stages shown in Table 19, except loading the trolley²⁴⁰. The one constant across all wards, i.e. the nurse bringing the meal to the patient, was seen as good practice as *"under the recommendations, nursing staff get involved... [they] actually take [the food] to the patient because they should be monitoring what the patient is eating, or if patients need assistance with eating"*²⁴¹ (Quality Control Manager).

²³⁷ 23 out of 41 main course portions (56%) were wasted

²³⁸ 2 x 6 portion tray and 1 x 2 portion tray

²³⁹ The H3 Deputy Catering Manager suggested nurses were more engaged in nutritional discussions around food than HCAs

²⁴⁰ This was done by central kitchen staff

²⁴¹ Data was collected that did investigate nurses involvement in assisting eating and in monitoring intake, but it is beyond the scale of reporting to include here

According to interviewees, the benefits to nurses' involvement in foodservice were:

- **Speed and safety of service:** as numerous nurses were involved, food reached patients quickly, keeping it warm
- **Support for patient eating:** only nurses could help feed patients
- **In-depth medical knowledge of the patient:** nurses knew the patients' medical needs and could undertake a final visual plate check for suitability

Where there were no WBCs, the only perceived benefit to nurses' involvement mentioned in interview was:

- **Cheaper service:** as the WBC role was an expensive additional cost

Nurses' role in catering drew mixed responses, generally negative. They were perceived as:

- **Having split priorities:** *"is very difficult if you are serving food and obviously if a patient is calling you to ask you for something else, it is a conflict for yourself as a nurse"* (Head of Nursing)
- **Lacking in accountability:** *"at the moment the nurses are not answerable to us on what they are doing... they could have an emergency on the Ward. Well our food becomes second choice then, and they have to do the medical need first"* (H1 Production Manager)
- **Being negative about their foodservice role and the food:** *"The nurses don't like doing the job, they don't like serving it up, full stop. And they tell us, "this soup is urggg, I wouldn't eat this", and you think, you are supposed to be encouraging them to eat! It is terrible"* (Menu Clerk 1 H1)
- **Presenting food poorly:** *"Nurses haven't got the time, and a lot of them, to be quite honest with you, if they are not trained, they wouldn't have a clue how to dish a meal out"* (Production Manager H2)

Where Nurses were responsible for the ordering and serving of food (H3), they were perceived by catering staff as:

- **Delivering less choice for the patient:** nurses were seen to be unlikely to order a 'special' meal
- **Contributing to excess food waste:** through ordering extra 'just in case' or ordering by rote (the same every day)
- **Poorly trained for foodservice (incl. food hygiene and correct procedures)** e.g. not plugging the trolley in²⁴²

General improvements in nurses' attitudes were noted, particularly driven by ongoing initiatives such as protected mealtimes, and bolstered by the Standards and associated MPG:

I think [nurses attitudes] are getting better, I think in the past food service was something that they had to suffer, but it is being highlighted more, the nursing staff are more involved now in menu planning groups and things on that line (Catering Manager H2)

Improvements in practice were also noted:

there are some good [nurses] out there who are classed perhaps as food champions at Ward level, and when you go[to the ward] you are only there to observe because they are looking after the food trolley and they are very much doing it their way. In all fairness some of them do a very very good job. There are other areas where perhaps we need some improvement, and need some help in perhaps training or whatever, but there are some good examples out there as well (Head of Catering)

The Head of Nursing also recognised that approaches were variable, but that they were working towards a more standardised approach:

I think [attitude towards the catering role] varies, it does depend very much on the leadership, and driven very much by the Ward sister, the Ward manager within her team... but that is our role to ensure that it is standardised across the Health Board, and that we do monitor that by audit etc., that we can improve education and awareness about that. That is what we are working towards (Head of Nursing)

During ward based studies, nurses were asked about their foodservice role and how this fitted with other responsibilities. Overwhelmingly in H1 and H3 nurses were challenged by the dual nursing/catering role and advocated for the WBC role in H2. Two key issues dominated: conflicting responsibilities and hygiene, as summed up by a nurse:

²⁴² Senior staff were aware that lack of training, particularly in food hygiene, was a problem that needed to be addressed

Loads of times we have to stop and do something else and then come back... You've been in a toilet with these uniforms on and you've only got an apron on for foodservice. It's disgusting (Nurse H1W2)

This was observed in action a number of times: nurses stopping to take a patient to the toilet, bringing patient mobile toileting devices, and leaving foodservice to attend to a patient's medical needs. In all cases but one, other nursing staff were available to continue with service.

The value of nurses over WBCs was raised by two ward level nurses, who highlighted the extra tailored care nurses could give, along with their medical and dietary knowledge:

You could have a [WBC] that puts [the plate] on the table, not in the right place, doesn't cut it up. We can do that; we can see it and help the patients (Nurse N H1W1)

Someone who is diabetic, it is important to make sure that they are receiving the right amount of food to cater for that, for their blood sugars. Because if they don't eat enough we are not able to administer their insulin, and it is like a vicious circle then in that sense. It is important, and it is nice to see patients eating, because when somebody is ill that is the last thing you want, their strength going down because they are not eating. They need their strength to go up (Nurse H2)

Some nurses felt that patients generally accepted multifunctional roles:

Patients see it as multitasking – as if you have so many different jobs to do (HCA H1W2).

Most patients did not note any conflict between the dual roles of nursing staff. For patients who reported needing help to eat or who had their food cut up, there was great appreciation for nurses' help.

Just one patient felt that the foodservice role was inappropriate for nurses:

I think we abuse our nursing staff by making them serve the meals. I think catering staff should be doing it as they are the ones trained. It's like putting two star chefs into a Michelin restaurant (P.42 H1W1)

With regards to food volumes and choice availability, nurses were in sole charge of trolley orders in H3 and therefore set the boundaries for the food offer. Unlike H1, trolley orders were not pre-set, and nurses ordered dependent on what dishes they believed were popular in relation to patient profile. On H3 wards observed, nurses ordered all menu items,

including the vegetarian meal, but due to kitchen mix ups, as discussed for H3W3, orders were not always correctly fulfilled. Contrary to expectations, H3 wards had the second, third and fourth lowest waste levels of the study, at 21%, 33% and 35% respectively (see Figure 28).

Despite low main course waste, ordering could be inaccurate in H3 wards observed. On H3W1, dishes ran out on both observed days²⁴³. On H3W2 the nurse on lunch duty misjudged dish popularity: on seeing a large tray of lasagne she commented *“they’ve gone a bit overboard haven’t they”*, but to her surprise it was all served. On reflection, after service she commented *“they’ve all wanted lasagne today – we’ve got a lot of younger patients in today – you order what you think they like and they’ve gone for the opposite!”* (H3W2 HCA). H3W3, as discussed earlier, was sent the wrong trolley. The offering of choice on this ward has been discussed, but with respect to waste, the figure of 35% cannot be attributed to nurses ordering skills, as the wrong trolley was sent.

5.2.4. The Nurse versus the Ward Based Caterer

In interviews, the WBC role was seen as the ideal in optimising food service quality, minimising waste, and offering choice, as will be explored in this section, but cost was a barrier to having them across the HB. The H2W3 lead nurse clarified the WBC’s benefits: *“[the WBC] is fabulous. I worked on ward X last week and it was very difficult without one. We find it invaluable. If we had to dispense [food] and bring it to the patients and feed the patient it would be impossible”*.

With the new menu in place, the H1 Catering Manager explained his concerns around food service standards:

The biggest concern we have got [is]...it doesn't matter what we do in the kitchen at our end, if you haven't got a [WBC] or somebody to serve, and you are relying on a nurse to serve it, all that good work that has been done, if they give a smaller portion or an incorrect portion size, or don't present it in the correct manner, then that is all wasted because the patient looks at it and if it is all just chucked on top of each other they won't eat it. So the nutritional element of it, where you are trying to insure that they are getting as much

²⁴³ In H3W1 dishes ran out on both days. On Wednesday, chicken tikka ran out and on Thursday all the hotpot had gone before the last bay was served. On the Thursday staff offered patients an alternative meal (chicken portions) which was delivered from the kitchen after general meal service was completed

nutrition as possible when you produce it, all goes to the wayside if they sit there and don't eat the meal (Catering Manager H1)

The different service systems were seen to affect patient satisfaction, and despite the food being cooked to the same menu format and recipes, HB staff felt patient satisfaction with food was higher under WBCs. In practice, PE13 results showed little difference for very good/good ratings, but where nurses dished up the food²⁴⁴, the rate of poor/very poor responses more than doubled (see Figure 30).

**Figure 30. How would you rate your overall satisfaction with the food you have received?
PE13. Ward Based Caterer versus the Nurse**



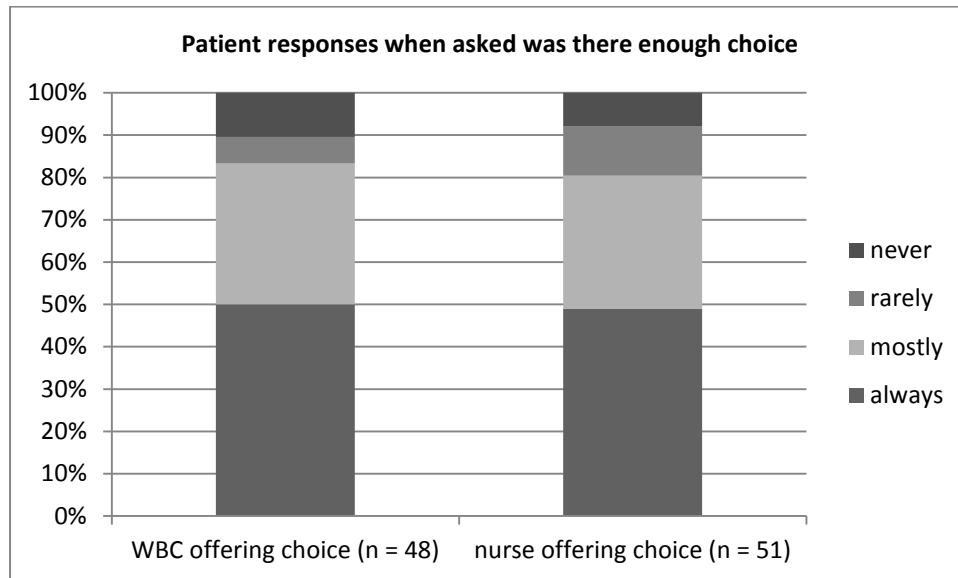
In interviews there was a further expectation that nurses would offer less choice, particularly with regard to special menus. Although PE13 did not isolate patients who were on special diets, Figure 31 shows that in practice, on wards studied, there was very little difference in patient experience between those where WBCs offered choices and those where nurses did.

As mentioned, WBCs were observed offering a more personalised service than nurses, but running counter to expectations of catering staff, WBCs trolley food waste was higher than nurses on wards studied. Drawing on observations more deeply, on interaction between nurses, WBCs and patients, and at working practices around meal choices, there were

²⁴⁴ WBCs dished up in H1W3, H2W1, H2W2 and H2H3. Nurses dished up in the other 5 wards

similarities and differences between WBC and nurses as explored below. These are pulled together in a typology of choice in Table 25 in the following chapter.

Figure 31. Is there enough choice on the menu? PE13. Ward Based Caterer versus the Nurse



All patient orders were taken verbally, by WBCs on four case study wards, and by nurses on five (see Table 19). There was no standardised approach to offering patients choice on any ward: both nurses and WBCs often simplified dish names²⁴⁵ and both staff groups guessed dishes, although this was rare. Dishes were guessed for two reasons: lack of accompanying documentation²⁴⁶, or because staff did not read the dish lid labels²⁴⁷ or accompanying order sheets. Most commonly guessed was the variety of crumble, which was wrongly named by staff on over half the wards. As discussed earlier, the poorest performance was on H3W3 where nurses routinely guessed dishes. In contrast, both nurses and WBCs were also observed using precise dish names²⁴⁸. In addition, on wards where nurses dished up the food, two other choice making approaches were observed: visual (one patient looked at the food before choosing) and taste-based (two patients were offered samples before

²⁴⁵ e.g. ‘chicken and mushroom hotpot/pie’ was called “*chicken hotpot/pie*” on eight out of nine wards. ‘Chicken tikka massala’ was regularly called “*chicken curry*”, the differing variety of vegetables were often collectively called “*veg*” and ‘herbed diced potatoes’ called “*little chipped potatoes*”

²⁴⁶ Observed when a flask of soup was sent, and when dish lids were removed to crisp up the dish during regeneration (e.g. dessert crumbles)

²⁴⁷ Dish lids were removed at time of service

²⁴⁸ On H1W2 for example, before beginning food service, a nurse gathered the team and read the full delivery sheet aloud saying “*it’s chicken and mushroom pie or beef lasagne*”. During the following service, staff were observed mirroring this wording to patients

deciding)²⁴⁹. As patients pre-ordered meals early in the day with WBCs, further interaction at meal time was minimal.

Choice was limited in a number of ways, as observed with both nurses and ward based caterers. Staff chose for patients on occasion, for example where patients were confused²⁵⁰, or where staff believed a meal item was unsuited to the patient's profile²⁵¹. If dishes ran out, or were not sent in the first place (e.g. H3W3), choice was again limited. Although patients were sometimes asked what vegetables they would like, on all wards observed both nurses and WBCs dished up vegetables to some patients without asking for preferences. Gravy was served automatically in all wards, and tended to be served in large amounts (see Figure 32).

Figure 32. Two plates with excess gravy



Photos of Chicken and mushroom pie with mashed potatoes, mixed cauliflower and broccoli and gravy (H1W1) and roast pork, mash, sliced beans, swede and gravy (H2W3)

Just once did a staff member comment that a patient didn't want much gravy. In addition, on just one ward (H2W1) the hostess decided not to serve gravy as she felt the dish did not suit it²⁵² (see Figure 33).

²⁴⁹ In one case a 97 year old female patient on H3W2 did not know what lasagne was, and was offered a taste. She then chose lasagne for lunch

²⁵⁰ Common particularly on H3W3

²⁵¹ e.g. hard diced potatoes were not given to an older patient who had not been specifically put on a soft diet

²⁵² the dish was chicken and mushroom hot pot and the gravy was beef she felt the flavours would work best without gravy

Choice was very limited for some patients: no choice was available for special dietary meals, as one vegetarian and one soft option were set on the new menu²⁵³. On no wards was an alternative offered to these patients. Indeed concern for lack of choice for vegetarians was mentioned by both WBCs and nurses during informal interview.

Figure 33. Chicken hotpot with and without gravy



Photos of Chicken hotpot, herbed diced potatoes, mixed cauliflower and broccoli: without gravy (H2W1) and with gravy (H2W2)

Suitability and palatability of soft meals was raised on a number of occasions by WBCs, although strictly this was outside their field of expertise. On occasion a WBC would improvise and alter the soft meals. On H1W3, for example, the WBC was unconvinced that the pre-set soft option was always suitable: *“I don’t think lasagne should be a soft option because you have to chew the pasta, so I tend to give the meat only”*. As the lasagne was burnt at Thursday lunch, she gave soft patients the pie filling instead. On H2W2 the WBC picked alternative soft meals for the trolley without asking the patients (mince on both days, see Figure 34), but at Wednesday lunch she made a soft meal substitution for quality reasons commenting *“look at it – it’s horrible...that’s minced turkey. You understand why I don’t serve it. Look how dry it is”* (see Figure 34). After checking with a nurse, the WBC dished up chicken tikka masala for a soft patient, but seemed concerned at the suitability commenting *“watch he doesn’t choke on it –you’ll have to cut it up”*²⁵⁴.

²⁵³ often the soft option was also the vegetarian option

²⁵⁴ After meal time the nurse fed back that the patient hadn’t eaten much, that the texture had been unsuitable, and that a proper soft diet option was needed in the future. On Thursday the WBC served mince as the soft option, adding gravy to moisten the meat (see Figure 34)

Figure 34. Soft options



Photos of Soft options on H2W2. Minced turkey (Wednesday lunch) and plated minced beef (Thursday lunch)

For those with cognitive impairment, choice could be limited for two reasons: patients could not always express themselves, and some patients with cognitive impairments had soft diets. The H2W3 WBC noted that families could help make choices for patients, but that she also played a role in addition to the dietitian:

XXXX in bed 1: when his family is here they choose for him - something like sausages. I wouldn't want to give him something like that. He'll have goulash because it's tasty and nice and easy to digest. Sometimes the dieticians tell you, but I just know. There used to be charts on the wall but they don't have them so much now. It's in the book and most of the patients can answer for themselves. You can guide them a bit (WBC H2W3)

Such 'guiding' was observed, WBCs encouraging confused patient: *"you're going to have some roast pork, some veg for dinner? Yes?"*, *"a nice hot dinner?"*.

Lack of vegetarian option on some wards was a barrier to choice²⁵⁵, as was dishes running out before end of service, dishes appearing on the trolley but not being offered²⁵⁶, dishes saved for specific patient groups²⁵⁷ and burnt dishes that could not be served, or could only

²⁵⁵ The catering manager in H1 had asked that no vegetarian dishes be sent unless there was a vegetarian on the ward. Waste minimisation was the rationale for this practice

²⁵⁶ puddings on two wards

²⁵⁷ H1W3 WBC: *"I've got to know the patients so I'll know which like mash and which like roast [potatoes] so I tend to give extra roast and keep the mash for the soft"*

be partially served²⁵⁸ (see Figure 35). Additionally, prescriptive ordering mechanisms limited choice in H3²⁵⁹.

Figure 35. Burnt food



Photos of burnt food: mashed potato (H2W2) and lasagne (H1W3)

Despite the choice limiting practices observed, both WBCs and nurses were very engaged with patients who did not want to eat, trying to persuade them to eat by offering assortments of available food:

“A bit of soup and a sandwich? Curry, a pork dinner and some veg? A pudding?” (Nurse H1W1)

To a patient known as a ‘fussy eater’, *“do you fancy soup? A bit of main?”* (Nurse H1W1)

To an elderly lady who didn’t want lunch *“a pudding then, warm rice pudding or a strawberry slice. Rice pudding would be better for you”* (WBC H1W3)

To a patient who refused lunch *“you won’t get better if you don’t eat”* (WBC H1W3)

A number of staff members commented on how important it was to make sure patients had something to eat: *“I will coax them even if it’s a sandwich or a spoonful”* (WBC H1W3). This sentiment was echoed by the WBC H2W2, who saw her role as:

²⁵⁸ three wards

²⁵⁹ H3 order sheets were different to those used in H1 and H2, and caused nurses to limit choices: H3 dishes were listed and grouped as pre-determined meals (e.g. ‘chicken and mushroom pie with creamed potatoes, and broccoli and cauliflower mixed’ or ‘beef lasagne with herbed potatoes’) leaving those with lasagne without a second vegetable option

The welfare of the patients: you've got to make sure they are watered and fed. If they are not fed they are not going to get better to get home. That's my priority – the patients. They are number one at the end of the day...they are sick. They lose weight and you try and build them up to get them well and get them home (WBC H2W2)

Other caring practices were observed in relation to respecting patient preferences²⁶⁰, but conversely, in H3, where patients requested items not on the menu, unlike H2 these were not forthcoming²⁶¹.

5.2.5. Accounting for waste

In light of the MPG's inability to meet the requirements of the Standards due to economic limitations, the cost of wasted food is particularly pertinent, and offers insights into the systemic challenges of hospital food provision.

Each hospital had differing accounting systems for waste:

- H1: central kitchen staff noted the number of portions on the trolley on its return from the wards
- H2: WBC noted the number of uneaten portions on a sheet at ward level
- H3: nurses recorded the number of uneaten portions on a sheet which was then returned to the kitchen

Waste figures were collated by the Catering management and a value of 79p allocated to each wasted portion. Other waste such as soup, sandwiches, vegetables, puddings and snacks were neither recorded nor costed. In addition, plate waste²⁶² was not recorded.

In 2012, average main course waste, as reported by the HB, seemed low in comparison with academic studies discussed in chapter one (see Table 1), at 3% for H1, 4% for H2 and 9.5% for H3 (The Health Board Head of Catering 2013). H3 was considered a poor performer, and as has been discussed, the MC and WBC roles in H1 and H2 were perceived to lower waste, although contradictory evidence was found in this study.

²⁶⁰ patients being served dishes that they liked in H3, and as mentioned previously, being served less gravy

²⁶¹ a patient on H3W2 asked for cheese and biscuits on both observation days, commenting "*I've only been waiting a month!*"

²⁶² Food served onto the plate, but left uneaten (either partially uneaten or left untouched)

During the study period, internal HB accounting systems for waste were found to under-record waste by a considerable amount, as can be seen in Table 21. As the researcher did not ask for HB waste figures until after the study days had been completed, these figures were an accurate representation of hospital practice.

Table 21. Main course waste, Thursday lunch: recorded by researcher and reported by Health Board

Site	recorded by researcher		reported by Health Board	
	wasted portions	% waste	wasted portions	% waste
H1W1	13	81%	0	0%
H1W2	11	50%	2	9%
H1W3	18	55%	3	9%
H1 total	42	59%	5	7%
H2W1	13	52%	5	20%
H2W2	2	7%	1	4%
H2W3	23	56%	7	17%
H2 total	38	41%	13	14%
H3W1	6	21%	unknown	unknown
H3W2	10	33%	unknown	unknown
H3W3	7	35%	unknown	unknown
H3 total	23	29%	unknown	11%²⁶³
HB TOTAL	103	42%	unknown	unknown

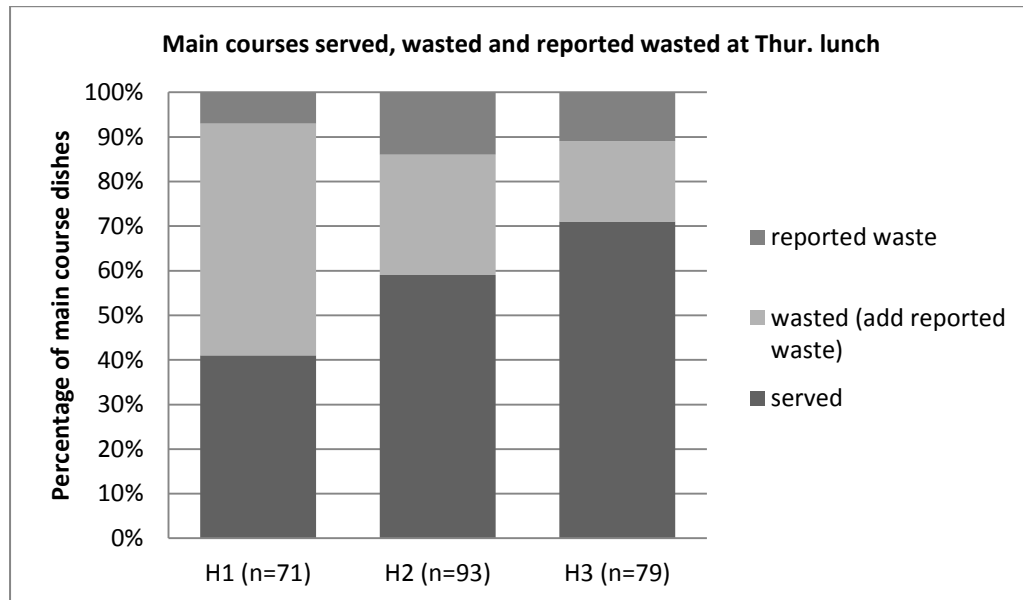
As seen above, on wards studied, 42% of all main course dishes were left unserved (103 out of 243 portions), and therefore wasted²⁶⁴. There were big variations between wards, from 7% on H2W2 to 81% on H1W1. In terms of waste per dish type, shown in Appendix 22, the vegetarian option (vegetable and bean stroganoff) had the highest proportion of waste, with 83% of portions (14 out of 17) delivered being left unserved. Much of this waste went unrecorded within the HB, and in H1 and H2 alone (just six meal services) 62 main course portions were wasted without being recorded.

²⁶³ In H3, waste figures for individual days and wards were not kept, and the only available figure was this monthly hospital-wide figure

²⁶⁴ of the 243 portions of hot main course delivered on trolleys at Thursday lunch, 140 were served and 103 remained unserved

As can be seen in Figure 36, in all hospital wards the researcher recorded main course waste above the 2012 averages, and in no hospital did HB recorded waste levels match actual levels.

Figure 36. Main portions served and wasted at Thursday lunch: reported and actual



In total, during the study period, 27 main course portions were recorded as waste by the HB²⁶⁵, at a value of £21.33. In practice, the researcher noted 103 wasted portions, valued at £81.37. Using annual percentages provided by the Head of Catering (The Health Board Head of Catering 2013) the annual cost of waste on these nine wards alone would have been £59,400, and extrapolated across all three hospitals²⁶⁶, valued at £360,720²⁶⁷ per annum.

²⁶⁵ Including an 11% proportion allocated for H3. H3 main course waste was not available for the case study wards, and 11% is the figure for the whole hospital in the month of the H3 ward observations

²⁶⁶ in which 1,087,160 meals are served annually (The Health Board Head of Catering 2013)

²⁶⁷ Using the average figure of 42% waste overall, as calculated by combining the Thursday lunch waste figures across the case study wards

5.3. The lasagne study

As discussed, the success of a HFSS that embraces the principles of EPH (e.g. through the integration of health and sustainability), could be investigated through the exploration of the intersection between patient satisfaction, nutritional intake and food waste. In the absence of embedding sustainability in the menu planning process, waste becomes a proxy measure of sustainability. In developing a methodology to test these elements, the study here focuses on one meal, lasagne, as cooked to the same recipe using the same ingredients in each hospital. This meal offers a 'control' through which the exploration of patient experience, intake and waste can be deepened.

The lasagne study was undertaken on all nine study wards on day two of ward observation (Thursday lunch). Patients who completed PE13 on day 1 were alerted to the subsequent study, but to avoid skewing participation, were not told lasagne was the dish under investigation. Two sets of data were collected: questionnaire data (LSQ) (see Appendix 9 for the questionnaire and Appendix 24 for the questionnaire results), gathered face to face, and plate data (LSP) which assessed portion size served and portion size remaining after service. From LSP, both intake and plate waste could be calculated. In total 48 patients had lasagne (13 in H1, 13 in H2 and 22 in H3) and were included in LSP. Ten of these patients were excluded from completing LSQ for medical or cognitive reasons, leaving 38 patients to complete LSQ (13 in H1, 8 in H2 and 17 in H3).

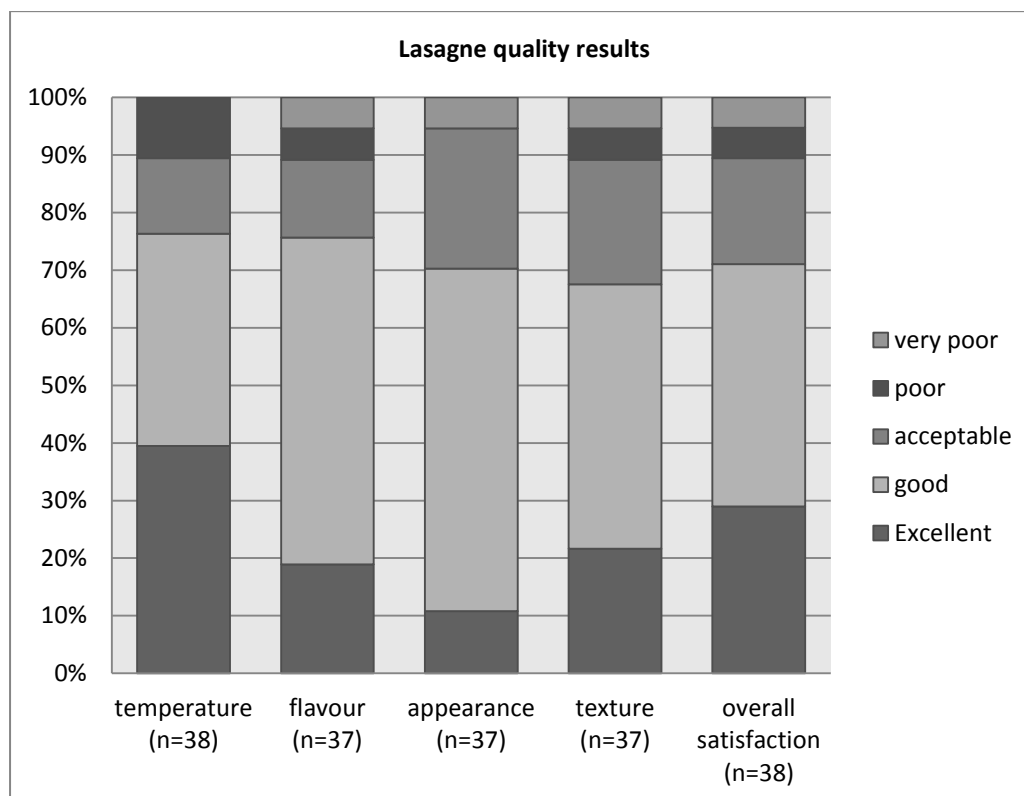
5.3.1. Quality and taste

In staff tastings of the lasagne²⁶⁸, it was highly rated, with a 90% satisfaction rate in appearance, taste and suitability as a menu choice. Staff comments were mostly positive e.g. "appearance good with a good balance between tomato and cheese flavours" (H2), one comment noting poor cooking methods "incorrect cooking resulted in dish being wet" (The Health Board Quality Assurance Manager 2013). Patient experiences of lasagne gathered in LSQ show over 70% of responses were good or excellent in four food quality categories (temperature, flavour, appearance and overall satisfaction) (see Figure 37), and just under at 68% in texture ratings. 18 poor/very poor responses were recorded out of a total of 190

²⁶⁸ Undertaken in April 2013 by 4 x senior Support Services staff, 1 x senior Dietician, 3 x Catering Managers, 1 x Quality Assurance Manager

responses and were clustered in two wards: 17 in total from H1W3 (a WBC led service) and H3W3 (a nurse led service). An in-depth look at general food service issues in H3W3 took place earlier in the chapter and will not be repeated here.

Figure 37. Total lasagne questionnaire results for food quality (temperature, flavour, appearance, texture and overall satisfaction)



While responses to lasagne quality were good overall, one ward (H1W3) showed particularly wide variation in patient responses (see Table 22)²⁶⁹.

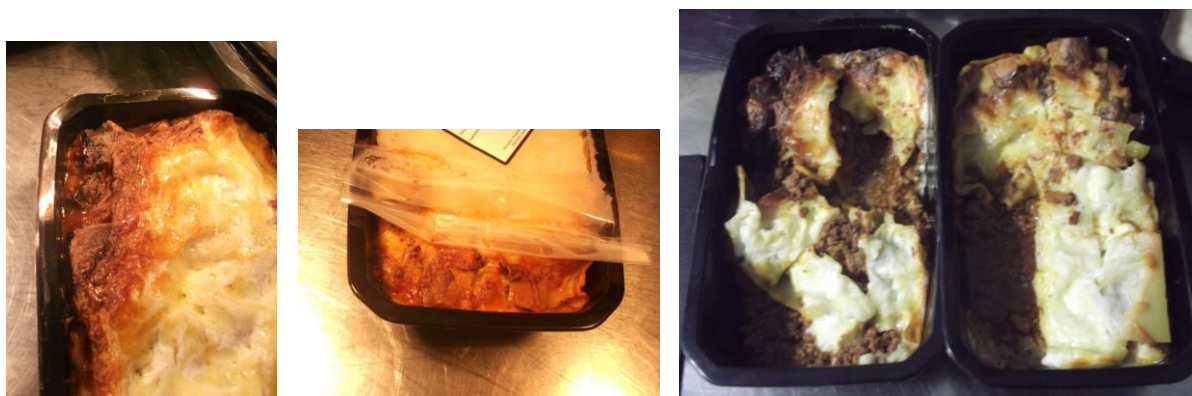
Table 22. H1W3: Patient responses to questions on food quality in lasagne questionnaire (LSQ)

Patient no	Age	sex	length of stay	Temperature	Flavour	Appearance	Texture	Overall satisfaction
31	25	F	3 days	acceptable	very poor	good	very poor	poor
32	89	M	8 days	poor	very poor	very poor	very poor	very poor
33	60	M	6 days	acceptable	good	good	excellent	excellent
34	73	F	8 days	excellent	excellent	excellent	excellent	excellent
35	45	M	11 days	excellent	excellent	excellent	excellent	excellent

²⁶⁹ Two patients (p. 34 and P.35) rated all categories as excellent, and two patients (P.31 and P.32) between them reported eight poor and very poor responses out of ten

On this ward the lasagne was partially inedible as both trays arrived burnt, and the WBC had done her best during service to salvage portions from the unburnt parts of the tray (see Figure 38).

Figure 38. Burnt lasagne trays before and after service



Photos from H1W1

All five patients on this ward received lasagne cooked to the same recipe, yet qualitative comments illustrate how differently the lasagne was experienced:

As soon as I saw it I thought that looked really nice, and the taste matched the appearance. It was a bit of a rarity – as I said yesterday everything is quite [samey] (P. 35²⁷⁰)

It looked delicious, very good. I couldn't tell the difference between this one and Marks and Spencer (P. 34²⁷¹)

The meat was like baby mush, the meat was horrible. There was no béchamel sauce in it like all good lasagne should have... [I ate it all] because I haven't eaten in 3 days, and if I'd had the choice I would have sent it back (P.31²⁷²)

I have lasagne once a month with my daughter and it's cheesy, meaty, lovely. What I had today was just a load of mincemeat piled on a plate with some cold potatoes.... Lasagne should be slid out like a slice... [It was] nothing like I visualise lasagne; it was mincemeat, I couldn't detect any cheese... No layering at all... It was one of the worst dinners I've had (P.32²⁷³)

²⁷⁰ P.35 is a 45 year old man, 11 days into his stay on H1W3

²⁷¹ P.34 is a 73 year old woman, 8 days into her stay on H1W3

²⁷² P.31 is a 25 year old woman, 3 days into her stay on H1W3

²⁷³ P.32 is a 89 year old man, 8 days into his stay on H1W3

With regards to food temperature, responses were again extremely varied between the five patients²⁷⁴. Observation showed that this was most likely due to working practices specific to this ward. Unusually, on this ward the trolley remained in one fixed point in the corridor from which the WBC dished up. When asked why the trolley was not moved around like on other wards the Ward Sister commented *“it’s better to centralise. Patients tend to wander: they could tip something up, burn themselves, think of cross contamination”*. As the ward was busy (30 beds) and five nurses helped deliver plates to patients, the WBC was under pressure to dish up quickly. She dished up three plates at a time, placing them on the ledge above the heated lights rather than under the lights, and dishes immediately began to cool. Nurses then walked to the beds, some of which were some distance from the centralised trolley, furthering cooling the dish. On one occasion a nurse stayed by the trolley chatting with a plate in her hand before heading off to the patient: it was unclear who was in charge and whose responsibility it was to ensure speedy delivery. In addition the verbal exchanges between the hostess and nurse could be confusing²⁷⁵, again slowing meal delivery.

5.3.2. Portion size choice and intake

Fundamental to policy on patient food in Welsh hospitals is the aim of maximising adequate nutritional intake. The Standards set nutritional specifications²⁷⁶ in relation to full size portion, yet the IP also requires that a choice of portion size is offered. A tension arises here in that literature suggests matching portion sizes to appetite is the route to maximising intake (portion size exceeding appetite can put patients off), but adequate nutritional intake through meals alone²⁷⁷ relies on a full portion being eaten. Without close monitoring, a patient eating less than a full portion could quickly become malnourished.

General patient experience gathered through PE13 showed 45% of respondents reporting that they were always or mostly offered a choice of portion size, although this varied greatly

²⁷⁴ Temperature recorded as two excellents, two acceptables and one poor

²⁷⁵ the hostess would identify meal recipients by bay and bed number (e.g. section three, bed five), but two nurses were supply staff and new to the ward, and were therefore confused by this system

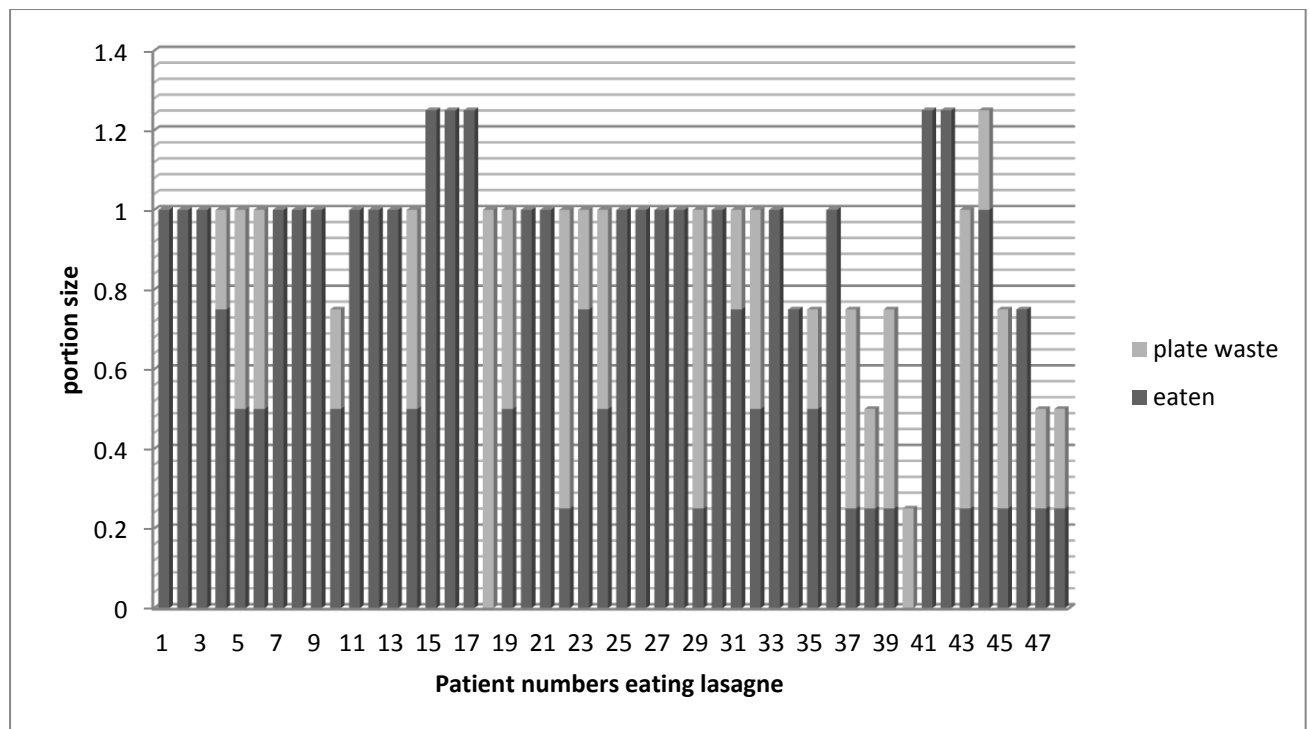
²⁷⁶ Although as discussed in the previous chapter, nutritional analysis was not undertaken across all dishes due to a lack of resources

²⁷⁷ i.e. without nutritional boosting through supplements or snacks

per hospital²⁷⁸. For those completing LSQ, a much lower percentage reported being offered a choice of portion size: just seven out of 37 patients (19%), all from H3. The reason why these two figures differ so much is unclear, although a response given directly after a specific meal service, as in LSQ, should be considered accurate.

In order to investigate intake and waste, during and after service the researcher noted how much lasagne was served to each patient and how much was left on the plate uneaten (the LSP section of the lasagne study, see Appendix 25). From these figures lasagne intake was calculated. As shown in Figure 39²⁷⁹, the majority of patients were served a full portion (31 out of 48), an additional six receiving a large portion (a portion and a quarter), the eleven remaining receiving $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ sized portions. The lighter sections in Figure 39 signify uneaten lasagne (plate waste), as was the case for almost half the study patients²⁸⁰. Much more variation in portion size served is seen on the right of Figure 39, which represents H3: the hospital where more patients were offered a choice of portion size.

Figure 39. Lasagne portion sizes: proportion served and wasted, LSP



²⁷⁸ from 6 out of 31 (19%) of respondents in H1 to 21 out of 29 (73%) in H3 saying they were always or mostly offered a choice of portion size

²⁷⁹ In Figure 39, numbers one to 13 represents patients eating lasagne in H1, and all but one were served a full sized portion. Numbers 14 to 26 represent H2, three patients being served larger portions (two in H2W1 and one on H2W2). Numbers 27 to 48 represent H3 patients

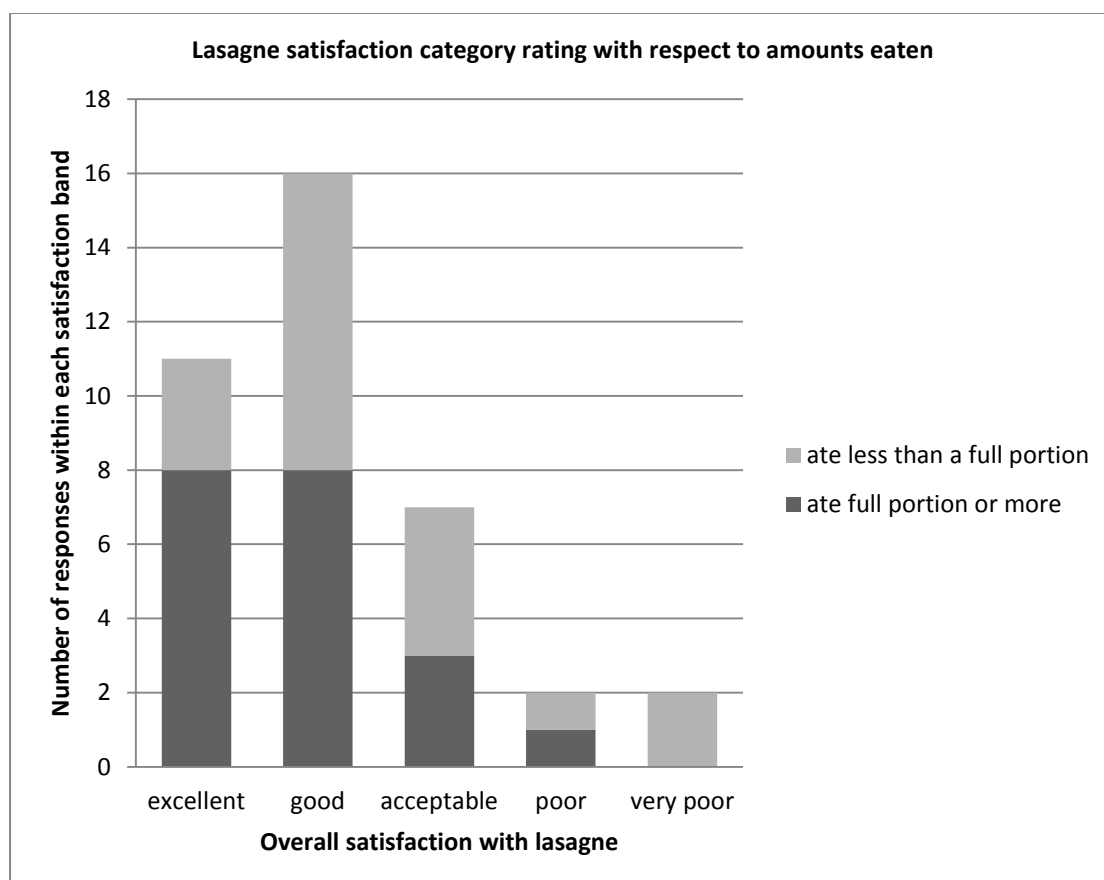
²⁸⁰ 23 out of 48 patients

With regards to intake, half the LSP respondents ate a whole portion of lasagne or more and 40% ate half a portion or less, including two patients who ate nothing.

There was a notable difference in intake between male and female patients: men ate on average 0.89 of a portion and women 0.65 of a portion²⁸¹. Women were also more likely to leave food uneaten: 18 out of 27 women left food and 5 out of 20 men left food.

At the time of this study, in internal HB monitoring across Wales, no connection was made between patient satisfaction and food intake: the presumption was that those who *like* the food will *eat* the food. To address this gap this study mapped intake against satisfaction, and looked at the reasons why people did not eat a full portion or left food uneaten²⁸². Although samples sizes were small, in all satisfaction categories some patients ate less than a full portion (see Figure 40) including patients who thought the lasagne was good or excellent.

Figure 40. Lasagne: overall patient satisfaction with respect to the amount eaten, LSP and LSQ



²⁸¹ One patient was of unknown sex (they were not seen as they were excluded from LSQ)

²⁸² Sample sizes were small, but findings suggest that a larger study could be of merit

Eleven patients²⁸³ who rated the lasagne as good or excellent did not eat a full portion, with findings below:

Served less than a full portion: four patients

The portion was too big for the patient: five said they were served too much food²⁸⁴ (none had been offered a choice of portion size)

Altered appetites:

“What I ate I enjoyed. The rest would have been too much for me” (P.44²⁸⁵ served a full portion, ate ¼)

“I’ve just started to get my appetite back” (P. 45²⁸⁶ served a full portion, ate ¾)

“I haven’t been eating my food lately” (P.36²⁸⁷ served a full portion, ate ½)

Found the portion size just right, but did not eat everything:

“I ate what I could” (P.6²⁸⁸ served a full portion, ate ½)

“I’ve been sick every day with the anaesthetic... [The portion size] is normally just right, but not today because of my tummy” (P.27²⁸⁹ served a full portion, ate ½)

“I’m not a big eater” (P.5²⁹⁰ served a full portion, ate ½)

“I’m not hungry today” (P.11²⁹¹ served ¾, ate ¼)

“Some of it was cold” (P.17²⁹² served a full portion, ate ¼)

Of the four patients who rated the lasagne acceptable but didn’t eat it all, three cited medical/appetite issues (p.3, P.26 and P.28) and just one referred to quality issues:

²⁸³ One patient gave no response to LSQ question, ‘if you didn’t finish all the lasagne please give reasons’

²⁸⁴ Including two who had been given ¾ of a portion

²⁸⁵ P.44 is an 86 year old woman 70 days into her stay on H2W3

²⁸⁶ P.45 is an 71 year old woman 2 days into her stay on H2W3

²⁸⁷ P.36 is an 72 year old woman 1 days into his stay on H2W1

²⁸⁸ P.6 is an 80 year old woman on H3W1

²⁸⁹ P.27 is an 80 year old woman 3 days into her stay on H1W2

²⁹⁰ P.5 is an 71 year old woman 18 days into her stay on H3W1

²⁹¹ P.11 is an 86 year old woman 66 days into her stay on H3W2

²⁹² P.17 is an 34 year old man 8 days into his stay on H3W2

I didn't eat it all – I just couldn't face it. It was just me, the way I was feeling. I just didn't want to eat anything to be honest. Because I'm getting my knee done there's nothing wrong with the food – it's just me (P.26²⁹³, served a full portion, ate ¾)

I was full and it wasn't seasoned enough for me – too tasteless (p. 41²⁹⁴ served a whole portion, ate ½)

Three patients who rated the lasagne poor or very poor did not eat a full portion. Although none had been served a full portion in the first place, all three left food uneaten. All three referred to food quality issues, although two patients also referred to appetite issues, and one mentioned that at home she was having difficulty tasting her food:

I couldn't eat it. I tried. To start with I haven't got an appetite. As soon as I start to eat I don't want it as I can't taste it. The food is terrible here – terrible. .. Everything tastes the same (P.21²⁹⁵ served ½, ate ¼ portion)

The meat turned me...I didn't like the mound of brown meat...I wasn't very hungry" (P.22²⁹⁶ served ½ ate ¼ portion)

What I had today was just a load of mincemeat piled on a plate with some cold potatoes...nothing like I visualise lasagne... It was one of the worst dinners I've had... it was too little if it had been nice" (P.32²⁹⁷ served ¾ ate ½ portion)

Conversely, one patient who rated the lasagne as poor did eat a full portion responding:

"I haven't eaten anything in three days and if I'd had the choice I'd have sent it back"
(P.31²⁹⁸ served and ate a whole portion)

As can be seen above, despite being served a meal cooked to the same recipe, experience of the dish varied greatly between patients, and even varied greatly between patients on the same ward. This study does not have a large enough sample size to draw wide conclusions between patient experience and intake, except to highlight that high patient satisfaction with a meal did not necessarily equate to a full portion of food being eaten. At the level of the individual patient this has implications for nutritional wellbeing, and at organisational

²⁹³ P.26 is an 70 year old woman, 2 days into her stay on H1W2

²⁹⁴ P.41 is an 80 year old woman 29 days into her stay on H2W2

²⁹⁵ P.21 is an 83 year old woman 12 days into her stay on H3W3

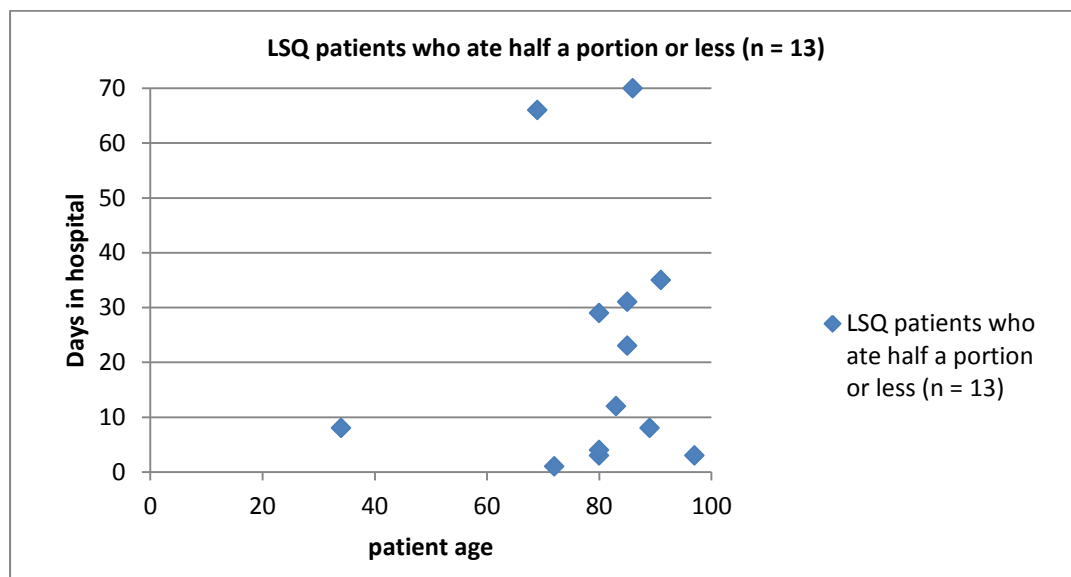
²⁹⁶ P.22 is an 85 year old woman 31 days into her stay on H3W3

²⁹⁷ P.32 is an 89 year old man 8 days into his stay on H1W3

²⁹⁸ P.31 is an 25 year old woman 3 days into her stay on H1W3

level, has implications for the effectiveness of monitoring systems within hospitals. For those who rated the meal highly, poor appetite appeared to have a considerable impact on intake, and this was sometimes ascribed to medical condition. For those who rated the meal poorly, three out of four said they did not eat everything for reasons linked to food quality. The fact that 50% of those who asked for lasagne ate less than a full portion illustrates the importance of intake monitoring if a patient's nutritional wellbeing is to be tracked. Figure 41 represents patients who ate half or less of a portion of lasagne (and completed LSQ). It shows that six out of 13 who ate half or less had been in hospital for over two weeks, and most were over 70 years of age. As this group is particularly vulnerable to malnutrition, these findings are concerning.

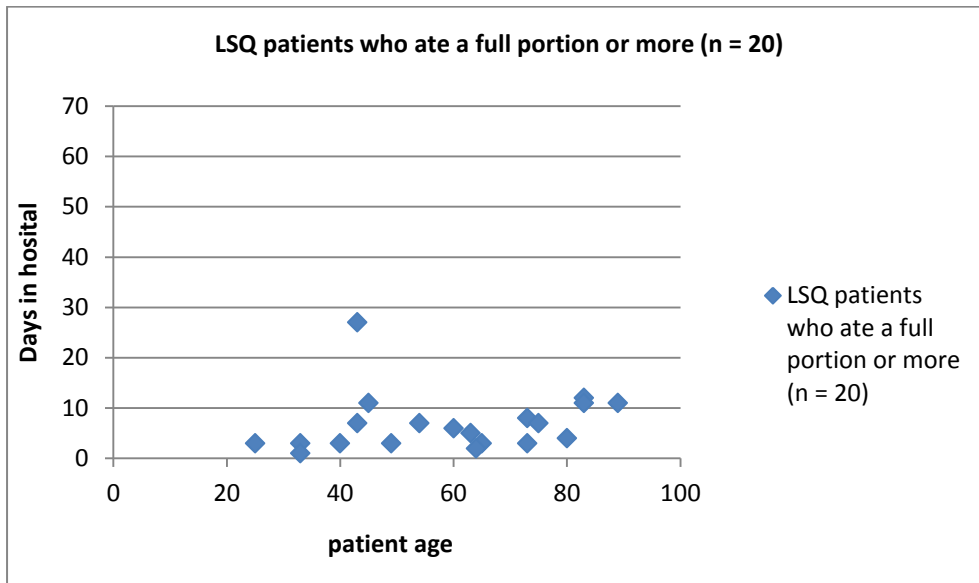
Figure 41. Patients who ate half a portion of lasagne or less, by age and stay length, LSP and LSQ



In contrast, as seen in Figure 42, of the 20 patients who ate a full portion or more (and completed LSQ), the age range was very varied²⁹⁹, but almost all had been in hospital for less than two weeks.

²⁹⁹ from 25 to 89 years old

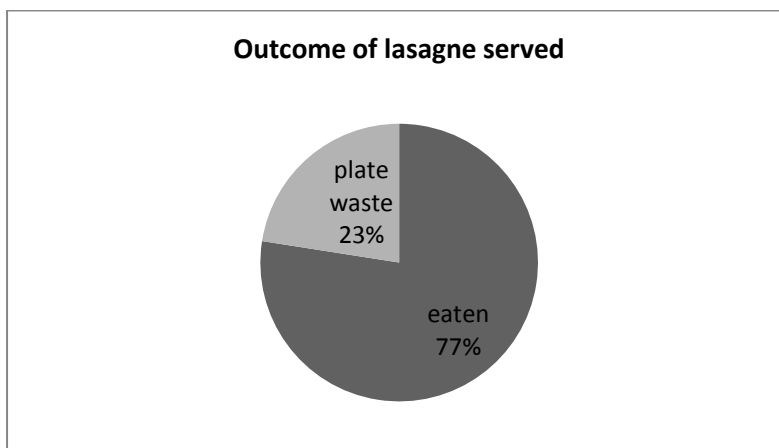
Figure 42. Patients who a full portion or more of lasagne, by age and length of stay, LSP and LSQ



As this study did not include an assessment of HB intake monitoring, it is unknown if any of these patients had food charts, and if these were correctly filled in.

With regard to waste, less than a quarter of lasagne served was left as plate waste (see Figure 43), but when added to the lasagne trolley waste, 54% of all lasagne sent to the ward was wasted.³⁰⁰

Figure 43. Lasagne served: proportion eaten and wasted, LSP



³⁰⁰ 80 portions of lasagne were sent on trollies to the nine wards. 32 of these were unserved, and of the 48 portions served, 23% was left as plate waste (equivalent to 11 additional portions left as plate waste). Overall then, of the 80 portions sent to the ward, 37 were eaten, leaving 43 portions as waste (equivalent to 54% total waste)

5.4. Conclusion

The previous chapter identified the Standards as the main driver of system change, and explored the menu planning process as a mechanism through which to enact change. Yet this study, in taking a systemic approach that explores the embedding of the principles of EPH, recognises that the outcomes of policies, principles and documents can only be tested through an investigation of practice. In this chapter, data has been presented in order to address the research question:

At the level of practice, what are the outcomes of systems change, to what extent do they match aspirations, and what are their implications for EPH?

As the chapter has shown, while the Standards and IP drove change, both in menu design and in service standards, in practice their implementation has been variable. There has been some improvement in recognising the nutritional needs of the patient in this HB since the introduction of the Standards, but the change is limited.

At ward level, patients experience the menu in different ways, and overall the new one week menu has brought an improvement in patient experience of choice, but counter to the expectations of the HB, there was a reduction in satisfaction over the menu's changeability. Although patient numbers are small, there may be a correlation between length of stay and patient satisfaction in these areas, satisfaction decreasing in longer stay patients.

Staff practices at ward level around food service differ greatly: they differ operationally between hospitals; they differ dependent on ward culture and leadership; they differ driven by the responsibilities of specific staff groups; and they differ dependent on the practices of individuals. Interviews have drawn out expectations of staff roles, and observations and patient experience show that expectation does not always match practice. Case studies and examples have shown how variation in the quality of working methods across all staff groups has impacted patient choice and food waste. In addition, data gathered has shown that the HB's internal waste measurement practices are poorly carried out.

Finally, the lasagne study has facilitated an in-depth look at patient experience of food quality, choice of portion size, intake and plate waste. This has shown that the same dish can be perceived in widely differing ways. In addition, the lasagne study has shown that

portion size is inconsistently offered, but that over half the patients ate everything on their plates, although women ate less and wasted more than men. The study also showed that half of the patients in LSP ate under a *full* portion of lasagne (see Figure 39) and were therefore not going to meet their nutritional needs through the main meal alone.

These findings, and those presented in the previous chapter, illustrate the value inherent in policy as a driver of change and the complex nature of the HFSS. They also illustrate that practice and outcomes (such as patient experience, food intake and waste) can vary greatly and defy expectations. The following chapter will now offer a fuller analysis of the data presented in both this and the previous chapter in order to address the research questions.

Chapter 6: Analysing the hospital foodservice system

Procurement is often framed as the primary mechanism through which to operationalise more sustainable approaches to public food systems (Morgan and Sonnino 2007; Morgan 2008; Lang et al. 2009; Sonnino 2009). Yet literature is developing that begins to recognise that a more holistic ‘systemic’ approach to food systems is needed in order to understand more fully the implications for sustainability, and opportunities to improve sustainability (Blay-Palmer 2010; Goonan 2014; Hindrichs 2010; Sonnino and McWilliam 2011). In addition, the principles of Ecological Public Health (EPH) propose a marriage between sustainability and nutrition, ask for systemic and multidisciplinary approaches, frame choice as a route to achieve sustainable human, economic, planetary and societal health (Rayner and Lang 2012, p. 353), and ask that policies facilitate cohesive and desired outcomes in practice. As yet, the principles of EPH have not been used to empirically investigate a food system in practice.

While the state is recognised as an enabler of positive change (Eckersley 2004), and policy as a mechanism through which to drive change, Buchanan and Huczynski (2010) suggest that organisational behaviour is governed by factors that operate alongside political and legal frameworks (e.g. social, economic and technological factors). While practice theory (Reckwitz 2002; Shove et al. 2012) offers a route through which to analyse elements of the hospital foodservice system (HFSS)³⁰¹, street-level bureaucracy (SLB) (Lipsky 2010) is favoured here for a number of reasons: it keeps the individual practitioner central; allows a fuller exploration of disciplines to be explored; and illuminates the relationship between policy and practice, as Lipsky suggests it is the street-level bureaucrats (SLBs) who ‘make’ policy through their actions. In addition, a methodological approach has been developed to investigate the principles of EPH in a HFSS at a time of policy change. The following discussion and conclusion chapters and will revisit the literature, the gaps and the findings in order to address the three research questions below in turn:

³⁰¹ E.g. by looking at practices such as taking the patient order and dishing up food

- 1. Under what conditions is change driven in a complex public foodservice system, and what are the complexities of embedding the principles of Ecological Public Health?**
- 2. At the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are their implications for the principles of Ecological Public Health?**
- 3. In what ways do the principles of Ecological Public Health enhance theoretical and practical understanding of a complex public foodservice system?**

6.1. Drivers of change in a complex foodservice system

As discussed in the introduction, recognition of the importance of hospital food has deep historical roots, as does the ill effects of poor hospital food on the nutritional wellbeing and recovery of patients. The framing of food systems and their impacts on outcomes linked to sustainability, such as environmental protection and social justice, is a younger concern, while the marriage of nutrition and sustainability, as proposed under EPH, is ostensibly a twenty first century concern (Rayner and Lang 2012). The framing of policies and initiatives linked to the principles of EPH in foodservice systems, as explored in chapter three, tend towards mono-issue approaches (e.g. waste reduction, sustainable procurement), integrated multidimensional approaches being less usual.

Although integrated policy approaches to sustainability in food systems are lacking (Lang et al. 2009), exploration of policy frameworks at multiple levels shows that hospital food is an area where policy silos appear to be breaking down. The acknowledgement that the ‘product’ of food itself is simply an element to consider is growing: the systemic perspective is recognised, including the importance of supportive food service standards and appropriate worker practices in facilitating nutritional intake and more sustainable practices, such as waste reduction. Indeed the failure of the HFSS has profound implications for those it aims to serve, driving at the moral core of what is considered ‘care’. Despite more integrated policy approaches, ‘good practice’ examples still tend towards compartmentalisation, with a lack of systemic insight: hospitals in Malmö, recognised for its innovative sustainable food initiatives, may offer menus with a lower carbon impact, but

what is the relationship to adequate nutritional intake?; communal dining in Australian hospitals has improved the social environment, and patients may be eating more (Cheung et al. 2013), but the role of food quality is silent; outsourcing hospital food has increased rapidly in England driven by cost reduction (Alford 2010), but has this affected food quality, patient satisfaction and intake, and what are the hidden costs? Such is the complexity of HFSSs that these questions cannot be simply answered, but without a holistic approach, the picture will always be partial. Indeed a systemic and multidimensional investigation of other public foodservice systems may illuminate similar gaps in knowledge.

Sustain argue on the failure of discretionary state initiatives to improve hospital food (Dalmeny and Jackson 2010), proposing that only mandatory standards will embed change. Yet the application of policy based standards on outcomes in practice is understudied, and as such, the case study findings have implications for both policy makers and practitioners. In addition, the study tests the developed methodology as a route to investigate the principles of EPH empirically, and in the process aims to address the gaps identified in literature: the lack of foodservice system studies that are systemic and multidimensional, that integrate nutrition and sustainability, that frame choice to achieve multiple dimensions of health, and that explore the relationships between policy and practice.

Within the case study, it was clear from interviews and menu planning minutes that at the root, HFSS change was politically driven through government policy, in the form of the Standards (Welsh Government 2011b) and Implementation Plan (IP) (Welsh Government 2011a). A number of other underlying national and local drivers were identified that resonate with the material, biological, social and cultural worlds: social values and increased media awareness had shifted the acceptability of failing HFSSs, the importance of the social context in which food is served was acknowledged, a more holistic economic perspective led staff to see the benefit of good food as linked to faster recovery and shorter stays, and the environmental implications of procurement and food waste practices were a growing concern. Indeed these factors themselves are embedded in the text of the Standards, illuminating an alignment of policy with the concerns of practitioners.

As the HB staff were the agents of change through which the intentions of policy were channelled, the following section looks both at the policy context and at staff practices. It

looks firstly at the approach of the menu planning group to explore how change was driven at local level, and secondly at ward level food service. The impact of the two key documents (the Standards and the IP) as tools to drive change will be explored. These documents differ in key ways linked to purpose and content, differences affecting their role as change makers, particularly in relation to sustainability. Indeed Morris (2010) suggests that problem framing in policy is vital, particularly in capturing the interconnections between traditionally compartmentalised concerns. Two issues surface that impact the effectiveness of these policy tools that have resonance for other policy driven initiatives: gaps between principles, priorities and substance appeared between the Standards and IP; and inherent conflicts between the aspirations embedded in the Standards went unrecognised, as will be discussed further.

The Standards document itself is multi-purpose. It sets the contextual background, including wider policy framework, elaborates on the principles in place (see Table 23), makes direct recommendations on where responsibilities lie, including specifics on when multidisciplinary approaches are needed, and it lays out fine technical detail in its 'practical guide' section³⁰². The overview text within the Standards makes clear attempts to be multi-dimensional and systemic in nature, referring to sustainability and waste alongside nutrition, and recognising the social context of hospital food, yet gaps are evident. Sustainability is linked to ingredient procurement only³⁰³, and food waste minimisation lacks state-driven waste reduction targets. Two gaps are apparent here. Firstly, key environmental opportunities are missed through the narrow framing of sustainability, and the failure to recognise menu planning as a mechanism for increasing sustainability through choice editing at menu level (rather than at ingredient level). In addition, there is a lag in policy prioritisation: hospitals are not bound by the same strict waste reduction targets as Local Authorities, and as such, no national waste reduction targets apply. Indeed Reisch identifies national targets as key suggesting that "one critical step in the pursuit of a sustainable food policy is for governments to define and enforce clear national (and supranational) sustainability targets in the food domain" (2013, p. 20), an opportunity that is clearly missed here. How these gaps play out in practice will be explored later.

³⁰² such as specific nutritional specifications for different patient groups

³⁰³ signposting the procurement division of the Welsh NHS, Shared Services Partnership Procurement Services

The IP (Welsh Government 2011a) (Appendix 20) differs from the Standards in ways that proved to be fundamental to how change was enacted at the HB. A clear four page document, the IP is a concise guide laying out exact criteria to be achieved within four set time periods, signposting the Standards for technical detail where needed. In addition, it operates as an audit tool. This ‘distilling’ of principles in the IP marginalises sustainability: all potential avenues to embed improved sustainability outcomes (linked to procurement and waste reduction, and marked with a * in Table 23) are implied by default³⁰⁴ rather than directly, so the potential for its enactment into practice is weakened; and as an audit tool, routes to measure progress are undefined. Here the gap in read across and consistency between differing state documents is evident, and compliance in the case study site was variable (see Table 23).

Also key when exploring the effectiveness of the Standards and IP, and indeed any policy tools, is the recognition of inherent conflicts. Authors have argued that the state is a powerful actor in mobilising ecologically motivated change (e.g. Eckersley, 2004), and the EC acknowledge the importance of systemic perspectives, asking that policies

need to address appropriately trade-offs. In order to make the right choices both now and for the longer term, we need to consider the whole life-cycle of the way we use resources, including the value chain, and the trade-offs between different priorities (European Commission 2011, p. 4)

Indeed within the Standards and IP, conflict (e.g. between choice maximisation and waste minimisation) remains unrecognised, and the previous chapter has shown that in practice aspects of choice and waste were indeed interconnected³⁰⁵.

What is clear from the discussion above is that the instruments of change used by policy makers are powerful, and serve to frame the problem they wish to address. As will be explored further in the chapter, their effectiveness is illuminated through practice, and the implications of how instruments frame issues, what gaps emerge, and what conflicts are embedded, by the very concrete nature of policy and guidance, serve as the foundation from which change grows. In the case explored, principles and criteria underpinning the

³⁰⁴ ‘by default’ indicates that the principle is not spelled out in the IP, but reference is made to the context in which it would sit, therefore compliance to the Standard principle is implied

³⁰⁵ overall 83% of the vegetarian choice was left unserved.

Table 23. Framing of and compliance to Standards and IP: documents and practice

Standards principles ³⁰⁶	Required in IP ³⁰⁷	Menu planning (compliance to IP) ³⁰⁸	Ward level food service (compliance to IP) ³⁰⁹
Assessment of dietary needs			
at hospital population level	yes	partial	n/a
at individual level ³¹⁰	yes	n/a	partial
Menu planning			
Multidisciplinary team engaged	yes	partial	n/a
*Procurement involvement in early stages	by default ³¹¹	yes	n/a
Menu cycle appropriate to local patient groups, such as long stay patients	by default	consideration was given to this	partial: longer stay patients less satisfied with choice
*Review menu in light of patient feedback and plate waste monitoring	by default	No evidence to show this occurred ³¹²	n/a
Standard recipes used	yes	yes	n/a
Nutritional requirements must be met	yes	Partial	n/a
*Sustainability of the menu should be considered at the start of the process	by default	no	n/a
Sustainability			
*identify opportunities to support and promote sustainable healthier foods	by default (menu planning)	no	n/a
*minimise wastage	by default (plate waste monitoring)	no	Partial (some wards did not automatically have vegetarian meals available)
Food service			
Patients given the opportunity to choose their own food from a varied menu (dish quantities set out and must include vegetarian option)	yes	Partial	Partial/variable across wards
choice of portion size should be offered	yes	n/a	Partial/variable across wards

*= Principles in the Standards that have the potential to embed greater sustainability

³⁰⁶ the key principles drawn out from the Standards and IP (Welsh Government 2011a and b) and investigated throughout this study. Note that not all principles were investigated, as some lay outside the scope of this study

³⁰⁷ Welsh Government 2011a

³⁰⁸ Drawing on menu planning minutes and interviews

³⁰⁹ Drawing on responses from PE13 questionnaires

³¹⁰ Through the application of The All Wales Hospital Nutrition Pathway Protocol, which asks that each patient is weighed and screened for malnutrition within 24 hours of admission

³¹¹ 'by default' indicates that the principle is not spelled out in the IP, but reference is made to the context in which it would sit, therefore compliance to the Standard principle is implied

³¹² Using data from the menu planning minutes

availability of adequate nutrition, and the framing of social mechanisms to optimise intake (e.g. choice and positive food service standards) were absolutely embedded in policy tools, but sustainable procurement and waste minimisation were weakly framed, and left without any explicit criteria against which to measure. Furthermore, the inherent conflict between the implicit aspirational goals within the Standards and the IP that link to EPH³¹³ remained unrecognised, illustrating a lack of understanding from policy makers on the systemic implications of their policy tools. Indeed, this case serves as an illustration of the importance of retaining and making intention consistent between policy aspirations and state tools, as these tools in turn become the foundations of practice.

6.2. Driving change through the menu planning process: principles and practice

The first research question asks **under what conditions is change driven in a complex public foodservice system, and what are the complexities of embedding the principles of Ecological Public Health?** The following section will explore how the HB itself responded to the new policy landscape. Following from, and driven by the policy context, the menu planning process was the first mechanism within the HB to shape change, and as such illustrates the move from policy to practice, allowing insights into the complexity of the organisational boundaries and priorities, and the effect of narrow IP framing.

During menu planning, although staff interviewed clearly referred to ‘the Standards’ as a lever of change, they did not distinguish between the two primary documents, and the IP appeared to provide the detail around which menu planning was framed. As discussed above, the gap between the purpose and content of the Standards and the IP therefore may help to explain how the practice of menu planning and ward level food service differed from policy aspirations in places. The following section will explore the menu planning process in more detail, connecting the policy context to the practices that ensued and exploring the implications for EPH. The section will then move on to discuss practice at ward level under the new menu.

³¹³ i.e. nutritional intake, through nutritionally analysed meals, maximized choice and increased sustainability through procurement and decreased waste

As discussed in the methodology, the menu plays a vital role in the HFSS: it is “the hub of the system, with sub-systems interrelated and interdependent on its purpose, process, and content” (Sullivan and Atlas 1998, p. 3). The menu planning process itself, and its outcomes, therefore shed light on the challenges of operationalising policy, offering lessons for all engaged in stimulating change within organisations. In order to understand the conditions under which menu planning operated, it is essential to understand three things: firstly, the social framing of the process – who was involved, and how did this play out in practice?; secondly, the content framing - what shaped the framing of the final decisions made by the group?; and thirdly, how did this menu reflect the aspirations of the Standards? In addition, the implications for EPH are explored, and will be further developed in the conclusion.

Many in the MPG spoke positively of the social framing of the menu planning process, in particular the broad multidisciplinary membership of the group. Interviews showed that groups were traditionally fragmented within the HB in relation to daily practice, in particular caterers and nursing staff. In the forum of the MPG a new level of relationship was reached, one which essentially democratised the disciplines around this new goal, giving voice to all. This ‘voice’ had two effects highlighted by interviewees: that everyone’s perspective could be considered (patient, caterer, nurse, dietician etc.) in formulating the menu, and that discussion of poor practice at ward level could be shared in a neutral space. Both the Head Dietician and the Head of Catering mentioned the gap between catering and nursing, and the difficulty in exerting control over and between these groups to ensure maximised food and food service standards. Both felt the MPG forum gave a new positive focus and space within which to share concerns and formulate approaches to facilitate positive change. As such, the MPG provided a powerful social function within the HB, an illustration of how policy moves into practice-making effectively, and a demonstration of the importance of key stakeholder involvement.

The importance of multidisciplinary roles and specialised knowledge was clear, as the MPG minutes show. The processes and prioritisations also played to disciplinary strength. The planning approach was staged. Initially rooted in the social and cultural worlds through choosing dishes to match population needs and boost choice, menu planning moved through to the biological and material as nutrients, costs and infrastructure were

considered. In formulating the policy-compliant menu³¹⁴, one discipline was positioned centrally: interviews and actions show that caterers felt themselves best placed to understand patient likes and dislikes, and lead the dish-planning process. Wider groups were drawn on to fine tune dish choices and the menu framework, including patient groups and general staff. The positioning of nutritional analysis, as overseen by dieticians, was less clear, as Trust practices were fragmented. Standardised recipes were not historically used, leaving no agreement on what recipe was to be analysed. As such, a preliminary recipe standardisation process was undertaken. Here priorities stepped away from the biological aspirations of the Standards: materiality (rather than the nutritional content) of the dish was key, and the recipe tasting processes allowed caterers to test the cultural acceptance of the dish in terms of palatability, texture and appearance. Further material limitations were also evident: lack of technical kitchen equipment in some hospitals dictated menu choices. As such, this early stage of menu planning touched on all four dimensions of existence: the material, biological, social and cultural, illustrating its multidimensionality.

Despite the benefits of multidisciplinary engagement, variable attendance records and outcomes show that practice did not match guidance or staff expectations. Two specific gaps in attendance may have had fundamental implications for outcomes. Firstly, where a doctor was required as a core member of a MPG in the Standards, in practice no doctor attended³¹⁵. Multiple apologies were recorded, perhaps reflecting the low importance attached to food by medics. That the highest levels of clinical staff failed to prioritise hospital food undermines a fundamental policy aspiration: that catering should be recognised as a clinical support service by all. Secondly, where procurement is recognised as key to embedding sustainability in the Standards, guidance asks that they attend early meetings only. As such, procurement is framed as a satellite service for the menu planning process rather than embedded within it, and the fragmentation of nutrition from sustainability is again evident.

In practice, MPG minutes show that the discussion of sustainability was indeed missing, and interviews illustrated that organisational culture within the HB mirrored the Standards: HB staff framed sustainability primarily within the procurement function. Yet as procurement

³¹⁴ which dictated set numbers of course choices and menu composition, as required in the Standards and IP

³¹⁵ 9 sets of consecutive MPG minutes were analysed, from November 2011 to February 2013

staff attendance was limited to one preliminary meeting, this interface was missing. In interviews, when prompted, all participating staff recognised that minimising food waste was important, particularly on economic viability, but there were differences in attitude between key disciplines on how menus could contribute to greater sustainability. While the Lead Dietician put social concerns first, suggesting dish variety³¹⁶ should shape menu framing, catering staff identified potential opportunities to embed sustainability beyond procurement, such as flexible seasonal menus, yet these ideas were not discussed as part of menu planning. Here fragmented disciplinary approaches were evident on the principle of integrating nutrition and sustainability, and the MPG meetings failed to work as a forum for discussing sustainability.

Before looking more closely at the conditions that shaped the agreed 'interim' new menu, one element not required in the Standards, menu length, set the framework for the whole menu. In the case study, a shift to a one week menu³¹⁷ was made, the Lead Dietician crediting the Standards themselves for facilitating this radical move through empowering change. Seen as responding to a shift in the social context of hospital workings, in which patient stays had shortened, a one week menu was deemed socially acceptable in light of the IP's specified menu choice framework. The one week menu was also seen to bring significant material and social benefits to caterers: work schedules could be better planned, and stock holdings could be better managed. Despite these positives, as the previous chapter has shown, and as will be discussed later, the shortening of the menu from two to one week had unforeseen negative impacts on patient satisfaction, illustrating unintended consequences of menu length change, a failure of HB staff to understand their own patient demographics adequately, and a neglecting of diverse patient needs.

In practice, further policy aspirations³¹⁸ were challenged by organisational limitations, which in turn shaped outcomes. The MPG, despite aspiring with the utmost integrity to meet the policy requirements, prioritised pragmatically in response to these organisational limitations, guided by local need. This organisational response has significance for those who seek to understand how organisations function within conflicting sets of conditions: in

³¹⁶ i.e. a variety of different meat and non-meat choices

³¹⁷ a two week menu was in place during the planning phase

³¹⁸ such as menu scale, dish standardisation and nutritional adequacy

this case, the new policy landscape, alongside the existing economic, social and infrastructural organisational landscape. In turn this knowledge helps to address research gaps, illuminating the complex relationship between policy and practice.

Within the HB, material barriers primarily shaped the menu in practice, in the form of infrastructure and money. Lack of standardised equipment across HB kitchens blocked standardisation of dishes, and consequently complementary dishes were used in places³¹⁹. More significant was the lack of funding for the new menu. Costed at £1.25 million to implement (The Health Board 2012c), the Standards implied a need for an investment in more infrastructure³²⁰, higher staffing levels³²¹ and increased ingredient spend³²². As no additional Welsh Government funding was pledged, costs were to be accommodated locally. Subsequent HB costing exercises signified a shift in priority away from blind compliance to the Standards towards pragmatic prioritisation. When it became clear that only a partial budget would be released locally, priorities were redrawn within the MPG and a new set of goals were agreed with two outcomes in mind: maximising the benefit to the patient³²³, and showing the HB's Board that the extra funds were being used well. Here, these two sets of 'customers' (the Board and patients) illustrate the broadening of stakeholders within the healthcare system, to include those holding the purse strings plus those who rate the outcomes of the new menu on the ground. While the MPG reluctantly agreed a slimmed down non-compliant menu, arguably this was a menu designed to do the greatest good in the circumstances by offering choices sympathetic to the four dimensions of existence. This menu considered the material (technical capacity and money), the biological (nutritional composition), and the social and cultural worlds (patient profile and patient preferences). In turn, a multidimensional approach is illustrated that encompasses a systemic overview, in that the final output, the menu, was built with consideration of procurement (limited by cost), of production and equipment (limited by technical capacity), and with ward based experience in mind (meeting patient preferences). Indeed it is just the

³¹⁹ E.g. chicken hotpot or chicken pie

³²⁰ Such as microwaves at ward level to make warm milky drinks in order to meet milk intake requirements

³²¹ An increase in the number of daily water jug changes for each patient from two to three had a burden on staff time and levels

³²² More budget was needed to increase course choices and to boost the nutritional content of dishes

³²³ by focusing on offering nutritionally compliant meals where possible, developing homemade soups which were very popular and delivering energy dense snacks

lack of research that addresses such interconnections that the methodological approach aims to address in this study.

One final set of conditions challenged the foundations of the Standards – that a menu should offer food with set nutritional value, guaranteeing patients access to food that meets nutritional needs. As will be discussed further, multiple barriers occurred in practice: barriers reflected existing unstandardized organisational practices; resource limitations; gaps in cross-disciplinary engagement; and the ramifications of the multidimensional nature of food, i.e. how to balance palatability/ acceptability, cost and nutritional content.

Meeting set nutritional requirements within the organisational context depends on four conditions: using standardised recipes, using standardised ingredients³²⁴, nutritional analysis of dishes, and correct portion sizes. Each of these operates under different conditions, illustrating the complexity underlying the actualisation of policy intentions. Firstly, in the case study site, using standardised recipes was simple to achieve, being within the scope of one discipline, the caterers, and was done during the menu planning process. In relation to ingredients, before the introduction of the Standards, each hospital ordered products individually and could chose products with different specifications. Purchasing processes were changing as a result of the Standards: central procurement services were tightening up nutritional specifications across all product ranges, and it was recognised by the HB that standardised recipes also relied on standardised ingredients. While this may have had nutritional benefits, social, economic and material consequences were noted: direct supplier relationships were lost, and HB store managers feared a drop in quality and a rise in price. In addition, shifting purchasing responsibility from internal HB staff to all-Wales centralised procurement, while beneficial to standardisation and nutrition, illustrated a fragmentation of disciplinary responsibilities and the shift towards compartmentalisation of the procurement function, traditionally perceived as the route to ingredient sustainability.

Thirdly, meeting set nutritional requirements demands dish analysis, but in the case studied this was the most complex cross-disciplinary element for the MPG. This was partially because of the circular nature of recipe development/nutritional analysis, and to resource limitations (dieticians' time), but also illustrated underlying hierarchical relationships within

³²⁴ e.g. one type of cheese might have a different nutritional composition to another

the HB. While dieticians were technically able to analyse meals, in practice this was only undertaken on selected dishes, and blocked full nutritional compliance. While dieticians favoured a light touch, offering advice on 'likelihood' of reaching nutritional compliance, catering staff were somewhat uneasy and unclear about this gap, and all IP deadlines were missed in this area³²⁵. In progressing towards compliance, the Head of Catering looked to national solutions, but again framed these within pragmatic material boundaries: where affordable, nutritionally analysed recipes from the all-Wales menu framework would be implemented in place of the HBs dishes.

Finally, a key material consideration underpinned meeting nutritional requirements. Offering adequate nutrition relies on correct portion sizes, yet HB portions were not standardised. Catering Managers confirmed that trays were filled by eye, and anecdotal evidence from those who ordered or picked trays for the ward suggested tray volumes varied significantly. This was not addressed during the study, but was identified. In unpacking the conditions under which nutritional requirements are met, the challenge and multi-dimensionality of organisational practice is laid bare. In examining these processes it appears that although multidisciplinary approaches are essential, single disciplines have roles too, although integration is vital to success.

In illuminating gaps in understanding between policy and practice, both of which have driven change, the following section begins to address the second research question: **at the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are the implications for Ecological Public Health?** With pragmatic prioritisation of the menu plan, framed to account for technical and economic limitations, and the organisational complexity of meeting set nutritional requirements, the MPG produced variable results when considering how outcomes reflected the aspirations of the Standards. As Table 23 shows, success was achieved in standardising recipes, but despite procurement involvement in early menu planning, as required, the underlying motivation behind the attendance of procurement professionals (i.e. to embed sustainability at the early stages of planning) was not achieved. As discussed, these findings illustrate that outcomes are shaped not only by policy tools, but by the gap in framing between policy tools, demonstrating to policy makers the importance of understanding the parameters that

³²⁵ during the research period only analysis of soup took place internally

define effective policy tools. There was partial compliance to the IP in places (see Table 23)³²⁶ and multidisciplinary involvement in the MPG, although the gap in senior medic engagement undermined the elevation of hospital food into the clinical domain. There was no full compliance in areas directly linked with improvements in sustainability, and as discussed earlier, these areas were least clearly defined in the IP. In this way, the outcomes of the MPG through the new menu fell considerably short of those anticipated in the Standards, with both nutrition and sustainability undermined.

As illustrated, policy can be a powerful tool through which to drive change in complex public food systems, but how principles and priorities are laid out in policy tools has direct impact on how organisations translate these into practice. In addition, the failure to support policy implementation adequately at state level, e.g. through adequate economic support, further undermines implementation. Within the HB, policy was a powerful driver of HFSS change, but gaps between principles, priorities and substance of policy tools affected outcomes of the menu planning process, particularly around sustainability and nutrition. This gap around sustainability resulted from policy framing, and also from organisational participation. With procurement absent, and the Lead Dietitian advocating primarily for dish variety, the Standards aspiration ‘to identify opportunities to support and promote sustainable healthier foods where possible’ (Welsh Government 2011b, p. 10) was missed. Additionally, national policy took on the shape of the local context: local economic conditions shaped outcomes, and pragmatic prioritisation by the MPG was framed towards meeting local need. Summing up then, the shift from policy to practice was shaped in three ways: by policy framing; by local conditions, including economic and technical capacity; and by the organisational and disciplinary engagement of the internal actors operationalising change. Gaps and challenges in each of these three areas undermined opportunities to embed the principles of EPH.

While the MPG was the mechanism through which policy tools were channelled around the menu, food service also fell to the group. Yet despite clear prioritisation of food service in the Standards, gaps in organisational practice appeared: earlier MPG minutes show only brief references to food service, and many IP food service standards had not yet been

³²⁶ such as meeting required choices

discussed by mandatory implementation dates. While reasons for this are unclear, menu planning clearly took precedence over service issues.

Multidisciplinary was again valuable in relation to food service: caterers and nurses (the groups on the front line of service) leading discussions, with dieticians reinforcing the nutritional implications of missed meals. The MPG minutes suggest poor institutional knowledge of food service and practices: meal service times across all wards were unknown, nurses were often unaware of missed meal options beyond sandwiches (despite ward notice boards displaying options), nursing awareness of correct portion size was variable, and knowledge was poor on the efficacy of training options. Despite this, early recognition of these gaps by the group stimulated action, although this was limited to a meal time trial, which was ultimately unsuccessful³²⁷. Although signifying an institutional drive towards policy driven change, this prioritisation demonstrates a key challenge of food service: that it operates at multiple levels and under multiple conditions, under which structural conditions³²⁸ remain under organisational control, but conditions in the hands of agents³²⁹ (the street-level bureaucrats (Lipsky 2010)) remain in the domain of the individual.

Summing up, despite the drive to address specific food service standards, barriers blocked full compliance. Firstly, for unknown reasons, some service standards were just not discussed in the MPG³³⁰ illustrating lack of robustness to their approach. Secondly, deep rooted institutional barriers to change were evident. During meal time trials³³¹, for example, the drive to maintain organisational and operational norms, such as visiting hours and ward rounds, underpinned the trial failure (The Health Board 2013a). Here ward level priorities lay in maintaining existing ward and hospital structures over and above standards designed for patient benefit. This also illustrates organisational complexity in general and the multi-dimensional implication of change in the hospital environment³³².

³²⁷ To achieve IP compliance around meal times, firstly benchmarking of times took place to establish existing practice, secondly a pilot trial was undertaken around IP compliant meal times, thirdly learning from the trial and rolling out change more widely, and lastly, monitoring/auditing the impact of the change took place

³²⁸ E.g. meal times

³²⁹ such as offering a choice of portion size

³³⁰ Such as the need to prepare the eating environment, and the availability of assistance for patients who need it. Although data was gathered on assistance from PE10 and PE13, this will not be investigated here.

³³¹ so that there was no more than a 14 hour gap between dinner and breakfast the following day

³³² E.g. moving a meal by 30 minutes impacted on diverse staff disciplines (e.g. catering, housekeeping/domestics and nursing), on some clinical practices (e.g. administering medication) and on

6.3. Onto the wards: food service in practice

While the previous section explored the conditions of change within a HFSS, the impact of policy framing on shaping the outcomes of menu planning, and the implications for embedding the principles of EPH, the chapter now turns to a second subsystem, food service practice at ward level. Welsh hospital food policy has broadened its terms of reference embracing the integration of nutrition and sustainability in principle, recognising the importance of biological, social and cultural contexts, and acknowledging the systemic fields of importance (procurement, menu planning and food service). Investigation of food service offers further systemic insights into how organisational aspirations play out in practice, how practices and outcomes operationalise policy, and where conflict lies. Findings therefore have value for policy makers, practitioners and for related academic fields of study. Findings also have value for the specific field of hospital food research.

Outcomes linked to food service are dependent on differing multi-level structures, systems and practices. Some food service outcomes are directly underpinned by organisation-wide structures and practices (e.g. standardised recipes, the menu, nutritional composition of meals and meal times), some are governed by collective ward level working practices (preparation of eating environment, assistance with eating), but many operate through social interaction, and are directly in the hands of ward workers. It is on this frontline where Lipsky argues for the importance of the worker as enactors of policy:

the decisions of street-level bureaucrats, the routines they establish, and the devices they invent to cope with uncertainties and work pressures, effectively become the public policies they carry out (Lipsky 2010, p. xiii)

This study uses street-level bureaucracy to frame ward level practice in the hospital setting for the first time.

On the ward, the biological world of nutrients takes on life in the social world, and appropriate multi-level structures, systems and practices are fundamental to ensuring that patients benefit from the menu on offer. As such, the following section extends the exploration of the second research question focusing on ward level practice, asking once

visitors, whose access would be restricted by a further 30 minutes where protected meal times were in operation

more, at the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are their implications for the principles of Ecological Public Health?

The following section will analyse ward based data, drawing from observations, informal staff interviews, patient experience questionnaires PE13, and food waste data. The section also draws on data collected on one dish, lasagne, selected as a 'control' through which to investigate patient experience, intake and waste³³³.

In exploring policy, practice and outcomes, a number of findings emerge that address research gaps, as will be explored one by one below. These findings narrow the knowledge gap between evidence and policy, demonstrate the value of using SLB as a framework for exploring workers' practices in hospitals, draw out multi-dimensional and systemic perspectives, explore the impact of choice framing, and investigate links between nutrition and sustainability.

Taken in turn, firstly ward level findings demonstrate that policy and stakeholder expectations were both supported and contradicted, illustrating mixed successes when moving from policy into practice. Despite not reaching the choice parameters framed in the Standards, there was an improvement in patient experience of menu choice³³⁴ under the new menu³³⁵ (see Figure 24), and experience was more consistent across the three hospitals, suggesting that the menu planning process had been robust in this respect. Conversely, aspirations and expectations were underachieved in a number of ways: patient needs were poorly benchmarked, patient experience of menu changeability *over time* had reduced, and choice of portion size was inconsistently offered.

Benchmarking patient needs through individual assessment is a fundamental step in working towards meeting those needs. Although this is re-iterated in the Standards, no discussion on this subject was minuted, suggesting that this was considered embedded HB practice. Yet patient experience suggests inconsistent practice, with pockets of very poor practice from nursing staff: just 52% of patients noted being weighed (Figure 21) and 42%

³³³ Using results from the lasagne questionnaire LSQ and the lasagne pate study of intake and waste, LSP

³³⁴ when asked 'is there enough choice on the menu?'

³³⁵ patient satisfaction with food had risen from 41% finding it good/excellent in 2010 to 63% in 2013, and in relation to enough choice, satisfaction rose from 58% good/excellent in 2010 to 81% in 2013

were asked about their dietary needs (Figure 22)³³⁶ despite both being required in the All Wales Nutrition Care Pathway. Yet without these practices, patient needs remain unrecognised. Despite this, evidence on the scale of nutritional need was contradictory: 70% of patients stated no specific dietary needs, yet a HB audit of 493 patient showed 82% to be at nutritional risk (The Health Board 2012b). At odds here is the framing of needs: within the Nutrition Care Pathway a pre-determined set of indicators signify risk (linked to weight, appetite, ability to eat and 'stress factors' such as medical condition), yet interview and PE13 evidence uncovered a gap in identifying 'stress factors' such as diet related ill health. Indeed where the HB menu was least successful in meeting needs, it was poorly aligned to diet-related health, and at odds with accepted social and biological thinking: in the cardiac ward (H3W1) three out of 12 patients said their dietary needs were rarely or never met, and in interviews some staff and patients found menu choices ill-suited to supporting healthy lifestyle choices linked to cardiac recovery. The HB failed in three ways here: it failed to align menus with patient groups for whom nutritionally altered diets were advisable, it failed to deliver against its own health advice, and it failed to train staff and inform patients that healthier options were available on request. In short, inconsistent messages were received by patients, and opportunities for appropriate nutritional support were missed.

Moving on, outcomes observed and measured through patient experience questionnaires shed light on areas of complexity, three areas dominating: the relationship between acceptability of food and food intake, which bridges the biological world (in the form of nutritional wellbeing) with individual experience; the diversity of patient satisfaction responses on food, both within and between wards; and the challenge of choice framing, as will be discussed in a separate section.

Where Hartwell et al. suggest that "there is a complex relationship between acceptability of food (liking) and intake [as] the first does not necessarily guarantee the second" (2007, p. 212), findings from the lasagne study³³⁷ tested this assertion, adding evidence in this understudied area. Sample sizes were small, but evidence was illuminating. Three out of four patients who rated lasagne poorly did not eat a full portion (see Figure 40) illustrating

³³⁶ Data on the numbers of PE13 participants on food charts was not gathered, so the accuracy of patient recorded responses was not corroborated

³³⁷ LSQ and LSP

the connections between human health and the individual experience, yet 40% of patients³³⁸ who rated the lasagne good/excellent also ate less than a full portion³³⁹. Here the dish appealed in the cultural world, but this success did not automatically transfer into the biological world, as health benefits associated with adequate intake were not guaranteed. These findings have considerable implications for the measurement of success in HFSSs: hospitals must look beyond patient satisfaction to better understanding the conditions governing nutritional intake.

The second area of complexity identified is the diversity of patient satisfaction responses on food. The lasagne study provided a 'control' dish, yet considerable differences were identified around temperature, flavour, appearance and texture (see Figure 37), often within the same ward (see Table 22) illustrating the subjective nature of patient experience and the impact of staff practices³⁴⁰. Patient comments presented in chapter six demonstrate diverse associations and expectations of the dish, suggesting that a 'one recipe suits all' approach may be an unachievable aspiration in a hospital setting with diverse patient groups. It may also be due to serving techniques, where one patient may receive well-presented lasagne in a neat slice, and another may receive a mound of meat and pasta layers, scooped out awkwardly from the trolley tray, although this was not explored within the parameters of the study. The concentration of poor/very poor responses to food quality in just two wards³⁴¹ is difficult to explain with confidence due to the small sample size, but as 18 poor/very poor responses were registered by just five patients, deep rooted dissatisfaction was concentrated³⁴².

Outcomes at ward level further defied required standards and organisational expectations through the inconsistent offering of portion size. Staff practices differed greatly between wards: only seven out of 37 LSQ respondents said they were offered a choice of portion size, and these were all from two wards³⁴³. Contrary to the expectation of Catering Managers, nurses rather than WBCs performed best in this area. PE13 results corroborated LSQ results:

³³⁸ 11 of the 27 patients

³³⁹ Reasons included: the serving of smaller portions to begin with, some patients felt they had been given too much food, poor appetite generally, reduced appetite due to medication and temperature issues

³⁴⁰ Such as the impact of service methods on food temperature, as discussed in the previous chapter

³⁴¹ 17 out of the 18 poor and very poor responses were from H1W3 and H3W3

³⁴² The remaining 33 patients responded with acceptable to very good in all food quality categories

³⁴³ H3W1 and H3W2

again these two wards had the highest proportions of patients who had been offered portion size choice. Although this finding suggests that *offering* portion sizes was poorly embedded, further results suggest staff were good at getting portion size right regardless: over half the LSQ participants ate everything they were given. This finding indicates further study is needed on the importance of offering portion size in relation to satisfaction and intake, particularly in light of anecdotal evidence from staff, who suggest that large portions can actually dissuade the nutritionally vulnerable, such as elderly patients, from eating.

Gaps in organisational knowledge were evident in areas significant for nutritional intake and sustainability. A one week menu with more daily options had been designed in light of shortening stays, yet dissatisfaction rose proportionately as patient stays extended (Figure 27) suggesting a failure to understand the cultural implications of a one week menu for selected patient groups, and a gap in organisational mechanisms (such as off-menu options) to enhance this group's experience of food. Analysis of lasagne study results (see Figure 41 and Figure 42) show trends linked with length of stay. Of those who ate a full portion, 19 out of 20 were in hospital for less than two weeks. Of those who ate half a portion or less, almost half³⁴⁴ were in hospital for over two weeks. A fuller understanding of the implications of length of stay on satisfaction and intake is therefore essential when considering how the HFSS best meets the needs of the most vulnerable; it is elderly patients who tend to be longer stay and at greater risk of and from malnutrition.

A significant gap in knowledge around the scale and spread of food waste was evident (see Table 21 and Figure 36). On study wards, main course trolley waste ranged from 7% to 81%, averaging at 42% (see Appendix 22), with significant economic and environmental implications. A lack of consistency and rigour was evident, the HB themselves measuring waste in varying ways across hospitals, with incorrect results evident in all hospitals. With maceration as the waste disposal method, carrying no direct monetary cost and offering instantaneous disposal, food waste became invisible within an hour of the end of service removing any further auditing mechanism. That hospital food waste can be significantly under-reported is clear in other studies (Sonnino and McWilliam 2011), yet without full knowledge of the scale and reasons for food waste, meaningful change is undermined.

³⁴⁴ 6 out of 13

Summing up, the outcomes of system change leading from the organisational response to policy change were multiple, demonstrating systemic areas of challenge and gaps in knowledge within HFSSs, which in turn suggest areas for policy reassessment. Firstly, outcomes met expectations around improved food quality and choice in the short term, but failed expectations on assessing patient needs and menu changeability. The diversity and complexity of patient response and actions was evident, particularly in the intersection of the biological, material and cultural dimensions. Despite similar material qualities in the food, inconsistent patient experience was evident denoting the subjective individualised experiences of patients and perhaps differences in food presentation. In turn, as acceptability did not guarantee nutritional benefit, social auditing approaches proved useless as indicators for health related outcomes. Finally, organisational gaps occurred that signified areas where a stronger engagement was needed: engagement that recognised and supported the needs of individual patients rather than organisational priorities, and engagement in supporting honest recognition of waste as first stage in developing waste reducing organisational practices.

6.4. The complexity of choice

Finally, an in-depth investigation into choice framing illuminates a number of key findings in relation to research question two, and addresses research gaps, particularly around the intersection of nutrition and sustainability in the form of food waste. The choice framing practices of ward level workers are explored in depth, drawing on street-level bureaucracy (Lipsky 2010) as a lens through which to explore drivers of practice.

Choice plays a pivotal role in this study as it embodies a number of conflicting perspectives, and signposts unintended consequences. Choice framing to achieve multiple dimensions of health is integral to EPH (Rayner and Lang 2012), and choice editing with sustainability in mind is highlighted by Reisch (2013). In hospital food studies, lack of choice is recognised as a barrier to intake (Dupertuis et al. 2003), a barrier to access (Naithani et al. 2009), and directly linked to patient satisfaction (Johns et al. 2010). Understandably then, policy proposes that maximising dish choice will lead to increased nutritional intake in hospital patients (Welsh Government 2011b, p. 16). In turn, staff interviewed felt that boosting the

choice offer would benefit patient experience. As such, the research is particularly interested in exploring the ways in which choice was framed, and investigating the implications of how choice was delivered in practice throughout the HFSS under investigation, and where possible, to link choice framing with food waste and patient experience. Waste is particularly important in this study, as in the absence of the involvement of procurement in the menu planning process, and the lack of the embedding of environmental principles in menu planning, waste becomes the principal way in which planetary and economic health can be addressed in practice.

In hospitals, the menu (see Appendix 21 for the HB’s new menu) is the initial choice framing mechanism. Yet choice is further operationalised at four distinct stages within the food service subsystem, each operating under differing social conditions and involving differing staff disciplines, as discussed in chapter five (see Table 24 for the HB breakdown of these disciplines – an extension on Table 19): ordering dishes for the trolley, loading the trolley, taking the patient order, and dishing up food. The following section analyses each choice framing stage in the case study site, and where relevant, makes the connections between how choice is approached, how this may affect food waste, and implications for patient experience. As this section draws on general ward level observation, it does not draw specifically on the food intake data connected to the lasagne study, and therefore does not consider food intake in relation to the framing of choice in food service. From the findings, a typology of choice emerges which in turn may serve as a framework for further study.

Table 24. Health Board disciplines involved in the choice-framing stages of food service

	Choice framing stages of foodservice			
Hospital	1.Ordering dishes for trolley	2.Loading trolley	3.Taking the patient order	4.Dishing up food
H1W1	Menu Clerk	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA
H1W2	Menu Clerk	Kitchen staff	Nurse/HCA (at service time)	Nurse/HCA
H1W3	Menu Clerk	Kitchen staff	Ward Based Caterer (c. 10am)	Ward Based Caterer
H2W1	Ward Based Caterer	Ward Based Caterer	Ward Based Caterer (c. 10am)	Ward Based Caterer
H2W2	Ward Based Caterer	Ward Based Caterer	Ward Based Caterer (c.8.30am)	Ward Based Caterer
H2W3	Ward Based Caterer	Ward Based Caterer	Ward Based Caterer (c. 10am)	Ward Based Caterer
H3W1	Nurse/HCA	Kitchen staff	Nurse/HCA – at service time	Nurse/HCA
H3W2	Nurse/HCA	Kitchen staff	Nurse/HCA – at service time	Nurse/HCA
H3W3	Nurse/HCA	Kitchen staff	Nurse/HCA – at service time	Nurse/HCA

6.4.1. Ordering for the trolley: pre-setting, reducing, matching and boosting choice

In ordering dishes for their wards, varying staff members (Menu Clerks, Nurses and HCAs, WBCs) were driven by differing social and cultural conditions such as management directives, ward level practices, disciplinary norms, and personal motivations/drivers, all of which had the potential to impact choice framing, affecting patient experience and trolley waste levels.

In H1, motivated by waste reduction, a directive from the Catering Manager signalled choice reduction, asking that vegetarian meals were only to be ordered for the trolley if specifically requested by patients³⁴⁵. Here the Catering Manager was driven to reduce choice due to economic motivations, over-riding the cultural significance of greater choice availability, as had been stipulated in policy. Choices were therefore limited: patients orders were taken at meal time, therefore in practice, vegetarian dishes were not freely available to omnivores in H1. This conscious choice reduction counters the unintended consequences of choice maximisation (i.e. more waste), and illustrates where underlying Standards principles conflicted, namely that more choice could lead to more waste. Waste figures show that the vegetarian meal was indeed the most heavily wasted across hospitals³⁴⁶ by proportion for a number of reasons³⁴⁷. In H1, this selective choice reduction did have a selectively positive effect: H1 did have the lowest waste figure for vegetarian food³⁴⁸, but poor practice in other areas pushed waste up.

A number of other approaches affected waste levels in H1 at the ordering stage. Predetermined choice operated when set trolley choices and volumes were on repeat order. Catering management set these repeat orders, which they felt reflected patient preferences and food volume needs, demonstrating a routinized approach to practice. A reflexive mechanism also operated in H1: the Menu Clerk (MC), after liaising with ward staff, could alter predetermined choices, in principle to match patient needs. As such, Catering Managers believed the catering-led MC role would facilitate waste reduction. In practice,

³⁴⁵ Unless the non-meat dish was also the soft option

³⁴⁶ 14 out of 17 left unserved across all 9 study wards – 83% in total

³⁴⁷ On some wards the vegetarian meal was available but not offered, on others small portion sizes were not available, so a tray of six portions was the minimum available size for service

³⁴⁸ 2 portions

MCs boosted volumes³⁴⁹ in response to their belief that trays were skimpily filled³⁵⁰ and that standard orders would not provide enough food for patients. Here, autonomous working practices overrode the predetermined choices with negative effect: 42 of the 71 main portions ordered were wasted (59%), the largest proportion of the three hospitals. Free from any accurate waste measurement system, and disconnected from ward level meal service, the MCs and management were unaware of the consequences. Lipsky (2010) suggests that SLBs are observed as 'experts' in their field, and indeed Catering Managers gifted autonomy to the MCs. Indeed Lipsky suggests that for SLBs, "measurement and evaluation of performance – the governance of performance- is critical" (2010, P. 49), but in the HB, evaluation of waste auditing mechanisms was absent. Here the SLB, in the form of the MC, differs from Lipsky's usual framing: rather than being actively engaged with the 'client' (i.e. patients), in H1, MCs had little engagement with patients on daily basis, ordering food for a 'distant' client. This finding suggests that proximity to clients and to systemic practice may have a bearing on outcomes linked to staff working patterns.

Motivation for some trolley orders was driven by choice maximisation, in particular on H2W1, overseen by a WBC. On this ward, organisational challenges existed for the WBC: poor communication between nursing staff and WBC, and a fast changing patient base (84% staying for 7 days or less). The WBC operated a standard rolling order³⁵¹, ensuring all choices were available. Akin to predetermined choice, this WBC's motivation was social and cultural, driven by maximising choice for all patients, rather than minimising, as seen in H1. A communication failure between disciplines in H2W1 blocked the opportunity to tailor trolley orders to patient needs, and illustrated concerns raised in interviews: that nursing staff could work in organisational silos. High levels of main course trolley waste (52%) were due to a number of factors: the WBCs inflexible ordering system, a failure to account for nil-by-mouth patients (a high number on this ward), choice maximisation, and inflexible foil sizes³⁵².

³⁴⁹ i.e. food volumes were not boosted in response to patient numbers, but rather in response to the belief that what the kitchen considered to be one portion was not enough for one patient

³⁵⁰ Lack of standardised portions resulted from poor practice within the HB as trays were filled by eye

³⁵¹ She placed the same order for each day (i.e. every Monday she would order the same quantities of dishes, this could alter on Tuesdays, but each Tuesday would be the same etc.)

³⁵² Half the waste on this ward came from the vegetarian meal, which was only available on a six portion tray, none of which was served

Choice matching was observed in three differing ways: patient-led choice matching, when patient orders were taken first thing and trolley contents were selected to match; staff-led choice matching, when staff chose for the trolley what they felt matched the likes and dislikes of the patient group; and predetermined choice, when pre-fixed food volumes were on repeat order, as discussed before. The assumption of Catering Managers was that the WBC role³⁵³ facilitated patient-led choice matching and waste reduction, due to the direct interaction between WBC and patients on the morning of food service, allowing food volumes to match patient orders. In this way, patients' cultural preferences could be matched exactly, and in theory, intake would be maximised. In practice, wide variation was seen, both meeting and challenging expectations of the WBC role in relation to food waste³⁵⁴. Where high levels of waste appeared, the WBC had simply picked too much food (41 portions for 23 patients on H2W3), the reasons for which are unknown. Indeed Lipsky (2010) points to the significance of autonomy and discretion in the work of SLBs, alongside a lack of accountability. With no independently audited waste mechanisms in place, the WBC was indeed left to draw on her own intuition and experiences to guide decision making. Here individual practices overrode organisational frameworks, and organisational assumptions of roles did not necessarily play out in practice.

In ordering for the trolley, staff-led choice matching took place in H3. Here nurses placed the orders, framing choice in the social world based on their own conventions and assumptions of patient preference, in what Lipsky (2010) identifies as 'routine following' and 'discretion'. Contrary to Catering Managers' expectations, this approach reduced waste the most³⁵⁵, but dishes ran out during service on two out of three wards observed,³⁵⁶ impacting negatively on patient experience. Indeed 25% of H3 PE13 respondents said there was rarely or never enough choice. In H3, all ward level catering processes were nursing led (see Table 24), suggesting that having a single staff group facilitate all stages of food service may facilitate waste reduction. Yet as dishes ran out, staff failed to match patient wants

³⁵³ WBCs were in place in H2, and being trialed in H1W3

³⁵⁴ in H2W2, just 7% of main course portions were wasted on the study day, but on H2W3 56% was wasted, the second highest waste figure in the study

³⁵⁵ Overall 29% of main dishes were wasted, compared to 59% in H1 and 41% in H2

³⁵⁶ Food ran out in both H3W1 and H3W2. The wrong trolley contents were sent to H3W3 so it is not possible to compare the accuracy of the trolley contents with patient needs

successfully. Here the challenge of managing food service around conflicting drivers of choice maximisation and waste minimisation is illustrated

6.4.2. Loading the trolley: overstocking and incorrect orders

The second food service phase in which choice is framed is the physical task of loading the trolley to match orders placed. This was undertaken by kitchen staff in H1 and H3 and by WBCs in H2. Here material and social conditions determined practice. Material conditions determined practice through dish availability, foil size availability and volume of foil contents, and accuracy of order fulfilment could be undermined by any of these material conditions. When dishes were unavailable, due to production or ingredient gaps, there were choice gaps or choice substitutions. When smaller foils were unavailable, larger foils meant involuntary overstocking, as volumes were boosted unnecessarily. When skimpy foil volumes were observed by staff, extra portions were taken. This in turn led to overstocked trolleys and inflated food waste. In addition, social conditions governed the accuracy of order fulfilment, as human error led to incorrect orders on three of the nine wards studied³⁵⁷. Where incorrect orders were sent from the kitchen, again silo working practices were observed: ward level staff communicated mistakes back to the kitchen just once. Here the failure to flag systemic problems tempered opportunities to learn from mistakes and improve future working practices.

6.4.3. Taking the patient order: the verbal gatekeeper

Taking patients' individual orders is the third phase in which choice is framed during food service, and was undertaken by nurses/HCAs on five wards, and by WBCs on four wards (see Table 24). As only the first two stages of food service affect trolley waste directly, the following section does not address waste.

At this stage, choice gathering was shaped by institutional conditions, individual staff practices and the quality of interaction between staff and patient. During the study, institutional conditions kept printed menus generally inaccessible to patients: menus were displayed on corridor notice boards and patients tended to stay in or near their beds within

³⁵⁷ This stage of food service was not observed, so reasons for incorrect orders are unknown, but could be down to gaps in stock availability leading to choice substitution, or to human error

their ward bays. Additionally, as patients did not choose visually³⁵⁸, verbal interaction was the mechanism for informing patients of available choices. This was undertaken in a variety of ways, as will be discussed.

On all wards, Lipsky's 'routines and simplifications' (2010, p. 83) were in evidence in relation to offering choices verbally. Here workers

create routines to make tasks manageable... bureaucrats also develop their own patterns of simplification when the official categories prove inadequate for expeditious work processing (2010 p. 83)

Typical at meal time was a focus on the main course in the verbal offer: here main course options were offered, but accompaniments were not³⁵⁹, consequentially limiting full choice. Noted as institutionally accepted practice in the MPG minutes, there was a lack of clarity around the exact meaning of 'choice offering' embedded in the Standards. Often observed was dish simplification, when staff reduced a dish's title to its simplest form, e.g. 'chicken curry' rather than 'chicken tikka masala'. While appearing to be institutionally accepted practice, some staff did use full dish titles, and one WBC did ask patients what accompaniment they wanted, illustrating a lack embedded standard practice protocols. A 'lead by example' culture was observed in relation to verbal interaction on nursing-led wards, with variable effects for choice framing. The lead nurse in H1W2 for example read out all main menu items in detail to her team, using precise dish descriptions, and in turn this phraseology was mirrored to patients. In H3W3, by contrast, nursing staff did not read the menu sheet and consequently commonly guessed dishes, sometimes looking to each other for corroboration.

Other verbal approaches to choice framing when taking patient orders included choice guiding (observed with cognitively impaired patients), choice narrowing (offering fewer choices when a dish had run out) and choice expansion. Choice expansion was observed particularly when a patient showed little interest in the original offer: staff ran through alternatives to a hot main meal, offering for example, a little of something, or a sandwich and pudding. Lipsky proposes that SLBs categorise their clients in order to standardise their

³⁵⁸ Trolleys tended to stay in corridors and patients remained in their beds. During the study period just one patient was observed looking at the food in the trolley at meal time

³⁵⁹ Vegetables and gravy

responses, suggesting that “street-level bureaucrats experience client problems as calls for categories of action” (2010, p. 60), and this was evident in the guiding and expanding of choice framing for specific patients. WBCs offered expanded choices more often than nurses, offering options like soup or an extra pudding. Here both social and material differences occurred: there was encouraging social engagement with the patient, driven by the desire to get the patient to eat; and there was also a material dimension in the proximity of alternative food stock³⁶⁰, which in turn was facilitated by the focused catering role in place under the WBC. Expanding choice however was bounded by practicalities and routines: despite the theoretical availability of meal alternatives at hospital kitchen level, all choice expansion observed related to food available at ward level only³⁶¹, suggesting a tendency for staff to work within the boundaries of locally availability food under their own control.

On occasion dish exclusion was observed, when dishes were not verbally offered despite being available on the trolley. Dish exclusion happened when food quality was deemed poor, e.g. when dishes were burnt, but also occasionally happened for no clear reason. Dish saving happened when food volumes were limited, and selected dishes were saved for patients known to favour them³⁶². Here a system of distributing ‘benefits and sanctions’ existed, which Lipsky notes gives SLBs direct control over the immediate wellbeing of their clients (2010, p. 60). This directly led to lowered patient satisfaction on one ward bay: as discussed previously, one fruit pot was selectively offered to one patient on H3W3, stimulating dissatisfaction when none were available for others.

For some patients there simply was no choice due to diet related choice restriction or to cognitive limitations, and indeed Lipsky notes that SLBs often exert greater influence over the vulnerable (2010 P. 6). Under the new menu there was just one option for those on specific diets, such as vegetarians or those on soft diets. For those with cognitive impairments, staff or family would choose.

³⁶⁰ E.g. tins of soup and chilled puddings as available in ward kitchens

³⁶¹ spare sandwiches and puddings kept in the fridge, tinned soups in the ward store cupboards

³⁶² e.g. H3W3 when curry was saved for a small number of patients who were at the end of the ward round

6.4.4. Dishing up: food service on auto-pilot

The final stage of food service governing choice is dishing up. Choice at this stage was governed by the quality of the social interaction when the order was taken and by a set of variable customs and practices. It was also governed by the accuracy of previous steps (ordering dishes for the trolley and loading the trolley), and by the quality of dishes³⁶³. At this stage, patient choice was overlooked in a number of ways. All staff who dished up gave automatic accompaniments: on all wards observed staff dished up vegetables to some patients without asking, again illustrating routinization and simplification. Gravy was automatically given on all wards, and served with all pie and sliced meat dishes. Just once did a nurse say a patient wanted less gravy. Choice substitution was occasionally observed at dishing up stage for patients on soft diets: WBCs in particular used their discretion when they believed the pre-determined soft meal was unsuitable.

One final element of choice, choice of portion size, was inconsistently available across the three hospitals and had dipped since the 2010 PE10 study³⁶⁴. Despite low sample sizes there does appear to be a relationship between offered choice of portion size and the suitability of portion sizes³⁶⁵, patients being twice as likely to say their portion was too large when they hadn't been offered a choice.

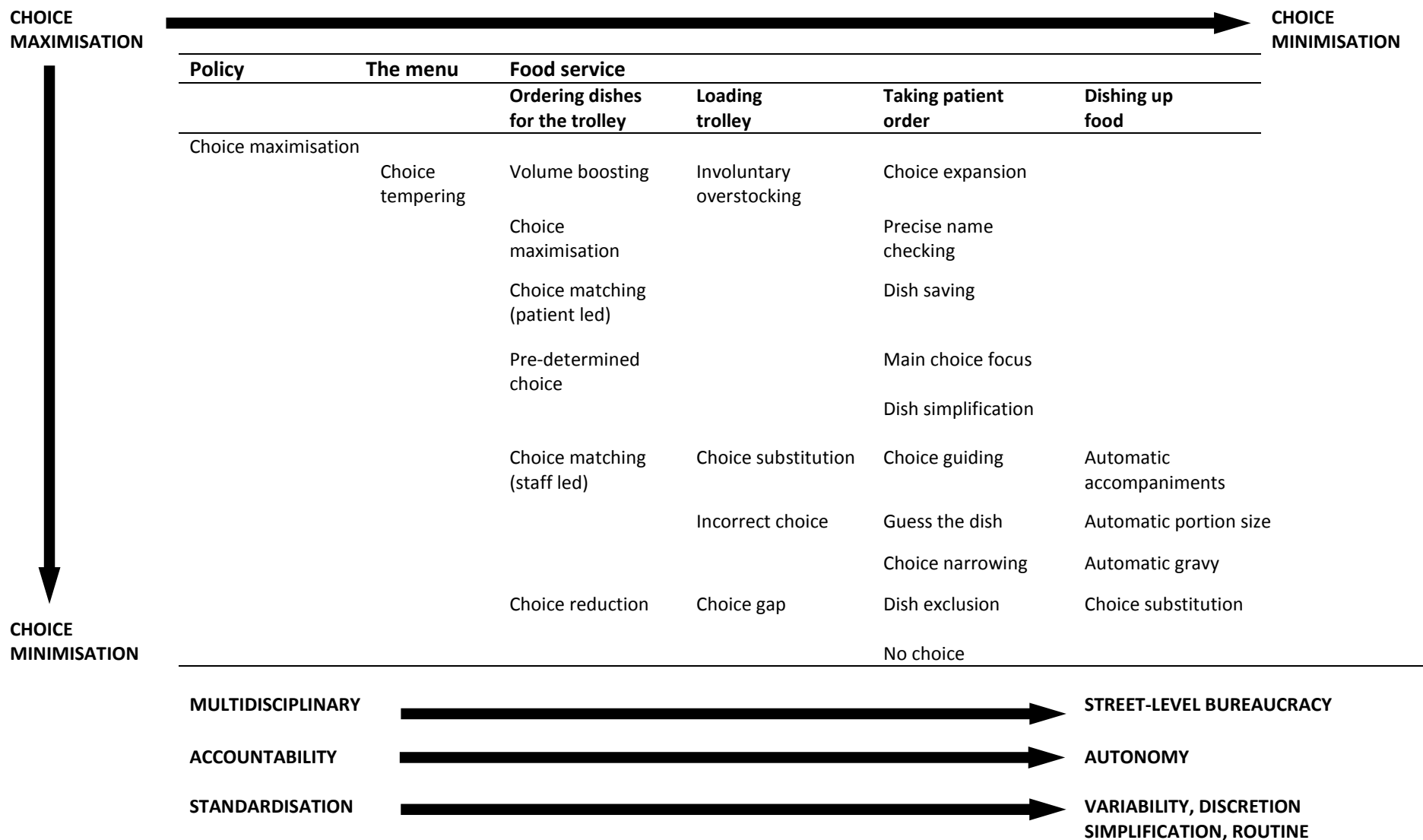
The varying approaches to choice are drawn together in a typology of choice (see Table 25), which shows a number of elements underlying the move from policy into practice at ward level. Choice moves from the maximalist approach embedded in policy, to a minimised approach at the ward level. At the same time, multidisciplinary underpins policy, but in moving through the stages of foodservice, the domain of the SLB emerges. The typology also serves to illustrate the variation in process, interaction, autonomy and outcome during food service, suggesting that applying policy rules in an area where practices are autonomous, routinized, simplified and variable presents a great challenge to those who implement policy. Although this typology furthers knowledge by unpacking choice framing in the hospital context, future work is needed to fully understand the implications for nutrition and sustainability.

³⁶³ e.g. on occasion poor regeneration techniques rendered dishes burnt and inedible

³⁶⁴ 21 out of 29 H3 patients (73%) could choose their portion size, compared to 6 out of 31 (19%) in H1

³⁶⁵ twice as many patients in H1 said their portion size was too large (32%) compared to those in H3 (16%)

Table 25. Typology of choice in the hospital foodservice system



6.5. Conclusion

In this chapter conclusion, analysis relating to the first two research questions will be summed up. The third research question will be addressed in the final conclusion chapter as it draws back and reflects on EPH as a framing mechanism for the empirical investigation of a complex foodservice system in light of the questions that have been asked. Lang (2009) has called for the development of the EPH research agenda in number of ways including bringing health and sustainability together, and taking a systemic and multidimensional approach that addresses the multiple dimensions of existence. In addition he asks that research narrows the gap between policy and evidence, while remaining policy relevant and signposting levels of governance that are best placed to offer appropriate policy responses (2009, p.332). While Lang suggests that no research could address all gaps, this study, in looking in depth at a particularly complex foodservice system, the HFSS, aims to respond to all of the proposals above. Methodologically, the principles of EPH have not been used in this way before in an empirical setting. For this study, the principles of EPH have been distilled as follows: approaches [to foodservice systems] should be systemic and multidimensional; integrate health and sustainability; frame choice to achieve sustainable planetary, economic, societal and human health; and ensure that policies facilitate cohesive and desired outcomes in practice. Conclusions have implications both for the fuller understanding of how foodservice systems operate in response to the principles of EPH in a specific context – the hospital, but also on the value, both methodological and theoretical, of EPH as a lens through which to investigate complex foodservice systems.

In response to question one, which asks **under what conditions is change driven in a complex public foodservice system, and what are the complexities of embedding the principles of Ecological Public Health?**, data shows that in the case of the HFSS in Wales, the national policy context was a major driver of change, in the form of the Standards and the IP. Policy set a multidimensional agenda allied to the principles of EPH, by framing food system change in relation to nutrition and sustainability, and through demanding that food choice should meet patient need, both medically and socially. Yet three major flaws emerged that had implications for the enactment of policy.

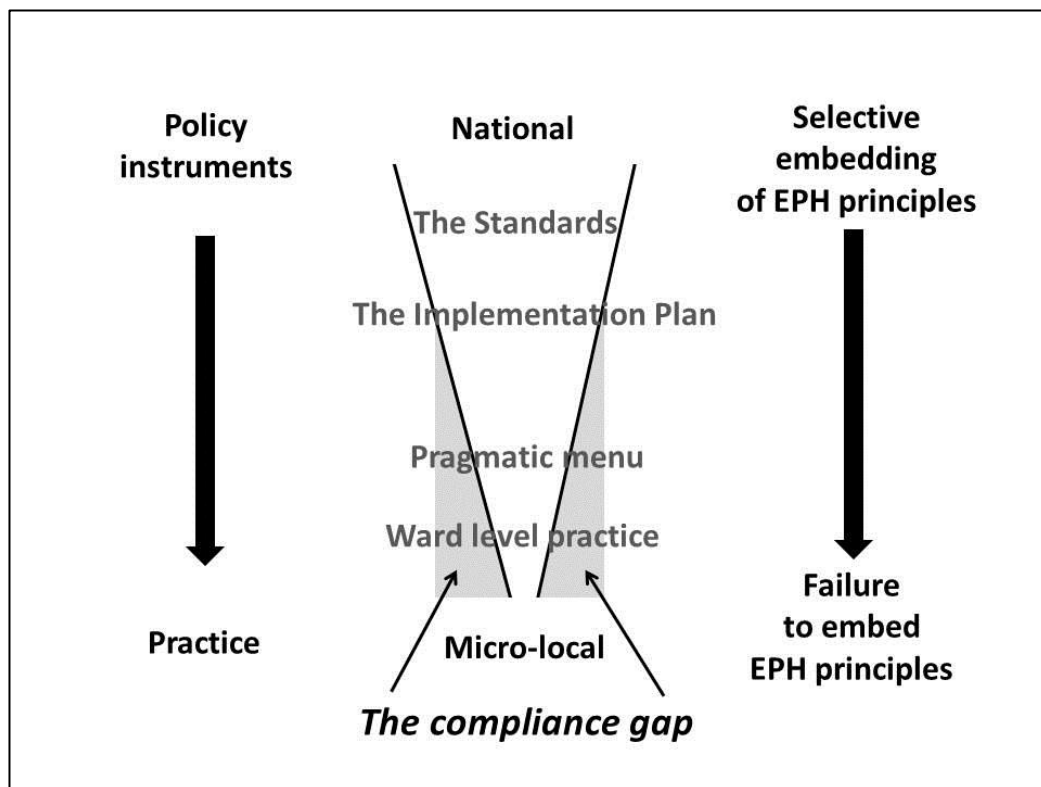
Firstly, the conceptual framing of sustainability was narrow, and therefore limiting: sustainability was presented in the domain of procurement and food waste, with no reference to other routes through, such as sustainable menus. Secondly, policy tools were exclusive, with no concrete measurable targets relating to sustainability, and thirdly, some principles were fundamentally at odds with each other, in particular choice maximisation and waste minimisation. As these flaws did play out in practice, the importance of problem framing in policy and policy tools is clearly shown to be fundamental to outcomes, and without a holistic and systemic perspective at the policy level, the principles of EPH, and policy intentions themselves are under threat.

At regional level (the HB), despite the organisational aspiration to match the policy ask, change was bounded by limits, firstly driven by selective policy framing as discussed above, and secondly by organisational limits. Despite multidisciplinary engagement in menu planning, gaps in disciplinary engagement in the menu planning process tempered outcomes, as narrow disciplinary priorities emerged and knowledge gaps were evident. Organisational barriers to compliance were multiple: material gaps emerged through inadequate catering equipment, economic barriers in the form of money, and social barriers in the form of gaps in engagement (e.g. no nutritional analysis was undertaken by dietitians and food service was poorly addressed). Despite these limits, positive intention remained strong, and pragmatic planning by the MPG worked to match local resources and to address the priorities of local need (seen as maximising nutritional benefits and matching cultural preferences). Opportunities to embed greater sustainability through menu planning were missed, in part due to policy framing and to disciplinary priorities. In this way, the principles of EPH shifted further away from policy aspiration.

The second research question asked **at the level of practice, what are the outcomes of system change, to what extent do they match aspirations, and what are their implications for the principles of Ecological Public Health?** The multiple forms of data gathered at ward level through patient experience questionnaires, informal interviews, observation, intake and waste data showed that policy and stakeholder expectations were both met and contradicted, illustrating mixed successes when moving from policy into practice, and diminishing returns in relation to the principles of EPH.

While the primary purpose of the Standards, i.e. to ensure adequate nutritional provision for hospital patients, was not achieved in this case for economic and organisational reasons, two principles from the Standards emerged as primary drivers of the menu planning process as it moved into practice: maximising choice availability to meet the set requirements³⁶⁶, and matching dish choices to patient preferences. In choosing these two principles as foundational in building a new menu, a compliance gap became evident (see Figure 44), and the HB demonstrated a prioritisation of social and cultural concerns over biological. Taken as a whole, patient experience outcomes showed mixed successes that have implications at local level, but also for policy makers, practitioners and scholars of HFSSs.

Figure 44. Policy and practice in the Hospital Foodservice System: the compliance gap



Outcomes at ward level under the new menu shed light on areas of complexity of particular relevance to the field of hospital food research, with three areas dominating. Firstly, the relationship between acceptability of food and food intake was unclear, in line with literature such as Hartwell et al. (2007). Here the biological world of nutrients intersects

³⁶⁶ Choices that were later slimmed back in the new (interim) menu

with the cultural world through the experience of food. Unlike the field of public health, the research deals here with individual experience, the lasagne study results showing no clear link between food acceptability and intake.

Secondly, there was wide diversity of patient satisfaction responses to food, both within and between wards, despite standardisation of food across the HB, signalling the complexity of individual subjective taste. Trends in patient satisfaction, both positive and negative, coupled with observation of ward level practices pointed to the impact of the social practices of ward level workers around food service on patient experience.

Finally, approaches to choice framing were fragmented and diverse across all stages of food service, as shown in Table 25, with diminishing choice availability under many conditions, in contradiction of policy and organisational aspirations. This focus within the study, by using the work of Lipsky (2010) for the first time in a hospital setting, and for the first time to unravel the complexities of choice, illustrated how workers, or street-level bureaucrats shaped outcomes through routines and simplifications. Variable, rather than standardised service was delivered through autonomous working patterns, as workers used their discretion through the stages of food service.




In turn, organisational expectations of disciplinary roles were challenged, not only by these autonomous patterns of work, but by the fragmentation of disciplinary roles at the micro-level (the ward), and by select organisational practices at regional and local level (the HB and the hospital). As a consequence, as policy moved into practice, some underlying principles appeared at odds with each other. High levels of food waste dominated under the new multi-choice menu, and contrary to expectation, food waste levels were lower under nursing staff than under Ward Based Caterers and Menu Clerks, both groups in the organisational domain of the catering department. Indeed at the root, this study found fragmented disciplinary participation in the four stages of food service to be the cause in this variation, along with poor monitoring and auditing systems that led to a lack of accountability.

Finally, at the level of practice, outcomes illustrate additional gaps in organisational knowledge that were significant for social outcomes, and may also have been significant for nutritional outcomes. The one week menu failed to recognise the needs of a specific patient

group, the longer stay patients, and led to a reduction in patient satisfaction with choice over time, when compared to the old two week menu. The lasagne study showed that longer stay patients were also more likely to eat half or less of a portion than those in for a shorter time, with significant implications for nutritional health. These results demonstrate that an extension of social and cultural thinking is needed in menu planning that accounts for the changing experience of patients over time, and that more studies are needed to better understand both issues.

In drawing together findings from the two research questions, and taking a systemic perspective of the HFSS, failings are evident at each stage when mapping policy intention against outcomes in practice, as Table 26 shows. As the governance levels move from the national to the micro-local (ward level), and as policy moves further into practice, moving closer to the patient, disciplinary approaches differ. On one side, disciplines are ostensibly united, and a multidisciplinary collective approach is taken, yet as the stages of the HFSS move through into ward level food service, disciplines fragment and the autonomous working patterns of street-level bureaucrats emerge. In turn, barriers appear at every stage that undermine the principles of EPH. At the policy stage there is selective embedding of EPH principles through the recognition of both nutrition and sustainability, threatened by poor policy tools, the narrow framing of sustainability and conflicting policy priorities. At the regional level, weaknesses in national policy are further compounded; at local level poor auditing mechanisms render unsustainable practices invisible; and at the micro-local level autonomous and fragmented working practice further undermine the marriage of nutrition and sustainability. These findings suggest that each level of governance has a role to play in supporting systemic change: without change at each level, systemic failings are compounded, and opportunities for sustainable planetary, economic and human health diminish.

Table 26. The Hospital Foodservice System: governance frameworks and EPH

	POLICY			PRACTICE	
					
GOVERNANCE LEVELS	National (Wales)	Regional (the Health Board)	Local (Hospital)	Micro-local (Ward)	
SYSTEMIC ELEMENT	Suprasystem (National policy)	Suprasystem (Health Board policy)	Food production	Food service	
	Procurement (national)	Procurement (Health Board) The menu	Equipment		
ACTORS	Policy makers	Senior staff	Middle management	Street-level bureaucrats (HCAs, Nurses, WBCs, MCs)	
	COLLECTIVE APPROACHES			AUTONOMOUS APPROACHES	
					
	INTEGRATED DISCIPLINES			FRAGMENTED DISCIPLINES	
ASPIRATIONS TOWARDS THE PRINCIPLES OF ECOLOGICAL PUBLIC HEALTH	Multidisciplinary	Selective multidisciplinary	.....	Disciplinary fragmentation	OUTCOMES IN CASE STUDIED
	Nutrition and sustainability both addressed	Nutrition and sustainability fragmented	.....	.....
	Set nutritional specifications (now)	Set nutritional specifications (in the future)	.....	Food of unknown nutritional content	
	Food waste minimised	.....	.....	High food waste	
	Choice maximised to meet patient need	Reduction of choice	.....	Inconsistent approach to choice	
	Increased patient satisfaction	.....	.....	Variability of patient satisfaction, (length of stay)	
	Increased nutritional intake	.....	.....	Intake lower in long stay patients	
	SELECTIVE EMBEDDING OF EPH			FAILURE TO EMBED EPH	
					
BARRIERS TO EMBEDDING THE PRINCIPLES OF ECOLOGICAL PUBLIC HEALTH	Poor policy tools (selective specification in IP)	Under-representation from key disciplines	.....	Poor interdisciplinary engagement	
	Narrow framing of sustainability	Narrow disciplinary priorities	Failure to accurately monitor food waste	Failure to match order quantities with patient numbers	
	Conflicting policy priorities	Conflicting organisational priorities	Failure to meet ward requirements	Individualised and routinized practices	
	Failure to fully integrate nutrition and sustainability	Poor understanding of the nutrition and sustainability intersection	.....	.....
	.....	Failure to recognise the needs of longer stay patients	.....	Failure to identify and respond to diverse patient needs	

Chapter 7: Conclusions

This study has advocated for the advantages of using EPH to frame the exploration of a complex foodservice system. Through testing this approach by investigating a hospital foodservice system (HFSS) at a time of policy change, the study has offered new insights in a number of areas. The study has tested the efficacy and value of using the principles of EPH in an empirical setting with a number of key findings:

Firstly the study has tested the translation of policy into practice in a complex and multi-dimensional field, identifying ways in which policy has driven positive change, and ways in which opportunities have been missed. As the data showed, selected changes in line with the Standards (Welsh Government 2011b) had positive results for patient satisfaction: in meeting the mandated numbers of course choices, menu changes in the Health Board (HB) studied led to an increase in patient satisfaction with choice between 2010 and 2013, plus greater parity in patient satisfaction across the hospitals studied was found. Conversely the HB chose to shift from a two to a one week menu, overlooking the needs of longer stay patients, and satisfaction with menu changeability decreased between 2010 and 2013, with longer stay patients registering greater dissatisfaction. In addition, while the multidisciplinary nature of menu planning was recognised in the Standards, the narrow framing of sustainability as a procurement issue left a chasm when procurement professionals failed to attend menu planning meetings in practice. Secondly, through the study's systemic approach, key connections and areas of disconnect were highlighted, an advantage of systems based studies also recognised by Morris (2010). The potential conflict between choice maximisation and waste minimisation went unrecognised in the Standards, and yet in practice adjustments were made: staff in one of the three hospitals studied were instructed by management to cut back on vegetarian meals to minimise waste. Despite the standardised systems in place in each of the three hospitals, the practices of workers, framed as street level bureaucrats, were found to diverge greatly. At the street level, staff worked autonomously and case study outcomes contradicted the expectations of management: all staff involved in foodservice had inconsistent approaches to choice giving, as is illustrated through a typology of choice shown in Table 24, and food waste was lowest where nurses had sole responsibility for ward level foodservice (Hospital three). Thirdly the

study has corroborated a key gap in understanding around one of the most fundamental areas of patient food: to be successful, food must both appeal to the social and individualised sensibilities of patients, and have a positive biological impact: in other words, enough must be eaten to sustain human health. A catalogue of barriers to achieving sound nutritional intake was uncovered in the HB studied. These included material barriers in the form of limited budget, meaning dishes were not nutritionally analysed, and unstandardized production practices lead to inconsistent portion sizing at kitchen level. This failure to translate policy asks into practice through the lack of adequate nutritional provision and through individualised practices around choice at ward level is shown as ‘the compliance gap’ in Figure 44. The complexity of cultural acceptability of dishes was also uncovered: data from one ward showed that patients perceived the same dish (lasagne) in very different ways, rating the dish from excellent to very poor. Further findings illustrate a fundamental challenge to the measurement of success in hospital foodservice systems: the lasagne study showed clearly that high individual cultural satisfaction with a dish did not necessarily mean that enough was eaten to ensure adequate nutritional intake. Finally the study has reinforced that food waste continues to be an under reported and hence under estimated problem in hospitals. The study found that in all nine lunch services studied, food waste volumes were incorrectly recorded by HB staff: lower levels were recorded by HB staff than by the researcher in all cases, as is consistent with the findings of Sonnino and McWilliam (2011).

Hospital food has garnered scrutiny at multiple levels, from the international to the local, and the Welsh Government has taken decisive and credible action through its challenging policy framework. Yet the exploration of practice at multiple levels, through scrutiny of the menu planning process, ward level practice, and the investigation of patient experience, has illustrated the challenges of facilitating and embedding change. Rayner and Lang propose that ultimately EPH aims to “shape the conditions for good health for all” (Rayner and Lang, 2012, p. 353), and indeed in the context of foodservice systems, human and ecological health are key. That the HFSS, in this case, has some way to go before these principles are embedded and connected is clear. Through the paradigm of EPH, this study has identified key barriers to embedding both human and ecological health relevant to all those involved in policy making, and in the practice of operationalising complex foodservice systems. It has

also opened up new methodological approaches for studies of systems that include organisational practice and the study of front line workers.

This concluding chapter will continue by addressing research question three below, which spans out from the detailed data collected in the case study to look at the value of using the principles of Ecological Public Health research more broadly.

7.1. Ecological Public Health: opening up fuller understandings of complex foodservice systems

As Chapter three has shown, food, as an essential of everyday life for all, has the capacity to both enhance and undermine health in both human and ecological terms. Through its lifecycle, and the social context through which it travels, impacts are felt at every stage. Public foodservice systems are particularly complicated, as choice is in part modelled by others, yet the impact of such choices in turn will often return to the state: unhealthy school food sets a life course that may embed long term food-related health issues, undernutrition in hospitals exerts an economic and social cost through extended hospital stays, distantly procured food undermines local economies, and wasted food undermines sustainability at every level. The principles of EPH make such connections explicit, framing a vision of a foodservice system that adds value through a multidimensional approach. This approach connects human health and sustainability systemically as a fundamental principle, proposing that understanding is supported through exploring the connections between four dimensions of existence: the material, biological, social and cultural. In order to explore the final research question, which asks **in what ways do the principles of Ecological Public Health enhance theoretical and practical understanding of a complex public foodservice system?**, the original literature was revisited, and findings drawn out below.

As the literature review explored, public health is usually applied at population level or at a broad geographical or demographic level. A public health perspective is infrequently applied to hospital patients, although literature has shown the NHS to be supportive of its public health responsibilities to patients (NHS Future Forum 2012). It is proposed here that much is to be learnt about viewing foodservice systems within public sector settings, using the principles of EPH in relation to patient food. The public sector has both the opportunity and

the duty to shape their food systems taking sustainability into account (Morgan and Sonnino 2008) and EPH argues that nutritional health and sustainability are inextricably linked (Rayner and Lang 2012). In addition, a strength of EPH is seen as its unifying effect (Rayner and Lang 2012, p. 314).

In recent times, academics are beginning to identify healthcare settings as places where health and sustainability are interdependent (Cosford 2009), where settings based actors advocate for such connections, and where experience from the setting feeds the policy agenda (Harvie et al. 2009). Despite this shift, empirical studies have yet to explore HFSSs from this perspective. Rayner and Lang (2012) argue for the numerous benefits of framing under EPH. The section below will draw on a number of their key principles that helped shape this study, leading to a better understanding of the nature of a complex foodservice system, and the interconnections between policy and practice.

The call for systemic and interdisciplinary thinking in EPH has stimulated the development of a broad methodological approach. In this case, documents, interviews, observations, questionnaires, an in-depth study of a single meal, and intake and waste studies were all used with the intention of drawing out data relating to policy framing, the transference of policy into practice, nutrition, patient experience, ward level practice and waste. By exploring the framing of, and stages within the foodservice system and beyond (policy framing, planning the menu and food service), and by linking the diverse data sets, a better understand of the overlap between the material, biological, social and cultural worlds emerges. In turn a fuller picture appears in which hidden connections and tensions are unearthed.

Only through systemic and interdisciplinary investigation was it clear that not all policy and organisational intentions were actualised, and that different stages and actors within the system shaped outcomes. An exploration of governance frameworks (see Table 26) shows differing levels of success in relation to meeting expectations and the concerns of EPH in the move from policy and practice. In addition, in the move from the national to the micro-level (the ward), disciplines became fragmented, approaches more individualised, outcomes failed to meet expectations, and principles relevant for EPH failed to embed in practice. A compliance gap then emerged as policy framing moved through to practice, as shown in

Figure 44. In equal part this was due to poor policy framing, silo thinking at menu planning stage, and autonomous ward-level practices that were left un-audited. As such, in considering planetary, economic, societal and human health, and the material, biological, social and cultural dimensions of existence, interconnections and tensions became clearer. In addition, the unifying of human health and sustainability, one of the principles of EPH, although evident in policy was lost in practice.

The principles of EPH also signpost choice framing as a mechanism through which more sustainable planetary, economic, societal and human health can be mobilised. Using systemic and multidimensional investigations to explore choice framing, it becomes clear that each subsystem within a foodservice system operationalises choice in different ways, and the opportunities to embed principles of EPH, such as the integration of nutrition and sustainability may come in different forms. In HFSSs for example, the situation of the end consumer (the patient) is unique. Power and control over choice is all but removed, and choice making is further tempered by the inability to see the food. In this setting therefore, the practice of choice framing by ward based workers, the street-level bureaucrats, has implications for all dimensions of health.

A benefit of the methodological approach developed is that it draws on multiple methods to collect data from multiple sources, helping to identify and corroborate challenges, gaps and conflicts within the system studied. In this case, a number of barriers blocked the embedding of the principles of EPH: economic and organisational barriers blocked the embedding of nutritional standards; weak engagement with procurement, and a failure to frame the menu with sustainability in mind, tempered opportunities for greater sustainability; the lack of recognition of the inherent conflict between choice and waste created a system with differing and oppositional goals; and poor understanding of the social circumstances of the patient lead to a failure in meeting the needs of longer stay patients.

The challenge of thinking systemically and multi-dimensionally can in turn be overwhelming in research. Yet Rayner and Lang (2012) propose that “complexity does not have to be daunting; it is the inevitable reality” (p. 314). They propose that using the four dimensions of existence, the material, biological, cultural and social provides “a lens through which people working in public health can order and conceptualise their tasks and roles” (P. 315).

When using these dimensions, complexity can be unravelled, and where answers are unclear, further questions are prompted through this framing. In this case, the lasagne study showed, for example, that the material and cultural worlds intersected in an unexpected way: patients' experience of the same dish varied greatly, satisfaction ratings running from very good to very poor within the same ward. The importance of this finding is that it prompts further questions of relevance to the field: how can HFSSs meet the needs of all given such diverse patient responses? are there dishes around which expectation is more standardised? and how can hospitals measure patient satisfaction in order to unearth the most useful insights? The biological implication of the lasagne plate study was clear: those who were dissatisfied were less likely to eat a full portion. Yet some of those who rated the dish highly did not eat a full portion either, posing questions on how success should be measured in HFSSs: by high patient satisfaction or by adequate nutritional intake? or perhaps some point of intersection between the two? Add to this the environment in which the lasagne was offered and served, along with the individualistic approaches of staff, and the fuller picture of a single dish in its multidimensional social setting becomes clearer. The major contribution of this study therefore is the development of a methodological approach based on the principles of EPH, which for the first time are used to empirically investigate a complex foodservice system. In addition, 'street level bureaucrat' theory (Lipsky 2010) has been applied to offer insights into the practices of workers at ward level, an approach new to this context. Using the principles of EPH then can help frame the methodological direction in studies, encouraging a systemic approach, developing the types of data that add value, encouraging interdisciplinary, and unifying natural and human health concerns. In this case the principles of EPH helped frame the initial lines of investigation broadly around nutrition and sustainability, feeding into an analytical framework used for documents, shaping the interview themes with Health Board staff, and supporting analysis of the menu planning process. Compelling themes emerged from the early data analysis (e.g. expectations of staff strengths and weaknesses, and the value of choice) which could be further investigated at ward level. Through analysis, the interconnections and tensions between material, biological, social and cultural dimensions became clear, both in policy and practice, as did successes, challenges, gaps and conflicts.

Here the approach has been applied in a multi-level and systemic context within the hospital foodservice system, allowing a fuller understanding of connections and tensions to emerge between differing governance levels and foodservice subsystems (i.e. menu planning and food service at ward level). Through using this new methodological approach, findings contribute to a deeper understanding of areas of complexity within hospital foodservice systems, such as the individuality of worker practices, the balance between choice and waste, the implication of length of stay on patient experience and the intersection between acceptability of food and nutritional intake. Such complexities have implications for the foundational elements of EPH: sustainability and nutrition, along with the broader practical and moral challenges bound in the concept of choice.³⁶⁷

Where studies rarely combine nutrition and sustainability, this study is interdisciplinary in nature, contributing to knowledge in the fields of nutrition studies, environmental studies and hospitality management through developing new instruments, perspectives and models that could in turn be applied in other settings. In this way, EPH offers food researchers interested in the interconnections between nutrition and sustainability in complex public food systems a linking paradigm and a framework within which to investigate and tease out the workings of systems from multidisciplinary perspectives.

This study has looked at both policy and practice, and in investigating both, successes were recognised and gaps between the two showed where threats to embedding the principles of EPH were clear. EPH offers researchers, policy makers and practitioners a theoretically compelling, methodologically broadening and empirically enriching framework for all those interested in connecting health and sustainability, and exploring the conditions under which foodservice systems operate in the move towards better health for all.

7.2. Study Limitations

George and Bennett suggest that “case explanations must always be considered to be of a provisional character” (2005, p. 90) in that they are open to challenge by others, and may overlook differing perspectives. Validation therefore is crucial:

³⁶⁷ A strength of the thesis recognised by Cowell and Lang in the thesis report, November 2014

These causal interpretations gain plausibility if they are consistent with the available data and if they can be supported by relevant generalizations for which a measure of validity can be claimed on the basis of existing studies. The plausibility of an explanation is enhanced to the extent that alternative explanations are considered and found to be less consistent with the data, or less supportable by available generalizations (George and Bennett 2005, p. 91)

Indeed it is recognized that there can be different and competing explanations for similar outcomes, known as equifinality (George and Bennett 2005). The researcher therefore sought to be rigorous in the endeavour to draw inferences based on sound data by seeking validation for explanations in other literature, using multiple data sets, multiple methods, and exploring the possibility of alternative explanations.

It is suggested that the readers and critics of case study research can be disadvantaged by their lack of independent knowledge of the case (George and Burnett 2005), which in turn can impact on their ability to make informed judgments on the validity of the analysis. In this respect, although not independent, the researcher aimed to provide a thorough empirical chapter within which a description of the empirical context would help to site the research.

A further limit, particular to studies that engage directly with hospital patients, is that for ethical reasons access to a representative cross section of respondents is difficult to achieve, particularly when direct communication is needed for methodological reasons. As discussed in the methodology, many patients were excluded from taking part in the patient experience questionnaires (PE13 and LSQ) on medical or cognitive grounds, although face to face gathering of questionnaire data did allow access to a number of patients who would have been excluded otherwise. In this way, studies that include the views of patients often exclude the perspective of the most vulnerable. In cases where family members respond on behalf of patients, again the direct patient voice is missing. As a limitation in hospital food studies that include the patient perspective, this is difficult to overcome.

In relation to a systems approach, Arbnor and Bjerke (2009) suggest a number of limitations. Firstly due to the complexity of systems there is no one right set of system delimits. The delimits are relative to the issue under investigation and may vary accordingly. As such, systems are recognized as multidimensional, and delimitation options are multiple and complex. Indeed it is suggested that “every systems model or interpretation is a limited

picture of reality, real or imagined” (Arbnor and Bjerke 2009, p. 112). Secondly, the vision of the system is partly a product of the researcher who is constructing, defining, delimiting and interpreting the system, Arbnor and Bjerke suggesting that:

There are no absolute true or false systems pictures, only more or less comprehensive ones... or ones that are more or less dependent on the frame of reference of the creator of knowledge... Churchman (1968), one of the first who introduced the systems view into social sciences, said that all systems models are “deceptive”, even “untruthful”, in the sense that it is not possible to present the whole truth in such models (Arbnor and Bjerke 2009, p. 112)

In this case, due to the limits in capacity and the need for focus during the course of data gathering, two subsystems, the menu and food service, became the central focus. As a result the ‘systems perspective’ was indeed limited, as has been the case in other studies that use systems approaches.

In addition, this study was also primarily concerned with the standard menu, rather than that for patients with specialist needs (such as pureed meals). While the importance of specialist menus is recognised, the research interest here was on the service to the *majority* in the context of a general hospital, and issues around specialist menus and the service of this food may warrant exclusive focused research.

7.3. Recommendations for future research

As the areas investigated within this study have been relatively broad, it has been possible to identify numerous gaps worthy of further research. Further research to include other elements of the HFSS, such as procurement, would certainly add value in the exploration of complex foodservice systems. Equally, using this approach in other public foodservice systems, such as prisons, the forces and schools would open up deeper understanding of the interconnections and challenges in embedding the principles of EPH in different sectors.

In the field of hospital food studies, this research uncovered four areas in particular where further research would be of value. Two relate particularly to the biological implications of hospital food, as measured through food intake. Firstly, there is little research that looks at the connection between patient satisfaction and intake. Current practice in hospitals uses patient satisfaction as the measure of success, yet the lasagne study challenged the notion

that high satisfaction implies adequate intake, as is consistent with Hartwell et al. (2007). Further study would be of value both to understand the challenges of the satisfaction/intake intersection in more detail, and as a route to embedding methodologies linked to measuring success that are fit for purpose. Secondly, further study into the implications of length of stay on both patient satisfaction and intake would be of value. This is particularly important given the shifting approach of the NHS, and the systems that are developing to match what is the perceived norm. As lengths of stay for some are shortening, menus are changing accordingly, but in the acute hospital setting, particular needs of long stay patients may be overlooked³⁶⁸. A third research area linked to sustainability, both environmental and economic, demands further research. Findings on food waste in this study are in line with Sonnino and McWilliam (2011), where again food waste was found to be under-reported, and therefore remains an 'invisible' problem. Further research is vital in order to understand why this remains such a difficult area to track accurately, and how barriers may be overcome. Finally, the issue of choice framing, as a route to embedding the principles of EPH, has begun to be investigated empirically in this study, but is worthy of further development to understand how and where choice can be framed within public food systems, and what instruments and approaches best facilitate outcomes sensitive to human health and sustainability.

Although the study has not engaged in detail with organisational research, two opportunities for further research are evident. Firstly, consistent approaches were not embedded across the organisation despite key guiding policy. Further research therefore could investigate what conditions are needed to embed consistent approaches throughout organisations on key themes (such as food), and what systems best facilitate cohesive multidisciplinary approaches. Secondly, the practices of frontline workers in particular, the 'street-level bureaucrats' (Lipsky 2010), had significant impact on outcomes in key areas (e.g. choice and waste). Further research into the drivers of these 'street-level' practices, and the routes into aligning individual behaviour with operational objectives could aid the embedding of principles into frontline practice.

³⁶⁸ As mentioned previously, when presenting findings to the HB, staff expressed surprise at the number of patients who were longer stay. Similar responses have been noted in English NHS Trusts in the researchers line of work

7.4. Policy recommendations

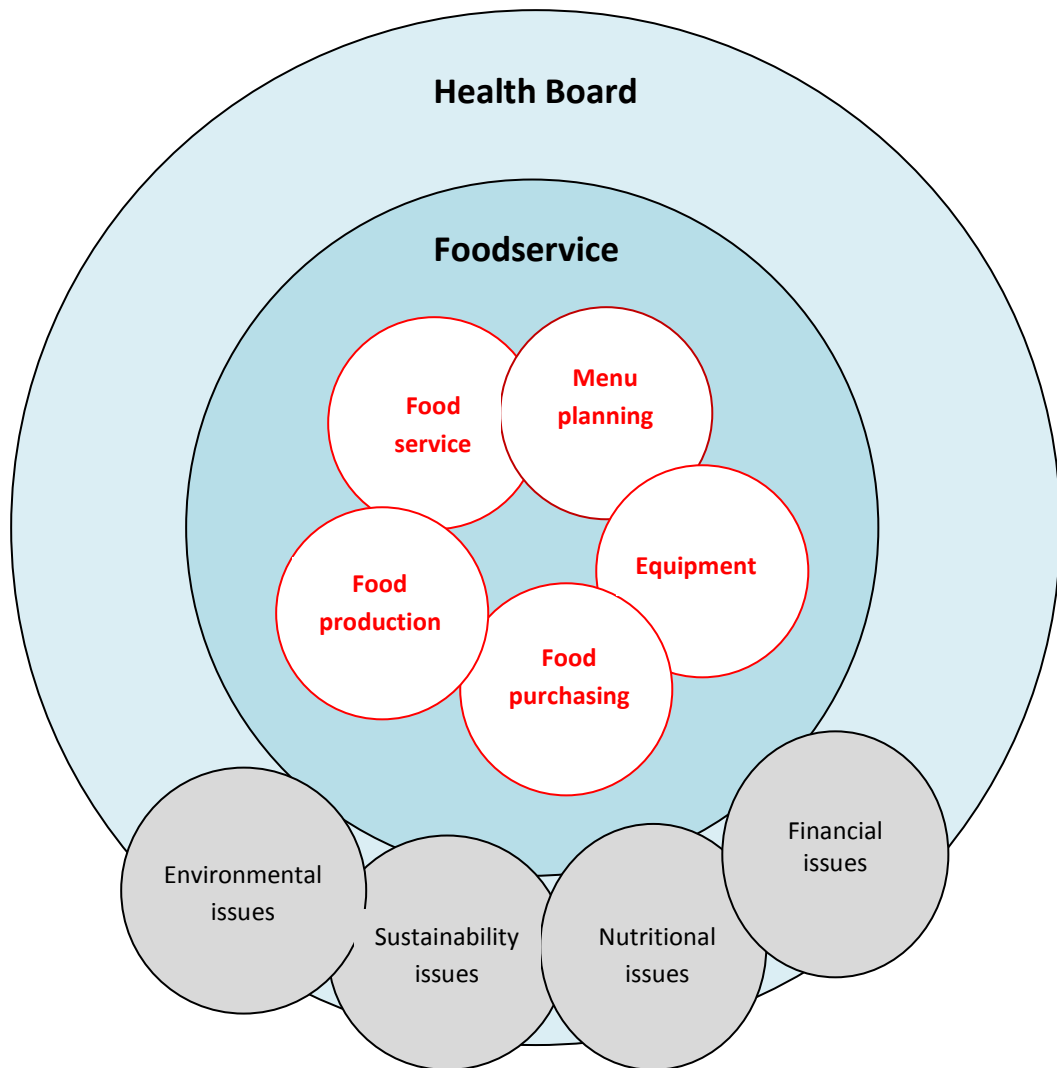
Through the investigation of how policy has played out in practice, a number of recommendations for policy makers have come forward. Firstly, strong and coherent policy framing and tools are key, particularly in policy that sets out to join traditionally fragmented fields, the connection between which may be poorly understood, as is usual in relation to the principles of EPH. In turn, those who implement policy-guided change look to tools as guidance, and weaknesses within these tools play out in practice.

Governance levels and actors identified as change agents within policy have a bearing on outcomes. Misjudged or overlooked routes to change temper results. As such, an understanding by policy makers of the governance levels within organisations relevant to the field of policy are essential, and the significance of micro-level actors, the front line workers, should not be overlooked.

Lang et al. argue that “food policy is a constant ‘juggle’ of competing interests and perspectives (2009, p.9), therefore fundamental is the recognition by policymakers that some of the interests embedded within policy do compete. Where they compete, a steer should be given on routes to manage conflict. At the very least, auditing and monitoring mechanisms can be identified by policy makers through which to render the implications of conflict transparent. This in turn facilitates adjustments in practice accordingly, providing data to further learning and to which policy can respond.

Finally, food policy must remain open to development and change, particularly in light of the multidimensional complexities of the concerns of EPH. Knowledge is growing, and as previously disconnected concerns are merged, interconnections, synergies and tensions will emerge to which policy makers must respond.

Appendix 1. Foodservice subsystems and Health Board related areas of interest. Visual used in introductory meeting and all interviews



Appendix 2. Ethics form, January 2012

GUIDANCE NOTE: SUBMISSION OF ETHICAL APPROVAL FORMS (STAFF & PGR)

ALL FORMS FOR ETHICAL APPROVAL MUST BE SUBMITTED TO THE SECRETARY OF THE SCHOOL ETHICS COMMITTEE IN BOTH OF 2 WAYS IN GOOD TIME (PREFERABLY 2 WEEKS) BEFORE THE NEXT SCHEDULED SREC MEETING

1/ a HARD COPY version sent to the Secretary (Ruth Leo) BEARING RELEVANT STAFF AND/OR PGR STUDENT SIGNATURES

2/ a version sent to the Secretary BY EMAIL AS A WORD ATTACHMENT

PLEASE NOTE THAT HANDWRITTEN FORMS ARE NOT
ACCEPTABLE BY THE COMMITTEE AND WILL BE
RETURNED TO YOU FOR ELECTRONIC COMPLETION (any
staff members needing assistance with this please speak
to one of the secretaries)

CARDIFF SCHOOL OF CITY AND REGIONAL PLANNING

Ethical Approval Form

Staff and MPhil/PhD Projects

The completed form must be submitted at least TWO WEEKS before a SREC meeting to: Ruth Leo, Research Administrator / email: LeoR@cardiff.ac.uk / Tel Ext: 75280/ Room 2.61 Glamorgan Building)

Title of Project: Ecological Public Health in the hospital foodservice system: from policy commitments to foodservice practice

Name of researcher(s): Susannah McWilliam

Date: 11th January 2012

Signature of lead researcher:

↑
Student project

Anticipated Start Date of Fieldwork:

March 2012

Recruitment Procedures:		Yes	No	N/A
1	Does your project include children under 16 years of age?		*	
2	Have you read the Child Protection Procedures below?			*
3	Does your project include people with learning or communication difficulties?		*	
4	Does your project include people in custody?		*	
5	Is your project likely to include people involved in illegal activities?		*	
6	Does your project involve people belonging to a vulnerable group, other than those listed above?		*	
7	Does your project include people who are, or are likely to become your clients or clients of the department in which you work?		*	
8	Does your project include people for whom English / Welsh is not their first language?		*	

*** Cardiff University's Child Protection Procedures:**

<http://www.cardiff.ac.uk/racdv/ethics/guidelines/ChildProtectionProcedures.pdf>

If you have answered 'yes' to any of the above questions please outline (in an attached ethics statement) how you intend to deal with the ethical issues involved

Data Protection:		Yes	No	N/A
9	Will you tell participants that their participation is voluntary?	*		
10	Will you obtain written consent for participation? If "No" please explain how you will be getting informed consent.	*		
11	If the research is observational, will you ask participants for their consent to being observed?	*		
12	Will you tell participants that they may withdraw from the research at any time and for any reasons?	*		
13	Will you give potential participants a significant period of time to consider participation?	*		

If you have answered 'no' to any of these questions please explain (in your ethics statement) the reasons for your decision and how you intend to deal with any ethical decisions involved

Possible Harm to Participants:		Yes	No	N/A
14	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?		*	
15	Is there any realistic risk of any participants experiencing a detriment to their interests as a result of participation?		*	

If there are any risks to the participants you must explain in your ethics statement how you intend to minimise these risks

Data Protection:		Yes	No	N/A
16	Will any non-anonymised and/or personalised data be generated and/or stored?		*	
17	Will you have access to documents containing sensitive ³⁶⁹ data about living individuals?		*	
	If "Yes" will you gain the consent of the individuals concerned?			

If there are any other potential ethical issues that you think the Committee should consider please explain them in an ethics statement. It is your obligation to bring to the attention of the Committee any ethical issues not covered on this form.

Health and Safety:	Yes
Does the research meet the requirements of the University's Health & Safety policies? http://www.cardiff.ac.uk/osheu/complete_risk_assesnebt/index.html	* -

Please attach:

- Full project proposal
- Participant information form and Consent form (if available)
- Details concerning external funding (if applicable)
- An ethics statement (if needed based on your answers to the questions on the form – please enter onto the following blank page).

Finally please note also that the Ethics Committee must be notified immediately by the researcher/supervisor when the nature of the project proposed changes significantly from that originally approved by the committee

³⁶⁹ Sensitive data are *inter alia* data that relates to racial or ethnic origin, political opinions, religious beliefs, trade union membership, physical or mental health, sexual life, actual and alleged offences.

Ethics Statement:

Additional information

Under NHS research guidelines (<http://www.immunology.org/Document.Doc?id=491>) the research will fall as 'service evaluation' and as such will not need to be considered by the Research Ethics Committee of each Health Board. As such, the word 'study' rather than 'research' is used in the participant information sheet and consent form to avoid confusion.

Appendix 3. Updated ethics form, January 2013

GUIDANCE NOTE: SUBMISSION OF ETHICAL APPROVAL FORMS (STAFF & PGR)

ALL FORMS FOR ETHICAL APPROVAL MUST BE SUBMITTED TO THE SECRETARY OF THE SCHOOL ETHICS COMMITTEE IN BOTH OF 2 WAYS IN GOOD TIME (PREFERABLY 2 WEEKS) BEFORE THE NEXT SCHEDULED SREC MEETING

1/ a HARD COPY version sent to the Secretary (Ruth Leo) BEARING RELEVANT STAFF AND/OR PGR STUDENT SIGNATURES

2/ a version sent to the Secretary BY EMAIL AS A WORD ATTACHMENT

PLEASE NOTE THAT HANDWRITTEN FORMS ARE NOT
ACCEPTABLE BY THE COMMITTEE AND WILL BE
RETURNED TO YOU FOR ELECTRONIC COMPLETION (any
staff members needing assistance with this please speak
to one of the secretaries)

CARDIFF SCHOOL OF GEOGRAPHY AND PLANNING

Ethical Approval Form

Staff and MPhil/PhD Projects

The completed form must be submitted at least TWO WEEKS before a SREC meeting to: Ruth Leo, Research Administrator / email: LeoR@cardiff.ac.uk / Tel Ext: 75280/ Room 2.61 Glamorgan Building)

Title of Project:

PhD: Ecological Public Health in the Hospital Foodservice System

Name of researcher(s):

Susannah McWilliam, 3rd Year PhD Student

Date:

24th January 2013

Signature of lead researcher:

↑

) **Student project)**

Anticipated Start Date of Fieldwork:

1st March 2013

Recruitment Procedures:		Yes	No	N/A
1	Does your project include children under 16 years of age?		*	
2	Have you read the Child Protection Procedures below?			*
3	Does your project include people with learning or communication difficulties?	perhaps		
4	Does your project include people in custody?		*	
5	Is your project likely to include people involved in illegal activities?		*	
6	Does your project involve people belonging to a vulnerable group, other than those listed above?	*		
7	Does your project include people who are, or are likely to become your clients or clients of the department in which you work?		*	
8	Does your project include people for whom English / Welsh is not their first language?	perhaps		

*** Cardiff University's Child Protection Procedures:**

<http://www.cardiff.ac.uk/govrn/cocom/resources/2010%20November%20Safeguarding%20Children%20&%20VA's.doc>

If you have answered 'yes' to any of the above questions please outline (in an attached ethics statement) how you intend to deal with the ethical issues involved

Data Protection:		Yes	No	N/A
9	Will you tell participants that their participation is voluntary?	*		
10	Will you obtain written consent for participation? If "No" please explain how you will be getting informed consent.		*	
11	If the research is observational, will you ask participants for their consent to being observed?			*

12	Will you tell participants that they may withdraw from the research at any time and for any reasons?	*		
13	Will you give potential participants a significant period of time to consider participation?	*		

If you have answered 'no' to any of these questions please explain (in your ethics statement) the reasons for your decision and how you intend to deal with any ethical decisions involved

Possible Harm to Participants:		Yes	No	N/A
14	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?		*	
15	Is there any realistic risk of any participants experiencing a detriment to their interests as a result of participation?		*	

If there are any risks to the participants you must explain in your ethics statement how you intend to minimise these risks

Data Protection:		Yes	No	N/A
16	Will any non-anonymised and/or personalised data be generated and/or stored?		*	
17	Will you have access to documents containing sensitive ³⁷⁰ data about living individuals?		*	
	If "Yes" will you gain the consent of the individuals concerned?			

³⁷⁰ Sensitive data are *inter alia* data that relates to racial or ethnic origin, political opinions, religious beliefs, trade union membership, physical or mental health, sexual life, actual and alleged offences.

If there are any other potential ethical issues that you think the Committee should consider please explain them in an ethics statement. It is your obligation to bring to the attention of the Committee any ethical issues not covered on this form.

Health and Safety:	Yes
Does the research meet the requirements of the University's Health & Safety policies? http://www.cf.ac.uk/osheu/index.html	* -

Please provide following information for the committee:

Funding Source President's Scholarship

<p>What are the main objectives of this research?</p> <p>To assess what impact the “All Wales Nutrition and Catering Standards for Food and Fluid provision for Hospital Inpatients” (WG 2011) has had on hospital foodservice, in particular menu planning, procurement and ward based food service.</p> <p>This includes investigating food service standards around one meal, identifying if there is any link between patient experience and food waste</p>
--

<p>Who are the research participants?</p> <p>The study is taking place in a Welsh Health Board who have requested to remain anonymous. Permission has been granted by their R&D department and a Research Passport has been completed.</p> <p>Previous Cardiff University Ethics approval was sought and granted for Health Board staff interviews which have now taken place.</p> <p>Since the previous Cardiff University Ethics application the Health Board has also given permission for patients to be included as participants in the study, hence this new application to the School Ethics Committee</p>
--

What methodologies will you be using?

Interviews with Health Board Staff members have taken place – previous approval was granted.

Approval is being sought for:

A “patient experience of hospital meals questionnaire”. This mirrors a questionnaire undertaken by the Wales Audit Office in 2010 and permission has been granted by the Wales Audit Office to use this questionnaire. The same wards will be targeted in my research as were used by the Wales Audit Office.

A “lunch study of shepherd’s pie” study which runs in 3 parts. Firstly those eating shepherd’s pie are given a questionnaire (Q1-8)with their meal asking about elements of food quality. Secondly, after the meal is finished the researcher will administer a further questionnaire (Q9-15) asking about their experiences of food service during the meal. Thirdly, photographs are taken of the participant’s plate both before and after the meal (this is done away from the ward bay) to provide the researcher with a visual record of the meal and any plate waste.

Attached is:

Information sheet “Patient study about hospital meals”

Questionnaire “Study Part 1: Patient experience of hospital meals”

Questionnaire “Study part 2: Lunch study of Shepherd’s Pie”, questions 1-8

Questionnaire “Study part 2: Lunch study of Shepherd’s Pie”, questions 9-15

Ethics Statement

If your answers to questions 1-17 raise any ethical issues, please explain here how you will deal with them.

The wards (9 in total across 3 hospitals) have been chosen to mirror those used in the Wales Audit Office (WAO) Hospital Catering Audit of 2010. If there are any changes in the patient demographic, e.g. more vulnerable patients are now in those wards, then another wards will be chosen with the guidance of Health Board staff. The wards do not include patients who are there because of mental health issues or any with children, but due to the nature of

a hospital, there may be vulnerable adults on the ward. Numerous studies have been conducted in hospitals using similar methodologies.

As with the WAO audit, ward staff will be asked if there are any patients that should not be invited to join the study for cognitive or medical reasons and these patients will be excluded. The researcher will hand deliver the information sheets and “patient experience of hospital meals questionnaire”, giving her the opportunity to also explain the study verbally to patients. The researcher has conducted research in a hospital situation previously and is aware of the need for a considered approach when in such an environment. This will also allow the researcher to make a judgement on whether a patient may be too vulnerable to participate.

The “patient experience of hospital meals questionnaire” follows the wording and layout of the WAO audit, but text has been made larger where possible to aid the participant. As with the WAO study, the information sheet states that any patient taking part can ask someone to help – this could be a visitor, and the researcher will be available at points in the day also.

The voluntary nature of the study is explained in the information sheet, and will be explained verbally also. For those taking part in the Shepherd’s Pie study, there will be a further verbal prompt that participation is voluntary. Completion of the questionnaires/ participation in the study will be taken as consent.

Within the Health Board the Black and Ethnic Minorities community is under 2%, so the research may not have a large proportion of participants for whom English is not a first language. Never the less, but for those who may not have English as a first language a friend or relative can be invited by the participant to help with the questionnaire.

The researcher will photograph the shepherd’s pie meal both before and after lunch to identify how much has been eaten. This will happen away from the patient. The researcher is not considering asking for permission to photograph the meal as it may influence the amount that the participant eats. The participants may feel that it is ‘good’ to eat as much of their meal as possible if they are conscious that the study also considers food waste. The participant is asked about their experience of the meal, but the link to food waste will be made by the researcher.

Any changes to the nature of the project that result in the project being significantly different to that originally approved by the committee must be communicated to the Ethics Committee immediately.

Appendix 4. Interview schedule 1

Study Title: Ecological Public Health in the hospital foodservice system: from policy commitments to foodservice practice

Go through the explanation sheet and get approval

INTRODUCTION:

This study is looking at the patient foodservice system within XXXX Health Board and how it considers:

- The nutritional wellbeing of patients
- Ecological / environmental issues
- How and why budgets are spent

I am interested in understanding

- ✓ how the patient foodservice system works as a whole
- ✓ how each of the parts (subsystems) work individually
- ✓ how integrated these parts may or may not be when considering the above

Will ask some questions about the general patient foodservice system and then about your specialist field

1. Overall, do you think there is a central overarching objective/goal of patient foodservice?
2. Taken as a whole, how does foodservice at XXXX [consider/impact on]:
 - nutritional wellbeing of patients?
 - environmental issues?
 - how and why budgets are spent?
 - Is there any link between these areas, e.g. is there a link with how money is spent and better nutrition, or better environmental outcomes?
3. Are there any differences at hospital level? (relate to specific hospital)
4. Looking at diag.... which areas do you have responsibilities within?
 - what do you see as being the primary objective/goal of this/these parts?
 - how does this objective/goal work with respect to the foodservice system goals as a whole?

5. How does this subsystem [consider/impact on]:
 - the nutritional wellbeing of patients?
 - environmental issues?
 - how and why budgets are spent?

6. what policies guide hospital foodservice as a whole and the subsystems that you have experience of]

7. How do these policies [consider/impact on]
 - the nutritional wellbeing of patients?
 - environmental issues?
 - how and why budgets are spent?

8. We've talked about objectives, practice and policies... how does practice reflect objectives?... how does practice reflect policy?... what does this mean in practice for:
 - The nutritional wellbeing of patients?
 - Environmental issues?
 - how and why Health Board money is spent?

9. How could hospital foodservice/ the subsystem of expertise be altered to improve:
 - The nutritional wellbeing of patients?
 - Environmental issues?
 - how and why Health Board money is spent?

10. What are the barriers to this happening, and what are the circumstances under which it could happen?

Appendix 5. Ward study protocol

Hospital: Ward: Date:

Ward profile:

Ward Manager:

Ward Sister:

Foodservice Staff:

Other Staff:

Patient profile (incl age):

Day 1: PE13 & Observation & informal interview

Main contact, day 1:

Staff on foodservice, day 1:

Patient and PE13 numbers

.....= total beds on ward

..... = beds empty 10am

..... = patients excluded from PE13 by staff (e.g. cognitive / medical reasons)

..... = patients excluded from PE13 by researcher (e.g. communication reasons / asleep etc.)

..... = patients administered PE13 (HOW many helped.....)

..... = patients completed PE13

NOTE: any changes during the day that affect the numbers above

..... = final population size for PE13

..... = final sample size for PE13

Staff questions: Day 1... add any comments that spring up on day 2 if relevant

Staff member:

1. Tell me about what you do in relation to foodservice and how this fits with your other responsibilities
2. Is there any special training needed or given for this role? 10 golden rules?
3. Has anything changed in the last few months (e.g. the menu or the way you approach foodservice?)
4. What has been the reaction to the new menu in general?
5. Are you aware of the N&C Standards?
6. Do you see much food waste?.. why/ why not
7. Explain the ordering system – how and why the order is completed that way
8. Who ordered today's lunch (day 1), and what is the rationale behind quantities?
9. Who is ordering tomorrows lunch (day 2), and what is the rationale behind quantities? (CHECK WITH OTHER STAFF)
10. Is protected mealtime in operation here? Are red trays used?
11. Are any patients on food charts? Whose responsibility is it to fill these in? When does this usually happen?
12. was foodservice typical/representative today? If not, what was different?
13. What do you think of the food here? Do you think it meets patients' needs? Have you ever tasted it?
14. Is there much liaison with the catering staff?
15. Anything else to add?
16. CONSENT TO USE THIS DATA?

Observations and patient comments Day 1

Is eating environment prepared?

Are patients given choice?.. how is this offered (main only? Veg? differences betw staff?)

Menu item	called	Extras offered	comments
Roast pork and apple sauce			
Chicken tikka masala and rice			
Vegetable goulash			
Soft = veg goulash & veg & pots			
Creamed potatoes			
Roast potatoes			
Green beans			
gravy			
Peach and raspberry crumble			
custard			
yoghurt			

Is choice of P size offered?.. NB. Service order

Is assistance given?

What is going on on the ward in general during foodservice?

Etc...

Use data from both days to consider the following themes

Meeting individ P needs

Time pressures

Pressures of other responsibilities

Technical issues

Perceptions of food

Presentation

Attitude to foodservice

Variation/ consistence (in approaches to ordering, in attitude, betw wards etc.)

Plate waste

Ordering & Trolley waste

Reflections on Researcher's role..

Patients' response to researcher

Reflection of researcher's position:

Day 2: LS, LSQ, Observation & informal interview

Main contact, day 2:

Staff on foodservice, day 2:

Patient, LS and LSQ numbers

..... = total beds on ward

..... = beds empty 10am

.....= NBM

..... = patients excluded from LSQ by staff (e.g. cognitive / medical reasons)

..... = patients excluded from LSQ by researcher (e.g. communication reasons / asleep etc.)

..... = patients who pre-ordered LS

..... = trays of LS ordered & delivered

..... = no of patients served LS (becomes LSP)

..... = patients administered LSQ

..... = patients completed LSQ (HOW MANY HELPED.....)

NOTE: any changes during the day that affect the numbers above

..... = final population size for LSQ

..... = final sample size for LSQ

..... = no. LS portions ordered

..... = no. LS portions delivered and in what (foils / gastronomes?)

..... = no. LS portions left unserved

Observations and patient comments: Day 2

Is eating environment prepared?

Are patients given choice?.. how is this offered (main only? Veg? differences betw staff?)

Menu item	called	Extras offered	comments
Chicken and mushroom pie (with creamed potatoes & broccoli and cauliflower mixed)			
Beef lasagne (w' herbed pots)			
Vegetable and bean stroganoff and rice			
Soft = beef las & creamed pots			
gravy			
Creamed potatoes (not listed separately on menu)			
Mixed broc & cauli (not listed separately on the menu)			
Herb potatoes(not mentioned separately on menu)			
Rice pudding			
Strawberry slice			

Is choice of P size offered?

Is assistance given?

What is going on on the ward in general during foodservice?

Etc...

Other staff comments made during the study, Day 1 & 2

Appendix 6. Patient information sheet

Study about hospital catering

About this study

Cardiff University is undertaking research on hospital catering within this Health Board. We are seeking patients' views about the choice of meals, the quality of meals, availability of help and the eating environment, as good catering services can help patients to recover.

The results of the study will help researchers and the Health Board to better understand the quality of their catering services

What does the study involve?

The study is in two parts. Your participation is voluntary and we will not ask for your name or information which will identify you. You have been invited to participate in part 1 today. Some patients will also be invited to participate in part 2 tomorrow.

PART 1: Questionnaire on patient experience of hospital meals

If you wish to take part in the study, please complete this questionnaire. You may ask someone to complete this questionnaire on your behalf.

If someone you care for is currently staying in hospital, you may fill out this questionnaire for them, but please ask their permission first.

Once you have completed the questionnaire, *please put it in the envelope provided* and leave the envelope on your bedside table. The researcher will collect it from you later today or tomorrow.

PART 2: Experience of lunch (tomorrow: selected patients only)

Tomorrow only some patients will be asked about their lunch. You may get a questionnaire asking about your opinions of lunch on tomorrow's lunch tray. If you wish to take part, please fill this in and leave it on your bedside table. A researcher will be available to help if needed.

If you have any questions about this questionnaire, please telephone Susannah McWilliam on XXXXXX or send an email to XXXXXXX@cardiff.ac.uk

Appendix 7. Wales Audit Office, Patient Experience Questionnaire, PE10

Patient questionnaire about hospital meals



WALES AUDIT OFFICE
SWYDDFA ARCHWILIO CYMRU



About this questionnaire

The Wales Audit Office is undertaking a review of hospital catering in Wales to find out whether hospitals in Wales are delivering good catering services, which help patients' recovery.

We are seeking patient's views about the choice of meals, the quality of meals, availability of help with eating and the eating environment.

Who should complete this questionnaire?

Patients currently staying in hospital. You may ask someone to complete this questionnaire on your behalf.

If someone you care for is currently staying in hospital, you may fill out this questionnaire for them, but please ask for their permission first.

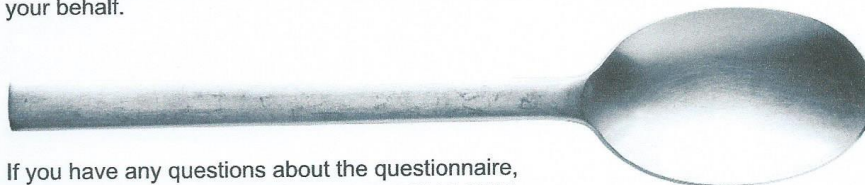
We will not ask you for your name or any information which will identify you.

About the Wales Audit Office

We are an independent audit organisation that reviews NHS organisations in Wales. We will use the findings from this questionnaire to inform NHS organisations about what they are doing well and what they need to improve on.

Submitting this questionnaire

Once you have completed the questionnaire, please place it in the pre-paid envelop, and hand it back to a member of the ward staff who will pass it to the WAO on your behalf.



If you have any questions about the questionnaire, please telephone Katrina Febry on 029 2032 0616 or send an email to katrina.febry@wao.gov.uk.

We are only interested in the food provided on the wards: we are **not** interested in the food provided in the canteen.

About you

- 1 Which hospital are you staying in?
- 2 Which ward are you staying in?
- 3 How long do you expect to stay in hospital? (Day one being the day you entered hospital, and the last day being the day you were discharged)
- Less than 1 day 2 - 3 days 4 - 7 days
 8 - 14 days More than 2 weeks

Your health needs

- 4 Have you been weighed during your stay at hospital?
 Yes No Not sure
- 5 Has your height been measured during your stay in hospital?
 Yes No Not sure
- 6 Has a member of the hospital staff talked to you about your dietary needs? (For example, nutritional supplements, sugar free food, low-fat food, etc)
 Yes No Not sure
- 7 Have you been given food that was suitable to your dietary needs? (For example, nutritional supplements, sugar free food, low-fat food, etc)
- I do not require a special diet Yes, always Yes, most of the time
 Rarely Never Don't know

Menu

- | | Yes, always | Yes, most of the time | Rarely | Never |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 8 Do you understand the menu? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you recognise the food options on the menu? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there enough choice on the menu? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are you able to choose your portion size? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 9 Does the menu change often enough? (for example, you don't see the same food options every few days)
- Yes, always Yes, most of the time Rarely
 Never I have not been in hospital long enough to tell



10 Is there enough menu choice to suit your religious beliefs?

Yes, always Yes, most of the time Rarely
Never I have no beliefs which require a special diet

11 If you are a vegetarian or vegan, is there enough choice to meet your needs?

Yes, always Yes, most of the time Rarely
Never I am not vegetarian or a vegan

12 If you have a food allergy, is there enough choice to meet your needs?

Yes, always Yes, most of the time Rarely
Never I do not have a food allergy

13 How do you choose what meals to eat?

I fill in a form I tell a member of staff I choose food from a trolley
Other A family member chooses for me There is no choice

14 When do you choose what to eat?

Before the day of a meal On the day of the meal
From the trolley There is no choice

Hygiene and Comfort

15 Are you able to wash your hands before you ate your food?

Yes, always Yes, most of the time Rarely Never

16 Does a member of staff help you get comfortable before you eat your food?

Yes, always Yes, most of the time Rarely Never
I do not need help to get comfortable

17 Where do you eat most of your meals?

In bed In a chair near your bed In a communal dining area Other

18 Is the area where you eat your food clean and tidy?

Yes, always Yes, most of the time Sometimes Never

Help when eating

19 If you need eating aids, have you been provided with them? (for example, special cutlery or non-slip mats etc)

Yes, always Yes, most of the time Rarely Never
 I do not need them

20 If you need help when eating, are you given it?

Yes, always Yes, most of the time Rarely Never
 I do not need help

21 If someone helps you to eat your food, who is it?

Family member Friend Carer/volunteer Nurse
 I do not need help

22 If someone helps you to eat, is this soon enough after your food has arrived?

Yes, always Yes, most of the time Rarely Never
 I do not need help

Your Meal

	Yes, always	Yes, most of the time	Rarely	Never
23 Are you happy with the time your meals are served?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are your meals free from disturbance by nurses or doctors treating or assessing you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are you given enough time to finish your meal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you miss a meal, is a replacement provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you always get the meal you ordered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is fresh fruit available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are drinks available between meal times?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are snacks available between meal times?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is fresh water available throughout the day?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is your food served at the temperature you would expect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24 Are you given enough food to eat?

Yes, too much Yes No, not enough

How would you rate?

	Excellent	Good	Acceptable	Poor	Very Poor
25 The taste of the food you have been given?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The appearance of the food you have been given?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The healthiness of the food you have been given?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your overall satisfaction with the food you have received?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments

If there is anything else you would like to tell us about your experiences of food served in hospitals in Wales please do so in the space below.

26 Is there anything particularly good about the food or the catering services you receive?

27 Is there anything that can be improved?

28 Any other comments?

Thank you very much for your help by completing this questionnaire

Appendix 8. Patient Experience Questionnaire, PE13

Patient experience of hospital meals

We are only interested in the food provided on the wards: we are **not** interested in the food provided in the canteen

About you

- 1 Which hospital are you staying in?
- 2 Which ward are you staying in?
- 3 Date of admission
- 4 Age
- 5 Male Female

Your health needs

- 6 Have you been weighed during your stay in hospital?
 Yes No Not sure
- 7 Has your height been measured during your stay in hospital?
 Yes No Not sure
- 8 Has a member of the hospital staff talked to you about your dietary needs? (e.g. nutritional supplements, sugar free food, low-fat food etc)
 Yes No Not sure
- 9 Have you been given food that was suitable to your dietary needs? (For example nutritional supplements, sugar free food, low-fat food, etc)
- | | | | | | |
|---------------------------------|--------------------------|-------------|--------------------------|-----------------------|--------------------------|
| I do not require a special diet | <input type="checkbox"/> | Yes, always | <input type="checkbox"/> | Yes, most of the time | <input type="checkbox"/> |
| Rarely | <input type="checkbox"/> | Never | <input type="checkbox"/> | Don't know | <input type="checkbox"/> |

Menu

- | | Yes, always | Yes, most of the time | Rarely | Never |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 10 Do you understand the menu? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you recognise the food options on the menu? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there enough choice on the menu? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are you able to choose your portion size? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 11 Does the menu change often enough? (you don't see the same food options every few days)
- | | | | | | |
|-------------|--------------------------|---|--------------------------|--------|--------------------------|
| Yes, always | <input type="checkbox"/> | Yes, most of the time | <input type="checkbox"/> | Rarely | <input type="checkbox"/> |
| Never | <input type="checkbox"/> | I have not been in hospital long enough to tell | <input type="checkbox"/> | | |

12 Is there enough menu choice to suit your religious beliefs?

Yes, always Yes, most of the time Rarely
Never I have no beliefs which require a special diet

13 If you are vegetarian or vegan, is there enough choice to meet your needs?

Yes, always Yes, most of the time Rarely
Never I am not vegetarian or vegan

14 If you have a food allergy, is there enough choice to meet your needs?

Yes, always Yes, most of the time Rarely
Never I do not have a food allergy

15 How do you choose what meals to eat?

I fill in a form I tell a member of staff I choose food from a trolley
Other A family member chooses for me There is no choice

16 When do you choose what to eat?

Before the day of a meal On the day of the meal
From the trolley There is no choice

Hygiene and Comfort

17 Are you able to wash your hands before you eat your food?

Yes, always Yes, most of the time Rarely Never

18 Does a member of staff help you to get comfortable?

Yes, always Yes, most of the time Rarely Never
I do not need help to get comfortable

19 Where do you eat most of your meals?

In bed In a chair near your bed In a communal dining area Other

20 Is the area where you eat your food clean and tidy?

Yes, always Yes, most of the time Sometimes Never

Help with eating

21 If you need eating aids, have you been provided with them? (for example, special cutlery or non-slip mats etc)

Yes, always Yes, most of the time Rarely Never
 I do not need them

22 If you need help when eating, are you given it?

Yes, always Yes, most of the time Rarely Never
 I do not need help

23 If someone helps you to eat your food, who is it?

Family member Friend Carer/volunteer Nurse
 I do not need help

24 If someone helps you to eat, is this soon enough after your food has arrived?

Yes, always Yes, most of the time Rarely Never
 I do not need help

Your Meal

	Yes, always	Yes, most of the time	Rarely	Never
25 Are you happy with the time your meals are served?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are your meals free from disturbance by nurses or doctors treating or assessing you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are you given enough time to finish your meal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you miss a meal, is a replacement provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you always get the meal you ordered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is fresh fruit available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are drinks available between meals times?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are snacks available between meal times?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is fresh water available throughout the day?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is your food served at the temperature you would expect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26 Are you given enough food to eat?

Yes, too much Yes No, not enough

How would you rate?

	Excellent	Good	Acceptable	Poor	Very poor
27 The taste of the food you have been given?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The appearance of the food you have been given?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The healthiness of the food you have been given?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your overall satisfaction with the food you have received?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments

If there is anything else you would like to tell us about your experience of food during this hospital stay, please do so in the space below

28 Is there anything particularly good about the food or the catering services you receive?

29 Is there anything that can be improved?

30 Any other comments?

Thank you very much for your help by completing this questionnaire

Hospital	Ward		Survey no.	
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Appendix 9. Lasagne Questionnaire, LSQ

Lunch Study of Lasagne

About you

- 1 Age
- 2 Male Female
- 3 Date of admission

If you ate any of the lasagne, please rate it below

- | |  | |  | |  |
|--|---|--------------------------|--|--------------------------|---|
| | Excellent | Good | Acceptable | Poor | Very poor |
| 4 The temperature of the lasagne | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 The flavour of the lasagne | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 The appearance of the lasagne | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 The texture of the lasagne | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Your overall satisfaction with the lasagne | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- 9 If you DID NOT FINISH all of your lasagne, please give reasons below

Comments

- 10 Is there anything else you would like to tell us about what you think of the lasagne?




H		W		ref no		Port		PW	
---	--	---	--	--------	--	------	--	----	--

please complete other side

Your experience of service

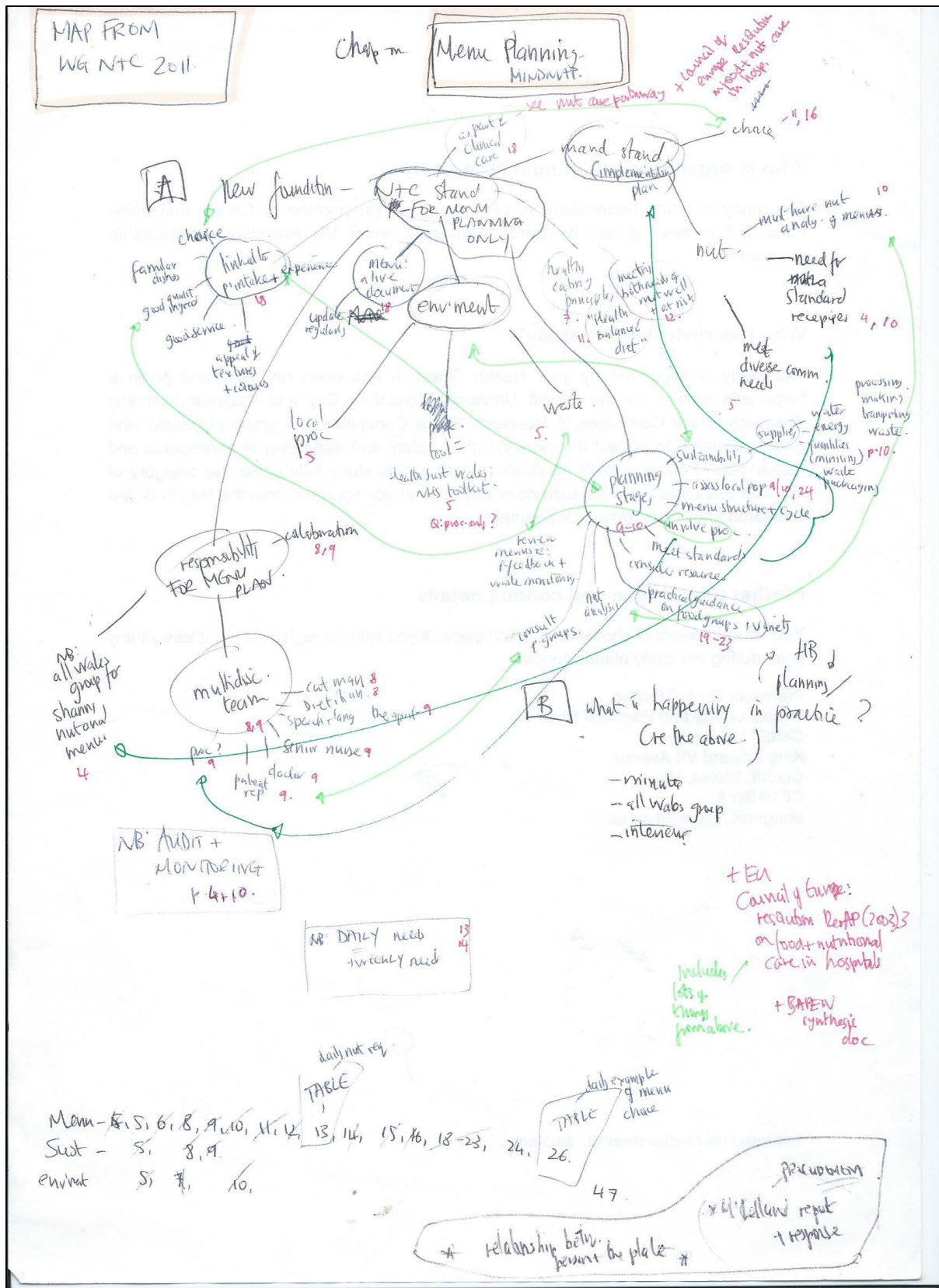
- 11 When did you choose the lasagne?
no choice offered yesterday this morning at meal time
- 12 Were you offered a choice of portion size?
yes no
- 13 How did the portion size suit you?
too little just right too much
- 14 If you needed help to eat the lasagne were you given it?
I didn't need help yes, straight away yes, but I had to wait no
- 15 Was your meal free from disturbance by doctors or nurses treating you?
yes no

Please rate:

- | |  |  |  | | |
|---|---|--|---|--------------------------|--------------------------|
| | Excellent | Good | Acceptable | Poor | Very poor |
| 16 The helpfulness of staff in relation to the meal | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17 The respectfulness of staff in relation to meal | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- 18 Is there anything else you would like to tell us about your experience of food service today in relation to the lasagne?

Appendix 10. Mindmapping menu planning themes from the Standards (Welsh Government 2011b)



Appendix 13. List of interviewees

No.	Date interviewed	Time (minutes)	Title for research purposes
1	19/06/2012	68	H1 Catering Manager
2	19/06/2012	49	HB technical Manager
3	20/06/2012	84	HB Procurement Manager
4	22/06/2012	70	H3 Deputy Catering Manager
5	22/06/2012	77	H3 Head Chef
6	27/06/2012	94	H2 Catering Manager
7	27/06/2012	51	HB Patient Representative
8	09/07/2012	90	HB Lead Dietitian
9	10/07/2012	75	HB Environmental Manager
10	10/07/2012	44	H2 Deputy Catering Manager
11	10/07/2012	44	H2 Stores Manager
12	12/07/2012	38	H3 Catering Manager
13	12/07/2012	25	H3 Assistant Head Chef
14	16/07/2012	67	H2 Production Manager
15	16/07/2012	47	H2 Catering Supervisor
16	17/07/2012	62	HB Head of Nursing
17	17/07/2012	54	HB Head of Patient Experience
18	19/07/2012	51	HB Quality Control Manager
19	19/07/2012	27	H1 Stores Manager
20	19/07/2012	65	H1 Menu Clerk (MC1)
21	11/09/2012	65	H1 Production Manager
22	11/09/2012	203	HB Head of Facilities
23	12/09/2012	44	H3 Purchasing Officer
24	12/09/2012	39	H3 Menu Co-ordinator
25	19/10/2012	82	Wales: Head of Procurement
26	23/10/2012	30	H2 Nurse
27	06/11/2012	40	H3 Nurse
28	26/03/2013	11	H3 Assistant Head Chef - 2nd
29	26/03/2013	27	H3 Deputy Catering Manager - 2nd
30	26/03/2013	29	H2 Production Manager - 2nd
31	26/03/2013	24	H2 Catering Manager - 2nd
32	23/04/2013	41	H1 Catering manager - 2nd
33	23/04/2013	34	H1 Production Manager - 2nd
34	23/04/2013	35	HB Head of Support Services - 2nd
35	05/07/2013	51	Wales: Consultant Dietitian, PH

Appendix 14. Interview Schedule 2: follow-up interviews

Head of Catering: schedule for 2nd interview

1. menu

Discuss the current menu ... (is interim fully implemented across HB?, how did the introduction of it go? What has the feedback been? What impact has it had.. staff experience, P satisfy, waste, intake, cost, time?)

What stage is nut analysis of recipes at? (interaction with all-Wales menu / recipes? Has a methodology been agreed?)

How have staff at ward level been engaged in understanding the new menu?

2. Nutrition and Catering Standards

What impact have the N&C Standards had on the HB? (organisational, financial, impact on Ps.)

What have been the biggest benefits to the HB that have come from the N&C St.?

what have been the biggest challenges to the HB in working towards the Standards?

How have the N&C Standards affected and/or altered the modernisation process goals? (e.g. were they in keeping? Have they inspired more change? Did they encourage more multi-disc working? Has the cost affected the ability to achieve things in other areas e.g. more Ward Based Caterers?)

The fact that the implementation plan is a mandatory – HOW has its mandatory nature affected the HB?

Once the Standards and Imp plan were shared, what role, if any, has the WG taken in supporting (or otherwise) their implementation

3. Food service at ward level

What impact, if any, Have the N&C Standards had on service at ward level? (e.g. implementation plan says that by 31/1/12 eating env'ment should be prepared, choice should be offered, portion size should be offered, assistance should be given to those who require it. By 31st Oct 2012 all staff who serve food to patients “should be trained to do so properly and also in food hygiene”)

How is this being audited?

Catering Manager, H1/H2: schedule for 2nd interview

1. Can he/she run through the transition to the new menu and what are the primary changes as result of the new menu since I was last in?
2. Impact of new menu on catering? (working practices, time, stress, budgets etc.)
3. Feedback mechanisms during the implementation phase? (e.g. catering to ward, ward back to catering, patient to ward to catering) any specific monitoring programme put in place? What has the feedback been, how has catering responded to feedback?
4. Impact on how much food is ordered?
5. Any change then in food service quality since the implementation of the new menu? Any new training for nurses?.. N&C Imp plan says that by 31/1/12 eating env'ment should be prepared, choice should be offered, portion size should be offered, assistance should be given to those who require it. By 31 Oct 2012 all staff who serve food to patients "should be trained to do so properly and also in food hygiene"
6. Is this being implemented and audited? How?
7. Impact on plate waste?
8. Impact on trolley waste?
9. Impact on P satisfaction?
10. Impact on patient food intake?
11. Teething issues... any changes?
12. Is there still flexibility e.g. a baked pot or a salad for main? for those who miss a meal or need extra snacks for nutritional reasons
13. What are your thoughts on the new menu?... positive, negative
14. What are your thoughts on the N&C standards?

Appendix 15. Participant information sheet for staff interviews

Foodservice study: Participant Information Sheet

[Researcher contact details: XXXXXX]

We would like to invite you to take part in a foodservice study. Before you decide whether to take part, we would like you to understand why the study is being done and what it would involve for you. A researcher will go through this information sheet with you and answer any questions you have. Please ask if anything is unclear.

What is the study about?

We are undertaking an evaluation of the foodservice system in XXXXXXXXXX Health Board. This will include issues such as the environmental and nutritional impact of current foodservice and will cover areas such as menu planning, procurement, food production and service practices. Studies tend to focus on isolated areas within foodservice (such as procurement) and so this study should help to better understand the complexities of the hospital foodservice system.

Why have you been invited?

You have been identified as a key figure in the hospital foodservice system, and as such your insights will be very valuable to this study. A number of other colleagues will also be approached.

Do you have to take part?

It is up to you to decide to take part in the research. We will describe the study and go through this information sheet with you. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason.

What is expected of you?

You will be asked to take part in:

- a fairly informal interview, timed to fit around you. You will be asked about things such as working practices and your experiences. The interview will be recorded for accuracy and will last between 30 minutes and one hour depending on what time you have available.

You may be asked to provide:

- some additional information dependent on your area of expertise, such as food waste figures, patient satisfaction figures or food procurement details. Access to current policy, strategy and guidance documents may also be asked for.

Can you leave the study?

You can leave the study at any point by informing the study contact. Any publically available information that you share may still be included in the study, but personal comments made during interview, and Health Board information not in the public domain can be removed on request and relevant interview transcriptions destroyed.

What will happen to the information collected?

If requested, your name will remain anonymous, as will the name of the Health Board. Your area of expertise will be noted. Interviews will be recorded for accuracy and typed up on a secure computer. If anonymity is requested, interviews will be recorded and transcribed using a coded reference to which only the researcher has access. Participants can have full access to their own interview transcriptions at any point on request. The information will be used to support a PhD Thesis at Cardiff University, to which the participants can have full access. The final document will be available in the Cardiff University library and some data may be used in future academic journals, publications and other formats following the same confidentiality arrangements.

Who is organising and funding the study?

The study is being undertaken as part of a PhD programme at Cardiff University. Funding has been granted by Cardiff University under the President's Scholarship programme.

Who has reviewed the study?

The study is supported by XXXXXX, *internal senior staff name*, and permission has been granted by the Research and Development Department of XXXXXXXX Health Board. It has been reviewed and given a favourable opinion by the Cardiff University School of City and Regional Planning Research Ethics Committee. A Research Ethics Committee is a group of people who review research to protect the dignity, rights, safety and well-being of participants and researchers.

Further information and contact details

Your study contact is shown on the first page. If you wish to register a complaint at any point during the study please contact:

Professor XXXXXXXXXXXX
School of City and Regional Planning
Cardiff University
King Edward VII Avenue
Cardiff, Wales, UK
CF10 3WA
XXXXXXXX@cardiff.ac.uk

Appendix 16. Foodservice study: Participant Consent Form

[Researcher contact details: XXXXXX]

Thank you for considering taking part in this research. If you have any questions please ask the researcher before you decide whether to take Part. You will be given a copy of this consent form to keep and refer to at any time.

Please tick

I confirm that I have read and understood the information sheet dated (version) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

I understand that if I withdraw from the study the non-public data collected up to that point will be destroyed on my request.

I agree to take part in the study.

I agree / do not agree (delete as appropriate) to my name being used in the study

Name of Participant (please print) _____

Job Title _____

Signed _____ Date _____

Name of Researcher (please print) _____

Signed _____ Date _____

When completed: 1 for participant; 1 for researcher

Appendix 17. Information sheet for ward staff

Study about hospital catering

About this study

Cardiff University is undertaking a study on hospital catering within XXXX. Overall the study is looking at the foodservice system, and considering the impact it has on the nutritional wellbeing of patients and on the environment. The study is supported by XXXX, Head of Support Services, and has been approved by the Ethics Committee of the School of Planning and Geography in Cardiff University and by the XXXX Research and Development Department.

In this part of the study we are observing ward level practice at meal times, and seeking patients' views about the choice of meals available, the quality of meals, availability of help and the eating environment. The patient part will be done in 2 stages:

1: a patient experience questionnaire

This will be given to all suitable patients on your ward. This is a duplicate of the questionnaire used by the Wales Audit Office in 2010 and will help to highlight any changes in patient satisfaction between 2010 and now

2: a main course study

All suitable patients who choose a specific meal will be invited to take part in this study. It will involve a short evaluation of the meal both during and after service in questionnaire form. It will also involve calculating plate waste. This will be done by photographing the plate both before and after the meal, but this will not be done in front of the patient.

Do patients have to take part?

Participation is voluntary and the study will be explained in a letter which patients will be given. A researcher will also be on hand to answer any questions and assist patients.

What hospitals and wards have been chosen?

Three wards each in XXXX, XXXX and the XXXX Hospitals have been chosen. Most of these wards also took part in the 2010 Wales Audit Office study.

When is the study taking place?

Between March and June 2013. A researcher will be in touch to arrange suitable times and they will be on each ward for 2 days conducting the study.

Will staff on the ward be involved?

The researcher will conduct all aspects of the study. They may speak to staff to liaise on certain issues, e.g. identifying patients who are / are not suitable for participation. They may also ask staff about certain elements of foodservice, and will observe practice around meal times. Participation is voluntary.

If you have any questions about this study please telephone
Susannah McWilliam on XXXXXXXXX or send an email to XXXXXXX@cardiff.ac.uk

Appendix 18. Patient information sheet

Study about hospital catering

About this study

Cardiff University is undertaking research on hospital catering within this Health Board. We are seeking patients' views about the choice of meals, the quality of meals, availability of help and the eating environment, as good catering services can help patients to recover.

The results of the study will help researchers and the Health Board to better understand the quality of their catering services

What does the study involve?

The study is in two parts. Your participation is voluntary and we will not ask for your name or information which will identify you. You have been invited to participate in part 1 today. Some patients will also be invited to participate in part 2 tomorrow.

PART 1: Questionnaire on patient experience of hospital meals

If you wish to take part in the study, please complete this questionnaire. You may ask someone to complete this questionnaire on your behalf.

If someone you care for is currently staying in hospital, you may fill out this questionnaire for them, but please ask their permission first.

Once you have completed the questionnaire, *please put it in the envelope provided* and leave the envelope on your bedside table. The researcher will collect it from you later today or tomorrow.

PART 2: Experience of lunch (tomorrow: selected patients only)

Tomorrow only some patients will be asked about their lunch. You may get a questionnaire asking about your opinions of lunch on tomorrow's lunch tray. If you wish to take part, please fill this in and leave it on your bedside table. A researcher will be available to help if needed.

If you have any questions about this questionnaire, please telephone Susannah McWilliam on XXXXXX or send an email to XXXXXXX@cardiff.ac.uk

Appendix 19. Patient information sheet: day 2

Study about hospital lunch today

About this study

Cardiff University is undertaking research on hospital catering within this Health Board as good catering services can help patients to recover. We are seeking patients' views on their experience of lunch today including food quality and views on food service. The results of the study will help researchers and the Health Board to better understand the quality of their catering services.

What does the study involve?

Only some patients will be asked about their lunch today. You may get a sheet asking for your opinions during lunch. If you wish to take part, please fill this in and leave it on the tray. If you would like assistance, please keep the sheet and a researcher will visit you later to help.

Do I have to take part?

Only some patients will receive the questionnaire. If you do, your participation is voluntary and we will not ask for your name or any information which will identify you.

If you have any questions about this questionnaire please ask the researcher, telephone Susannah McWilliam on XXXXXX or send an email to XXXXXX@cardiff.ac.uk

Appendix 20. All Wales Nutrition and Catering Standards for Food and Fluid for Hospital Inpatients. Concise Guide and Implementation Plan (Welsh Government 2011a)

This is a concise guide to the standards laid out in the All Wales Catering and Nutrition Standards for Food and Fluid for Hospital Inpatients. That document should be referred to, in full, for implementation and for detailed information on each of the standards. This guide should be used as an audit tool following implementation of the standards. (Note – The figures given in brackets refer to the chapters where the standards can be found in the main document.)

<p>THE FOLLOWING STANDARDS MUST BE IMPLEMENTED BY 31ST JANUARY 2012 Recognising the nutritional needs of the hospital patient</p> <ul style="list-style-type: none"> • There must be local assessment of the dietary needs of each hospital population. (2.1) <p>The All Wales Nutrition Care Pathway should be followed. (2.4)</p> <ul style="list-style-type: none"> • An assessment of each patient's dietary needs should form part of the nutritional care plan. (2.4)
<p>Menu Planning (2.5)</p> <ul style="list-style-type: none"> • A multidisciplinary group must take responsibility for menu planning. • Menu planning should be undertaken using recognised menu planning principles.
<p>Snacks</p> <ul style="list-style-type: none"> • Snacks that are included within the standard menu should provide a minimum of 100kcal and 1.5 g protein. The exception will be those patients who would benefit from a healthy option such as fruit. • A bedtime snack must be offered to all patients (minimum 100kcal, 1.5 g protein).
<p>Milk</p> <ul style="list-style-type: none"> • An on ward milk allowance of 500mls should be allocated for each patient, for breakfast cereals and beverages. This is in addition to milk used in the kitchen. Milk can be full fat or semi skimmed depending on local need.
<p>Fluids (Table 3 and section 4.3)</p> <ul style="list-style-type: none"> • There should be 7-8 beverage periods throughout the day, offering both hot and cold drinks. • Beverages at the mid day and evening meals should be served after the meal. • There must be provision to ensure patients are able to access a minimum of 1.5 litres of fluid per day. • Water must be available at all times throughout the 24 hours, preferably chilled mains water. • Water jugs should be changed 3 times a day.
<p>Codes (Table 3 and section 6.3)</p> <ul style="list-style-type: none"> • Dietary codes should be kept to a minimum on the menu.

Food Service (3.5)

- The eating environment should be prepared in order for patients to enjoy their food in a dignified manner.
- Patients should be given the opportunity to choose their own food from a varied menu.
- A choice of portion sizes should be offered.
- Service should be flexible to allow patients to meet their energy and protein requirements.
- A missed meal service should be provided for patients who did not have the opportunity to have a meal at the normal time. A meal must provide a minimum of 300kcal and 18g protein per main course.
- Main meals should be available every 4 to 6 hours.
- The maximum period between the last main meal at night and the following breakfast should not exceed 14hours.
- Assistance to eat must be given to all patients who require it.

Ward Provisions (3.6)

- A range of items should be held at ward level in order for patients to be offered snacks and beverages when the hospital kitchen is closed. A list of minimum provisions is given in section 3.6.

Nutrient and Food Standards for Children (5)**Menu Planning**

- Menu planning groups should consider producing a specially designed menu for children.
- The guidance on number of meal and dessert choices that should be provided at each meal service should be followed as laid out in the Better Hospital Food guidelines (2003).
- Child friendly, familiar dishes should be included.
- Food choice should be allowed as close to time of service as possible.
- There should be access to the main hospital menu to accommodate older children.
- The menu should achieve a combination and balance from the 5 food groups.

Fluids (5.4)

- A minimum of 7-8 beverages must be offered through the day.
- Appropriate drinking cups must be available for each stage of development.
- A choice of warm and cold drinks should be offered at each meal and snack, including low sugar varieties.
- Water must be available at all times throughout the 24 hours, preferably chilled mains water.

Water jugs should be changed 3 times a day.

Snacks

- A range of suitable snacks, including high calorie snacks and drinks should be provided between meals. (5.5)

Milk

- 500ml whole milk or equivalent should be provided daily for each child.

Ward Provisions

- A range of items should be held in the ward kitchen to provide popular foods outside of normal mealtime service.

Therapeutic Diets for Adults and Children. (6)

- Where relevant catering service contracts must be sufficiently detailed to cover provision of therapeutic and special diets.

therapeutic diets must be considered in the menu planning process.

THE FOLLOWING STANDARDS MUST BE IMPLEMENTED BY 30th APRIL 2012**Menu Planning (2.5)**

- Standard recipes must be used.
- Patient groups should be consulted before new menus are introduced.

Menu Framework (Table 3)

- The mid-day and evening meals must allow the choice of 3 courses to comprise:

2 first course items;

3 main course items, of which at least 2 should be hot;

3 dessert courses, of which at least one should be hot.

- Fruit juice should be offered as a first course item on 2 occasions to meet the minimum Vitamin C specification of 40mgs.
- There must be a vegetarian option at each meal.
- There must be a combination and balance of foods from the 5 food groups.
- There must be meal choices that meet healthy eating principles.

Breakfast

- Breakfast must provide a minimum of 380 kcal and 8g protein, with an additional fortified / high protein, high calorie option for the nutritionally at risk.

Snacks

- Snacks of higher energy and protein density, for those patients identified at moderate or high risk should provide a minimum of 200kcal & 2.5 g protein.

Soup

- Where soup is served it should provide a minimum of 150kcal and 4g protein in a 175ml serving and be served with bread and spread.

if soup is served as a hot main course then accompaniments must be served with it to give a total of 300 – 500kcal and 18g protein.

Therapeutic Diets for Adults and Children. (6)

- There must be a hospital protocol for the provision of all therapeutic diets, to include contingency for provision of diets that are required irregularly.

Special and Personal Diets (7)

- Special and personal diets should be considered at the planning stage.

there must be policies and procedures in place to ensure minority groups can be provided with appropriate and familiar foods to meet their nutritional needs.

THE FOLLOWING STANDARDS MUST BE IMPLEMENTED BY 31ST OCTOBER 2012

Menu Framework (Table 3)

Mid day and evening meal

- Both the mid day and evening meal menus must include the following:

A main course providing a minimum of 300kcal, 18g protein (12g for vegetarian option);
A fortified or high protein high calorie option to provide minimum of 500kcal and 18g protein;

At least one fortified or high protein high calorie dessert to provide a minimum of 300kcal, 5g protein.

Food Service (3.5)

- All staff involved in serving food to patients should be trained in how to do so properly and also in food hygiene.

Therapeutic Diets for Adults and Children. (6)

- Patients must be given a choice for all food and fluid provided for therapeutic and texture modified diets.

THE FOLLOWING STANDARDS MUST BE IMPLEMENTED BY 30TH APRIL 2013

Menu Planning (2.5)

- There must be a current nutritional analysis of all menus, undertaken by a Registered Dietitian. Minimum nutrients for menu analysis are laid out in Table 1.

Nutrient and Food Based Standards for Adults (3)

Nutrient Specification

- The hospital menu must be capable of meeting the nutrient specification as laid out in Table 2 (3.3) and provide food with concentrated energy and nutrients in small servings.

Nutrient and Food Standards for Children (5)

Menu Planning

- Nutritional analysis should be incorporated into the menu planning process.

Nutrient Specification

- The hospital menu must be capable of meeting the nutrient specification as laid out in Table 13 (5.2) for macronutrients and as given in Appendices 3 to 7 for micronutrients.

Therapeutic Diets for Adults and Children. (6)

- Therapeutic diets must meet the requirements of clinical treatment and appropriate nutritional standards.

Appendix 21. New (interim) menu

LUNCH MENU

WEEK	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
TRADITIONAL DISH	ROAST BEEF & YORKSHIRE PUDDING	MINCED BEEF PIE	GAMMON HAM WITH PARSLEY SAUCE	ROAST PORK & APPLE SAUCE	CHICKEN & MUSHROOM PIE	BREADED COD	STEAK & ALE PIE
VARIETY-HKCAL&HP	ROAST TURKEY & STUFFING	CHICKEN FRICASSÉE & RICE	BEEF CURRY WITH PILAU RICE	CHICKEN TIKKA MASALA & RICE	BEEF LASAGNE	BACON CHOP	ITALIAN CHICKEN PASTA
VEGETARIAN (TO ORDER)	NUT ROAST WITH VEGETARIAN GRAVY	VEGETABLE & LENTIL BALTI & RICE	CHEESE & TOMATO OMELETTE	VEGETABLE GOULASH	VEGETABLE & BEAN STROGANOFF & RICE	VEGETARIAN (MINCE) SPAGHETTI BOLOGNESE	BROCCOLI & CAULIFLOWER BAKE
SOFT CHOICE	MINCED TURKEY OR BEEF	SAVOURY MINCE	CHEESE & TOMATO OMELETTE	VEGETABLE GOULASH	BEEF LASAGNE	VEGETARIAN (MINCE) SPAGHETTI BOLOGNESE	BROCCOLI & CAULIFLOWER BAKE
POTATO 1	CREAMED POTATOES	BOILED POTATOES	CREAMED POTATOES	CREAMED POTATOES	HERB DICED POTATOES	CHIPPED POTATOES	CREAMED POTATOES
POTATO 2	ROAST POTATOES	CREAMED POTATOES	HERB DICED POTATO	ROAST POTATOES	CREAMED POTATOES	CREAMED POTATOES	DICED HERB POTATO
VEGETABLE 1	BRUSSEL SPROUTS	CAULIFLOWER	BROCCOLI	BUTTERED WHOLE GREEN BEANS	BROCCOLI & CAULIFLOWER MIXED	PEAS	MIXED VEGETABLES
VEGETABLE 2	CARROTS	PEAS & CARROTS MIXED	SPAGHETTI IN TOMATO SAUCE	SWEDE		CARROTS	SWEDE
SAUCE	GRAVY	GRAVY	PARSLEY SAUCE	GRAVY	GRAVY	PARSLEY SAUCE	GRAVY
SWEET 1 (HOT CHOICE)	GOOSEBERRY CRUMBLE	EVES PUDDING (PUREED APPLES)	TREACLE ROLY POLY	APPLE PEACH & RASPBERRY CRUMBLE	RICE PUDDING	CHOCOLATE SPONGE	APPLE CRUMBLE!
SAUCE	CUSTARD	CUSTARD	CUSTARD	CUSTARD		CUSTARD	CUSTARD
SWEET 2 FRUIT POT	GRAPE & APPLE FRUIT BAG	PEAR FRUIT POT	CHEESE AND BISCUIT	THICK & CREAMY YOGURT	STRAWBERRY SLICE	FRESH BANANA	PEACH FRUIT POT
SOFT OPTION	FRUIT FOOL	EVES PUDDING (PUREED APPLES)	ORANGE JELLY	THICK AND CREAMY YOGHURT	RICE PUDDING	CHOCOLATE SPONGE CUSTARD	STEWED APPLE

IF YOU REQUIRE A HALAL DISH OR AN ALTERNATIVE CHOICE PLEASE LET YOU WARD HOST/HOUSTESS KNOW

Jan 2013

PLEASE NOTE THAT SOME OF OUR PRODUCTS MAY CONTAIN NUTS, NUT OIL AND/OR NUT DERIVATIVES.
SHOULD YOU HAVE A QUERY RELATING TO ANY PRODUCT AND/OR ALLERGENS PLEASE INFORM THE WARD HOST/ESS OR A MEMBER OF WARD NURSING STAFF.

Appendix 22. Main portions delivered and wasted: Thursday lunch on nine wards

	chicken & mush pie/hotpot			beef lasagne			Vegetable & bean stroganoff			special order mains			All dishes combined		
Site	trolley portions	wasted portions	% waste	trolley portions	wasted portions	% waste	trolley portions	wasted portions	% waste	trolley portions	wasted portions	% waste	trolley portions	wasted portions	% waste
H1W1	8	7	88%	6	4	67%	2	2	100%	0	0	0%	16	13	81%
H1W2	14	9	64%	8	2	25%	0	0	0%	0	0	0%	22	11	50%
H1W3	20	11	55%	12	7	58%	0	0	0%	1	0	0%	33	18	55%
H1 total	42	27	64%	26	13	50%	2	2	100%	1	0	0%	71	42	59%
H2W1	6	0	0%	12	6	50%	6	6	100%	1	1	100%	25	13	52%
H2W2	12	1	8%	2	1	50%	0	0	0%	13	0	0%	27	2	7%
H2W3	14	7	50%	14	6	43%	6	4	67%	7	6	86%	41	23	56%
H2 total	32	8	25%	28	13	46%	12	10	83%	21	7	33%	93	38	41%
H3W1	12	0	0%	12	5	42%	1	1	100%	4	0	0%	29	6	21%
H3W2	16	9	56%	12	0	0%	1	1	100%	1	0	0%	30	10	33%
H3W3	16	6	38%	2	1	50%	1	0	0%	1	0	0%	20	7	35%
H3 total	44	15	34%	26	6	23%	3	2	67%	6	0	0%	79	23	29%
HB TOTAL	118	50	42%	80	32	40%	17	14	82%	28	7	25%	243	103	42%

Appendix 23. Patient Experience Questionnaire results: PE10 versus PE13

Question numbers from PE10 / question numbers from PE13

Q. 3/3 length of hospital stay, PE10 V PE13

Site	less than 1 day PE10	%	less than 1 day PE13	%	2-3 days PE10	%	2-3 days PE13	%	4-7 days PE10	%	4-7 days PE13	%	8-14 days PE10	%	8-14 days PE13	%	more than 2 weeks PE10	%	more than 2 weeks PE13	%	total resp. PE10	total resp. PE13
H1W1			0%				3	43%			1	14%			2	29%			1	14%		7
H1W2			0%				6	46%			7	54%				0%				0%		13
H1W3			0%				2	17%			4	33%			4	33%			2	17%		12
H1 total	0	0%	0	0%	3	9%	11	34%	15	45%	12	38%	11	33%	6	19%	4	12%	3	9%	33	32
H2W1			0%				7	58%			3	25%			1	8%			1	8%		12
H2W2			0%				1	10%			1	10%			3	30%			5	50%		10
H2W3			0%				3	20%			3	20%			5	33%			4	27%		15
H2 total	4	9%	0	0%	2	4%	11	30%	12	26%	7	19%	10	21%	9	24%	19	40%	10	27%	47	37
H3W1			0%				4	36%			1	9%			2	18%			4	36%		11
H3W2			1	7%			2	13%			4	27%			1	7%			7	47%		15
H3W3			0%					0%				0%			1	17%			5	83%		6
H3 total	2	7%	1	3%	6	22%	6	19%	6	22%	5	16%	7	26%	4	13%	6	22%	16	50%	27	32
HB TOTAL	6	6%	1	1%	11	10%	28	28%	33	31%	24	24%	28	26%	19	19%	29	27%	29	29%	107	101
Wales		2%				15%				28%				24%				32%			654	

Q. 4 Age, PE13

Site	Age PE13								Total
	18-29	30-39	40-49	50-59	60-69	70-79	80-89	90+	
H1W1			2	2	1			2	7
H1W2			1		3	4	5		13
H1W3	2		1	1	3	2	3		12
H1 total	2	0	4	3	7	6	8	2	32
H2W1	2	1	1	2	2	3	1		12
H2W2					2	5	3		10
H2W3					2	5	7	1	15
H2 total	2	1	1	2	6	13	11	1	37
H3W1				1	2	3	5	3	14
H3W2	1	2	1	1	2	1	6	1	15
H3W3					1	2	3		6
H3 total	1	2	1	2	5	6	14	4	35
HB TOTAL	5	3	6	7	18	25	33	7	104

Q. 5 Sex, PE13

Site	Male PE13	%	Female PE13	%	total resp. PE13
H1W1	2	29%	5	71%	7
H1W2	9	69%	4	31%	13
H1W3	7	58%	5	42%	12
H1 total	18	56%	14	44%	32
H2W1	8	67%	4	33%	12
H2W2	3	30%	7	70%	10
H2W3	8	53%	7	47%	15
H2 total	19	51%	18	49%	37
H3W1	6	43%	8	57%	14
H3W2	9	60%	6	40%	15
H3W3	2	33%	4	67%	6
H3 total	17	49%	18	51%	35
HB TOTAL	54	52%	50	48%	104

Q. 4/6 Have you been weighed during your stay in hospital?

Site	Yes PE10	%	yes PE13	%	no PE10	%	no PE13	%	not sure PE10	%	not sure PE13	%	total resp. PE10	total resp. PE13
H1W1			5	71%			2	29%				0%		7
H1W2			9	69%			4	31%				0%		13
H1W3			3	25%			9	75%				0%		12
H1 total	10	30%	17	53%	21	64%	15	47%	2	6%	0	0%	33	32
H2W1			8	67%			4	33%				0%		12
H2W2			6	60%			4	40%				0%		10
H2W3			8	53%			6	40%			1	7%		15
H2 total	27	57%	22	59%	18	38%	14	38%	2	4%	1	3%	47	37
H3W1			8	57%			6	43%				0%		14
H3W2			2	13%			13	87%				0%		15
H3W3			5	83%			1	17%				0%		6
H3 total	16	55%	15	43%	12	41%	20	57%	1	3%	0	0%	29	35
HB TOTAL	53	49%	54	52%	51	47%	49	47%	5	5%	1	1%	109	104
Wales		67%				30%				3%			685	

Q. 5/7 Has your height been measured during your stay in hospital?, PE10 V PE13

Site	Yes PE10	%	yes PE13	%	no PE10	%	no PE13	%	not sure PE10	%	not sure PE13	%	total resp. PE10	total resp. PE13
H1W1			3	43%			3	43%			1	14%		7
H1W2			7	54%			5	38%			1	8%		13
H1W3			8	67%			3	25%			1	8%		12
H1 total	5	15%	18	56%	27	79%	11	34%	2	6%	3	9%	34	32
H2W1			6	50%			6	50%				0%		12
H2W2			1	10%			7	70%			2	20%		10
H2W3			3	20%			9	60%			3	20%		15
H2 total	8	17%	10	27%	32	68%	22	59%	7	15%	5	14%	47	37
H3W1			0	0%			13	93%			1	7%		14
H3W2			0	0%			12	80%			3	20%		15
H3W3			1	17%			4	67%			1	17%		6
H3 total	5	17%	1	3%	22	76%	29	83%	2	7%	5	14%	29	35
HB TOTAL	18	16%	29	28%	81	74%	62	60%	11	10%	13	13%	110	104
Wales		32%				59%				9%			681	

Q. 6/8: did a member of the hospital staff talk to you about your dietary requirements?

Site	Yes PE10	%	yes PE13	%	no PE10	%	no PE13	%	not sure PE10	%	not sure PE13	%	total resp. PE10	total resp. PE13
H1W1			5	71%			1	14%			1	14%		7
H1W2			7	54%			5	38%			1	8%		13
H1W3			8	67%			3	25%			1	8%		12
H1 total	4	12%	20	63%	30	88%	9	28%	0	0%	3	9%	34	32
H2W1			5	42%			6	50%			1	8%		12
H2W2			1	10%			8	80%			1	10%		10
H2W3			6	40%			9	60%			0	0%		15
H2 total	14	32%	12	32%	29	66%	23	62%	1	2%	2	5%	44	37
H3W1			3	21%			11	79%			0	0%		14
H3W2			4	29%			9	64%			1	7%		14
H3W3			4	67%			1	17%			1	17%		6
H3 total	12	43%	11	32%	16	57%	21	62%	0	0%	2	6%	28	34
HB TOTAL	30	28%	43	42%	75	71%	53	51%	1	1%	7	7%	106	103
Wales		41%				54%							675	

Q. 7/9: were you given food that was suitable to your dietary needs? PE10 V PE13

Site	didn't require special diet PE10	%	didn't require special diet PE13	%	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	don't know PE10	%	don't know PE13	%	total resp. PE10	total resp. PE13
H1W1			5	71%			0%		2	29%					0%				0%				1	0%		7
H1W2			8	62%		4	31%			0%					0%				0%				1	8%		13
H1W3			8	67%		2	17%		2	17%					0%				0%					0%		12
H1 total	17	50%	21	66%	2	6%	6	19%	6	18%	4	13%	3	9%	0	0%	4	12%	0	0%	2	6%	1	3%	34	32
H2W1			10	83%			0%		2	17%					0%				0%					0%		12
H2W2			10	100%			0%			0%					0%				0%					0%		10
H2W3			9	60%		1	7%		3	20%			1	7%					0%				1	7%		15
H2 total	23	51%	29	78%	10	22%	1	3%	3	7%	5	14%	4	9%	1	3%	3	7%	0	0%	2	4%	1	3%	45	37
H3W1			7	58%		2	17%			0%			1	8%				2	17%					0%		12
H3W2			11	73%		2	13%			0%			1	7%					0%				1	7%		15
H3W3			3	50%		1	17%		1	17%			1	17%					0%					0%		6
H3 total	16	57%	21	64%	7	25%	5	15%	2	7%	1	3%	1	4%	3	9%	2	7%	2	6%	0	0%	1	3%	28	33
HB TOTAL	56	52%	71	70%	19	18%	12	12%	11	10%	10	10%	8	7%	4	4%	9	8%	2	2%	4	4%	3	3%	107	102
Wales		52%				23%				12%				4%				5%				3%			679	

Taken from Q7/9 of those who needed a special diet.... Were you given food suitable to your dietary needs? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	don't know PE10	%	don't know PE13	%	total resp. PE10	total resp. PE13
H1W1			0	0%			2	100%			0	0%			0	0%			0	0%		2
H1W2			4	80%			0	0%			0	0%			0	0%			1	20%		5
H1W3			2	50%			2	50%			0	0%			0	0%			0	0%		4
H1 total	2	12%	6	55%	6	35%	4	36%	3	18%	0	0%	4	24%	0	0%	2	12%	1	9%	17	11
H2W1			0	0%			2	100%			0	0%			0	0%			0	0%		2
H2W2			0	0%			0	0%			0	0%			0	0%			0	0%		0
H2W3			1	17%			3	50%			1	17%			0	0%			1	17%		6
H2 total	10	45%	1	13%	3	14%	5	63%	4	18%	1	13%	3	14%	0	0%	2	9%	1	13%	22	8
H3W1			2	40%			0	0%			1	20%			2	40%			0	0%		5
H3W2			2	50%			0	0%			1	25%			0	0%			1	25%		4
H3W3			1	33%			1	33%			1	33%			0	0%			0	0%		3
H3 total	7	58%	5	42%	2	17%	1	8%	1	8%	3	25%	2	17%	2	17%	0	0%	1	8%	12	12
HB TOTAL	19	37%	12	39%	11	22%	10	32%	8	16%	4	13%	9	18%	2	6%	4	8%	3	10%	51	31
Wales																						

Q. 8a/10a: could you understand the menu? PE10 V PE13

	yes, always PE10	%	yes, mostly PE10	%	rarely PE10	%	never PE10	%	total resp. PE10
H1	15	54%	9	32%	0	0%	4	14%	28
H2	29	71%	10	24%	0	0%	2	5%	41
H3	17	74%	3	13%	0	0%	3	13%	23
HB TOTAL	61	66%	22	24%	0	0%	9	10%	92
Wales		76%		19%		1%		3%	631

NOT DONE IN 2013 as PATIENTS DO NOT SEE THE MENU (THEY ARE TOLD VERBALLY). Q 8b/10b GAVE RELEVANT INFO

Q. 8b/10b: did you recognise the food options on the menu? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp. PE10	total resp. PE13
H1W1			6	86%			1	14%				0%				0%		7
H1W2			13	100%				0%				0%				0%		13
H1W3			8	67%			2	17%			2	17%				0%		12
H1 total	13	52%	27	84%	7	28%	3	9%	1	4%	2	6%	4	16%	0	0%	25	32
H2W1			7	64%			4	36%				0%				0%		11
H2W2			8	80%			2	20%				0%				0%		10
H2W3			10	71%			4	29%				0%				0%		14
H2 total	28	68%	25	71%	11	27%	10	29%	0	0%	0	0%	2	5%	0	0%	41	35
H3W1			7	70%			2	20%			1	10%				0%		10
H3W2			8	67%			2	17%				0%			2	17%		12
H3W3			2	33%			4	67%				0%				0%		6
H3 total	19	79%	17	61%	2	8%	8	29%	2	8%	1	4%	1	4%	2	7%	24	28
HB TOTAL	60	67%	69	73%	20	22%	21	22%	3	3%	3	3%	7	8%	2	2%	90	95
Wales		74%				21%				3%				2%			609	

Q. 8c/10c: was there enough choice on the menu? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp. PE10	total resp. PE13
H1W1			2	29%			3	43%				0%			2	29%		7
H1W2			8	62%			5	38%				0%				0%		13
H1W3			5	42%			4	33%			1	8%			2	17%		12
H1 total	4	15%	15	47%	9	33%	12	38%	6	22%	1	3%	8	30%	4	13%	27	32
H2W1			7	64%			3	27%			1	9%				0%		11
H2W2			5	50%			4	40%				0%			1	10%		10
H2W3			7	47%			5	33%			1	7%			2	13%		15
H2 total	13	33%	19	53%	8	20%	12	33%	15	38%	2	6%	4	10%	3	8%	40	36
H3W1			6	50%			5	42%			1	8%				0%		12
H3W2			7	54%			3	23%			2	15%			1	8%		13
H3W3			2	33%				0%			3	50%			1	17%		6
H3 total	10	43%	15	48%	8	35%	8	26%	2	9%	6	19%	3	13%	2	6%	23	31
HB TOTAL	27	30%	49	49%	25	28%	32	32%	23	26%	9	9%	15	17%	9	9%	90	99
Wales		46%				27%				18%				9%			621	

Q. 8d/10d: were you able to choose your portion size? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp. PE10	total resp. PE13
H1W1			1	14%			1	14%				0%			5	71%		7
H1W2			2	15%			1	8%			1	8%			9	69%		13
H1W3			1	9%				0%				0%			10	91%		11
H1 total	4	15%	4	13%	5	19%	2	6%	1	4%	1	3%	17	63%	24	77%	27	31
H2W1			1	9%			2	18%				0%			8	73%		11
H2W2			6	60%				0%				0%			4	40%		10
H2W3			5	36%			1	7%			1	7%			7	50%		14
H2 total	11	28%	12	34%	9	23%	3	9%	2	5%	1	3%	17	44%	19	54%	39	35
H3W1			5	42%			4	33%			1	8%			2	17%		12
H3W2			7	58%			2	17%			1	8%			2	17%		12
H3W3			3	60%				0%				0%			2	40%		5
H3 total	11	48%	15	52%	5	22%	6	21%	3	13%	2	7%	4	17%	6	21%	23	29
HB TOTAL	26	29%	31	33%	19	21%	11	12%	6	7%	4	4%	38	43%	49	52%	89	95
Wales		46%				19%				8%				27%			623	

Q. 9/11: did the menu change often enough PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	not in hospital long enough to tell PE10	%	not in hospital long enough to tell PE13	%	total resp. PE10	total resp. PE13
H1W1			1	14%				0%			4	57%				0%			2	29%		7
H1W2			3	23%			2	15%				0%				0%			8	62%		13
H1W3			3	27%			2	18%			3	27%			1	9%			2	18%		11
H1 total	2	6%	7	23%	16	52%	4	13%	3	10%	7	23%	2	6%	1	3%	8	26%	12	39%	31	31
H2W1			3	25%			2	17%				0%				0%			7	58%		12
H2W2			5	50%			3	30%				0%			1	10%			1	10%		10
H2W3			4	27%			2	13%			2	13%			2	13%			5	33%		15
H2 total	8	18%	12	32%	22	50%	7	19%	3	7%	2	5%	3	7%	3	8%	8	18%	13	35%	44	37
H3W1			1	8%			6	46%			2	15%			1	8%			3	23%		13
H3W2			3	21%			4	29%			2	14%			2	14%			3	21%		14
H3W3			1	17%			1	17%			1	17%			3	50%				0%		6
H3 total	7	28%	5	15%	7	28%	11	33%	4	16%	5	15%	1	4%	6	18%	1	4%	6	18%	25	33
HB TOTAL	17	17%	24	24%	45	45%	22	22%	10	10%	14	14%	6	6%	10	10%	6	6%	31	31%	100	101
Wales		29%				39%				12%				5%				15%			670	

Taken from Q9. did the menu change enough?- answers from those who were in hospital for long enough to tell

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			1	20%				0%			4	80%				0%		5
H1W2			3	60%			2	40%				0%				0%		5
H1W3			3	33%			2	22%			3	33%			1	11%		9
H1 total	2	9%	7	37%	16	70%	4	21%	3	13%	7	37%	2	9%	1	5%	23	19
H2W1			3	60%			2	40%				0%				0%		5
H2W2			5	56%			3	33%				0%			1	11%		9
H2W3			4	40%			2	20%			2	20%			2	20%		10
H2 total	8	22%	12	50%	22	61%	7	29%	3	8%	2	8%	3	8%	3	13%	36	24
H3W1			1	10%			6	60%			2	20%			1	10%		10
H3W2			3	27%			4	36%			2	18%			2	18%		11
H3W3			1	17%			1	17%			1	17%			3	50%		6
H3 total	7	37%	5	19%	7	37%	11	41%	4	21%	5	19%	1	5%	6	22%	19	27
HB TOTAL	17	22%	24	34%	45	58%	22	31%	10	13%	14	20%	6	8%	10	14%	78	70
Wales		30%				50%				10%				10%			570	

Q.10/12: was there enough menu choice to suit your religious beliefs? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	no relig. belief which req. a spec. diet PE10	%	no relig. belief which req. a spec. diet PE13	%	total resp PE10	total resp PE13	
H1W1				0%				0%				0%				0%			7	100%		7	
H1W2				0%				0%				0%				0%			13	100%		13	
H1W3				0%				0%				0%				0%			12	100%		12	
H1 total	5	15%	0	0%	3	9%	0	0%	0	0%	0	0%	2	6%	0	0%			23	70%	32	100%	33
H2W1			1	8%			1	8%				0%				0%			10	83%		12	
H2W2				0%				0%				0%				0%			10	100%		10	
H2W3				0%				0%				0%				0%			15	100%		15	
H2 total	13	31%	1	3%	2	5%	1	3%	0	0%	0	0%	3	7%	0	0%			24	57%	35	95%	42
H3W1				0%			1	9%			1	9%				0%			9	82%		11	
H3W2				0%				0%				0%				0%			15	100%		15	
H3W3				0%				0%				0%				0%			6	100%		6	
H3 total	6	20%	0	0%	2	7%	1	3%	1	3%	1	3%	1	3%	0	0%			20	67%	30	94%	30
HB TOTAL	24	23%	1	1%	7	7%	2	2%	1	1%	1	1%	6	6%	0	0%			67	64%	97	96%	105
Wales		24%				6%				1%				3%					65%		658		

Q.11/13: If you are a vegetarian or vegan, was there enough choice to meet your needs PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	am not a veg. or vegan PE10	%	am not a veg. or vegan PE13	%	total resp PE10	total resp PE13
H1W1				0%				0%			1	14%				0%			6	86%		7
H1W2				0%				0%								0%			13	100%		13
H1W3				0%				0%								0%			12	100%		12
H1 total	0	0%	0	0%	1	4%	0	0%	1	4%	1	3%	3	11%	0	0%	23	82%	31	97%	28	32
H2W1				0%			1	9%								0%			10	91%		11
H2W2				0%				0%								0%			10	100%		10
H2W3				0%				0%								0%			15	100%		15
H2 total	1	2%	0	0%	3	7%	1	3%	4	9%	0	0%	1	2%	0	0%	36	80%	35	97%	45	36
H3W1			1	8%				0%								0%			11	92%		12
H3W2				0%			1	7%								0%			14	93%		15
H3W3				0%				0%								0%			6	100%		6
H3 total	3	11%	1	3%	1	4%	1	3%	0	0%	0	0%	1	4%	0	0%	23	82%	31	94%	28	33
HB TOTAL	4	4%	1	1%	5	5%	2	2%	5	5%	1	1%	5	5%	0	0%	82	81%	97	96%	101	101
Wales		4%				4%				3%				3%				86%			628	

Q.12/14: If you have a food allergy, was there enough choice to meet your needs? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	do not have food all. PE10	%	do not have food all. PE13	%	total resp PE10	total resp PE13
H1W1				0%			1	14%								0%			6	86%		7
H1W2				0%				0%								0%			13	100%		13
H1W3			1	8%				0%								0%			11	92%		12
H1 total		0%	1	3%	2	7%	1	3%	1	4%	0	0%	3	11%	0	0%	22	79%	30	94%	28	32
H2W1				0%			1	9%								0%			10	91%		11
H2W2				0%				0%								0%			10	100%		10
H2W3				0%				0%								0%			15	100%		15
H2 total	2	5%	0	0%	2	5%	1	3%	1	2%	0	0%	1	2%	0	0%	38	86%	35	97%	44	36
H3W1			1	8%				0%								0%			11	92%		12
H3W2			1	7%				0%								0%			14	93%		15
H3W3			1	17%				0%								0%			5	83%		6
H3 total	4	14%	3	9%	2	7%	0	0%	0	0%	0	0%	0	0%	0	0%	22	79%	30	91%	28	33
HB TOTAL	6	6%	4	4%	6	6%	2	2%	2	2%	0	0%	4	4%	0	0%	82	82%	95	94%	100	101
Wales		7%				5%				2%				2%				84%			630	

Q.15/17. Are you able to wash your hands before you eat your food? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			6	86%			1	14%				0%				0%		7
H1W2			8	62%			2	15%			1	8%			2	15%		13
H1W3			10	91%				0%			1	9%				0%		11
H1 total	16	47%	24	77%	10	29%	3	10%	4	12%	2	6%	4	12%	2	6%	34	31
H2W1			11	92%			1	8%				0%				0%		12
H2W2			7	70%			1	10%				0%			2	20%		10
H2W3			14	93%				0%				0%			1	7%		15
H2 total	30	64%	32	86%	8	17%	2	5%	5	11%	0	0%	4	9%	3	8%	47	37
H3W1			6	46%			5	38%				0%			2	15%		13
H3W2			15	100%				0%				0%				0%		15
H3W3			3	50%			1	17%				0%			2	33%		6
H3 total	17	61%	24	71%	7	25%	6	18%	4	14%	0	0%	0	0%	4	12%	28	34
HB TOTAL	63	58%	80	78%	25	23%	11	11%	13	12%	2	2%	8	7%	9	9%	109	102
Wales		65%				19%				8%				8%			685	

Q.16/18. Does a member of staff help you to get comfortable? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	I do not need help to get comfortable PE10	%	I do not need help to get comfortable PE13	%	total resp PE10	total resp PE13
H1W1			1	14%				0%				0%				0%			6	86%		7
H1W2			1	8%			2	15%				0%				0%			10	77%		13
H1W3			1	8%			1	8%				0%				0%			10	83%		12
H1 total	5	15%	3	9%	9	27%	3	9%	2	6%	0	0%	7	21%	0	0%	10	30%	26	81%	33	32
H2W1			3	25%			1	8%				0%				0%			8	67%		12
H2W2				0%			3	30%			1	10%				0%			6	60%		10
H2W3			1	7%			1	7%			1	7%				0%			12	80%		15
H2 total	13	28%	4	11%	4	9%	5	14%	6	13%	2	5%	4	9%	0	0%	19	41%	26	70%	46	37
H3W1			2	15%			4	31%			1	8%				0%			6	46%		13
H3W2			4	27%			2	13%				0%				0%			9	60%		15
H3W3			1	17%				0%				0%				0%			5	83%		6
H3 total	8	29%	7	21%	5	18%	6	18%	1	4%	1	3%	3	11%	0	0%	11	39%	20	59%	28	34
HB TOTAL	26	24%	14	14%	18	17%	14	14%	9	8%	3	3%	14	13%	0	0%	40	37%	72	70%	107	103
Wales		28%				19%				7%				9%			36%				677	

Q.17/19. Where do you eat most of your meals?

Site	in bed PE10	%	in bed PE13	%	in chair by bed PE10	%	in chair by bed PE13	%	communal dining area PE10	%	communal dining area PE13	%	other PE10	%	other PE13	%	total resp PE10	total resp PE13
H1W1			4	57%			3	43%				0%				0%		7
H1W2			6	46%			7	54%				0%				0%		13
H1W3			6	50%			6	50%				0%				0%		12
H1 total	13	38%	16	50%	21	62%	16	50%	0	0%	0	0%	0	0%	0	0%	34	32
H2W1			8	67%			4	33%				0%				0%		12
H2W2			1	10%			9	90%				0%				0%		10
H2W3			3	20%			12	80%				0%				0%		15
H2 total	16	35%	12	32%	29	63%	25	68%	0	0%	0	0%	1	2%	0	0%	46	37
H3W1			2	15%			10	77%			1	8%				0%		13
H3W2			4	27%			11	73%				0%				0%		15
H3W3			1	17%			5	83%				0%				0%		6
H3 total	5	17%	7	21%	24	83%	26	76%	0	0%	1	3%	0	0%	0	0%	29	34
HB TOTAL	34	31%	35	34%	74	68%	67	65%	0	0%	1	1%	1	1%	0	0%	109	103
Wales		68%				3%				28%				1%			689	

Q. 18/20. Is the area where you eat your food clean and tidy? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	sometimes PE10	%	sometimes PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			7	100%				0%				0%				0%		7
H1W2			12	92%			1	8%				0%				0%		13
H1W3			9	75%			3	25%				0%				0%		12
H1 total	13	38%	28	88%	16	47%	4	13%	3	9%	0	0%	2	6%	0	0%	34	32
H2W1			9	75%			2	17%			1	8%				0%		12
H2W2			10	100%				0%				0%				0%		10
H2W3			11	73%			3	20%			1	7%				0%		15
H2 total	33	70%	30	81%	13	28%	5	14%	0	0%	2	5%	1	2%	0	0%	47	37
H3W1			8	67%			4	33%				0%				0%		12
H3W2			14	93%			1	7%				0%				0%		15
H3W3			6	100%				0%				0%				0%		6
H3 total	19	66%	28	85%	9	31%	5	15%	1	3%	0	0%	0	0%	0	0%	29	33
HB TOTAL	65	59%	86	84%	38	35%	14	14%	4	4%	2	2%	3	3%	0	0%	110	102
Wales		70%				25%				5%				1%			687	

Q. 19/21: if you need eating aids, have you been provided with them? (for example special cutlery or non slip mats etc.)

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	do not need them PE10	%	do not need them PE13	%	total resp PE10	total resp PE13
H1W1				0%				0%				0%				0%			7	100%		7
H1W2				0%				0%				0%				0%			13	100%		13
H1W3				0%				0%				0%				0%			12	100%		12
H1 total	2	6%	0	0%	2	6%	0	0%	0	0%	0	0%	1	3%	0	0%	29	85%	32	100%	34	32
H2W1				0%				0%				0%				0%			12	100%		12
H2W2				0%				0%				0%		1	11%				8	89%		9
H2W3				0%				0%				0%				0%			15	100%		15
H2 total	4	9%	0	0%	3	7%	0	0%	0	0%	0	0%	2	5%	1	3%	35	80%	35	97%	44	36
H3W1				0%				0%				0%				0%			11	100%		11
H3W2				0%				0%				0%				0%			15	100%		15
H3W3				0%				0%				0%				0%			6	100%		6
H3 total	3	10%	0	0%	1	3%	0	0%	0	0%	0	0%	1	3%	0	0%	25	83%	32	100%	30	32
HB TOTAL	9	8%	0	0%	6	6%	0	0%	0	0%	0	0%	4	4%	1	1%	89	82%	99	99%	108	100
Wales		6%				5%				1%				4%				83%			671	

Q 20/22: If you need help when eating, are you given it? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	do not need help PE10	%	do not need help PE13	%	total resp PE10	total resp PE13
H1W1			2	29%			1	14%				0%				0%			4	57%		7
H1W2			2	15%				0%				0%				0%			11	85%		13
H1W3				0%				0%				0%				0%			12	100%		12
H1 total	3	9%	4	13%	1	3%	1	3%	0	0%	0	0%	1	3%	0	0%	29	85%	27	84%	34	32
H2W1			1	8%				0%				0%				0%			11	92%		12
H2W2				0%			1	10%				0%				0%			9	90%		10
H2W3			1	7%				0%			1	7%				0%			13	87%		15
H2 total	5	11%	2	5%	0	0%	1	3%	2	4%	1	3%	1	2%	0	0%	37	82%	33	89%	45	37
H3W1				0%				0%				0%				0%			11	100%		11
H3W2			2	13%				0%				0%				0%			13	87%		15
H3W3				0%				0%			1	17%				0%			5	83%		6
H3 total	3	10%	2	6%	2	7%	0	0%	0	0%	1	3%	1	3%	0	0%	24	80%	29	91%	30	32
HB TOTAL	11	10%	8	8%	3	3%	2	2%	2	2%	2	2%	3	3%	0	0%	90	83%	89	88%	109	101
Wales		9%				5%				2%			2					82%			667	

Q. 21/23: If somebody helps you to eat your food, who is it? PE10 V PE13

Site	family member PE10	%	family member PE13	%	friend PE10	%	friend PE13	%	carer/volunteer PE10	%	carer/volunteer PE13	%	nurse PE10	%	nurse PE13	%	do not need help PE10	%	do not need help PE13	%	total resp PE10	total resp PE13
H1W1			1	14%				0%				0%			2	29%			4	57%		7
H1W2				0%				0%				0%			2	15%			11	85%		13
H1W3				0%				0%				0%				0%			12	100%		12
H1 total	2	6%	1	3%	0	0%	0	0%	0	0%	0	0%	1	3%	4	13%	31	91%	27	84%	34	32
H2W1				0%				0%				0%			1	8%			11	92%		12
H2W2				0%				0%				0%			1	11%			8	89%		9
H2W3				0%				0%				0%			2	13%			13	87%		15
H2 total	1	2%	0	0%	0	0%	0	0%	0	0%	0	0%	2	5%	4	11%	39	93%	32	89%	42	36
H3W1				0%				0%				0%				0%			11	100%		11
H3W2				0%				0%				0%			2	13%			13	87%		15
H3W3				0%				0%				0%			1	17%			5	83%		6
H3 total	0	0%	0	0%	0	0%	0	0%	1	4%	0	0%	3	11%	3	9%	24	86%	29	91%	28	32
HB TOTAL	3	3%	1	1%	0	0%	0	0%	1	1%	0	0%	6	6%	11	11%	94	90%	88	88%	104	100
Wales		5%				1%				1%				6%				87%			657	

Q. 22/24: If someone helps you to eat, is this soon enough after your food has arrived? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	do not need help PE10	%	do not need help PE13	%	total resp PE10	total resp PE13
H1W1			3	43%				0%				0%				0%			4	57%		7
H1W2			2	15%				0%				0%				0%			11	85%		13
H1W3				0%				0%				0%				0%			12	100%		12
H1 total	2	6%	5	16%	0	0%	0	0%	0	0%	0	0%	1	3%	0	0%	31	91%	27	84%	34	32
H2W1			1	8%				0%				0%				0%			11	92%		12
H2W2			1	11%				0%				0%				0%			8	89%		9
H2W3			2	13%				0%				0%				0%			13	87%		15
H2 total	3	7%	4	11%	0	0%	0	0%	0	0%	0	0%	1	2%	0	0%	37	90%	32	89%	41	36
H3W1				0%				0%				0%				0%			11	100%		11
H3W2			2	14%				0%				0%				0%			12	86%		14
H3W3				0%				0%				0%			1	17%			5	83%		6
H3 total	2	7%	2	6%	3	11%	0	0%	0	0%	0	0%	0	0%	1	3%	23	82%	28	90%	28	31
HB TOTAL	7	7%	11	11%	3	3%	0	0%	0	0%	0	0%	2	2%	1	1%	91	88%	87	88%	103	99
Wales		7%				5%				2%				1%				85%			658	

Q. 23a/25a: Are you happy with the time your meals are served?

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			5	71%			1	14%							1	14%		7
H1W2			9	69%			3	23%			1	8%				0%		13
H1W3			7	58%			4	33%			1	8%				0%		12
H1 total	13	38%	21	66%	17	50%	8	25%	3	9%	2	6%	1	3%	1	3%	34	32
H2W1			8	67%			4	33%								0%		12
H2W2			5	50%			5	50%								0%		10
H2W3			9	60%			5	33%			1	7%				0%		15
H2 total	30	65%	22	59%	14	30%	14	38%	1	2%	1	3%	1	2%	0	0%	46	37
H3W1			7	64%			4	36%								0%		11
H3W2			10	67%			3	20%			2	13%				0%		15
H3W3			2	33%			2	33%			1	17%			1	17%		6
H3 total	17	59%	19	59%	9	31%	9	28%	0	0%	3	9%	3	10%	1	3%	29	32
HB TOTAL	60	55%	62	61%	40	37%	31	31%	4	4%	6	6%	5	5%	2	2%	109	101
Wales		59%				34%				4%				2%			685	

Q. 23b/25b: Are your meals free from disturbance by nurses or doctors treating or assessing you? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			7	100%				0%					0%			0%		7
H1W2			12	92%			1	8%					0%			0%		13
H1W3			8	73%			1	9%			1	9%			1	9%		11
H1 total	17	50%	27	87%	14	41%	2	6%	3	9%	1	3%	0	0%	1	3%	34	31
H2W1			7	58%			5	42%					0%			0%		12
H2W2			7	78%			2	22%					0%			0%		9
H2W3			7	47%			7	47%			1	7%				0%		15
H2 total	23	50%	21	58%	18	39%	14	39%	4	9%	1	3%	1	2%	0	0%	46	36
H3W1			5	45%			5	45%			1	9%				0%		11
H3W2			7	47%			6	40%			2	13%				0%		15
H3W3			2	33%			4	67%				0%				0%		6
H3 total	12	41%	14	44%	12	41%	15	47%	3	10%	3	9%	2	7%	0	0%	29	32
HB TOTAL	52	48%	62	63%	44	40%	31	31%	10	9%	5	5%	3	3%	1	1%	109	99
Wales		50%				38%				9%				3%			672	

Q. 23c/25c: Are you given enough time to finish your meal? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			7	100%				0%				0%				0%		7
H1W2			13	100%				0%				0%				0%		13
H1W3			11	92%			1	8%				0%				0%		12
H1 total	22	65%	31	97%	8	24%	1	3%	3	9%	0	0%	1	3%	0	0%	34	32
H2W1			11	92%			1	8%				0%				0%		12
H2W2			10	100%				0%				0%				0%		10
H2W3			14	93%			1	7%				0%				0%		15
H2 total	36	78%	35	95%	7	15%	2	5%	3	7%	0	0%	0	0%	0	0%	46	37
H3W1			10	91%			1	9%				0%				0%		11
H3W2			14	93%			1	7%				0%				0%		15
H3W3			5	83%			1	17%				0%				0%		6
H3 total	24	77%	29	91%	5	16%	3	9%	1	3%	0	0%	1	3%	0	0%	31	32
HB TOTAL	82	74%	95	94%	20	18%	6	6%	7	6%	0	0%	2	2%	0	0%	111	101
Wales		76%				21%				3%				0%			680	

Q. 23d/25d: If you miss a meal is a replacement provided? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			1	100%				0%				0%				0%		1
H1W2			1	50%				0%				0%			1	50%		2
H1W3			2	67%			1	33%				0%				0%		3
H1 total	4	16%	4	67%	9	36%	1	17%	5	20%	0	0%	7	28%	1	17%	25	6
H2W1			2	50%				0%			1	25%			1	25%		4
H2W2			1	100%				0%				0%				0%		1
H2W3			1	100%				0%				0%				0%		1
H2 total	17	47%	4	67%	10	28%	0	0%	4	11%	1	17%	5	14%	1	17%	36	6
H3W1			4	80%			1	20%				0%				0%		5
H3W2			2	50%			2	50%				0%				0%		4
H3W3				0%			1	100%				0%				0%		1
H3 total	10	43%	6	60%	9	39%	4	40%	0	0%	0	0%	4	17%	0	0%	23	10
HB TOTAL	31	37%	14	64%	28	33%	5	23%	9	11%	1	5%	16	19%	2	9%	84	22
Wales		55%				25%				11%				9%			583	

Q. 23e/25e: Do you always get the meal you have ordered? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			6	100%				0%				0%				0%		6
H1W2			12	92%			1	8%				0%				0%		13
H1W3			10	91%			1	9%				0%				0%		11
H1 total	8	29%	28	93%	12	43%	2	7%	3	11%	0	0%	5	18%	0	0%	28	30
H2W1			10	83%			2	17%				0%				0%		12
H2W2			8	89%			1	11%				0%				0%		9
H2W3			11	79%			2	14%			1	7%				0%		14
H2 total	27	60%	29	83%	14	31%	5	14%	1	2%	1	3%	3	7%	0	0%	45	35
H3W1			7	78%			2	22%				0%				0%		9
H3W2			10	77%			1	8%			1	8%			1	8%		13
H3W3			2	40%			3	60%				0%				0%		5
H3 total	12	57%	19	70%	6	29%	6	22%	1	5%	1	4%	2	10%	1	4%	21	27
HB TOTAL	47	50%	76	83%	32	34%	13	14%	5	5%	2	2%	10	11%	1	1%	94	92
Wales		56%				34%				5%				4%			641	

Q. 23f/25f: If fresh fruit available? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1				0%				0%			3	43%			4	57%		7
H1W2			1	8%				0%				0%			12	92%		13
H1W3				0%			1	8%				0%			11	92%		12
H1 total	2	7%	1	3%	4	14%	1	3%	14	48%	3	9%	9	31%	27	84%	29	32
H2W1			1	8%			1	8%			1	8%			9	75%		12
H2W2				0%				0%			2	22%			7	78%		9
H2W3				0%				0%			3	23%			10	77%		13
H2 total	12	27%	1	3%	7	16%	1	3%	10	23%	6	18%	15	34%	26	76%	44	34
H3W1			1	13%			3	38%			2	25%			2	25%		8
H3W2				0%			1	7%			3	21%			10	71%		14
H3W3			1	17%				0%				0%			5	83%		6
H3 total	11	46%	2	7%	7	29%	4	14%	2	8%	5	18%	4	17%	17	61%	24	28
HB TOTAL	25	26%	4	4%	18	19%	6	6%	26	27%	14	15%	28	29%	70	74%	97	94
Wales		51%				22%				16%				11%			651	

Q. 23g/25g: are drinks available between meal times?

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13	
H1W1			7	100%				0%					0%				0%		7
H1W2			7	54%			5	38%					0%		1	8%			13
H1W3			9	82%			1	9%					0%		1	9%			11
H1 total	12	36%	23	74%	13	39%	6	19%	4	12%	0	0%	4	12%	2	6%	33	31	
H2W1			12	100%				0%					0%				0%		12
H2W2			8	80%			1	10%					0%		1	10%			10
H2W3			12	92%			1	8%					0%				0%		13
H2 total	28	62%	32	91%	12	27%	2	6%	4	9%	0	0%	1	2%	1	3%	45	35	
H3W1			7	70%			3	30%					0%				0%		10
H3W2			14	93%				0%					0%		1	7%			15
H3W3			2	33%			3	50%			1	17%					0%		6
H3 total	19	68%	23	74%	8	29%	6	19%	0	0%	1	3%	1	4%	1	3%	28	31	
HB TOTAL	59	56%	78	80%	33	31%	14	14%	8	8%	1	1%	6	6%	4	4%	106	97	
Wales		69%				21%				7%						3%			665

Q. 23h/25h: are snacks available between meal times? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13	
H1W1				0%				0%				0%			7	100%			7
H1W2				0%				0%				0%			13	100%			13
H1W3				0%			1	8%			3	25%			8	67%			12
H1 total	2	6%	0	0%	1	3%	1	3%	5	16%	3	9%	23	74%	28	88%	31	32	
H2W1			1	9%				0%				0%			10	91%			11
H2W2				0%				0%				0%			9	100%			9
H2W3			1	7%				0%				0%			13	93%			14
H2 total	2	5%	2	6%	4	11%	0	0%	11	29%	0	0%	21	55%	32	94%	38	34	
H3W1				0%			1	13%			1	13%			6	75%			8
H3W2			1	7%			4	27%			2	13%			8	53%			15
H3W3				0%				0%			1	17%			5	83%			6
H3 total	7	32%	1	3%	2	9%	5	17%	10	45%	4	14%	3	14%	19	66%	22	29	
HB TOTAL	11	12%	3	3%	7	8%	6	6%	26	29%	7	7%	47	52%	79	83%	91	95	
Wales		23%				15%				26%				35%					615

Q. 23i/25i: Is fresh water available between meals? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			7	100%				0%				0%				0%		7
H1W2			13	100%				0%				0%				0%		13
H1W3			11	92%			1	8%				0%				0%		12
H1 total	26	76%	31	97%	7	21%	1	3%	1	3%	0	0%	0	0%	0	0%	34	32
H2W1			11	100%				0%				0%				0%		11
H2W2			9	90%			1	10%				0%				0%		10
H2W3			15	100%				0%				0%				0%		15
H2 total	37	79%	35	97%	10	21%	1	3%	0	0%	0	0%	0	0%	0	0%	47	36
H3W1			9	90%			1	10%				0%				0%		10
H3W2			15	100%				0%				0%				0%		15
H3W3			2	33%			3	50%			1	17%				0%		6
H3 total	27	93%	26	84%	1	3%	4	13%	0	0%	1	3%	1	3%	0	0%	29	31
HB TOTAL	90	82%	92	93%	18	16%	6	6%	1	1%	1	1%	1	1%	0	0%	110	99
Wales		85%				13%				13%				1%			673	

Q. 23j/25j: Is your food at the temperature you would expect? PE10 V PE13

Site	yes, always PE10	%	yes, always PE13	%	yes, mostly PE10	%	yes, mostly PE13	%	rarely PE10	%	rarely PE13	%	never PE10	%	never PE13	%	total resp PE10	total resp PE13
H1W1			5	71%			1	14%			1	14%				0%		7
H1W2			11	85%			2	15%				0%				0%		13
H1W3			5	42%			4	33%			2	17%			1	8%		12
H1 total	11	32%	21	66%	9	26%	7	22%	8	24%	3	9%	6	18%	1	3%	34	32
H2W1			10	83%			1	8%			1	8%				0%		12
H2W2			8	80%			2	20%				0%				0%		10
H2W3			9	60%			6	40%				0%				0%		15
H2 total	28	61%	27	73%	13	28%	9	24%	2	4%	1	3%	3	7%	0	0%	46	37
H3W1			4	40%			4	40%			1	10%			1	10%		10
H3W2			9	60%			3	20%			3	20%				0%		15
H3W3			1	17%			3	50%				0%			2	33%		6
H3 total	20	69%	14	45%	5	17%	10	32%	2	7%	4	13%	2	7%	3	10%	29	31
HB TOTAL	59	54%	62	62%	27	25%	26	26%	12	11%	8	8%	11	10%	4	4%	109	100
Wales		53%				30%				10%				7%			677	

Q. 24/26: Are you given enough food to eat?

Site	yes, too much PE10	%	yes, too much PE13	%	yes PE10	%	yes PE13	%	no, not enough PE10	%	no, not enough PE13	%	total resp PE10	total resp PE13
H1W1			1	14%			5	71%			1	14%		7
H1W2			4	31%			9	69%				0%		13
H1W3			5	45%			6	55%				0%		11
H1 total	1	3%	10	32%	24	73%	20	65%	8	24%	1	3%	33	31
H2W1			1	9%			10	91%				0%		11
H2W2			4	40%			6	60%				0%		10
H2W3			5	33%			8	53%			2	13%		15
H2 total	5	11%	10	28%	31	66%	24	67%	11	23%	2	6%	47	36
H3W1				0%			11	100%				0%		11
H3W2			5	33%			10	67%				0%		15
H3W3				0%			4	67%			2	33%		6
H3 total	6	20%	5	16%	20	67%	25	78%	4	13%	2	6%	30	32
HB TOTAL	12	11%	25	25%	75	68%	69	70%	23	21%	5	5%	110	99
Wales		14%				73%				13%			681	

Q. 25a/27a: How would you rate the taste of the food you have been given? PE10 V PE13

Site	excellent PE10	%	excellent PE13	%	good PE10	%	good PE13	%	acceptable PE10	%	acceptable PE13	%	poor PE10	%	poor PE13	%	very poor PE10	%	very poor PE13	%	total resp PE10	total resp PE13
H1W1			4	57%				0%			2	29%			1	14%				0%		7
H1W2			4	31%			3	23%			6	46%								0%		13
H1W3			3	25%			5	42%			3	25%			1	8%				0%		12
H1 total	1	3%	11	34%	5	15%	8	25%	10	29%	11	34%	9	26%	2	6%	9	26%	0	0%	34	32
H2W1			4	33%			3	25%			5	42%								0%		12
H2W2			3	30%			1	10%			5	50%							1	10%		10
H2W3			1	7%			7	47%			6	40%			1	7%				0%		15
H2 total	9	20%	8	22%	15	33%	11	30%	11	24%	16	43%	4	9%	1	3%	6	13%	1	3%	45	37
H3W1			2	14%			6	43%			5	36%			1	7%				0%		14
H3W2			4	27%			4	27%			1	7%			6	40%				0%		15
H3W3			1	17%				0%			3	50%			2	33%				0%		6
H3 total	2	7%	7	20%	11	37%	10	29%	12	40%	9	26%	3	10%	9	26%	2	7%	0	0%	30	35
HB TOTAL	12	11%	26	25%	31	28%	29	28%	33	30%	36	35%	16	15%	12	12%	17	16%	1	1%	109	104
Wales		17%				37%				28%				11%				6%			678	

Q. 25b/27b: How would you rate the appearance of the food you have been given? PE10 V PE13

Site	excellent PE10	%	excellent PE13	%	good PE10	%	good PE13	%	acceptable PE10	%	acceptable PE13	%	poor PE10	%	poor PE13	%	very poor PE10	%	very poor PE13	%	total resp PE10	total resp PE13
H1W1				0%			4	57%			1	14%			2	29%				0%		7
H1W2			2	15%			5	38%			5	38%			1	8%				0%		13
H1W3			2	17%			5	42%			3	25%			2	17%				0%		12
H1 total	2	6%	4	13%	3	9%	14	44%	12	36%	9	28%	6	18%	5	16%	10	30%	0	0%	33	32
H2W1			2	20%			4	40%			3	30%			1	10%				0%		10
H2W2			4	40%			3	30%			3	30%				0%				0%		10
H2W3			2	13%			5	33%			8	53%				0%				0%		15
H2 total	8	19%	8	23%	17	40%	12	34%	9	21%	14	40%	4	9%	1	3%	5	12%	0	0%	43	35
H3W1			3	23%			6	46%			4	31%				0%				0%		13
H3W2			5	33%			5	33%			3	20%			1	7%			1	7%		15
H3W3			1	17%				0%			4	67%				0%			1	17%		6
H3 total	2	7%	9	26%	12	41%	11	32%	10	34%	11	32%	2	7%	1	3%	3	10%	2	6%	29	34
HB TOTAL	12	11%	21	21%	32	30%	37	37%	31	30%	34	34%	12	11%	7	7%	18	17%	2	2%	105	101
Wales		17%				39%				28%				9%				7%			667	

Q. 25c/27c: How would you rate the healthiness of the food you have been given? PE10 V PE13

Site	excellent PE10	%	excellent PE13	%	good PE10	%	good PE13	%	acceptable PE10	%	acceptable PE13	%	poor PE10	%	poor PE13	%	very poor PE10	%	very poor PE13	%	total resp PE10	total resp PE13
H1W1			2	29%			2	29%			3	43%				0%				0%		7
H1W2			2	17%			6	50%			2	17%			2	17%				0%		12
H1W3			1	8%			5	42%			3	25%			2	17%			1	8%		12
H1 total	1	3%	5	16%	5	15%	13	42%	13	38%	8	26%	8	24%	4	13%	7	21%	1	3%	34	31
H2W1			5	42%			2	17%			5	42%				0%				0%		12
H2W2			2	20%			7	70%			1	10%				0%				0%		10
H2W3				0%			7	47%			6	40%			2	13%				0%		15
H2 total	8	18%	7	19%	15	34%	16	43%	12	27%	12	32%	4	9%	2	5%	5	11%	0	0%	44	37
H3W1			3	25%			7	58%			1	8%			1	8%				0%		12
H3W2			4	27%			5	33%			4	27%			1	7%			1	7%		15
H3W3			1	17%				0%			3	50%			2	33%				0%		6
H3 total	6	20%	8	24%	9	30%	12	36%	10	33%	8	24%	4	13%	4	12%	1	3%	1	3%	30	33
HB TOTAL	15	14%	20	20%	29	27%	41	41%	35	32%	28	28%	16	15%	10	10%	13	12%	2	2%	108	101
Wales		18%				39%				30%				9%				5%			667	

Q. 25d/27d: How would you rate your overall satisfaction with the food you have been received? PE10 V PE13

Site	excellent PE10	%	excellent PE13	%	good PE10	%	good PE13	%	acceptable PE10	%	acceptable PE13	%	poor PE10	%	poor PE13	%	very poor PE10	%	very poor PE13	%	total resp PE10	total resp PE13
H1W1			3	43%			2	29%				0%			1	14%			1	14%		7
H1W2			4	31%			5	38%			2	15%			1	8%			1	8%		13
H1W3			2	17%			5	42%			3	25%			1	8%			1	8%		12
H1 total	2	6%	9	28%	3	9%	12	38%	11	33%	5	16%	4	12%	3	9%	13	39%	3	9%	33	32
H2W1			7	58%				0%			4	33%			1	8%				0%		12
H2W2			4	40%			3	30%			2	20%			1	10%				0%		10
H2W3			5	33%			5	33%			4	27%			1	7%				0%		15
H2 total	8	17%	16	43%	17	37%	8	22%	11	24%	10	27%	5	11%	3	8%	5	11%	0	0%	46	37
H3W1			3	21%			6	43%			4	29%			1	7%				0%		14
H3W2			5	33%			4	27%			2	13%			3	20%			1	7%		15
H3W3			1	17%			1	17%			2	33%			1	17%			1	17%		6
H3 total	7	23%	9	26%	7	23%	11	31%	11	37%	8	23%	2	7%	5	14%	3	10%	2	6%	30	35
HB TOTAL	17	16%	34	33%	27	25%	31	30%	33	30%	23	22%	11	10%	11	11%	21	19%	5	5%	109	104
Wales		19%				37%				27%				10%				8%			665	

Appendix 24. Lasagne Questionnaire results: LSQ

Q.6 Rate the appearance of the lasagne

Site	excellent	%	good	%	acceptable	%	poor	%	very poor	%	total responses
H1W1		0%	1	50%	1	50%		0%		0%	2
H1W2		0%	5	83%	1	17%		0%		0%	6
H1W3	2	40%	2	40%		0%		0%	1	20%	5
H1 total	2	15%	8	62%	2	15%	0	0%	1	8%	13
H2W1		0%	2	100%		0%		0%		0%	2
H2W2		0%		0%	1	100%		0%		0%	1
H2W3		0%	3	75%	1	25%		0%		0%	4
H2 total	0	0%	5	71%	2	29%	0	0%	0	0%	7
H3W1		0%	3	50%	3	50%		0%		0%	6
H3W2	2	22%	6	67%	1	11%		0%		0%	9
H3W3		0%		0%	1	50%		0%	1	50%	2
H3 total	2	12%	9	53%	5	29%	0	0%	1	6%	17
HB TOTAL	4	11%	22	59%	9	24%	0	0%	2	5%	37

Q.7 Rate the texture of the lasagne

Site	excellent	%	good	%	acceptable	%	poor	%	very poor	%	total responses
H1W1		0%	1	50%	1	50%		0%		0%	2
H1W2	1	17%	2	33%	3	50%		0%		0%	6
H1W3	3	60%		0%		0%		0%	2	40%	5
H1 total	4	31%	3	23%	4	31%	0	0%	2	15%	13
H2W1	2	67%	1	33%		0%		0%		0%	3
H2W2		0%	1	100%		0%		0%		0%	1
H2W3	1	25%	3	75%		0%		0%		0%	4
H2 total	3	38%	5	63%	0	0%	0	0%	0	0%	8
H3W1		0%	3	60%	2	40%		0%		0%	5
H3W2	1	11%	6	67%	2	22%		0%		0%	9
H3W3		0%		0%		0%	2	100%		0%	2
H3 total	1	6%	9	56%	4	25%	2	13%	0	0%	16
HB TOTAL	8	22%	17	46%	8	22%	2	5%	2	5%	37

Q.8 Rate overall satisfaction with the lasagne

Site	excellent	%	good	%	acceptable	%	poor	%	very poor	%	total responses
H1W1		0%	1	50%	1	50%		0%		0%	2
H1W2	2	33%	1	17%	3	50%		0%		0%	6
H1W3	3	60%		0%		0%	1	20%	1	20%	5
H1 total	5	38%	2	15%	4	31%	1	8%	1	8%	13
H2W1	2	67%	1	33%		0%		0%		0%	3
H2W2		0%		0%	1	100%		0%		0%	1
H2W3	1	25%	3	75%		0%		0%		0%	4
H2 total	3	38%	4	50%	1	13%	0	0%	0	0%	8
H3W1	1	17%	3	50%	2	33%		0%		0%	6
H3W2	2	22%	7	78%		0%		0%		0%	9
H3W3		0%		0%		0%	1	50%	1	50%	2
H3 total	3	18%	10	59%	2	12%	1	6%	1	6%	17
HB TOTAL	11	29%	16	42%	7	18%	2	5%	2	5%	38

Q. 12 Were you offered a choice of portion size? (of lasagne)

Site	yes	%	no	%	Total responses
H1W1		0%	2	100%	2
H1W2		0%	6	100%	6
H1W3		0%	5	100%	5
H1 total	0	0%	13	100%	13
H2W1		0%	3	100%	3
H2W2		0%	1	100%	1
H2W3		0%	4	100%	4
H2 total	0	0%	8	100%	8
H3W1	3	50%	3	50%	6
H3W2	4	44%	5	56%	9
H3W3		0%	1	100%	1
H3 total	7	44%	9	56%	16
HB TOTAL	7	19%	30	81%	37

Q.13 How did the portion size suit you? (of lasagne)

Site	too little	%	just right	%	too much	%	total responses
H1W1		0%	2	100%		0%	2
H1W2		0%	5	83%	1	17%	6
H1W3	1	20%	4	80%		0%	5
H1 total	1	8%	11	85%	1	8%	13
H2W1		0%	2	67%	1	33%	3
H2W2		0%		0%	1	100%	1
H2W3	1	25%	1	25%	2	50%	4
H2 total	1	13%	3	38%	4	50%	8
H3W1		0%	5	83%	1	17%	6
H3W2		0%	7	78%	2	22%	9
H3W3		0%	2	100%		0%	2
H3 total	0	0%	14	82%	3	18%	17
HB TOTAL	2	5%	28	74%	8	21%	38

Q.16 Rate the helpfulness of staff in relation to the meal

Site	excellent	%	good	%	acceptable	%	poor	%	very poor	%	total responses
H1W1	2	100%		0%		0%		0%		0%	2
H1W2	5	83%	1	17%		0%		0%		0%	6
H1W3	2	40%	2	40%	1	20%		0%		0%	5
H1 total	9	69%	3	23%	1	8%	0	0%	0	0%	13
H2W1	3	100%		0%		0%		0%		0%	3
H2W2		0%	1	100%		0%		0%		0%	1
H2W3		0%	3	75%	1	25%		0%		0%	4
H2 total	3	38%	4	50%	1	13%	0	0%	0	0%	8
H3W1	4	67%	2	33%		0%		0%		0%	6
H3W2	6	67%	3	33%		0%		0%		0%	9
H3W3		0%	1	50%	1	50%		0%		0%	2
H3 total	10	59%	6	35%	1	6%	0	0%	0	0%	17
HB TOTAL	22	58%	13	34%	3	8%	0	0%	0	0%	38

Q.17 Rate the respectfulness of staff in relation to the meal

Site	excellent	%	good	%	acceptable	%	poor	%	very poor	%	total responses
H1W1	2	100%		0%		0%		0%		0%	2
H1W2	5	83%	1	17%		0%		0%		0%	6
H1W3	3	60%	1	20%	1	20%		0%		0%	5
H1 total	10	77%	2	15%	1	8%	0	0%	0	0%	13
H2W1	3	100%		0%		0%		0%		0%	3
H2W2		0%	1	100%		0%		0%		0%	1
H2W3		0%	4	100%		0%		0%		0%	4
H2 total	3	38%	5	63%	0	0%	0	0%	0	0%	8
H3W1	5	83%	1	17%		0%		0%		0%	6
H3W2	8	89%	1	11%		0%		0%		0%	9
H3W3		0%	2	100%		0%		0%		0%	2
H3 total	13	76%	4	24%	0	0%	0	0%	0	0%	17
HB TOTAL	26	68%	11	29%	1	3%	0	0%	0	0%	38

Appendix 25. Lasagne Plate results: LSP

Patient ID	Portion served	Plate waste	Portion eaten	Q8. Total satisfaction	Q12 Was portion size offered?	Q13 Volume
37	1.25	0	1.25	exc	no	just right
38	1.25	0	1.25	exc	no	just right
15	1.25	0	1.25	good	no	just right
16	1.25	0	1.25	good	no	just right
23	1	0	1	acc	no	just right
24	1	0	1	good	no	just right
25	1	0	1	good	no	just right
29	1	0	1	exc	no	just right
30	1	0	1	acc	no	just right
31	1	0	1	poor	no	just right
33	1	0	1	exc	no	just right
34	1	0	1	exc	no	just right
35	1	0	1	exc	no	just right
42	1	0	1	good	no	too little
43	1	0	1	exc	no	just right
1	1	0	1	good	no	just right
4	1	0	1	good	no	just right
26	1	0.25	0.75	acc	no	just right
45	1	0.25	0.75	good	no	too much
20	0.75	0	0.75	exc	no	just right
27	1	0.5	0.5	exc	no	just right
28	1	0.5	0.5	acc	no	too much
32	0.75	0.25	0.5	v poor	no	too little
36	1	0.5	0.5	good	no	too much
41	1	0.5	0.5	acc	no	too much
9	0.75	0.25	0.5	good	no	too much
44	1	0.75	0.25	good	no	too much
3	1	0.75	0.25	acc	no	too much
19	0.75	0.5	0.25	good	no	too much
22	0.5	0.25	0.25	poor	no	just right
2	1	0	1	acc	yes	just right
10	1	0	1	good	yes	just right
18	1.25	0.25	1	exc	yes	just right
5	1	0.25	0.75	good	yes	just right
6	1	0.5	0.5	exc	yes	just right
11	0.75	0.5	0.25	good	yes	just right
17	1	0.75	0.25	good	yes	just right
21	0.5	0.25	0.25	v poor		

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