Title

An ethnographic exploration of the social organisation of general practice nurses' knowledge use: more than 'mindlines'?

Abstract

Aim: To explore contextual, organisational and educational issues impacting on access to, and application of knowledge to everyday practice by general practice nurses, working in two rural primary care practices in the United Kingdom

Background: Changes in primary care healthcare delivery have resulted in substantive changes to practice nurses' roles. Practice nurses have taken on enhanced roles for which they were not prepared for in their initial training, little is known about how they access and apply knowledge.

Methods: Ethnographic methods were used to gather data

Results: Practice nurses take a blended approach to knowledge use, using elements of evidence-based practice to support professional judgement. This is subject to several contextual influences, organisational, educational and from individual patients. Tensions exist between the position in which GPNs are situated and the nature in which knowledge is disseminated and used in primary care. Whilst examples of clinical mindlines were evident, these differed to those previously observed in general practitioners, practice nurses did not always have the mindline on which to draw and used an approach to practice that resembled 'bricoleur activity'

Conclusions: The way in which general practice is structured results in variance in organisational structural arrangements for sharing and disseminating of knowledge. Despite a supportive organisational culture towards knowledge sharing, the position in which practice nurses are situated limits opportunities for discussion and reformulation of knowledge. Practice nurses are, however, prepared to adapt knowledge to meet the needs of individual patients.

Keywords: Ethnography, primary/community care, rural, mindlines, bricolage, general practice nurses.

Introduction

General practice nursing is a recognised nursing speciality for qualified nurses who work in the primary care environment, the role is predominantly recognised in the United Kingdom (UK), Australia and New Zealand and is particularly important in rural areas where access to mainstream heath care services can be limited. General practice nurses (GPNs) are subject to the unique position of being part of a multi-disciplinary team providing first contact care to patients but are also employees of the general practitioners (GPs) with whom they work.

Practice nurses have expressed feelings of powerlessness in this inter-professional arena which appear to be conditioned to some extent by traditional hierarchical training (Elston and Holloway 2001). Additionally, primary care is affected by internal and external factors that impact on the work of those within it and the access to, and use of, knowledge that drives clinical decisions. Since 2003, the main national policy influence on general practice in the UK has been the General Medical Services contract (Department of Health 2003, GMS Contract Wales 2020), in particular the Quality and Outcomes Framework (QOF) (NICE 2020a), with the financial impact associated with achieving quality targets. This policy has had a profound impact on GPN workload. Halcomb et al (2008) argue that general practice has lagged behind the acute care sector, (which has become less hierarchical and more inter-disciplinary), due to negative power relationships between the employer-employee and gender differences between the GP and nurse, as well as the funding model which privileges services delivered by the GP. Tensions exist between the position in which GPNs are situated and the nature in which knowledge is accessed and applied to patient care in the primary care environment.

The term evidence-based practice (EBP) was originally derived from "evidence-based medicine" a term proposed by Gordon Guyatt, who led an international group of clinicians formed in the 1990s to consider the results of research when treating patients (Glasziou 2011). The term was famously defined by Sackett et al (1996) as the application of best evidence to decision-making for individual patients, integrating research with clinical expertise. There are several different routes by which the principles of EBP are introduced into practice. Eddy (2005) argued that Sackett's (1996) definition addressed only one of these- evidence based individual decision-making (EBID), failing to incorporate the broader influence of roles played by guidelines, quality improvement, performance measurement and policies. He argues that it is the use of evidence-based guidelines and policies that transform EBID, something done by individual practitioners, into EBP, a more integral approach to evidence utilisation that incorporates a far wider range of health care professionals (including nurses). The complexities of implementing EBP have continued to be a subject of debate (Rycroft-Malone 2010, Estabrooks et al 2011). Indeed, Skolarus et al's (2017) systematic review of frameworks used in dissemination and implementation science highlights how our understanding of the complexities of implementing EBP continue to evolve.

Within the context of primary care, a particularly complex health care environment that in the UK provides the entry portal to health care, relatively little is known about how GPNs access and use knowledge. Numerous clinical guidelines are available to support implementation of EBP in general practice, including interactive online decision aides (National Institute for Health and Care Excellence (NICE) 2020b). However it has been recognised that this

push/pull approach with a focus on the nature of evidence, 'science push,' and on individual implementation behaviour, 'demand pull,' pushing evidence to health workers as guidelines and algorithms is fundamentally flawed (Pakenham-Walsh 2012), and has consistently failed to consistently influence practice decisions in the messy world of health care practice (McKillop et al (2012).

The concept of clinical mindlines (Gabbay and le May, 2004, 2011) challenged the EBP movement to rethink its assumptions, examining afresh how clinicians use knowledge. Gabbay and le May's work broke new ground in the way they considered the wide, variable and scattered range of influences inherent in primary care practitioners' knowledge. They argued that too much effort had been spent on idealised models of how clinicians ought to use evidence, with not enough being done to understand why they so often don't. A systematic review of studies using mindlines undertaken by Wieringa and Greenhalgh (2015) suggested that there continues to be sparse literature on the concept of mindlines and further research should explore how mindlines emerge and are negotiated. In 2016 Gabbay and le May added that unthinkingly following evidence-based guidelines can be inappropriate, as this may fail to consider contextual knowledge, particularly important in rural and primary care environments. Whilst providing valuable insights into practitioners' knowledge, mindlines cannot be applied directly to other professions without considering the differences in how they are prepared for their roles.

Methodology

This study took an ethnographic approach, theoretically informed by a range of sometimes dissimilar theories, which supported the development of a conceptual framework on which to organise the data, guide the analysis and synthesis and facilitate interpretation of the findings (figure 1). The framework was underpinned by Gabbay and le May's (2011) concept of clinical mindlines. My epistemological position was one of subtle realism (Hammersley 1992, Gerrish 2003), maintaining a detached objectivity to avoid influencing the data and its interpretation. The study was undertaken as part of a non-funded PhD, my background as the researcher was as an academic with a clinical background in practice nursing. I was solely responsible for all the data collection and subsequent analysis. The research was undertaken in practices where I had previously been in contact with some, but not all participants, through my academic role. To combat social desirability, I immersed myself in the field for significant periods recording data through observation and field notes, prior to investigating further through participant interviews.

Figure 1 Conceptual framework

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Methods

The aim of this study was to build up a picture of the context in which GPNs access and apply knowledge within the clinical encounter, investigating:

1. How does context, specifically social, cultural and organisational issues influence knowledge utilisation?
2. What information sources are used to inform GPNs knowledge and what rationale do they provide for this?
3. Does the educational preparation GPNs receive for the role influence how they access and use knowledge?

Sites and participants

A purposeful sampling strategy was used. Two independent owner-occupied rural primary care practices, allocated pseudonyms of Mountainside and Riverside, were selected for their client group size, the diverse types of area they covered, their varied patient population and their individual approach to service delivery, typical of primary care. The study population consisted of fifteen GPNs (including two who worked as nurse practitioners (NPs)) and two GPs. Participants were recruited through the senior nurse in each practice who served as gatekeeper. All participants were approached face to face prior to data collection to gain consent, no participants refused to take part or dropped out.

Design and data collection

An ethnographic approach was taken generating data on how macro level knowledge was filtered down and disseminated at the meso level in each practice and then used at the micro level of the clinical patient encounter. Data collection methods included:

- Participant observation: Each GPN was observed delivering direct patient care. Practice meetings, team meetings and educational sessions were also observed. Observations were undertaken prior to interviews. I began as a relative outsider, 'hanging out' and establishing rapport as the relationships developed, which allowed me to blend into the practice environment in order to observe natural behaviour (Bernard and Russell 1994). Through involving myself in a range of activities over time I was appropriately placed to observe and understand behaviour and activities.
- Comprehensive field notes recording formal and informal conversations and activities.

- Semi-structured interviews: A purposive sample of eleven GPNs were selected for interview. Two GPs from Riverside, one responsible for education, and the other for guideline dissemination were also interviewed. In Mountainside, these roles were carried out by the GPN manager who was included in the sample. Interviews lasted between 30-45 minutes, took place in a quiet, private environment at the study sites and were audio recorded. An interview guide was piloted with one participant prior to conducting the rest of the interviews
- Documentation: Local policy documents including computerised and hard copies of protocols and guidelines.

Analysis

Inductive data analysis began in the field, prior to withdrawing myself to further investigate the data. Following transcription, the qualitative data analysis software programme Atlas.tiTM was used as an aid to contain, manage and navigate through the dataset. Extensive notes were taken in relation to policy documents. A modified 'constant comparative method' (Glaser and Strauss 1967) was employed, the analysis remained true to ethnography throughout. Participant checking was not utilised, my PhD supervisors acted as peer reviewers.

Results

Findings are presented in three themes which illustrate that a mixture of organisational and individual factors impacted on access to, and application of knowledge. This included power relationships within the practice between GPs and GPNs and individual patient preferences.

Influence of organisational context on knowledge dissemination

Dissemination through formal meetings

Both practices took similar approaches to their management of, and relationship with, the nursing teams which influenced knowledge flows. Information was fed vertically to the GPNs via the GPN manager in Mountainside and through the NP/ lead GPN in Riverside from the clinical meetings led by the GPs. Two GPs in Riverside were responsible for disseminating key clinical issues including NICE guidelines and prescribing updates.

> We have our doctors meeting every Friday, and if there's anything major then I'll let them *(the GPs)* know, but as most of the day to day management of chronic disease, is done by the nursing staff it's more important really to disseminate down to the nurses. (GPN Manager)

Different views were expressed about effectiveness of organisational dissemination. Some felt this was adequate.

> Dee: As a team we tend to meet a lot and discuss what's hot and what's not. (GPN)

Others felt 'out of the loop'.

> Brenda: …if it's the day off is when it comes in and I miss it, you turn up at certain lunch time meetings and you learn a bit of stuff which is quite good, but there is often talk that we are going to organise some regular meetings and sessions and stuff but they haven't actually come to fruition yet. There's not enough time really. (GPN)

Multidisciplinary QOF meetings, led by a GP, gave nurses more opportunity to engage. These were attended by the nurse QOF leads, either at the request of the nurses or instigated by the GP.

> Elle: Yes, basically because I'm the QOF lead anyway, so I usually go to all the meetings, so I do know what's going on with those (GPN)

The focus of QOF meetings was to meet the requirements of policy; a macro led influence these meetings provided an opportunity for wider discussion and for the nurses to embed change. Not all GPNs were present, vertical dissemination from the QOF nursing leads was necessary for diffusion of this knowledge to the wider nursing team.

Educational dissemination

Knowledge was shared in several ways in both sites, in-house education, clinical forums and meetings run by pharmaceutical representatives. Internal and external educational networking provided opportunities for seeking out new knowledge, elements of learning through social participation were evident. The GPNs also accessed formal post registration educational opportunities to prepare them for their roles. They acknowledged the positive support that they received for education, although in both sites this highlighted the power relationship between GPs and GPNs:

> Cara: Oh yes, this practice is really, when I speak to girls who work in other places, I think, blimey how lucky we are that our GPs are quite forward thinking and they are quite young in their attitudes to all things, and they teach us as well…... (GPN)

In Riverside fortnightly GP led educational meetings requested by the one of the GPNs at appraisal provided the opportunity to discuss specific meso level issues.

> Laura: So, we do try and get probably every two or three months at least an outside speaker, or one of the GPs. At our last meeting at the end of last month, Dr G talked us through the guidelines of chest pain. (GPN)

Brendon, GP, summarised the importance of not only using a variety of sources of knowledge to advance practice, but of good basic knowledge:

> Brushing up on clinical knowledge generally is important, learning about new things, learning about critical incidents, mistakes, errors, always got those to talk about so we try to do that a bit. Learning isn't just about guidelines, trying to improve our practice or our understanding, reading and taking more guidelines is important, but to know about the guideline you have to know about the disease in the first place….. (GP, Riverside)

Several features were evident that Wenger (2006) argues define a community of practice: a shared area of interest, learning together and development of a shared repertoire of resources. Although conversely the GPNs learnt from the GPs as opposed to learning together. Unlike GPs the GPNs were taking on roles that their initial education had not prepared them for. They expanded their knowledge through formal and informal education, as opposed to drawing on mindlines from initial training.

Gatekeeping

In Mountainside organisational approach to knowledge dissemination was a vertical hierarchical process delegated by the GP partnership to the nurse manager. Some of this was formal, with the nurse manager taking overall responsibility for updating the practice protocols and ensuring that the nurses responsible for chronic disease clinics received up dated information. This was supplemented by informal dissemination. The nurse manager made decisions about what was essential and how this dissemination should take place.

> When they (*guidelines*) come out I look at them and see what changes there are to see if they actually affect our practice, it doesn't necessarily affect the way you're practising, and then I update any protocols we've got and let the girls know re the update (GPN Manager)

Unlike Mountainside where guideline dissemination was the responsibility of the nurse manager, in Riverside a GP took responsibility. Brendon discussed how this information was screened to avoid information overload:

> Well it depends…. For example, chronic heart failure, that would be very relevant for the GPs, it would be relevant to some of the Clinical Nurse Specialists in the Community, they are very likely to get it, but I might include one or two of the Community Nurses I know who are interested in Chronic Disease Management, not specifically GPNs but we work together. (GP, Riverside)

Dissemination of evidence took place formally and informally, with two levels of gate keeping reducing information overload by identifying what was relevant and deciding who needs to know.

In both sites delivery of care was taking place within a climate of political change, GPNs were responsible for meeting QOF targets and for providing first contact care. They were positive regarding the information they received to support them, although the part time nature of the role meant some nurses felt they missed out. This was particularly evident amongst less experienced nurses who would have preferred a more structured

dissemination approach. Organisational culture towards knowledge dissemination was supportive, with opportunities for the GPNs to develop individual and collective knowledge through discussion, sharing and experience. However, they were more likely to receive information through a vertical didactic approach, with decisions around clinical processes formalised by GPs. The GPs were an important educational resource which may reflect the type of work GPNs have inherited.

Sources of knowledge

The GPNs developed and expanded their knowledge from formal and informal sources, influenced by education and experience.

> Nicky: I would say it *(referring to her knowledge)* was built up by looking at guidelines, from my colleagues, from reading articles, in journals, past experience, that's where I would say my knowledge came from………. (GPN)

> Cara: I think in lots of ways it's matured to a point where you look for it *(evidence)* whereas you think I wonder what the evidence is about different things or I wonder what they have written up about that. Whereas before you just wouldn't. (GPN)

GPNs newer to practice noted that previous nursing experience did not necessarily prepare them for the GPN role:

> Brenda:….I think you probably come into the job initially and just *wing it a little bit*, you know just by sort of doing….. (GPN)

Propositional

All the GPNs, apart from one who trained in mid-1990, undertook their initial registered nurse training in the 1970's and 1980's and had undergone varying amounts of post registration training to prepare them for the GPN role. This increased awareness of the range and purpose of resources available:

> Laura: Well I have to admit that the courses that I have done, really help you do that (access evidence), they show you what's out there and there is so much to be accessed………….(GPN)

Non-propositional

The GPNs identified a range of evidence-based sources of information that they utilised to support their practice but didn't necessarily use during observed consultations. They instead relied on experiential knowledge; embedded thought processes developed from their exposure to practice.

> Laura: Yes, I think it is, its experience, you've seen it before and you know what works, whether that's actually more than following the guidelines, I think on the whole it is, yes (GPN)

Knowledge from colleagues

Without exception, all participants commented that they would seek information and advice from colleagues.

> So, it got to the point when I heard it (*asthma*) mentioned and it wasn't something I wasn't really sure of I would go off and ask one of the girls 'what do I do now'? (GPN)

Knowledge from evidence-based guidelines, protocols and templates

Apart from NICE guidelines, GPNs very rarely accessed evidence-based guidelines and wider resources available to them. Standardised templates developed for QOF were a far stronger influence. Traditional EBID (phrasing a question, seeking and appraising evidence and applying to practice) was not observed at any stage. Use of protocols varied, they were considered useful for practical local knowledge, particularly where guidelines weren't available, or for basic information.

> I have just written one *(protocol)* on spirometry, which I was going to deliver. It's not evidence based as such, I have to admit, it is basically for health care assistants to use a spirometer. (Nicky, GPN)

The GPNs did express concern about the application of guidelines to individual patients:

> I think it all depends, it's all very personal it depends on the person you are seeing, They (guidelines) are great so that you know you have a guideline so you know what you are working to, and I think that is really great for me. I like that idea that this is what we are aiming for, but people, like you say, are so different, we can't classify every person in these little boxes even though we try and do that, and I think yes you have an evidence base so that you can say to people, look this is what the evidence shows and we will try do that, but it is not always going to work…. (Cara, GPN)

Rather than having the implicit 'thumbnails' and 'flowsheets', embedded personal guidelines related to diseases and disease processes that are an important part of learning to be a doctor (Gabbay and le May 2011:94), GPNs had to develop a new range of skills and knowledge that were unlike those that their basic nurse training equipped them for. This included dealing with diagnostic uncertainty, complexity and decision-making. In these scenarios using guidelines provided a safety net.

Knowledge use in the clinical encounter

Central to this study was how access to evidence-based sources impacted on patient care, delivered within the 'real time' (Smith and Farquhar 2000) of the everyday micro level clinical encounter. This is particularly important in primary care where consultations are time limited. The GPNs would consider individual patient need, rather than stick rigidly to guidelines, but would also use evidence to support the consultation.

> Cara: people just do not fit into boxes. ….. you have to have something that you can say: look this is what the research shows but we will, let's aim for it…. For example, people come to diabetic clinic and you go through alcohol intake, they might have four pints of lager a night so if they can reduce that to three for a bit, do you know what I mean? (GPN)

The GPNs mentioned that they did not always have the underlying knowledge to deal with complex encounters:

> Issy: now we're looking at chronic kidney disease, that's a new thing for us and that has been quite a struggle for all the nurses to take on board…. We've got the guidelines there but people don't always fit into those little boxes do they? (GPN)

Issy further added:

> We probably haven't got the same depth of experience in hypertension. You'd think you would as a general nurse on managing blood pressure but actually it's quite a difficult decision for the nurses in clinic to take on the changes they've had with the algorithm for that. Although it looks simple, because you see people with other existing chronic disease it does get more complicated. (GPN)

Both practices employed GPNs who had undergone further post-graduate training as nurse practitioners (NPs). They too would consult with the GPs in times of uncertainty or to clarify a decision. Karen explained how she used a variety of knowledge sources during the clinical encounter:

> Yes, it wouldn't necessarily mean I would be looking things up at the time, because the thing is a lot of the knowledge use is retained, so yes you would be looking at a combination of things, you would be looking at sort of your own knowledge, experience of dealing with patients with similar conditions, you would also be basing it on evidence you have picked up from NICE guidelines, that sort of thing, and also the individual patient. (NP)

The following is an extract from an observation of one of Karen's clinics:

> Young boy, impetigo, diagnosis based on examination, explanation given to Mum.

> Karen discussed difficulty in assessing severity of impetigo at times, she had seen a child previously with impetigo and eczema, treated topically with Fucidin, but the condition had spread rapidly and the child developed impetigo pneumonia. (NP)

Karen's discussion after the consultation pointed out how isolated cases can impact on clinical judgement resulting in a predisposition for or against a treatment, based on individual experience, rather than drawing on a wider knowledge base. Greenhalgh (2019) notes that making decisions on personal clinical experience is a normal human reaction; the danger of relying on this method is that it can lead to ignorance of wider collective experience. Karen also described how she would adapt evidence, taking regard of the patient's social needs, even where these may clash with her ongoing medical needs, considering the patient's individual requirements and her right to choose:

We had somebody recently, an elderly lady with diabetes and her diabetic control wasn't very good and she was on insulin twice a day. She only wanted to be on it once a day because the community nurses going in twice a day was interfering with her quality of life, she felt her home was being invaded and she was losing her independence and in that case, you have to say to her right OK we will do what you would like, the knock on effect is that probably your diabetic control will deteriorate but if that's what you would really like to do then that's fine. (NP)

Discussion

This study was conceived with the purpose of building evidence around knowledge utilisation amongst GPNs, an area of nursing where research is sparse, particularly in rural areas. It was designed and carried out when work carried out in general practice had become increasingly influenced by policy driven standardisation that had financial implications for GP practices. A broad conceptual framework was utilised to analyse the data drawing on theories including education (Eraut 1994), standardisation (Timmermans and Berg 2003, diffusion of innovations (Rogers 2003) and knowledge conversion (Nonaka and Takeuchi 1995). Findings indicated that GPNs take a blended approach, using elements of EBP to support but not substitute for their professional judgement within the context of the clinical encounter, and that knowledge use is subject to several influences. Specific elements of note were enthusiasm towards EBP amongst the nurses and a supportive organisational culture towards continuing education and sharing of knowledge. Standardisation had both a positive and negative influence, positive in its focus on improving EBP, whilst negative in promoting template driven care that takes little account of individual patient need. Organisational elements constraining effective knowledge dissemination and use included: information being disseminated to GPNs through vertical rather than horizontal networking; professional training that had not prepared nurses to deal with uncertainty; limitations in accessing evidence in 'real time' and lack of applicability of evidence to all patient scenarios.

Study limitations

This study only included English language speaking participants and should not be considered representative of all geographical areas.

Conclusion

More than Mindlines?

Whilst providing valuable insights into GPs' knowledge, to substantiate the concept of mindlines Gabbay and le May (2011) also drew on studies involving medical students and newly qualified doctors. They recommended that the methodology they employed is repeated with other professional groups. Although there were some similarities seen in

GPNs, their mindlines were subject to different influences. Findings indicated that macro and meso level influences on access to knowledge, impacted on the application of knowledge (including EBP) at the micro level of the clinical encounter. Macro level influences included the business model of general practice, policy including QOF and evidence-based guidelines. At meso level influences included power relations resulting from GPNs' status as employees of GPs; the part time nature of the role; the influence of a very different type of educational preparation that reflected the age of the practice nurse population; and inexperience of the uniqueness of primary care practice when nurses enter the GPN role. Findings indicated that the practice nurses lacked collective mindlines for the more complex cases and conditions they were increasingly presented with. Potentially some tensions exist between the position in which practice nurses are situated and the nature in which knowledge is utilised in the primary care environment. Despite a supportive organisational culture towards knowledge sharing, the position in which GPNs are situated limits opportunities for discussion and reformulation of knowledge.

A further concept, the idea of accessing a bricolage of knowledge, using 'whatever is at hand to deal with the current task' (Gobbi 2004, p.119) is worth further exploration when considering the work of GPNs. Gobbi's (2004) work argues that clinical care demands that nurses work with the tensions and practice of art and science, managing complex situations with the 'tools at hand' adapting the care provided to the person concerned, some of this was evident from the data. This is supported by Warne and McAndrew (2009), who argue that nurses draw upon a heterogeneous collection of fragments from varied sources which are then deconstructed and reconstructed within the context of working with an individual patient. The GPNs did not always have the mindline to draw upon, but would seek out knowledge, work with it and adapt it to the situation, resolving the problem pragmatically. The concept of bricolage has the potential to provide additional practical and theoretical insights into the way GPNs use knowledge.

Key points
- The role of the practice nurse has grown and expanded, they have been presented with changes both from the type of work they are presented with, which required elements of what was previously considered medical knowledge, and standardisation which has impacted on the type of care they provided.
- Despite a supportive organisational culture towards knowledge sharing, the position in which GPNs are situated limits opportunities for discussion and reformulation of knowledge.
- GPNs demonstrate element of 'mindlines', however the concept of bricolage could provide additional practical and theoretical insights into the way GPNs use knowledge.

Ethical Procedures

Ethical approval was sought and obtained from Cardiff University's School of Nursing and Midwifery Studies Research, Review and Ethics Screening Committee, the local NHS research and ethics committee and the Health Board's Research Scrutiny Committee and Research Risk Review Committee.

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Figure 1 Conceptual framework