

What is the evidence base for effectiveness and cost effectiveness of rapid response or enhanced response community palliative care service models?

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Review Methods

Search Strategy:

A systematic search was conducted across a wide-ranging set of databases: Ovid Medline, including In-Process & Other Non-Indexed Citations, Ovid Embase, Ebsco CINAHL, Ovid PsycINFO, and Cochrane Library. The preliminary search strategy was developed on Ovid Medline using both text words and Medical subject headings. The search strategy was modified to capture indexing systems of the other databases. The search was restricted to English language only and from January 2010 to July 21, 2020. (Search strategies available upon request). To identify additional papers, journals of the following electronic tables of content for the last two years were searched: BMJ Supportive & Palliative care; Journal of Pain and Symptom Management; International Journal of Palliative Nursing; and Palliative Medicine. Furthermore, references of service evaluations and reference lists of systematic reviews were checked for any relevant studies. The searches generated 196 citations after removing duplicates and irrelevant records. Figure 1 represents the flow of information through the different phases of the review.

Inclusion:

Adults 18 years old or older with a life limiting condition. Enhanced Response or Rapid Response palliative care service in the community setting.

Exclusion:

Studies set in non-Organization for Economic Cooperation and Development (OECD) countries; Case series studies consisting of less than 25 patients; non-English language studies.

Study selection/Quality Assessment/

Data Extraction:

Study selection was based upon review of the abstract by two independent reviewers. The full text was then assessed independently according to inclusion criteria. Data extraction and quality assessment of the eligible studies was carried out by one reviewer and checked by another using appropriate quality assessment checklists. Any discrepancies between the two reviewers were resolved by consensus or by discourse to a third reviewer.

Protocol registered with the International Prospective Register of Systematic Reviews (PROSPERO) [CRD42020206429](#).

Context

The impact of COVID-19 has emphasized the need and increased the demand for specialist palliative care services. This has led to consideration of how to broaden the reach in delivering timely and responsive palliative care in the community. There is a recognition that palliative care services are supporting patients with increasingly complex needs and therefore, there is a necessity to adapt models of working accordingly.

Gomes et al. 2013 showed that there is widespread evidence that over 50% of patients prefer to be cared for and die at home provided circumstances allow that choice. However, figures show that less than a third of patients in England and Wales achieve this with many ending up being admitted to hospital. The trigger for hospital admission is often multifactorial. These frequently consist of a combination of loss of symptom control, availability of medicine, carer health/stress and lack of clarity around prognosis/ expected disease trajectory, leading to a crisis that cannot be managed at home. In 2008, the Department of Health advocated provision of 24/7 services, using rapid response services (RRS) as one way to avoid unnecessary hospital admissions and in doing so enabling more patients to die in the place of their choice (Department of Health: End of Life Care Strategy: Promoting high quality care for all adults at the end of life. London: Department of Health; 2008.). Achieving patient preference for place of death is increasingly used as a measurable indicator of the effectiveness of palliative care services.

Services which can provide a rapid response to sudden changes in care needs have been described as one potential intervention of value, although the definition of 'rapid' and the nature of the service intervention may vary. For example, Gage et al. 2015 and Holdsworth et al. 2015 described a rapid response service (RRS) as a team of healthcare professionals who, within 4-hour notice, provided intense care over a short period of time when crises arose. This service was accessible 24/7 and aimed to support patients in their own place of care to help avoid admissions to the acute sector. King et al. 2000 stated that their RRS, comprising of a palliative care nurse responding mostly within 4 hours, was developed to respond to people in crisis who would prefer to die at home. Clayton and Spencer, 2013 whose RRS comprised of a specialist palliative care nurse, did not clearly define "rapid response" but described optimizing symptom control and supporting end of life care in the patient's preferred place of care as the main purpose for the RRS. Addicott and Dewar, 2008, demonstrated an increase in home-based deaths from 19 to 42% with the introduction of an RRS, whilst Clayton and Spencer 2013 stated 75% of their RRS patients achieved their preferred place of death whilst also suggesting it prevented unnecessary hospital admissions.

Although the definition and configuration of an RRS differs between services, common themes include a timely response to a crisis led by trained professionals (nurses or healthcare support workers) who could provide hands on care, aiming to support the patient in their preferred place of care.

Therefore, the rationale for this review is to explore existing evidence from prospective studies on the effect of a rapid response or enhanced response community palliative care model of service, using the key themes above within the definition of RRS. It aims to explore the effect on patient outcomes including achieving preferred place of death compared to existing services and whether there is any economic impact on the healthcare system. The data presented by King et al., 2000, Addicott and Dewar, 2008 and Clayton and Spencer, 2013 is not included in the key findings because these studies represent service evaluations and therefore did not meet the inclusion criteria.

Key Findings

Out of 196 abstracts identified, 27 full papers were retrieved, and 1 study included in the review, which met our eligibility criteria. The data from this study generated two relevant published papers. A number of excluded studies demonstrated relevant data however these described service evaluations or contained no data on preferred place of death. This highlights a need for primary research to investigate the effectiveness and cost-effectiveness of rapid response community palliative care service models.

The included study (Holdsworth et al. 2015) provides limited quasi-experimental evidence that patients who are supported by an RRS are more likely to die in their preferred place of death compared to patients not supported by an RRS (63% vs 61.9%) although the difference is not statistically significant. The authors acknowledge, however, that only 247 (36%) of patients in the intervention group, 16% of all eligible referrals, actually received RRS support. The study also underestimated the proportion of hospice users achieving their preferred place of death, which in turn affected sample size calculations. Using data from the same study, Gage et al. 2015 concluded that by looking at that subgroup of patients (247) the chances of dying in their preferred place of death was enhanced 2.1 times being an RRS user compared to a non-user (74% vs 43%). They also acknowledged that users of the RRS were more likely to have co-resident carers and were more likely to have identified home as their preferred place of death compared to non-users.

There is a lack of evidence about the costs of palliative care in different settings. The cost-effectiveness of rapid response palliative care services is an important consideration for service commissioners and was a specific domain of interest for the review. Gage et al. 2015 concluded that there was no significant difference in the total service costs between RRS users compared to non-users for any time period, except amongst those referred to the hospice within 2 days of death, where RRS users had significantly higher overall costs.

Key Findings (continued)

A. Reliability of evidence

The included study Holdsworth et al. 2015 used a quasi-experimental design which brings with it limitations in terms of bias. It defined clear validated outcomes and achieved a reasonable sample size. However, underestimating the baseline achievement of preferred place of death (at 29%) affected the sample size calculations. In total, only 247 patients (36% of patients in the intervention group, 16% of all eligible referrals to the service) accessed the RRS. The authors recognised that a significant proportion of patients (37.6%) were excluded as their preferred place of death was unknown and acknowledged that they were unable to reliably capture the number of patients that changed their preferred place of death during the course of the study as the data interpreted for this information was captured on initial assessment.

B. Consistency of evidence

Not applicable. As we included only one study, it is difficult to comment on consistency of evidence.

C. Relevance of evidence

We sought evidence of the effectiveness and cost effectiveness of community palliative care RRS. The evidence included in this review, although limited, is relevant for our practice in Wales. The study is UK based, well designed, and covered most of the factors we were looking for in evaluating such services. A particular strength of the study was that it looked at the patient's preferred place of death rather than the actual place of death alone which has been used previously to evaluate effectiveness of services.

Glossary:

RRS - Rapid Response Services

MDT- Multidisciplinary Team

PPD - Preferred Place of Death

Evidence Implications:

Clinical:

- Robust evidence is lacking on both the effectiveness and cost effectiveness of rapid/enhanced response community palliative care services in end of life care, highlighting the need for primary research to investigate this issue.
- The limited evidence that is available suggests these services increase the likelihood of achieving preferred place of death and are cost neutral.
- Sustainability and effectiveness of any palliative community RRS requires a cohesive approach involving an MDT of community services including district nurses, healthcare assistants, occupational therapists, physiotherapists, and specialist palliative care (both nursing and medical input).
- Outside the scope of this review, we acknowledge the additional value of looking at outcome measures such as effect on symptom control and more qualitative data looking at patient and carer experience when evaluating such services.
- Future research should focus on well-designed prospective studies evaluating the impact of these services on symptom control, patient and carer experience, and cost effectiveness across care settings.

Policy:

- Due to the lack of high-quality evidence, we cannot make any clear recommendations on policy.
- The evidence presented suggests consistency is required for assessing outcome measures most relevant to end-of-life care to evaluate the effectiveness of rapid response services.
- Consensus is required on the core components of a rapid response service. This will necessitate an integrated approach across health and social care networks to ensure timely access to human resources, equipment, and medicine.

Flow Diagram:

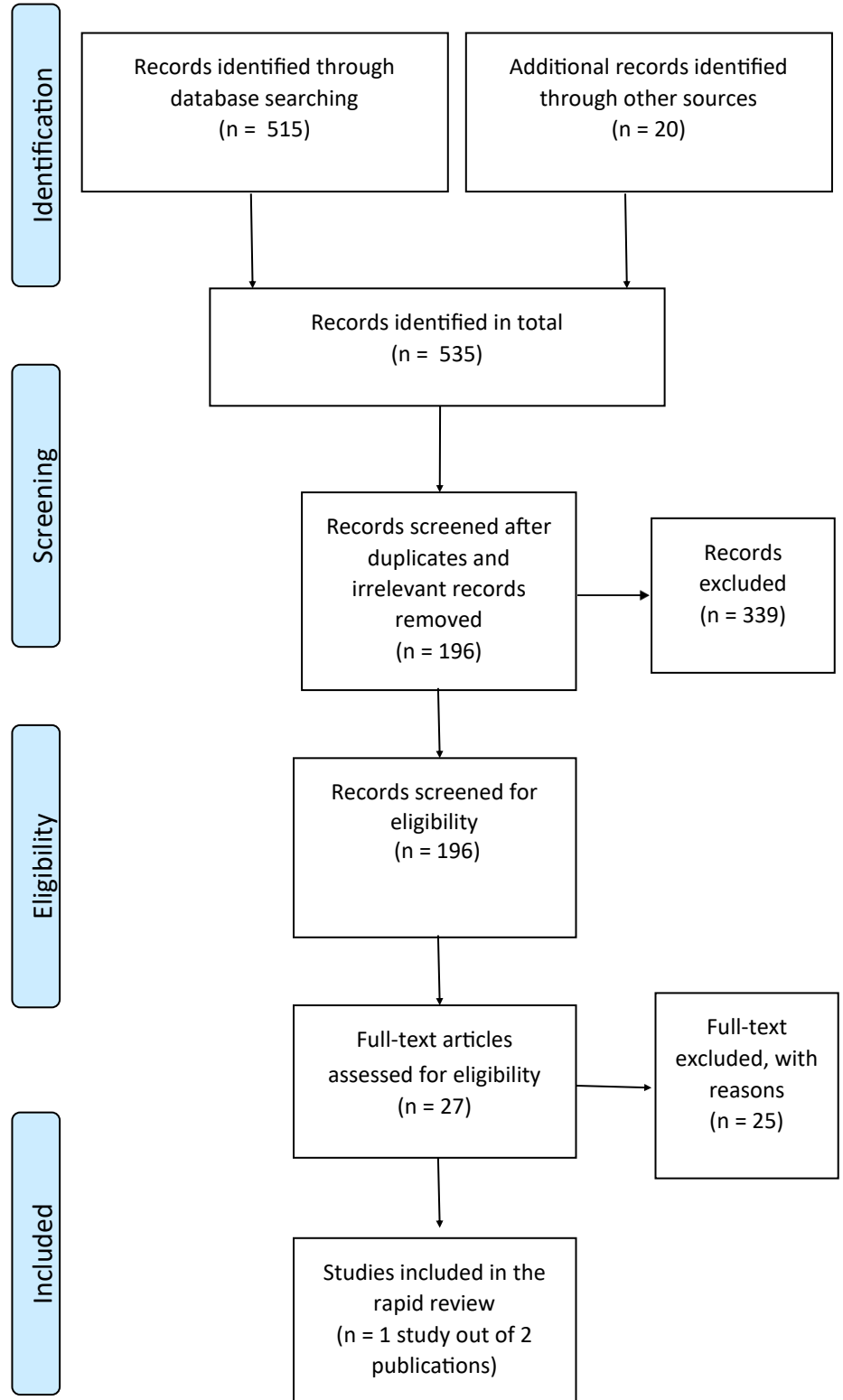


Table 1: Characteristics of Included Studies

<p>Holdsworth et al_2015 Gage et al_2015</p>	<p>Study Setting & Design – Kent, England, UK. Quasi-experimental controlled study</p>
<p>Study Objective</p>	<p>To assess the impact of a rapid response hospice at home service (intervention) on people dying in their preferred place, and carer quality of life, compared to usual care. In addition to explore differences in the proportions of users and non-users dying in the place of their choice.</p>
<p>Participants</p>	<p>1704 patients, from 3 hospice sites: Thanet, Ashford and Canterbury, Kent. 265 in the control condition and 688 in the intervention group. Patient data were collected from hospice records; carers completed postal questionnaires to report quality of life, anxiety and depression.</p>
<p>Interventions/Comparators/Methods</p>	<p>The intervention involved the introduction of a rapid response service to each of the 3 hospices one by one with a 6-month delay (total duration of study: 18 months). Healthcare assistants were available at 4hr notice to support patients dying or in crisis and wanting to avoid hospital admission.</p>
<p>Proposed Outcomes</p>	<p>The primary outcome was:</p> <ul style="list-style-type: none"> To identify whether the patient died in their preferred place of death. <p>Key secondary outcomes:</p> <ul style="list-style-type: none"> To compare characteristics of users of the RRS with those who did not use it. To evaluate carer experience and quality of life measured by: Short form (SF) -12, physical component summary (PCS), mental component summary (MCS), hospital anxiety depression scale (HADS), EQ-5D-3L and the caregiver demand scale To compare cost and service utilisation of users of the RRS with those who did not use it.
<p>Summary of Results</p>	<ul style="list-style-type: none"> There was no major difference between control and intervention groups in proportions achieving preferred place of death (61.9% vs 63.0% (odds ratio: 0.949; 95% confidence interval: 0.788–1.142)). Whereas Gage et al 2015 states that use of RRS enhanced chances of PPD by 2.1. Total service costs did not differ. People living at home alone were less likely to die where they wanted (0.541; 95% confidence interval: 0.438–0.667). Carers in the intervention group reported worse mental health component summary scores (short form-12, p = 0.03) than those in the control group; there were no differences in other carer outcomes.
<p>Appraisal Summary</p>	<p>Despite being the same study with identical data – Holdsworth’s paper states no statistically significant difference in achieving PPD for the intervention group compared to the control group whereas Gage’s paper emphasises that achieving PPD was enhanced by 2.1 times and concluded (correctly) that the use of Rapid response services is associated with an increased likelihood of dying in one’s preferred place of death. Also, generalisability is in question as it only includes people referred to a hospice, and this group may not be representative of all people receiving community palliative care.</p>

Included Studies:

Studies were included which examined the impact of a rapid response service as an intervention which enabled people to die in their preferred place of death.

1. Gage H, Holdsworth LM, Flannery C, Williams P and Butler C. Impact of a hospice rapid response service on preferred place of death, and costs. *BMC Palliative Care* (2015) 14:75 DOI 10.1186/s12904-015-0065-4
2. Holdsworth LM, Gage H, Coulton S, King A, Butler C. A quasi-experimental controlled evaluation of the impact of a hospice rapid response community service for end-of-life care on achievement of preferred place of death. *Palliative Medicine*. 2015;29(9):817-825. doi:10.1177/0269216315582124

Other References:

- Addicott R, Dewar S: Improving choice at end of life: a descriptive analysis of the impact and costs of the Marie Curie Delivering Choice Programme in Lincolnshire. London: King's Fund; 2008.
- Clayton B, Spencer L. Help the Hospices poster presentations: P10 hospice rapid response service – a prospective analysis. *BMJ Supportive and Palliative Care* 2013; 3:A13.
- Department of Health. End of life care strategy. London: Department of Health, 2008.
- Gomes B, Calanzani N, Curiale V, et al. Effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers. *Cochrane Database Syst Rev*. 2013;6:CD007760
- King G, Mackenzie J, Smith H, Clark D. Dying at home: evaluation of a hospice rapid-response service. *Int J Palliat Nurs* 2000; 16: 280–287.

Excluded Studies:

A number of studies have been excluded due to various reasons including the following:

- No outcomes relating to preferred place of death.

Additional materials available upon request:

- Critical appraisal/data extraction forms
- Search strategies

This report should be cited as follows: Palliative Care Evidence Review Service. A rapid review: What is the evidence base for effectiveness and cost effectiveness of rapid response or enhanced response community palliative care service models? Cardiff: Palliative Care Evidence Review Service (PaCERS); 2021 January.

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Disclaimer: Palliative Care Evidence Review Service (PaCERS) is an information service for those involved in planning and providing palliative care in Wales. Rapid reviews are based on a limited literature search and are not comprehensive, systematic reviews. This review is current as of the date of the literature search specified in the Review Methods section. PaCERS makes no representation that the literature search captured every publication that was or could be applicable to the subject matter of the report. The aim is to provide an overview of the best available evidence on a specified topic using our documented methodological framework within the agreed timeframe.