Out-of-hours services and end-of-life hospital admissions:

a complex intervention systematic review and narrative synthesis

Abstract

Background

Out-of-hours (OOH) hospital admissions for patients receiving end-of-life care are a common cause of concern for patients, families, clinicians, and policymakers. It is unclear what issues, or combinations of issues, lead OOH clinicians to initiate hospital care for these patients.

Aim

To investigate the circumstances, processes, and mechanisms of UK OOH services-initiated end-of-life care hospital admissions.

Design and setting

Systematic literature review and narrative synthesis.

Method

Eight electronic databases were searched from inception to December 2019 supplemented by hand-searching of the *British Journal of General Practice*. Key search terms included: 'out-of-hours services', 'hospital admissions', and 'end-of-life care'. Two reviewers independently screened and selected articles, and undertook quality appraisal using Gough's Weight of Evidence framework. Data was analysed using narrative synthesis and reported following PRISMA Complex Intervention guidance.

Results

Searches identified 20 727 unique citations, 25 of which met the inclusion criteria. Few studies had a primary focus on the review questions. Admissions were instigated primarily to address clinical needs, caregiver and/or patient distress, and discontinuity or unavailability of care provision, and they were arranged by a range of OOH providers. Reported frequencies of patients receiving end-of-life care being admitted to hospital varied greatly; most evidence related to cancer patients.

Conclusion

Although OOH end-of-life care can often be readily resolved by hospital admissions, it comes with multiple challenges that seem to be widespread and systemic. Further research is therefore necessary to understand the complexities of OOH services-initiated end-of-life care hospital admissions and how the challenges underpinning such admissions might best be addressed.

Keywords

general practice; out-of-hours; admission; hospitalisation; palliative care; terminal care.

INTRODUCTION

The out-of-hours (OOH) period (nights, weekends, and bank holidays) comprises 63% of the week in the UK, when normal in-hours primary care services are not available. End-of-life care in the community is an important and challenging aspect of OOH provision, and hospital admissions for patients at the end of life are controversial.¹⁻⁵ Recent research has challenged perceptions of hospital admissions for patients close to the end of life as inappropriate, preventable, or avoidable,⁶⁻⁸ and has highlighted that at times hospital is the only place where care is reliably, safely, and urgently available.^{9,10}

The challenges facing GPs, ambulance staff, nurses, and other OOH providers in the delivery of high-quality end-of-life care are significant and multifaceted. These include access to patient information;¹¹ meeting the clinical needs of patients often very close to death;¹² lack of confidence in providing end-of-life care;^{13,14} a potentially awkward fit between end-of-life care and services' wider remit of urgent care;¹⁵⁻¹⁷ uncertainties of prognostication; and decisions about whether the patient's condition is potentially reversible with hospital treatment or if they are best kept at home for symptomatic relief and care.¹⁵ Hospital care is at times the best option for patients at the end of life to reliably obtain urgently needed care OOH.¹⁵ Only some end-of-life-care-

related OOH calls, however, lead to hospital admissions.¹² It is unclear which issues or combination of issues lead OOH clinicians to initiate hospital care and when patients are best kept at home. The aim of this study was to review the literature concerning the mechanisms (the components of the system that initiate admissions), the circumstances (the context of and reasons for admissions), and the processes (the actions and steps through which admissions are instigated) involved.

For the purposes of this review end-of-life care was defined as the care of patients with advanced incurable disease and an anticipated prognosis of ≤ 12 months of life. The term OOH providers is used to refer to all services providing access to health care for patients at night, weekends, or bank holidays. In this review, all end-of-life care hospital admissions occurring OOH, whatever the outcome of the admission, were included, and these were not limited to admissions in which patients necessarily died in hospital after admission.

The following six questions were addressed:

- Which patients are admitted?
- What are the mechanisms of these admissions?
- Which OOH providers arrange these admissions?

E Papavasiliou, PhD, research associate, PELiCam Palliative and End of Life Care Group, Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge, Cambridge. **S Hoare**, PhD, research associate, PELiCam Palliative and End of Life Care Group and THIS Institute (The Healthcare Improvement Studies Institute), Department of Public Health and Primary Care, University of Cambridge, Cambridge. **B Bowers**, MSc, RN, PhD student; **MP Kelly**, PhD, senior visiting fellow; **S Barclay**, FRCGP, MD, university senior lecturer, PELiCam Palliative and End of Life Care Group, Primary Care Unit, Department of Public Health and Primary

Care, University of Cambridge, Cambridge.

Address for correspondence

Evie Papavasiliou, Primary Care Unit, Strangeways Research Laboratory, Worts Causeway, Cambridge CB1 8RN, UK.

Email: ep607@medschl.cam.ac.uk

Submitted: 18 March 2021; **Editor's response:** 26 April 2021; **final acceptance:** 11 June 2021.

©The Authors

This is the full-length article (published online 7 Sep 2021) of an abridged version published in print. Cite this version as: **Br J Gen Pract 2021; DOI: <https://doi.org/10.3399/BJGP.2021.0194>**

How this fits in

Out-of-hours (OOH) end-of-life care hospital admissions are a concern for patients, families, clinicians, and policymakers. Little is known about the mechanisms, processes, and circumstances under which such admissions occur. This review found that admissions occur to address clinical needs, unavailability or discontinuity of care, and patient or carer distress. They are initiated by a variety of OOH providers and services, indicating the issues identified are widespread and systemic. Existing evidence, however, is scarce, and further research is required to understand why these admissions occur and how the issues identified might best be addressed.

- How frequently are these admissions arranged?
- Why are these admissions arranged?
- What are the processes of these admissions?

METHOD

Data sources

MEDLINE Complete, Embase Excerpta Medica, Cochrane Database of Systematic Reviews, PsycINFO, CINAHL Complete, Social Care online, Web of Science Core Collection, and Scopus were systematically searched from inception to December 2019. Database searches were undertaken by the information scientist member of the review team on 16 December 2019. A hand-search of the *British Journal of General Practice*, identified as the journal in which most relevant publications occurred, and citation searches of included publications were undertaken by the first author in May 2020.

Inclusion and exclusion criteria

Inclusion and exclusion criteria were developed using the PICOTS framework (Population, Intervention, Comparator/Context, Outcome, Timing, and Setting) (Box 1).¹⁸

Search strategy

Preliminary searches, although highly sensitive, lacked specificity, as no publications were identified that directly addressed all three target domains (OOH services, hospital admissions, and end-of-life care). The search strategy was therefore revised to include search terms for both end-of-life care and palliative care as these were often used interchangeably in the studies identified. Searches were also modified to

focus on two target domains: end-of-life care and hospital admissions (Dataset I) or end-of-life care and OOH (Dataset II), with OOH and hospital admissions excluded as the literature identified was large and diffuse. The final database search for MEDLINE can be found in Supplementary Box S1. The information scientist member of the team advised that place names were also included to maximise identification of studies.

Search results were imported to EndNote (version X9) and de-duplicated. The PRISMA flow diagram for study selection is shown in Figure 1.

Study selection and data extraction

Title screening was undertaken by the first author and abstract screening by the first author and one other author independently, with disagreements resolved by discussion. Full texts of potentially eligible publications were assessed by the first author and reviewed by two or more authors if there was uncertainty. Data were extracted into a review-specific data extraction form provided in Supplementary Table S1.

Quality appraisal

Gough's Weight of Evidence (WoE) framework was used to assess the quality and relevance of included publications.¹⁹ This framework rates the internal validity of the study (WoE A), appropriateness of study design to the review aims (WoE B), and the focus or relevance of the study to the review aims (WoE C). Each of the three domains is individually scored on a scale from 1 (low) to 3 (high), and combined to provide an overall judgement (mean score of A, B, and C) to generate an overall assessment of study quality and relevance (WoE D). WoE appraisal was carried out independently by three authors, with disagreements resolved by discussion. Publications assessed as being of high WoE were considered more credible and relevant and were given priority during data synthesis.^{19,20} Given the scarcity and diffuse nature of the evidence identified, publications assessed as low WoE were also included.

Data synthesis

Data synthesis used a narrative approach,^{20,21} selected for its potential to assess and synthesise heterogeneous and complex evidence in a rigorous and replicable way.^{22,23} A thematic approach was employed for review questions where sufficient data was available whereas a descriptive approach was adopted for questions with limited available evidence. Reporting followed the PRISMA Complex

Box 1. Inclusion and exclusion criteria

PICOTS	Included	Excluded
Population	Patients: <ul style="list-style-type: none"> • Aged >18 years • With advanced incurable disease and/or with an anticipated prognosis of a year or less 	Patients: <ul style="list-style-type: none"> • Children/adolescents • With early-stage or curable disease • Unexpected or sudden death
Intervention	Out-of-hours services: <ul style="list-style-type: none"> • NHS 111 • 999 ambulance care • Community nursing • Out-of-hours general practice • Out-of-hours specialist provision (palliative care) 	Out-of-hours services: <ul style="list-style-type: none"> • Out-of-hours medicines • Out-of-hours dental emergencies
Comparator	Not applicable	—
Context	Published output: <ul style="list-style-type: none"> • Articles of any design reporting original empirical findings (either as the study focus or an outcome measure) • Focusing on UK health care 	Published output: <ul style="list-style-type: none"> • Book chapters, letters, comments, and editorials • Focusing on international health care
Outcome	Hospital admissions: <ul style="list-style-type: none"> • Any department of a hospital 	Hospital admissions: <ul style="list-style-type: none"> • Psychiatric care department
Timing	No time restriction	—
Setting	<ul style="list-style-type: none"> • Home/community care • Nursing/care home • Long-term care facilities • Prison 	<ul style="list-style-type: none"> • Hospice

Interventions extension statement and checklist.^{24,25}

Patient and public involvement

A patient and public involvement advisory group of six people with experience of hospital admissions towards the end of life met twice, initially advising on refinement of review questions and later commenting on emerging findings. The review protocol was registered with PROSPERO (registration number: 42019156827).

RESULTS

Database searches retrieved 30 033 records. Following de-duplication and title and abstract screening, 22 articles were assessed in full text for eligibility. Four were excluded and seven additional articles were identified from hand-searching and reference lists of eligible articles, leading to a final total of 25 included publications (Figure 1).^{1,10,12,15,26–46}

Characteristics of included studies

The included publications comprised 23 original articles and 2 project reports, using qualitative ($n = 9$), quantitative ($n = 10$), and mixed-methods designs ($n = 6$). Studies were conducted in the UK: UK-wide ($n = 2$), England ($n = 13$), Scotland ($n = 7$), England and Scotland ($n = 2$), and Northern Ireland ($n = 1$). Articles were published between

2002 and 2020. Only one article was dated before the 2004 UK introduction of the new contract through which responsibility for commissioning and providing OOH care passed from GPs to primary care trusts.²⁶ Supplementary Table S2 summarises the included publications.

Focus and nature of available evidence

Publications varied considerably in terms of their focus and the nature of the evidence reported with respect to the three dimensions of this review. Most presented either ‘indirect evidence’ (data extracted was interpreted, for example ‘68% of hospital admissions occurred within working hours’ implies that 32% occurred OOH) and/or ‘generalised evidence’ (data extracted was implied, for example ‘68% of advanced cancer patients were admitted to hospital’ implies some were admitted OOH). See Supplementary Table S3 for detailed mapping of included publications based on focus and nature of available evidence. Results are presented with priority being given to those review questions for which the most evidence is available.

Reasons for OOH hospital admissions at the end of life

In the 19 publications addressing reasons for OOH hospital admissions at the end-of-life review question,^{1,10,15,27–42} eight themes

Figure 1. PRISMA flow chart: selection process for systematic review on end-of-life care hospital admissions arranged by out-of-hours services.
Dataset I = end-of-life care and hospital admissions.
Dataset II = end-of-life care and out-of-hours.

were identified, grouped under thematic areas of participants, structures and processes, and clinical factors (see Box 2).

In terms of participants, reported circumstances related predominantly to informal caregivers, associated with their preferences, inexperience of death, and feelings of uncertainty, burnout, or emotional breakdown.^{1,10,36,37,41} Less frequently, admissions were arranged in response to patients' needs or wishes,^{36–38} or patient and informal caregiver distress and anxiety.^{39,42}

Circumstances pertaining to structures and processes included lack of systems to ensure continuity of care and/or limited access to patient information;^{1,10,15,28,32,36,38} lack of flexibility in OOH service provision;^{28,35,36} unavailability or limited capacity of alternative community services;^{15,38} lack of time to assess and address needs;^{38,42} and

complexities of workforce management.¹ Provider-related circumstances included poor communication and lack of training;¹ unfamiliarity with patients;^{28,35,37,42} and feelings of professional underperformance or fears of disciplinary repercussions if hospital admissions were not instigated.¹⁵ Policy-related circumstances were associated with lack of advance care planning^{15,28,42} or concerns about timely access to anticipatory medications.²⁸

Clinical factors related to assessment or diagnosis, symptom management, and precautionary admissions. Admissions were predominantly associated with treatment of pain or other physical symptoms including rapid deterioration in a patient's condition^{27–31,33,34,36,37,40} and complications or failure of initial treatment.^{29,30,34} Other reported circumstances related to: clinical or diagnostic uncertainty;^{15,30} complexity of the situation;³⁹ need for further investigation;³⁷ abnormal laboratory results;²⁹ or as a precautionary measure.³¹

Processes of OOH hospital admissions at the end of life

Limited evidence is available for the processes review question from seven publications,^{1,12,26,35,39,43,44} with considerable variation in the level of detail provided. Processes were described as a chain of communication including a series of steps (triaging) and involving a number of different providers, at times using NHS pathways algorithms¹² or agreed protocols.⁴⁴ These processes varied considerably between services. Calls were answered by non-clinical call handlers,^{1,12,44} experienced specialist nursing staff,³⁹ or other healthcare professionals.¹ Triaging was by initial telephone consultation with a clinician,¹² by forwarding to specialist advice³⁹ or call back from a healthcare professional.⁴⁴ Hospital admissions were arranged at all triage stages: on initial call to a call handler, after clinician phone consultation, or following a home visit.⁴⁴

Mechanisms of OOH hospital admissions at the end of life

In the 23 publications that indicated the services arranging admissions,^{1,10,12,15,26,27,29–36,38–46} OOH GP services were most often reported^{1,10,26,27,29–33,35,36,38,40–42,44,45} alongside ambulance 999 calls,^{1,10,15,30,35,36,38,40,41,45} NHS 111/NHS 24/other telephone advice lines,^{1,35,38–42,46} community nursing teams,^{1,10,35,38,40,42} palliative care teams^{1,26,40} and unspecified 'unscheduled primary care'.^{12,34,43}

Box 2. Circumstances leading to out-of-hours hospital admissions for patients receiving end-of-life care

Thematic area	Themes	Subthemes
Participants	Patients	<ul style="list-style-type: none"> • Patient needs or wishes
	Caregivers	<ul style="list-style-type: none"> • Carer inexperience of death • Carer preferences • Carer burnout • Carer uncertainty • Carer breakdown
	Both	<ul style="list-style-type: none"> • Patient or carer distress • Patient or carer anxiety
Structures and processes	Policy	<ul style="list-style-type: none"> • Lack of advance care planning • Concerns about timely access to anticipatory medication
	Organisation	<ul style="list-style-type: none"> • Unavailability or limited capacity of alternative services • Lack of systems in place • Lack of availability or accessibility of patient information • Lack of flexibility (fixed structure) • Complexities of workforce management • Lack of continuity of care • Lack of time to assess and address needs
	Provider	<ul style="list-style-type: none"> • Lack of training • Poor communication • Inability to provide care • Unfamiliarity with the patient • Feeling of not performing their duties • Fear of professional repercussions
Clinical factors	Assessment or diagnosis	<ul style="list-style-type: none"> • Clinical or diagnostic uncertainty • Complexity of the situation
	Symptom management	<ul style="list-style-type: none"> • Treatment of pain or other physical symptoms • Complication of treatment or failure of initial treatment
	Precaution or follow-up	<ul style="list-style-type: none"> • As a precaution • Abnormal laboratory results • Further investigation

Service providers arranging hospital admissions at the end of life

In the 17 publications that indicated the practitioners arranging admissions,^{1,10,12,15,27,29-32,36,37,39,40,42-44,46} OOH GPs were most often reported,^{10,27,29-32,37,40,42} followed by community/palliative care nurses,^{15,27,29,39,40,42,46} call handlers/999 operators,^{1,12,36,42,44} paramedics and ambulance staff,^{10,15,27,30} and unspecified 'OOH clinicians'.^{12,31,32,36,43,44}

Patients receiving end-of-life care admitted to hospital OOH

Publications presented either generic information concerning patients admitted to hospital,^{10,27,31,34,45} data describing palliative and end-of-life care patient populations,^{36,38,43} or focused on patients with cancer.^{1,10,15,27,29,31,40,42,44-46} Few publications referred to non-cancer patients⁴⁶ including those with chronic obstructive pulmonary disease and dementia,^{10,15} advanced dementia,⁴¹ and frailty.³⁷

Frequency of OOH hospital admissions at the end of life

The review question relating to frequency of OOH hospital admissions had the least evidence available, with diverse contexts, study designs, and populations studied. Fifteen publications presented widely varying frequencies of OOH end-of-life hospital admissions,^{10,12,27-35,39,43-45} ranging from 2%⁴⁴ to 69% of patients.²⁸ Limited conclusions can be drawn from the scarce and heterogeneous literature.

DISCUSSION

Summary

The literature addressing OOH end-of-life care hospital admissions in the UK is largely unfocused and limited by the heterogeneity of the evidence presented. Available data indicates that admissions are initiated in relation to informal caregiver and patient distress, discontinuity (or unavailability) of services and/or access to patient information, and symptom management issues. Hospital admissions are arranged by a variety of OOH services and providers, most prominently OOH GPs. The limited evidence focuses largely on cancer populations and reported admission rates varied greatly between studies.

Strengths and limitations

To the authors' knowledge, this is the first systematic review of the factors leading UK OOH services to admit patients receiving end-of-life care to hospital. Initial database searches were adapted to ensure conciseness and concreteness. Clearly defined criteria for study selection and explicit methods for data extraction and synthesis reduced biases and offered a transparent and replicable process. The patient and public involvement advisory group assisted in refining the research questions and interpretation of findings.

The review was hindered by inconsistent definitions of patients receiving palliative care and end-of-life care, and often heterogeneous patient populations in the included studies. The depth of narrative synthesis was limited by the focus of the studies identified and the nature of available evidence, which addressed diverse aspects of OOH provision either generically or indirectly. The focus of many studies on patients with cancer may not be generalisable to non-cancer populations that have been little studied to date.

Comparison with existing literature

The circumstances identified in this review as leading OOH providers to

Funding

This research was funded by Marie Curie and by the Scientific Foundation Board of the Royal College of General Practitioners (grant number: MC 2018-03). Evie Papavasiliou was funded by this grant. Sarah Hoare is supported by the National Institute for Health Research (NIHR) Applied Research Collaboration East of England programme. Ben Bowers is funded by the NIHR School for Primary Care Research. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care.

Ethical approval

Not applicable.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have declared no competing interests.

Acknowledgements

The authors thank Isla Kuhn, Head of Medical Library Services, University of Cambridge, for her expertise and help designing the initial search strategy, and for conducting the literature searches. The authors are grateful for the administrative support of Angela Harper throughout this project.

Open access

This article is Open Access: CC BY 4.0 licence (<http://creativecommons.org/licenses/by/4.0/>).

Discuss this article

Contribute and read comments about this article: bjgp.org/letters

instigate hospital admissions are well-known and documented. A UK 2001 report on OOH community palliative care identified challenges in service provision, communication, patient and carer support, and medical provision, including access to drugs, equipment, and specialist advice.⁴⁷ These issues are also echoed in international research on the challenges for home-based OOH end-of-life care provision^{1,26,48–50} and explanations for unplanned hospital admissions for patients receiving end-of-life care.^{51–53} In this context of difficult end-of-life care OOH provision, UK and international studies have identified hospital admissions to be an invaluable resource, readily available at all times of the day and night, and offering a safe solution to issues that may be difficult to resolve in the community at short notice.^{7,15} Not yet addressed in the literature is why hospital admissions are at times not sought in the circumstances described. It is unclear, for example, whether any single issue or combination of issues is particularly significant for initiating (or protective of) OOH clinicians seeking hospital care for patients receiving end-of-life care.

Implications for research and practice

This review provides evidence as to why issues experienced during OOH may lead to end-of-life hospital admissions (circumstances), how such admissions occur (processes), and by whom they are

instigated (mechanisms). Importantly, although the findings may be unsurprising to many clinicians and end-of-life care researchers, this review highlights significant gaps in the evidence. Knowledge on how the identified factors interact with each other (for example, how circumstances may affect processes or how different mechanisms may respond to different circumstances) is currently lacking. Also lacking is evidence of effective interventions to improve care to prevent potentially avoidable end-of-life hospital admissions.⁵⁴

The issues highlighted are pertinent to end-of-life care provision at all times of the day and night, although they seem to be particularly acute when they occur OOH. What the current review suggests is that, although OOH end-of-life care can often be readily resolved by hospital admissions, it comes with multiple challenges that appear to be widespread and systemic. Some of these challenges might be prevented by action in-hours¹ or better management of unscheduled care episodes within the community leading to reduced hospital admissions, which is what most recent empirical evidence seems to suggest.⁵⁵ Bearing in mind, however, that the OOH period comprise the majority of the week, service managers, commissioners, and policymakers need to continue to strive for integrated and comprehensive approaches to end-of-life care, 24 hours a day, 7 days a week.^{56,57}

REFERENCES

- Addington-Hall J, Gerard K, Sarah B, *et al.* *Variations in out of hours end of life care provision across primary care organisations in England and Scotland. Final report. NIHR Service Delivery and Organisation Programme.* London: HMSO, 2013.
- Department of Health. *End of life care strategy: promoting high quality care for all adults at end of life.* London: Department of Health, 2008.
- National Audit Office. *End of life care.* London: National Audit Office, 2008.
- Fergus CJ, Chinn DJ, Murray SA. Assessing and improving out-of-hours palliative care in a deprived community: a rapid appraisal study. *Palliat Med* 2010; **24**(5): 493–500.
- Palliative and end of life care Priority Setting Partnership. *Putting patients, carers and clinicians at the heart of palliative and end of life care research.* London: James Lind Alliance, 2015.
- Robinson J, Gott M, Gardiner C, Ingleton C. A qualitative study exploring the benefits of hospital admissions from the perspectives of patients with palliative care needs. *Palliat Med* 2015; **29**(8): 703–710.
- Gott M, Gardiner C, Ingleton C, *et al.* What is the extent of potentially avoidable admissions amongst hospital inpatients with palliative care needs? *BMC Palliat Care* 2013; **12**(1): 9.
- Gardiner C, Ward S, Gott M, Ingleton C. Economic impact of hospitalisations among patients in the last year of life: an observational study. *Palliat Med* 2014; **28**(5): 422–429.
- Reyniers T, Houttekier D, Cohen J, *et al.* The acute hospital setting as a place of death and final care: a qualitative study on perspectives of family physicians, nurses and family carers. *Health Place* 2014; **27**: 77–83.
- Hoare S, Kelly MP, Barclay S. Home care and end-of-life hospital admissions: a retrospective interview study in English primary and secondary care. *Br J Gen Pract* 2019; DOI: <https://doi.org/10.3399/bjgp19X704561>.
- Petrova M, Riley J, Abel J, Barclay S. Crash course in EPaCCS (Electronic Palliative Care Coordination Systems): 8 years of successes and failures in patient data sharing to learn from. *BMJ Support Palliat Care* 2018; **8**(4): 447–455.
- Brettell R, Fisher R, Hunt H, *et al.* What proportion of patients at the end of life contact out-of-hours primary care? A data linkage study in Oxfordshire. *BMJ Open* 2018; **8**(4): e020244.
- Magee C, Koffman J. Out-of-hours palliative care: what are the educational needs and preferences of general practitioners? *BMJ Support Palliat Care* 2016; **6**(3): 362–368.
- Brady M. Challenges UK paramedics currently face in providing fully effective end-of-life care. *Int J Palliat Nurs* 2014; **20**(1): 37–44.
- Hoare S, Kelly MP, Prothero L, Barclay S. Ambulance staff and end-of-life hospital admissions: a qualitative interview study. *Palliat Med* 2018; **32**(9): 1465–1473.
- Taubert M, Nelson A. “Oh God, not a palliative”: out-of-hours general practitioners within the domain of palliative care. *Palliat Med* 2010; **24**(5): 501–509.
- Burt J, Shipman C, Addington-Hall J, White P. Nursing the dying within a generalist caseload: a focus group study of district nurses. *Int J Nurs Stud* 2008; **45**(10): 1470–1478.
- Butler M, Epstein RA, Totten A, *et al.* AHRQ series on complex intervention systematic reviews — paper 3: adapting frameworks to develop protocols. *J Clin Epidemiol* 2017; **90**: 19–27.
- Gough D. Weight of Evidence: a framework for the appraisal of the quality and relevance of evidence. *Res Pap Educ* 2007; **22**(2): 213–228.
- Popay J, Roberts H, Sowden A, *et al.* *Guidance on the conduct of narrative synthesis in systematic reviews: a product from the ESRC methods programme.* 2006. <https://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/fhm/dhr/chir/NSsynthesisguidanceVersion1-April2006.pdf> [accessed 16 Aug 2021].
- Petticrew M, Roberts H. *Systematic reviews in the social sciences: a practical guide.* Oxford: Blackwell, 2006.
- Greenhalgh T, Robert G, Bate P, *et al.* *How to spread good ideas: a systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation.* London: National Co-ordinating Centre for NHS Service Delivery and Organisation R&D, 2004.
- Madden A, Bailey C, Alfes K, Fletcher L. Using narrative evidence synthesis in HRM research: an overview of the method, its application, and the lessons learned. *Hum Resour Manage* 2018; **57**(2): 641–657.
- Guise J-M, Chang C, Butler M, *et al.* AHRQ series on complex intervention systematic reviews — paper 1: an introduction to a series of articles that provide guidance and tools for reviews of complex interventions. *J Clin Epidemiol* 2017; **90**: 6–10.
- Guise J-M, Butler ME, Chang C, *et al.* AHRQ series on complex intervention systematic reviews — paper 6: PRISMA-CI extension statement and checklist. *J Clin Epidemiol* 2017; **90**: 43–50.
- Munday D, Dale J, Barnett M. Out-of-hours palliative care in the UK: perspectives from general practice and specialist services. *J R Soc Med* 2002; **95**(1): 28–30.
- Adam R, Wassell P, Murchie P. Why do patients with cancer access out-of-hours primary care? A retrospective study. *Br J Gen Pract* 2014; DOI: <https://doi.org/10.3399/bjgp14X677158>.
- Alcorn G, Murray SA, Hockley J. Care home residents who die in hospital: exploring factors, processes and experiences. *Age Ageing* 2020; **49**(3): 468–480.
- Ali AA, Adam R, Taylor D, Murchie P. Use of a structured palliative care summary in patients with established cancer is associated with reduced hospital admissions by out-of-hours general practitioners in Grampian. *BMJ Support Palliat Care* 2013; **3**(4): 452–455.
- Barclay S, Froggatt K, Crang C, *et al.* Living in uncertain times: trajectories to death in residential care homes. *Br J Gen Pract* 2014; DOI: <https://doi.org/10.3399/bjgp14X681397>.
- Blaney J, Crawford G, Elder T, *et al.* Hospital cancer deaths: late diagnosis and missed opportunity. *BMJ Support Palliat Care* 2011; **1**(2): 135–139.
- Craig J, Morris L, Cameron J, *et al.* An evaluation of the impact of the key information summary on GPs and out-of-hours clinicians in NHS Scotland. *Scott Med J* 2015; **60**(3): 126–131.
- Doré M, Willis D. Community palliative medicine out-of-hours needs and the 7-day week: a service evaluation. *BMJ Support Palliat Care* 2018; DOI: <https://doi.org/10.1136/bmjspcare-2018-001592>.
- Gott M, Ingleton C, Gardiner C, *et al.* Transitions to palliative care for older people in acute hospitals: a mixed-methods study. *Health Serv Deliv Res* 2013; **1**(11): 1–138.
- Hanratty B, Lowson E, Grande G, *et al.* Transitions at the end of life for older adults — patient, carer and professional perspectives: a mixed-methods study. *Health Serv Deliv Res* 2014; **2**(17): 1–102.
- Ingleton C, Payne S, Sargeant A, Seymour J. Barriers to achieving care at home at the end of life: transferring patients between care settings using patient transport services. *Palliat Med* 2009; **23**(8): 723–730.
- McDermott C, Coppin R, Little P, Leydon G. Hospital admissions from nursing homes: a qualitative study of GP decision making. *Br J Gen Pract* 2012; DOI: <https://doi.org/10.3399/bjgp12X653589>.
- Mitchell S, Loew J, Millington-Sanders C, Dale J. Providing end-of-life care in general practice: findings of a national GP questionnaire survey. *Br J Gen Pract* 2016; DOI: <https://doi.org/10.3399/bjgp16X686113>.
- Plummer S, Allan R. Analysis of a network-wide specialist palliative care out-of-hours advice and support line: a model for the future. *Int J Palliat Nurs* 2011; **17**(10): 494–499.
- Richards SH, Winder R, Seamark C, *et al.* The experiences and needs of people seeking palliative health care out-of-hours: a qualitative study. *Prim Health Care Res Dev* 2011; **12**(02): 165–178.
- Watson J, Hockley J, Murray S. Evaluating effectiveness of the GSFCH and LCP in care homes. *End Life Care* 2010; **4**(3): 42–49.
- Worth A, Boyd K, Kendall M, *et al.* Out-of-hours palliative care: a qualitative study of cancer patients, carers and professionals. *Br J Gen Pract* 2006; **56**(522): 6–13.
- Fisher RFR, Lasserson D, Hayward G. Out-of-hours primary care use at the end of life: a descriptive study. *Br J Gen Pract* 2016; DOI: <https://doi.org/10.3399/bjgp16X686137>.
- Richards SH, Winder R, Seamark D, *et al.* Accessing out-of-hours care following implementation of the GMS contract: an observational study. *Br J Gen Pract* 2008; DOI: <https://doi.org/10.3399/bjgp08X280191>.
- Mills S, Buchanan D, Guthrie B, *et al.* Factors affecting use of unscheduled care for people with advanced cancer: a retrospective cohort study in Scotland. *Br J Gen Pract* 2019; DOI: <https://doi.org/10.3399/bjgp19X706637>.

46. Wye L, Lasseeter G, Percival J, *et al*. What works in 'real life' to facilitate home deaths and fewer hospital admissions for those at end of life?: results from a realist evaluation of new palliative care services in two English counties. *BMC Palliat Care* 2014; **13**: 37.
47. Thomas K. *Out-of-hours palliative care in the community: continuing care for the dying at home*. London: Macmillan Cancer Relief, 2001.
48. Williams H, Donaldson SL, Noble S, *et al*. Quality improvement priorities for safer out-of-hours palliative care: lessons from a mixed-methods analysis of a national incident-reporting database. *Palliat Med* 2019; **33**(3): 346–356.
49. Carey ML, Zucca AC, Freund MA, *et al*. Systematic review of barriers and enablers to the delivery of palliative care by primary care practitioners. *Palliat Med* 2019; **33**(9): 1131–1145.
50. Rhee JJ, Grant M, Senior H, *et al*. Facilitators and barriers to general practitioner and general practice nurse participation in end-of-life care: systematic review. *BMJ Support Palliat Care* 2020; DOI: <https://doi.org/10.1136/bmjspcare-2019-002109>.
51. De Korte-Verhoef MC, Pasman HRW, Schweitzer BP, *et al*. General practitioners' perspectives on the avoidability of hospitalizations at the end of life: a mixed-method study. *Palliat Med* 2014; **28**(7): 949–958.
52. Kao Y-H, Liu Y-T, Koo M, Chiang J-K. Factors associated with emergency services use in Taiwanese advanced cancer patients receiving palliative home care services during out-of-hours periods: a retrospective medical record study. *BMC Palliat Care* 2018; **17**(1): 46.
53. Yamagishi A, Morita T, Miyashita M, *et al*. Providing palliative care for cancer patients: the views and exposure of community general practitioners and district nurses in Japan. *J Pain Symptom Manage* 2012; **43**(1): 59–67.
54. Robinson J, Gott M, Gardiner C, Ingleton C. The 'problematisation' of palliative care in hospital: an exploratory review of international palliative care policy in five countries. *BMC Palliat Care* 2016; **15**(1): 64.
55. Mason B, Kerssens JJ, Stoddart A, *et al*. Unscheduled and out-of-hours care for people in their last year of life: a retrospective cohort analysis of national datasets. *BMJ Open* 2020; **10**(11): e041888.
56. National Palliative and End of Life Care Partnership. *Ambitions for palliative and end of life care: a national framework for local action 2015–2020*. 2015. <https://www.eolc.co.uk/educational/ambitions-for-palliative-and-end-of-life-care-a-national-framework-for-local-action-2015-2020> (accessed 26 Aug 2021).
57. Royal College of General Practitioners. *RCGP position statement on palliative and end of life care*. 2016. <https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/-/media/F50A676865DA4B74B01382EE933D622C.ashx> (accessed 16 Aug 2021).