Out-of-Hours Primary Medical Care: What Can Research Tell Us?

Findings From a Rapid Systematic Review and Qualitative Study

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Executive Summary

Out-of-hours (OOH) primary medical care in the UK has undergone substantial re-design and re-organisation, particularly since the implementation of the 2004 General Medical Services contract which allowed GPs to opt-out of providing OOH care. This has led to the development of multiple models of OOH care, with different routes of access and staffed by a range of health care professionals.

The Scottish National Review of Primary Care Out-of-Hours Services has recognised the need to draw together and understand the evidence base underpinning these developments both in the UK, and further afield. To address this, the University of Glasgow were commissioned to undertake a **rapid systematic review** of the peer-reviewed literature and to augment this with **qualitative interviews conducted with recently qualified and more experienced GPs.**

The review aimed to identify the literature on OOH care focussed on the structure, use and evaluation of out-of-hours primary medical care; identify gaps in our knowledge base; and to synthesise the literature in order to inform our view of what high quality out-of-hours care should look like.

A key challenge – both for this work – and for OOH care generally is one of definition. The timeframe for OOH care is relatively uncontested and agreed as: **"care provided between 18.30 and 08.00 on weekdays, all weekend and Bank Holidays"**.

The type of care that should be provided is more problematic. Care provided in the OOH time period is unscheduled, i.e. there has been no forward planning (either by patient or professional) or appointment made in advance. However, such care may or may not be regarded as urgent care. This is an important distinction and one that needs to be addressed by health care providers, policy makers and politicians. For the purposes of the review – and because the literature itself was not clear – we included all literature focussed on the OOH time period, but did not judge on the basis of urgency.

A systematic review of the English language literature published from 1995 to 2015 identified 274 eligible papers. The search focused on the UK, Europe, North America, Australis and New Zealand. Papers were included if they dealt with OOH primary medical care or a service which directly

explored the impact on OOH primary medical care. Studies focussed only on OOH dental care or social care were excluded.

The research focussed on demand, use and outcome patterns (accounting for over one quarter of the identified papers), assessment of new models of care and patient/carer views. With such a focus of research, quantitative methods such as analysis of routinely collected data and prospective or retrospective case reviews predominated. Qualitative research was used mainly to ascertain patient and, to a lesser extent, practitioner views. The research on new models of care also focussed on the type of care and on patient views and outcomes, with much less attention paid to issues such as new professional roles, inter-professional boundaries and acceptability of new roles to service users. There was very little research on issues such as IT or data sharing, with most of it coming from Scotland.

In relation to professional roles, there was a clear focus on GPs/family physicians. Other groups in the literature included staff dealing with telephone triage and nursing staff. However, the research focus tended to be quite generic. There was little on specific professional needs, for example the literature on GP needs in relation to training was scant and there was no literature on training and support needs for any other professional group that can be found working in OOH primary care. There was also nothing in relation to developing awareness of OOH in undergraduate curricula or of **building professionalism and competencies** amongst the workforce. This is a clear gap, given the value that patients and users give to high quality communication and empathetic staff.

There was a lack of research on key patient groups. The one exception was in relation to palliative cancer care patients, where there was a small but substantive body of work. Other groups, such as frail elderly, other end-of-life groups, patients with dementia or patients with mental health/psychological health issues were not evident in the literature. Patients with particular communication needs, such as the deaf community, or patients whose first language is not that of the host country were also missing from the research base. The issues affecting patients in area of deprivation or rurality were also under-reported. Such gaps need to be addressed and OOH care equity-proofed to ensure **equity of access** and outcome for all patient groups.

There was little work on the interface between in-hours and OOH care or between health and social care and the role of the third sector in providing, or supporting, OOH care needs was overlooked.

The literature shows that OOH care has developed in response to dealing with acute care needs. Patients used OOH services due to perceived urgency and most symptoms tended to be of 24 hours duration or less. This makes the current OOH model less responsive to the needs and demographics

of a 21st century population, namely an ageing population with increasing levels of multimorbidity and complex health and social care needs. This needs to be addressed as a matter of urgency.

In order to do so, we make the following recommendations.

- There is a clear need to engage with patients, service providers, policy makers and politicians to reach a shared view of what level of need OOH primary care should meet – in particular should it address **urgent** care need or **all unscheduled** care need.

- There is a continued need to understand how patients view different out-of-hours service providers and the decisions they make in relation to which service they choose to attend. The role of the media in shaping and assisting patients to "make sense" of OOH providers needs to be addressed.

- Single, centralised systems have to be "future proofed" to address the contextual realities of different areas, for example patients in remote and rural areas have different needs and capacity to respond compared to those in urban areas. This is also true in relation to socioeconomic deprivation.

- OOH care needs to be "equity-proofed" to ensure equity of access and outcome for all patient groups.

- Improved interoperability across IT systems and data monitoring systems is a pre-requisite to facilitate good communication and information sharing across both out-of-hours service providers and across the daytime to out-of-hours interface. This needs to be extended beyond "traditional" health care providers and include other essential sectors such as social care and the third sector.

- Patients need to be involved in the process of improving and extending data sharing to ensure that they both understand, as accept, the need for wider sharing of health and social care information.

- New professionals roles need to be developed and evaluated in out-of-hours care, for example pharmacists; this could be extended to professional groups operating out with traditional health care sectors.

- There should be better engagement with early career GPs and GP trainees and with undergraduate medical students to promote the value and professionalism of providing out-of-hours care.

- There is also a need for career development and training in OOH care for other professional groups and for inter-professional training in the OOH setting.

- Co-location and integration of services will have to be rigorously evaluated, including process evaluations to understand the impact and challenges this brings to different professional groups.

Recommendations for research and evaluation

Future models of care need to be rigorously evaluated using experimental research designs which will allow us to address the effectiveness of the model. Approaches could include cluster randomised controlled trials or stepped wedge designs, to allow for the roll-out of programmes. Such work should pay particular attention to the needs of key groups, including palliative care patients, the elderly, those with communication issues and those with mental health issues.

Future evaluation designs should incorporate economic evaluation to assess not only the immediate costs of a new model, but also the wider impacts on other parts of the health system.

We need to better understand the decision-making of patients in term of (i) what they know and understand of different parts of the out-of-hours system and (ii) what makes them choose one service provider over another (e.g. phoning NHS 24 versus attending A&E).

Co-location and integration of services should be underpinned and informed by evaluation, including qualitative process evaluation to understand the challenges and facilitators to such co-location.

Introduction

Out-of-hours (OOH) primary medical care is a key component of health systems. Often provided by general practitioners, but increasingly drawing on a wider multidisciplinary team, out-of-hours care has come under increasing scrutiny in the UK since the implementation of the 2004 General Medical Services (GMS) contract, when GPs were given the opportunity to drop their contractual obligation to provide care in the OOH period. In reality, out-of-hours care had been undergoing increasing changes since 1996, when the UK Government and the General Medical Services Committee reached an agreement to allow GPs to transfer responsibility for out-of-hours care to another GP and increased the fee for a home visit at night [2-4]. Most importantly, however, was the establishment of a new funding mechanism to support the development and delivery of primary health care at the level of groups of consortia of general practices – the OOH Development Fund.

This Fund led to the rapid development of out-of-hours co-operatives – groups of GPs covering extended geographical areas. GP co-operatives were defined as "non-profit making organisations entirely owned, and medically staffed by, the general practitioner principals of the area in which they operate". In 1993, Hallam and Cragg identified 31 GP co-operatives in operation in England and Wales, with another 13 being set up [5]; by 1997 this had increased to 251 across the UK [6].

Since then, a series of other initiatives have been implemented (and, in some cases, abandoned again) across the UK. Examples include nurse-led telephone triage and advice services (NHS Direct, NHS 24); the NHS 111 service; Minor Injuries Units; integrated exemplar sites which co-located NHS Direct and GP cooperatives; and walk-in centres [7]. However, this has also led to fragmentation and overlap of services, with concerns about cost effectiveness and about patients' awareness and abilities to navigate and access the most appropriate service [8,9]. Rising patient demand, concerns about the recruitment and retention of GPs, for both in and out-of-hours care, and economic sustainability have also raised concerns about the sustainability of current models of care. In addition, pressures in other parts of the health care system, in particular daytime general practice and accident and emergency (A&E) services are also impacting on OOH care. These factors have all led to debate about which models of out-of-hours care are fit for purpose today and into the future.

Concerns in Scotland have led the Scottish Government to commission a National Review into Out-of-Hours Primary Medical Care; this review of the academic literature was commissioned to help inform the work of the Review Group.

This review aims to identify the literature on OOH care focussed on the structure, use and evaluation of out-of-hours primary medical care; identify gaps in our knowledge base; and to synthesise the literature in order to inform our view of what high quality out-of-hours care should look like.

The report is presented in 5 sections

Section 1 outlines the key definitions used in this report;

Section 2 reviews the international literature on out-of-hours primary medical care;

Section 3 summarises the wide set of literature on demand, use and outcomes;

Section 4 reviews the published literature in relation to the Review Task Sub-Groups;

Section 5 reports on a series of interviews conducted with new and more experienced GPs;

Section 6 summarises this evidence and outlines our own recommendations for future research and evaluation in this area.

Section 1: Definitions

Out-of-hours timeframe

Out-of-hours primary medical care is defined as *"care provided between 18.30 and 08.00 on weekdays, all weekend and Bank Holidays"* [1] [3]. There is widespread agreement with this definition although, in practice, out-of-hours care provision often starts at 6pm.

The timeframe for out-of-hours is thus relatively uncontested. Peer-reviewed papers which refer to a timeframe use either the definition cited above, or something in close agreement to that. What is less clearly defined, however, is the type of care that should be delivered in the out-of-hours period. This lack of conceptual clarity has clear ramifications for the type of service being designed and delivered.

Acute, urgent, or unscheduled?

Care provided in the out-of-hours timeframe is thus **unscheduled**, i.e. there has been no forward planning or appointment made in advance. However, the real dilemma is in the type of need that out-of-hours care should deal with – namely is it urgent care needs only or all care that presents in the out-of-hours period.

This confusion can be seen in both the academic peer-reviewed literature and in policy documents. For example, while the academic literature often refers to the out-of-hours timeframe described above, there is generally little or no attempt to define the type of care being addressed (see Section 2 for a discussion of this). Policy documents released by UK Health Departments and other agencies often address the issues of both urgent care and emergency care in the same document, but make much less distinction about whether the care is being provided in daytime hours or out-of-hours[10-12], although this may be a reflection of the care setting such as hospital A&E departments. In other cases, even where the focus is explicitly on out-of-hours care, there is no consideration given as to whether the focus is urgent care or all unscheduled care (see, for example, the Quality Improvement Scotland Standards for Out-of-Hours Care)[13].

This conflation of care terminology appears in other documents. For example, in 2004 the House of Commons Health Committee report which examined out-of-hours care in England opened with the statement that *"Every year, approximately nine million patients receive **urgent** [our emphasis] primary care out of hours"* [14]. Later, however, it considered the *"importance of considering GP out-*

of-hours services as part of a whole network of 'unscheduled' or unplanned care" (*ibid*, paragraph 79). This report concluded that there were many routes to urgent care with GP-led out-of-hours services one part of a larger network of providers, including A&E departments, emergency ambulances and in-hours primary care, providing patients with access to **unscheduled** [our emphasis] care.

This lack of a clear definition has consequences, for example when Primary Care Organisations (Primary Care Trusts in England; NHS Health Boards in Scotland) took over responsibility for providing out-of-hours services after the 2004 General Medical Services contract allowed GPs to opt-out of providing such care [1 8 15]. When the House of Commons Public Accounts Committee reviewed the impact of this change on out-of-hours care in England, their first conclusion stated:

> *"The Department of Health (the Department) failed to make clear whether it regarded out-of-hours care as an urgent or unscheduled service. It was therefore difficult for Primary Care Trusts to plan or commission services according to the type and volume of demand for out-of-hours care. The Department needs to decide which kind of service it wants to provide, and give Primary Care Trusts a definitive statement so that they can plan or commission services for the future."* [16]

This confusion was also commented on by the National Audit Office in their review of services in England [17]; interestingly, when Audit Scotland conducted a similar review, they made no reference to this issue instead seeing GP out-of-hours care as part of the unscheduled care system [18].

It is, therefore, important that when considering service re-organisation and re-design, we are clear about whether we are addressing **urgent** or **unscheduled** care. In addressing this, the Department of Health in England issued the following definition of urgent care.

> *"Urgent care is the range of responses that heath and care services provide to people who require – or who perceive the need for – urgent advice, care, treatment or diagnosis. People using services and carers should expect 24/7 consistent and rigorous assessment of the urgency of their care need and an appropriate and prompt response to that need".* (Quoted in[19].)

Definitions of care

The Royal College of General Practitioners and the College of Emergency Medicine recently produced the Urgent and Emergency Care Clinical Audit Toolkit [19]. Recognising that urgent care provision is often fragmented and confusing to patients, the toolkit seeks to provide guidance on implementing clinical audit in urgent and emergency care settings, including GP out-of-hours services, ambulance services and A&E departments. Of most relevance to the work here, it presented a series of definitions for emergency, unscheduled and urgent care, drawing on those developed by the Department of Health for telephone triage (Box 1). However given that much of in-hours primary care and general practice is spent dealing with scheduled – or planned – health care, we would add a fourth definition to this set, covering that of scheduled care.

Box 1. Definitions of emergency, urgent, unscheduled and scheduled care. (Adapted from [19].)

Emergency care: Care that requires an immediate response to a time critical health care need.

Urgent care: Care that requires a response before the next in-hours or routine primary care service is available.

Unscheduled care: Care that requires services which are available for the public to access without prior arrangement, where there is an urgent actual or perceived need for intervention by a health or social care professional.

Scheduled care: Care in which either patient, health or social care professional has instigated a planned engagement e.g. by making an appointment, planning a follow-up or recall appointment or having an agreed consultation/telephone contact. The key proviso is that this contact has been planned in advance.

However, we also need to acknowledge the different ways in which patients and carers need and access health care services, both in hours and out-of-hours. Indeed, for some types of care – for example, emergency care – there is no notion of in hours and out-of-hours. This is illustrated in Figure 1, along with examples – by no means exhaustive – of services which might provide that care.

Figure 1. Schema of the types of care and providers in the in hours and out-of-hours period

Primary Care, General Practice & Emergency Services

In hours care 50 hrs pw

Scheduled	Urgent	Emergency
• GP appts • Community services • Pharmacy	• Same day GP appts • Walk into Pharmacy • NHS 24 • Minor injuries service • A&E	• A&E • Ambulance

Out-of-hours care 118 hrs pw

Unscheduled	Urgent	Emergency
• NHS 24 • GP OOH service	• NHS 24 • GP OOH service • Minor injuries • A&E	• A&E • Ambulance
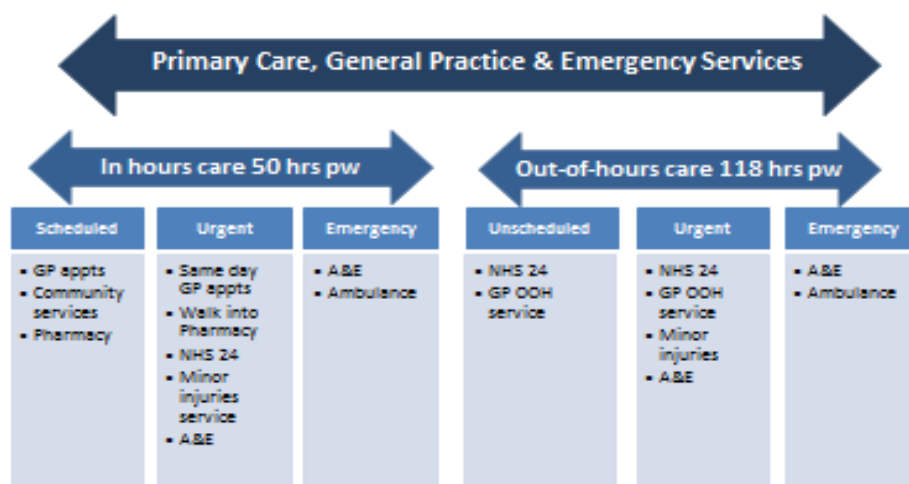
Service responses

The rising demand for urgent care has led to a range of initiatives and new services designed to address patients' needs. This has been particularly apparent in England, where constant change and development has led to a plethora of different services, located in different parts of the health system [7][8]. Examples include NHS Direct; integrated care pilots which co-located NHS Direct with GP out-of-hours co-operatives; walk-in centres; GPs sited in A&E departments; NHS 111; urgent care centres; and minor injuries units. The result is an increasingly fragmented set of services, delivering care at different points of time in the in hours and out-of-hours periods with patients confused as to which service they should access, and when. This may lead, in some instances, to patients using services perceived to be "inappropriate" to their level of need because that service is more readily accessible, available and recognisable to the patient, such as A&E [20] or ambulance services [21][22]. While the choice of services may be less diverse in Scotland, it is still conceivable that patients are uncertain and confused about what service to select, and when, in order to access urgent care.

Conclusion

Out-of-hours primary medical care has undergone substantial change and development, both as a result of the 2004 GMS contract, but also before that. Rising demand, recruitment and retention of GPs and financial pressures are all drivers for change. This work aims to review the international peer-reviewed literature on out-of-hours primary medical care, identifying gaps in our knowledge base and helping to define what high quality out-of-hours should look like.

Section 2: Rapid systematic review of the international literature

Aim and scope of the rapid systematic review

The aims of this systematic review are outlined in Box 2.

Box 2. Aims of the systematic review of peer-reviewed literature

- To identify the peer-reviewed literature focussed on the structure, use and evaluation of out-of-hours primary medical care.
- To identify gaps in the knowledge base with respect to out-of-hours primary medical care.
- To help to define what high quality out-of-hours care looks like.

In order to meet these aims, this review focused on

- Out-of-hours primary medical care;
- Papers which reported on empirical research (editorials, opinion pieces or commentaries excluded);
- Papers published in the peer reviewed literature (evaluation reports of new services, policy documents produced by Government agencies or position statements from professional bodies excluded);
- Papers published in English (due to time constraints of obtaining translations).

However, particularly in relation to evaluations of new models of care, we also included some evaluation reports which augmented work published by the evaluation teams.

All out-of-hours care is unscheduled; however, as discussed in Section 1, there is a recognised lack of clarity around whether out-of-hours care should provide only urgent care or also provide non-urgent care. For this review we did not distinguish between these different interpretations. Instead, we used the widely accepted definition of out-of-hours care in terms of timeframe (Box 3).

Box 3. Out-of-hours definition

Out-of-hours primary medical care is defined as *"care provided between 18.30 and 08.00 on weekdays, all weekend and Bank Holidays"* [1].

Country of setting and services included

We included those countries with health care systems broadly similar to that of Scotland or where we thought there would be new types of service development broadly transferable to Scotland. As outlined in Section 1, there have been a number of service models developed in last 10 to 15 years which operate particularly in the out-of-hours periods (e.g. NHS 24, NHS Direct, walk-in clinics); these were included. However, service developments focussing only on A&E or not operating within primary medical care were excluded. This scope covered:

- UK and appropriate international settings, mainly Europe, North America, Australia and New Zealand;
- Primary medical care (thus excluding dentistry and social work out-of-hours services);
- Services which impact on primary medical care, including: out-of-hours telephone-based services such as NHS 24, NHS Direct and the NHS 111 service;
- A&E/Emergency Department initiatives designed to interface with primary care services;
- Community-based or social work services designed to interface with primary care services.

Review Questions

Following discussion with the out-of-hours Task Group, the following questions were addressed:

1. What models of care have been developed to meet out-of-hours demand? How robustly have they been evaluated?
2. What professionals groups are involved?
3. What patient groups do services target?
4. What are demand patterns for out-of-hours?
5. In what ways are data and IT utilised?

6. What are the training needs for staff providing out-of-hours care and are they being addressed?

7. What areas of out-of-hours have not been addressed in the research literature?

A full description of the systematic review methods can be found in Appendix 1.

Findings from Systematic Review

Searches were conducted between April and July 2015 by the GU review team and also by the information scientists at Healthcare Improvement Scotland. These searches were supplemented by key references known to COD and by limited hand searching of key journals. This identified 2855 papers, of which 1491 were duplicates. Title and abstract screening excluded a further 886 papers. The remaining 478 papers were reviewed; of these, 204 were excluded as they were not about OOH primary medical care or did not contain empirical data, leaving 274 papers in the final review (Figure 2).

Figure 2. PRISMA flow diagram
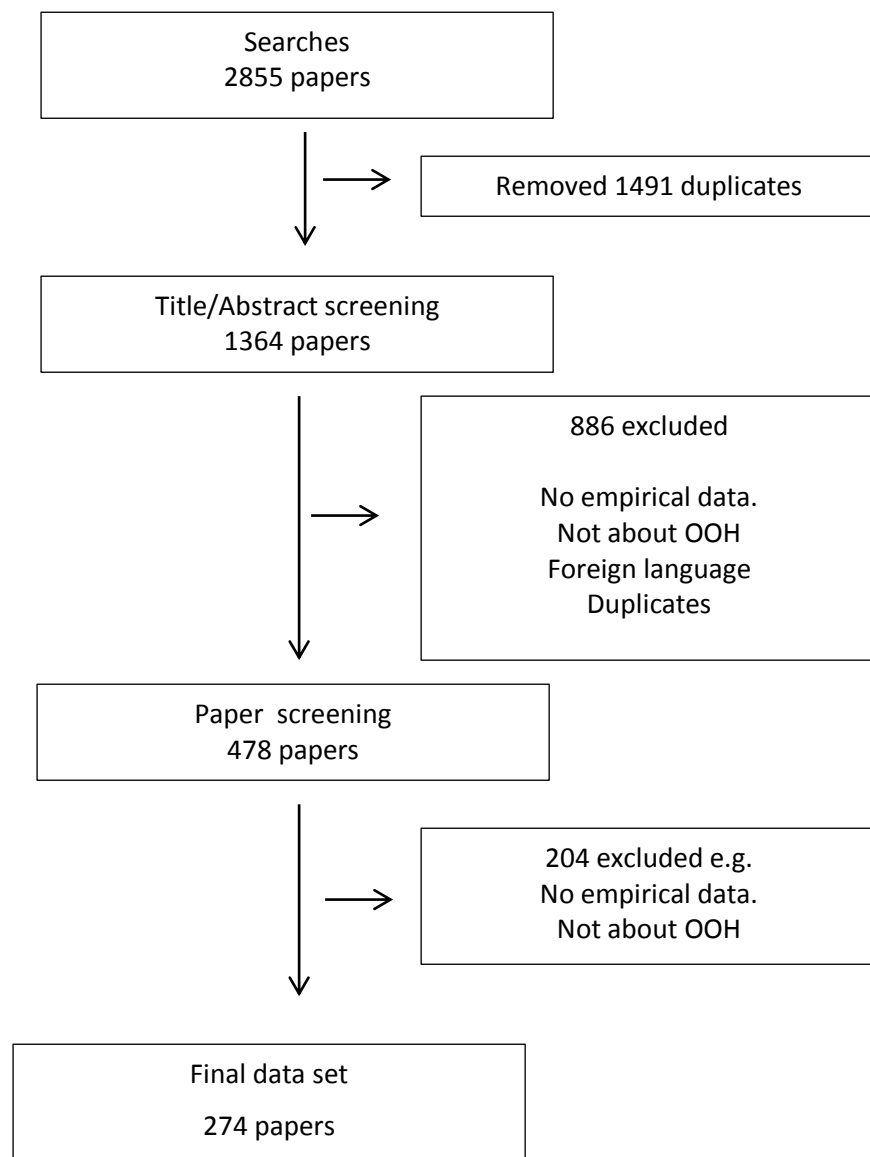
Scope of the literature on out-of-hours care

Country, year of publication and type of research

We identified 274 papers published in peer reviewed journals since 1995. The identified literature was characterised in terms of country of origin, year of publication and type of study design (Table 1).

Table 1. Studies by country setting, year of publication and study design

Country Setting	Number of papers
England	97
The Netherlands	37
Scotland	28
Republic of Ireland	18
Norway	15
Denmark	12
Wales	10
Australia and New Zealand	8
Canada and US	7
Northern Ireland	4
Other European countries	15
United Kingdom	12
Multiple countries	11
Year of Publication	
1995 – 1999	37
2000 – 2004	58
2005 – 2009	76
2010 – 2015	103
Type of Study	
Questionnaire/Survey	71
Routine data analysis	43
Qualitative	37
Retrospective case note/record review	23
Prospective case note/record review	19

Review/Systematic review	13
RCT	4
Observational cohort study	4
Interrupted time series	3
Mixed methods	31
Other (included cost analyse, Delphi consensus studies, simulated patient studies)	26

Country of setting

Overall the literature was heavily skewed to work conducted in England (97/274 papers, 35.4%), followed by the Netherlands (37, 13.5%) and Scotland (28, 10.2%). Adding together work conducted in all the UK countries, there were 151 (55.1%) reporting work which took place in the UK. Other European countries represented included Denmark, Norway and Belgium. This suggests that the environment in which out-of-hours research has been conducted is located in, or generalisable to, Scotland.

Study design

There has been a steady increase in papers reporting on out-of-hours care since 1995, with 179 (65.3%) published in the last 10 years. The type of study is, however, mainly quantitative, with 156 studies (56.9%) reporting on questionnaires, routine data analysis and retrospective or prospective case note review. A smaller number of papers (37, 13.5%) reported qualitative findings, generally employing either semi-structured interviews or focus groups. A further 31 papers (11.3%) used mixed methods. These studies tended to use case note review or questionnaires coupled to a smaller quantitative study. Very few studies utilised RCT methodology or economic evaluation.

Focus of research and patient groups studied

We categorised papers according to their primary research focus and the patient group, or groups, studied (Table 2).

Table 2. Primary research and patient focus.

Primary Research Focus[a]	
Description of demand, use & outcomes	74
Patient/Carer views of service	63
Assessment of models of care (e.g. co-operatives, walk-in centres)	57
Health care professional views of service	19
Quality of care (e.g. patient safety, clinical decision-making)	30
Quality/assessment of triage	17
GP training	10
Impact on GPs and families	9
"Appropriateness" of use	5
Prescribing (e.g. formulary guidance)	5
IT issues/Data sharing	7
Patient Focus[a]	
General	153
Palliative care/Cancer patients	30
Children (under 18)	12
Adults (18 and over)	6
Mental health/Psychiatric patients	4
Elderly only (65 and over)	3
Other (e.g. chronic disease patients, migrants/refugees, frequent attenders)	10
N/A (Focus on clinicians)	60
Terminology in Title	
Out-of-hours	195
After hours	13
Emergency	10
Urgent care	7
Unscheduled care	4
Other (e.g. emergency; walk-in; integrated OOH care)	10
Not stated in title	35

a. Adds to >274 papers as papers could be double counted

Primary research focus

This focus on quantitative methods, and in particular routine data or case review, was reflected in the primary research focus on the identified papers. Over one-quarter (74) described demand and outcome patterns; of these all but 4 used quantitative methods such as analysis of routinely collected data and prospective or retrospective record review. A further 57 reported on the assessment of models of care, including GP-led co-operatives; telephone triage service (e.g. NHS Direct, NHS 24 and NHS 111); walk-in centres; and emergency care practitioners. These papers also tended to be quantitative in nature in nature, with 19 using quantitative methods. There were also systematic reviews (9 papers), 10 using mixed methods, bringing together quantitative and qualitative approaches; 4 RCTs; and 1 cost effectiveness study. The research on new models of care also focussed on the type of care and on patient views and outcomes, with much less attention paid to issues such as new professional roles, inter-professional boundaries and acceptability of new roles to service users.

Patient/carer and health care professional views of out-of-hours care were reported (63 and 18 papers respectively); such studies tended to use either questionnaire surveys or qualitative methods. A further 30 focussed on quality of care issues, including assessments of clinical decision-making and patient safety, while 17 examined telephone triage. Finally, 19 papers examined the impact of changes to out-of-hours care on GPs and/or GP training. There was no literature on training and support needs for any other professional group that can be found working in OOH primary care. Very few papers examined IT or data sharing, with most of that identified originating from Scotland.

Patient focus

There was often no particular patient focus in the reported work; of the 214 papers focussed on patients, 153 (71.5%) reported on all patients contacting the service as a homogenous group. The only patient group that featured in published research were palliative care cancer patients (30, 14.1%). Care of the elderly (defined as 65 and over) was an explicit focus of only 3 papers; likewise provision of out-of-hours care for psychiatric or mental health patients featured in only 4 papers. The issues affecting patients in areas of deprivation or rurality were also very under-reported.

Professional roles

The research is heavily focused on general practitioner/family physician roles (Table 3). Of the 378 times that professional roles were cited, 174 instances (46.2%) relate to GPs/family/primary care physicians. After that, the next biggest groups were staff dealing with telephone triage (53); nurses in a more generic role (38); and A&E/ED doctors (25). There were very few mentions of emergency care practitioners, paramedics/ambulance staff or pharmacists.

Table 3. Professional roles

Professional roles[c]	
GPs/Family physicians/primary care physicians	174
Telephone triage staff (including doctors, nurses and call handlers)	54
Nurses (General/Out-of-hours)	38
A&E/ED doctors	25
Nurse practitioners/Advanced Nurse practitioners	12
Administrative staff	12
Emergency care practitioners	8
Paramedics/Ambulance staff	8
Other hospital specialties	5
Pharmacists	2
Others (generally not well defined)	40

c. Adds up to >273 due to multiple groups in single papers.

Summary of scope of the reported research

There are significant gaps in the published literature, doubtless reflecting the interests and funding available for work in this area. Data employed are predominately quantitative, with a focus on routinely collect data and on prospective or retrospective case review. Questionnaires sent to patient or to health care professionals and qualitative studies involving samples of patients or professionals are also common. There were, however, almost no experimental RCT designs or studies examining cost effectiveness or cost benefit of out-of-hours care.

Research focusses on demand and use patterns and on views of services. The changes in the provision of care in England had also stimulated work in assessing new models of care. There was little on GP training and nothing on training for other professional groups. There was almost nothing on professional roles or boundary issues or on use of IT in out-of-hours care. The patient focus is general; a small body of literature has reported on the issues of providing out-of-hours care for palliative care cancer patients. There is, however, almost nothing on out-of-hours care for the elderly – especially frail elderly – or patients with mental health issues.

In particular, there is very little work considering the role of wider professional groups in out-of-hours care. Most of the work focuses on GPs, with a smaller number of papers work relating to nursing roles, mainly around triage nurses. There is almost no published work considering the role of other groups, with the exception of ECPs and physician assistants. There is no work on the potential role of pharmacists, ambulance service or other professional groups. There is also no work considering the role of third sector organisations in supporting OOH care.

In short, the research base is variable in terms of the remits of the four task sub-groups. However, in the section 4, we will attempt to drill down into appropriate data, where it exists.

Section 3: Description of demand, use and outcomes

The review identified a large body of literature focussed on describing out-of-hours demand, use and outcomes. These papers were almost entirely quantitative and data driven (Table 4). While this approach is clearly best for research questions about demand, use and outcomes, all the studies were observational (none derived data from RCTs), and almost all were based in single sites or multiple sites of the one provider (e.g. NHS Direct). Comparisons across countries were rare, presumably due to the lack of comparability in data collection and definitions.

Table 4. Methodologies used to explore demand, use and outcomes

Research methodology	Papers
Routinely collected data	25 (33.8%)
Prospective/Retrospective case or record review	24 (32.4%)
Mixed methods (mainly case review & questionnaire)	11 (14.9%)
Questionnaire/Survey	8 (10.8%)
Other (Cohort, Literature review, Systematic review)	6 (8.1%)

Here, we review the data by the addressing the following questions:

1. How many people use OOH services and when?

2. Who uses OOH services?

3. What symptoms do patients present with?

4. What socio-geographical factors influence OOH demand?

5. What happens when they contact OOH?

6. What organisational factors or models of care influence OOH demand?

A full list of the papers included here, with a summary, can be found in Appendix 2, Table A1.

How many people use out-of-hours services and when?

It is difficult to ascertain trends in out-of-hours contact rates or out-of-hours demand as comprehensive electronic data has not always been available. Previous studies of out-of-hours work measured proxies for out-of-hours contacts (e.g. night visit claim fees), and estimated out-of-hours work in different settings over different lengths of time making comparisons difficult [23]. Nonetheless, there is some evidence and consensus that out-of-hours demand and activity has been increasing year on year [23][24].

An analysis of calls to NHS 24, the national nurse-led telephone triage and consultation service in Scotland, showed that in 2011 there were 1,342,010 calls for the year, with roughly 86% of contacts during the OOH period [25]. For an estimated population of 5.3 million (ONS mid-2012), this equates to an out-of-hours contact rate of 217.8 per 1000 population per year. These contacts were made by 791,178 individuals, which is roughly 15% of Scotland's population. These data can be compared with the national evaluation the first three years roll-out of NHS 24. Then, the cumulative total of calls from May 2002 to April 2005, as the service rolled out nationally was 1,914,176 [26]. For both studies, the vast majority of calls were in the out-of-hours period (2002 – 2005: 90%; 2011: 86%).

Rates of out-of-hours contacts vary within and across countries. For example, work conducted in the late 1990s found evidence of variation in out-of-hours demand across the UK [27]. This study analysed 899,657 out-of-hours calls over 12 months (1997-1998) to 20 co-operatives in England and Scotland. The overall average call rate was 159 calls per 1000 patients per year. However Scotland's demand for out-of-hours care was higher than that of England: rate for Scottish co-operatives was 221 per 1000 per year compared to 45 per 1000 per year for English co-operatives. To date, however, no other comparative work has been conducted.

Out-of-hours demand is not steady throughout the out-of-hours period and data has shown a consistent weekly pattern of demand. During the week most people use out-of-hours services between 6pm-11pm [27-29]. At the weekend Sunday mornings tend to be busiest and there tend to be more out-of-hours night contacts (midnight-8am) during the weekend than during the week [27][28].

Thus, although difficult to compare individual studies, there has been increased activity or work during out-of-hours period. This makes intuitive sense as the population ages. However, as recently noted in a BMJ editorial about urgent care in England, this may not represent increased demand but might rather be an unmasking of hidden demand due to improved access [30].

Who uses out-of-hours services?

A large body of routine data from the UK and Europe shows that the most frequent users of out-of-hours services are children, especially under 5 years old, older people who require more home visits, and those with chronic health problems [25 27 31-33]. Men tend to use out-of-hours less than women but men are more likely to use A&E departments. Two studies, based in Denmark, also found that those who use day time services more also tend to use out-of-hours services more [34 35]. This would complement findings from Scotland that users of a GP out-of-hours co-operative who were from areas of deprivation were more likely to have experienced problems accessing daytime general practice services [36]

Where out-of-hours services were arranged via GP practices, those practices with higher list inflation had lower OOH contact rates and those with higher proportions of 0-4yr olds on their lists had higher contact rates [37].

A pilot study in London found that choosing to attend a GP out-of-hours service was associated with being female, being an older adult and having an infection or non-traumatic musculoskeletal problem[38]. This contrasted to A&E attendances, which were associated with being male, younger and having chest pain or an injury. A larger study in Belgium found being female, registered with a GP and speaking the national language all associated with choosing to attend a GP out-of-hours service rather than attend A&E [39].

What symptoms do patients present with?

The NHS 24 data analysis from 2011 showed 'problems' or presenting complaints were mainly abdominal (13.2%), skin, and breathing related during the out-of-hours period compared to dental (37.2%), abdominal and medication problems in-hours [25]. Overall, out-of-hours contacts tended to concern symptoms of <24hr duration. This suggests most people use out-of-hours services due to the perceived urgency of the problem, which is confirmed by a survey of out-of-hours patients in Glasgow who gave "perceived urgency" as a reason for attending [36].

Similarly, across Europe, people present to out-of-hours services mainly with respiratory, skin, abdominal, musculoskeletal or general and unspecified symptoms [40 41]. A study of 210 observed out-of-hours consultations from Norway found that that 18% of out-of-hours clinicians' time is taken up with dealing with minor ailments [42].

Minimal evidence exists for out-of-hours use by those with chronic diseases; however studies of out-of-hours adult contacts in Denmark show a quarter to one third of contacts had a diagnosis of at least one of five broad chronic disease groups (lung, heart, psychiatric disease, cancer or diabetes) [35] [43]. Chronic diseases, particularly psychiatric diagnoses, were also found to be more prevalent in those who used out-of-hours more frequently [44]. Thus, while the chronic disease itself may not be the reason for the out-of-hours contact, chronic disease certainly underpins much of the patient need seen in out-of-hours services.

Cancer related out-of-hours contacts account for 1-2% of all GP out-of-hours contacts [24 45 46]. Those with cancer often call due to symptoms, with pain being the most common symptom accounting for 30% in one study in the Highlands [47]. However, as discussed in Section 4, under the Safety and Quality of Care Group, dealing with cancer patients raises much concern and anxiety amongst on-call GPs.

Psychiatric diagnoses were more prevalent in those who used out-of-hours more frequently [44]. A study from Norway in 2006 suggested more serious mental health diagnoses may present during out-of-hours compared with routine day time practice [48]. Routine data from inner-city London in 1998 suggests that patients who self-harm are more likely to present to A&E out-of-hours, while those with suicidal ideas present more to GP out-of-hours services [49].

What socio-geographical factors influence out-of-hours demand?

OOH demand and requirements vary with geographic and socioeconomic variables [50]. Evidence exists from across Europe to show that rates of OOH contact reduce as the distance from an out-of-hours centre increases [51-54].

One study from Ireland found rural areas having a much higher out-of-hours contact rate than urban areas [55]. Most other studies, however, found lower contact rates for rural areas compared to urban areas [56].

Deprivation was strongly associated with higher out-of-hours call rates for both OOH primary care and A&E [32 53 56-58 **2118**]. There may, however, be age-related effects as one study from Scotland did find higher contact rates from elderly patients in affluent areas compared to elderly from more deprived areas [32]. One study from Belgium showed those from deprived areas are more likely to use

A&E than out-of-hours compared to those from less deprived areas [59]. This may indicate that, for some population groups, A&E remains a more accessible and permeable service.

The relationship between out-of-hours demand, distance and deprivation is likely more complex than the simple one outlined above. An analysis of out-of-hours calls in England found that deprivation had a greater effect than distance on contact rates and that deprivation had a greater influence on contact rate in urban areas [56]. This, again, will impact on the types of organisational models that best fit need and demand in different geographical and regional contexts.

What happens when patients contact an out-of-hours service?

National data analysis from NHS 24 showed differences in outcomes for in hours calls compared to out-of-hours calls and these are likely influenced by what services are available at the time [25]. The relative proportions of call outcome were out-of-hours: advice to visit out-of-hours centre 34.1%, home visits 12.2% and self-care advice 10.2%; in-hours: advice to see dentist 27.6%, clinician call back 21.1%, advice to contact own GP 19.2%. Comparisons between co-operatives and comparisons between countries show large variation between the proportions of home visits, centre consultations and telephone consultations [27 60]. Elderly people were more likely to receive a home visit and younger patients to be seen at an out-of-hours centre or receive telephone advice [33 51 61].

The outcomes of out-of-hours contacts are influenced by rurality as urban out-of-hours centres perform less home visits and less telephone consultations but see more patients at out-of-hours centres [55]. Those patients who live further away are less likely to be seen in a face to face contact [51].

A study of NHS Direct data showed that roughly 1 in 5 callers were advised to attend or referred to urgent care services (ambulance, A&E or out-of-hours GP service) [29]. The same study showed more were signposted to urgent care during evening hours or where the call concerned patients who were male, elderly or from more deprived areas. Routine data analysis from Scotland showed that deprivation was associated with home visits for all age groups except the elderly and use of a patient transport service [32].

More than two thirds of cancer related calls resulted in a home visit in one study of out-of-hours cancer related contacts [47]. A GP out-of-hours palliative case review in The Netherlands found that those cases where professional nursing was involved or where information from the routine GP was

available were less likely to be referred to hospital suggesting anticipatory care could influence the out-of-hours outcome [62].

An analysis of referral rates after an out-of-hours consultation in England showed wide variation and associations with gender of the GP (female), later time of contact and place of contact (home visit) with higher referral rates [63]. An Italian study of out-of-hours contacts showed variation in hospital referral rate among clinicians [64].

What organisational factors or models of care influence OOH demand?

Evidence exists for variation in demand and use that cannot be explained by geography or demographics, suggesting organisational factors influencing demand and use [65]. Although there was little evidence of explicit models of care influencing out-of-hours demand there was evidence that perceptions of day time services as well as day time care can impact on out-of-hours demand. A large survey of 567,049 patients in England showed that worse self-reported measures of access to GPs was associated with more out-of-hours use and that improving access for all patents might reduce OOH use by 11% [63]. The authors suggested that convenience of hours (e.g. lunch time appointments) may have more of an effect rather than extended hours. Similar results were found for those attending urgent care centres in the USA [66]. Results from a survey of out-of-hours users in Scotland showed that perceived difficulty of day time access was a common reason for attending out-of-hours services and deprivation was also associated with perceptions of difficulties in day time GP access [36].

In terms of day time care, a study of cancer related out-of-hours contacts found more than half of those contacts that were due to cancer related pain were already receiving strong opioids and therefore those contacts could be made less likely through improved anticipatory care and patient empowerment [47]. In Denmark a quarter of out-of-hours patients with chronic disease contacted services due to an exacerbation of symptoms. One third to a quarter of those identified as having an exacerbation had had seen their GP in the preceding 30 days [35 43].

The impact of out-of-hours models on other services has also been investigated (see also Section 4, Models of Care Group) [67 68]. A single-authored review identified six models of care which may impact on OOH demand: minor injury units, walk-in centres, telephone triage, GP co-ops, ambulance officer care, and GPs integrated into A&E [69]. The author suggested that there was good evidence that some of the models, particularly MIUs and telephone triage, redirected patients away from A&E and GP

services. However, the evidence was mixed with some impact inferred rather than explicitly demonstrated. Another study of follow up contacts after an out-of-hours primary care encounter found that patients with a negative experience of out-of-hours telephone triage were more likely to have a follow up contact with other health services [70].

Evidence also exists in relation to what can help or hinder out-of-hours services. For example, one review identified 7 barriers to successful out-of-hours service implementation, including poor delivery of telephone triage and segregation of medical records; and 7 facilitators including Integration of services, co-location, and nurse practitioners [71].

Conclusions

While it is difficult to compare out-of-hours call demand over time and locations, there is clearly increasing demand and also variation across geographical locations. Telephone triage and advice services, such as NHS 24 and NHS Direct, while available 24/7, are most heavily used in the out-of-hours period. Many of the presenting complaints appear to be for symptoms of shorter duration but are, nonetheless, perceived by the patient to be urgent. The higher use of services by both children under 5 and the elderly doubtless influence this, as complaints and symptoms may develop quickly and be seen as urgent to both the patient and their carers/family.

Geographical location has a major impact, not only on the number of calls, but also on the response of services to those calls. Callers who are further away are more likely to receive a home visit, with clear implications for types of service required in more remote and rural areas. Difficulties in accessing day-time care do appear to lead at least some patients to use out-of-hours care instead.

A significant minority of patients contacting out-of-hours services have underlying chronic disease; with population aging and the increase in multi-morbidity in populations, this will continue to increase. Thus, out-of-hours services will have to deal increasingly with more complex patient problems, as well as urgent but relatively uncomplicated cases.

Section 4: Mapping the literature to the Review Sub-Groups

Data and Technology Group

The remit of this group was to explore, research and agree essential functionality for communications and data flows to support new ways of working in Primary Care Out of Hours Services and advise on minimum specifications for clinical records, decision support and integrated records. The systematic review found only a small number of papers (7) which addressed issues of IT and information sharing. There was almost no consideration of interoperability across information systems, e.g. to facilitate handover between daytime and out-of-hours services, or of developing shared information systems. What was apparent was that what work does exist has taken place mainly in Scotland.

IT and information sharing

Only 7 papers covered these topics, mainly in Scotland (Appendix 2, Table A2). Three reported evaluations of the Key Information Summary (KIS) and Emergency Care Summary (ECS) in Scotland [72-74]; two reported on the electronic Palliative Care Summary (ePCS) [75,76]. Such approaches appear to be well received and acceptable to the clinicians using them. For example, nurses in Scotland and in Australia reported feeling more confident when they had access to at least some patient-related information in the out-of-hours period [73,77]. Little work has been done to assess patient views however, although palliative care patients and their carers viewed the ePCS positively [77]. Evidence of impact on clinical outcomes was generally lacking, although the lack of a palliative care summary was associated with increased risk of hospital admission [76].

Only one economic evaluation was identified, in Scotland, in relation to the introduction of the Emergency Care Summary [72]. There, annual benefits exceeded costs after 7 years. Benefits were mainly non-financial, relating to patient safety, reduced exposure to risk and time savings; cost savings were not realised, but this was not the intention of the implementation.

Barriers to the use of electronic records appear to be related to overall implementation and IT skills e.g. time needed to get used to the system, staff IT skills. Confidentiality of data did not appear to be

an issue, at least not from health care professionals. However, as the patient voice was largely missing from these papers, we cannot be sure that this would not be an issue for patients.

Finally, one paper identified under Models of Care examined the ability of out-of-hours organisations in Scotland to monitor quality standards and performance using IT systems [78]. It found that current systems were unable to provide information on equity of access for different population groups, with gaps in knowledge around workforce, service distribution, utilisation and clinical outcomes. The authors recommended that there was a need to review data standards and systems, with a single body taking responsibility for this.

Conclusion

There is a clear need for more integration and shared IT systems, both within out-of-hours services but also across services. Crucially, this includes the interface between daytime general practice services and out-of-hours organisations. Evidence suggests this would facilitate care and, although the evidence is limited, it appears that patients would be amenable to this.

Quality and Safety Group

The remit here was to consider:

- What does quality out-of-hours care look like?
- How is quality and safety measured and assessed?
- What approaches are required to improve the quality and safety of out-of-hours care?

In doing so, there is overlap with the issues identified under IT and information sharing, particularly in relation to handovers between daytime and out-of-hours services and information sharing in relation to palliative care patients.

We identified 30 papers addressing the broad issues of quality and safety, including those relating to communication and handover for palliative care patients; 7 papers dealt with IT and information sharing (see above). A further 17 addressed quality and assessment of triage. These are outlined in Appendix 2, Tables A2 –A4.

Quality and Safety

Papers exploring quality and safety addressed communication between out-of-hours services and other parts of the health system, including in-hours primary care; patient safety incidents; clinical reasoning and decision-making; and indicators for quality out-of-hours care. These used a range of methodological approaches including retrospective and prospective case review, Delphi approaches, participatory research and analysis of routinely collected data. A subset of nine papers dealt with communication and information sharing in relation to palliative cancer patients, although three of these were multiple reporting from a single qualitative study interviewing nine GPs about their experiences of providing palliative OOH care [79-81].

Good communication between different parts of the health system was a key issue, especially in relation to palliative care patients. Calls for palliative care patients ranged from 0.75% of calls to a Dutch GP co-operative [82] to 2.1% of calls to four out-of-hours co-operatives in England [45]. However, the handover of clinical information from in-hours general practice to the out-of-hours service was often poor, and focussed on clinical information with little detail in patients' wishes, psychosocial issues or anticipatory care plans [45,82,83]. One group found that GPs working for a privately own OOH co-operative felt pressure from the provider to see more patients, which was at odds with the need to spend time with palliative care patients [79,80].

Communication in relation to all patients was the focus of Asprey et al [84], who found that handover practice between in-hours and out-of-hours general practice in one region of England was inconsistent. They suggested a whole systems approach to improvement including automatic reminders to daytime practice to update handover forms; online access to forms for all OOH staff, training for call operators to pass on verbal messages to clinical staff working in mobile teams; and educational materials to promote the use of handover forms. Good communication between different parts of the health system, availability of records and decision-support were also found to reduce the chance of hospital admission during the OOH period [85,86].

Patient safety was of a Dutch team, who identified 27 patient safety incidents out of 1145 records – an incidence rate of 2.4% [87,88]. Most incidents did not result in direct patient harm and appeared to be related to treatment decisions, e.g. failure to prescribe an antibiotic or delayed treatment. Giesen et al attributed these incidents to a lack of clinical reasoning in new or novel situations. Balla et al examined English doctors' clinical reasoning and decision-making and found they used "rule-out" strategies much of the time, to exclude severe illness or potentially high-risk diseases [89]. The authors suggested that routine feedback to clinical staff, peer and expert support and tailored GP training could led to improvements in decision-making. Similar work examined the decision making of nurses working in NHS 24 in Scotland, exploring the relationship between nurses' decision-making and their attitude to risk [90]. Focussing on self-care advice, the authors identified a three-fold variation in self-care advice given across nursing staff; however, there was only weak evidence to suggest that this variation might be explained by attitudes to risk taking. One study compared decision-making in migrant doctors compared with native Norwegian doctors and found only minor differences in practice between the two groups, although migrant doctors did write more sickness certificates [91].

Only two studies had tried to develop quality indicators for OOH care. Giesen et al developed a set of 24 indicators for Dutch OOH care; of these, 22 related to prescribing and 2 to referral management [92]. Coleman and colleagues identified 16 indicators for Primary Care Trust commissioners in England [93]. These attempted to cover a range of OOH service providers, including NHS Direct and GP co-operatives, and focussed mainly on process e.g. time from first contact to a clinical assessment.

Conclusion

Much of the work on quality focussed on issues of communication and handover. Patient safety incidents were relatively low and tended to be around treatment decisions, with no evidence of patient harm. Clinical decision-making focuses on ruling out high risk situations, but improved handover information, particularly for palliative care patients, could enable OOH clinicians to make more informed decisions. This clearly overlaps with issues of IT and information sharing.

Call Triage

The quality and appropriateness of call triage has been researched since the inception of OOH co-operatives, with 17 papers identified as having the evaluation of triage as their primary research focus (Appendix 2, Table A4). Different study designs were employed, with the use of simulated patients popular in The Netherlands and in Italy [94-97]. Other approaches included routine data analysis and case review. Only one study adopted an RCT design, comparing nurse telephone consultations with those conducted by GPs [98].

Out-of-hours co-operatives in the UK tended to use telephone assessment software (TAS) to help support clinical decision-making; in contrast, services in the Netherlands relied on guidelines developed by the Dutch College of General Practitioners [99]. In most studies, those triaging the calls were registered nurses, usually with additional training. However, some studies reported that the triage staff were GPs, enrolled nurses or, in Norway, medical secretaries. There was variation in the percentage of calls that nurses dealt with, without either passing the call to, or seeking the advice of, a GP (Table 5).

Table 5. Variation in calls dealt with only by a nurse

Author	Location & Service	Triage and Outcome
Dale et al, 1998 [100]	England; OOH triage and advice service	Mean length of call was 6.73 minutes. 50.8% nurse advice. 49.2% of callers advised to see a doctor face-to-face, either at centre, in A&E or by home visit.
Lattimer et al, 1998 [98]	England; GP OOH co-operative	Nurses managed 49.8% of calls without referral to a GP. 16% attended primary care centre

		18% received home visit, 15% received GP telephone advice.
Moll van Charante et al, 2006 [99]	The Netherlands; GP OOH co-operative	Nurses managed 27.5% of calls without referral to a GP Remaining 72.5% had GP contact (telephone advice, centre visit or home visit).

This variation was also observed within services, for example nurse telephone advice alone ranged from 15.5% to 39.4% across 8 nurses in a Dutch service [99]. Telephone advice was higher during the night, but lower with age and with multimorbidity. Reasons for such variation are unclear, but might be related to skills in handling telephone calls, perceptions of risk or the tasks required – which may all be amenable to training and education.

Much work focussed on the "correct" assessment of urgency during telephone triage, whether undertaken by nurses or GPs (Table 6). Overall, there was no evidence to suggest that telephone triage – whether conducted by nurses or GPs – was unsafe. Those triaging calls tended to focus on clinical information, but not on patients' circumstances, expectations or understanding of the information/advice they were given [95]. One study, of Italian GPs, found that the quality of triage in the service was poor, with a compulsory set of questions only used in approximately one-third of calls [97].

Thus, training in telephone consultation should focus more on patient-centred communication, including active listening and that calls should be assigned sufficient time for this to happen. Huibers et al, in a series of studies, found that nurses often drew on clusters of questions and suggested that pattern recognition may be more important in assessing urgency than working through a long list of questions [96]. Thus, training and support could be targeted, particularly in relation to the small number of urgent calls that come to out-of-hours centres.

Table 6. "Correct" assessment of urgency during telephone triage

Author	Location & Service	Finding
Giesen et al, 2007 [94]	The Netherlands; GP OOH co-operative	Nurses assessed urgency correctly in 69% of 352 contacts; underestimated urgency in 19% of contacts. Significant correlation found between correct estimation of urgency and training on use of national guidelines to assess urgency by telephone.
Hansen et al, 2011 [101]	Norway; OOH casualty clinics	83/116 nurses responded (76%). 90% were registered nurses. 82%, 74% and 81% of acute, urgent and non-urgent scenarios were correctly classified according to nation guidelines. Overall, 18% of cases over-triaged; 12% under-triaged. No difference across casualty clinics, by profession (registered nurses vs others) or by experience.
Huibers et al, 2011 [102]	Multiple countries; OOH primary care	Narrative review of 23 studies. Observational studies found triage was safe in 97% (95% CI 96.5 - 97.4%) of patients contacting OOH care; safe in 89% (95% CI 86.7 – 90.2%) patients with high urgency. Studies using high risk simulated patients found triage safe in 46% (95% CI 42.7 – 49.8%). Adverse events included death (reported in 6 studies), hospitalisations (in 5 studies), attendance at A&E (1) and medical errors (6). Authors suggest room for improvement in patients who present as high risk.
Huibers et at, 2012 [103]	The Netherlands; GP OOH co-operatives	Analysed 6739 nurse telephone contacts; 90% were non-urgent. Most decisions deemed appropriate (91% for urgency, 96% for follow-up advice, 95% for timing. Triage nurses over-estimated urgency in 18 (18.8%) of level 1 life-threatening calls; under-estimated urgency in 251 (7.1%) of level 4 non-urgent calls. Higher quality of consultation associated with more appropriate estimation of urgency, follow-up advice and timing of decisions.

Conclusion

Telephone triage appears to be generally safe. Staff conducting triage tend to focus on clinical information, with less attention made to patient concerns and understanding; such issues would be amenable to training and education. However, importantly, nurses were generally able to correctly assess the urgency of the calls they were dealing with. There is scope, however, to develop the way in which nurses approach triage with sets of key questions perhaps being more discriminatory than asking general questions.

Workforce and Training Task Group

This Group focussed on identifying and understanding the right skill mix of professional support for patients during the out-of-hours period. In particular, they addressed the questions of:

- What roles and skills sets are required to deliver an agreed primary care out-of-hours service model?
- How can this workforce best be provided and supported?

Training

There were only a small number of papers addressing training needs for out-of-hours care and these were all focussed on GP training, in particular GP registrars. Research methods employed were questionnaires, review of training diaries or qualitative methods. There was variation in the amount of time registrars spent in the out-of-hours setting, ranging from 4 to 10 hours a month [104], or 10 to 20 shifts per year [105][106]. In 2000, there was no evidence to suggest that trainees working in out-of-hours co-operatives had a different experience from those working in other more traditional models of care, such as GP rotas [107][108]. However, there has been no more recent work exploring this issue.

Registrars generally felt that they received enough exposure to out-of-hours care, with overnight shifts seen as important in developing skills dealing with more serious problems [108-110]. Registrars often expressed a lack of confidence in determining the seriousness of the presenting complaint, especially when that conversation was conducted by telephone [104]. Indeed, telephone triage was an area where trainees often expressed a lack of confidence [106].

The type of training offered varied, but included simulated training experiences at an NHS Direct centre [111]; sessions in out-of-hours centres, either with their own educational supervisor or someone else [110]; and training in telephone consultations [106]. Educational supervisors did find, however, that there was a tension between providing training and being able to see sufficient numbers of patients in the out-of-hours organisation [110].

There was little evidence of inter-professional training in out-of-hours care. One recent paper, which surveyed 1091 GP trainees in England, found that 55% had worked shifts in other out-of-hours settings, e.g. with community mental health teams, paramedics or in walk-in centres [106], but there

was no mention of training. Another study reported simulated training sessions with NHS Direct, but no direct patient contact

Encouragingly, two recent papers – one from Northern Ireland [110] and the other from England [106] – both found that trainees either were, or intended to, work at least some out-of-hours shifts. However, a single study rom 2008 which surveyed UK University Departments of General Practice found that only 2/29 had compulsory out-of-hours teaching on their undergraduate curriculum; 12 others provided such teaching on an *ad hoc* basis, while 13 did not provide any out-of-hours teaching [112].

Conclusion

There is little up-to-date information on the views of GP trainees and early career GPs about their intentions regarding providing out-of-hours care. More work is required in this area, as well as engaging with medical schools to ensure out-of-hours care features in the undergraduate curriculum.

There appears to be a dearth of published work relating to other professional groups and their training needs in relation to out-of-hours care.

Models of Care Task Group

The Models of Care Task Group was formed to provide the Review with up to date and relevant insight into current primary care Out of Hours (OOH) service models, their strengths and challenges and to give advice on future models of care. In particular the group was asked to identify:

- What the core elements are to deliver a safe and effective primary care out-of-hours service?;
- Can these services could be delivered on a national basis?;
- What local variations would be required, for example in rural areas?;
- What other elements are relevant to local flexibility?; and
- What other elements are relevant to groups with specific needs using OOH services?

Issues pertaining to the Models of Care Task Group overlap with both the Training and Workforce Task Group and the Quality and Safety Task Group. Here, we focus on the literature identified in relation to the evaluation of models of care.

Models in the Literature

We identified a range of models in the literature (Table 7), either directly evaluating new models of care, new professional roles, or assessing the impact on other parts of the health system, e.g. A&E departments.

Table 7. Models of care

Model of care	Number of papers
GP co-operatives, with primary care centres	23
Telephone triage/advice lines (inc NHS Direct, NHS 24, NHS 111)	8
Walk-in centres	4
Urgent care centres	2
Deputising services	2
Exemplar sites	1
Minor injuries units	1

New professional roles (inc Emergency Medical Practitioners, Physician Assistants)	3
Multiple models	11

Almost half of the papers identified dealt with GP out-of-hours co-operatives; given that co-operatives were also included in papers dealing with multiple models, it is clear that most of the attention in research terms has been on co-operatives. This is perhaps unsurprising, given that they have existed in the UK since 1996. Other countries, in particular Denmark and the Netherlands, have also moved to a GP co-operative model of care in the out-of-hours period. This also indicates, however, a clear reliance on GP-led models of care even if there are other professional groups working within those models.

Co-operatives

Co-operative models all offered telephone consultations, visits to a primary care centre or surgery and home visits [113]. Jessopp et al's survey of UK co-operatives, conducted in 1998, also found that most employed non-medical administrative and managerial staff, as well as drivers for home visits. However, at that time only 28% employed nurse practitioners [113].

Early work evaluating the implementation of co-operatives found that the use of telephone advice increased, while home visits decreased (Table 8). This was against a background of steadily increasing demand. In general, the implementation of a co-operative did not appear to reduce demand, but changed the way in which that demand was dealt with, with telephone advice increasing and home visits decreasing [114]

Table 8. Outcome of calls to GP co-operatives

Author	Country	Home visits	Centre/Surgery visits	Telephone advice
Salisbury et al, 1997 [115]	England	32.0%	7.1%	57.8%
Bain et al, 1997 [116]	Scotland	34.0%	21.0%	37.0%

Christensen et al, Denmark 1998 [114]	48.0%	33.0%	18.0%
Hansen et al, Denmark 1998 [117]	54.0%	27.0%	19.0%

Patient satisfaction was generally good, although did appear to decrease over time. For example, in Denmark, the percentage reporting that they were satisfied decreased from 68% to 56% over a 5-year period, with those patients who did not get the service they expected, least satisfied [114] [117]. This was reported in other countries, including Scotland [118]. However, other studies reported no impact of moving to a co-operative model on patient satisfaction [119].

As reported previously, one important impact of the co-operative model was an increase in GP satisfaction and morale [119] [120].

One study also assessed the financial implications of introducing a regional co-operative model, and found that annual expenditure on GP out-of-hours fees fell by 20% (DKK 9.3 million), which they attributed to changes in consultation patterns [117]. However, the heterogeneity of co-operative models has led to wide variation in the cost of contacts. Work conducted in Scotland highlighted the diversity of co-operative models, reflecting the diverse geographical locations and patient populations, as well different management structures and service provision, such as drivers to take GPs to home visits or (in one urban co-operative) a transport system to bring patients to primary care centres [121]. This led to pronounced variation in the cost of contacts across centres (see Table 9).

Table 9. Cost of contacts with GP co-operatives in Scotland (from [122]).

	Range
Annual cost of OOH organisation per 1000 population	£2,916 to £12,120
Total cost per OOH contact	£15 to £51
Cost per telephone contact	£6 to £11
Cost per centre visit	£10 to £16
Cost per home visit	£21 to £60
Total cost per episode	
For telephone contacts	£70 to £553
For centre contacts	£78 to £136
For home visits	£130 to £303

There was only one RCT evaluating the quality and safety of nurse telephone triage within a co-operative model [98]. In this trial, from 1998, nurse telephone triage was found to be as safe and effective as GP telephone triage. An associated economic evaluation [123] concluded that nurse-led telephone triage cost £81,237 per annum, but resulted in a £94,422 per annum reduction in costs to other parts of the health care system, due to reduced emergency admissions to hospital (although the 95% confidence interval was wide, from £3,728 to £123,824 per annum). Taken together, it is likely that these two papers resulted in an increase in the use of nurses and nurse practitioners within out-of-hours co-operatives, especially in relation to telephone triage.

The impact of co-operatives on other aspects of the health system is inconclusive. Despite the hope that GP co-operatives might reduce demand elsewhere, particularly in relation to A&E attendances, there has no evidence of a conclusive impact on other services [119]. Proximity of the co-operative to the A&E department *may* be a facilitating factor, as illustrated by the results of two Dutch studies [124] [125]. In one, where the co-operative was located close to an A&E department, there was a small, but significant decrease in A&E contacts after a GP out-of-hours co-operative was established. This was accompanied by a similar, statistically significant, increase in contacts with the co-operative. In the second study, a larger co-operative service was co-located within the A&E department; here a larger reduction in A&E contracts was observed (a reduction of 53%), accompanied by a 25% increase in use of the out-of-hours primary care co-operative. However, both were before and after observational studies, so other factors influencing this change cannot be ruled out, nor has the sustainability of such changes been reported. Variable results have been reported in other settings, for example Ireland [126 127], and England [128].

Telephone triage and advice services

Initially, telephone triage developed within GP out-of-hours co-operatives, with both observational studies and an RCT finding it safe, acceptable to patients and as effective as telephone advice from a GP [98 100 123]. Government policies in both England and, later, Scotland also saw the development of new telephone triage and advice lines: NHS Direct and NHS 24.

NHS Direct

NHS Direct was established in 1998, with a Department of Health commissioned evaluation of the first three sites in England, initially covering a population of 1.3 million people, but expanding to

cover 4.3 million [129-131]. Although a 24/7 service the evaluation found that, in the first year, 72% of the 68,500 calls received were in the out-of-hours period. In addition, 22% of total calls were for children under 5 [132]. There were small, but non-significant, changes in trend in the use of A&E and ambulance services (downward trend for ambulance, but potentially upward for A&E). There was, however, a small but significant reduction in use of GP out-of-hours co-operatives in the areas, both for calls to co-operatives and for direct contact with doctors. Later analysis of NHS Direct activity by the same team found that, in the first 3 years of activity, NHS Direct handled 5,180,000 calls in England. NHS Direct was associated with a reduction in calls to GP out-of-hours co-operatives of almost 8% per year, but had no impact on A&E and ambulance services [133]. Similar findings were reported by another group evaluating NHS Direct sites in London [134]

Drawing on the evaluation reports of the first wave sites, users were mainly satisfied or very satisfied with the service. There was, however, variation in the call disposition across the three sites and the triage software used varied across the three sites, making data monitoring across sites more difficult [129 130]. An additional report examined the appropriateness of triage decisions within NHS Direct, with the authors concluding that while 88% of calls led to "necessary contacts" with other parts of the health system (e.g. advice to see a GP), 11% of calls were over-triaged leading to "unnecessary" contacts and 1% were under-triaged, leading to a lack of contact when it was necessary [135]. While the reasons for the over and under-triage were unclear, it may be related to skill differences in handling telephone triage, confidence in triaging and/or aversion to risk – all of which have been identified in other studies of call triage in out-of-hours care and in NHS 24 [90 99 100].

Qualitative interviews with key stakeholders across contained in the final evaluation report reported that stakeholders welcomed the opportunities that NHS Direct brought to provide callers with an alternate source of support and advice, especially when other primary care services such as in-hours general practice surgeries were closed [131]. However, GPs who were interviewed saw this increasing access as a "threat", as they viewed it as increasing the public's expectations in relation to access to all health care services, including general practice. There were also concerns that NHS Direct would open up a new avenue of demand, rather than control demand. Working within NHS Direct was seen by some as an opportunity for nurses, particularly if they could combine it with working in other clinical specialities as well. Finally, there were clear tensions between having a national service, with national standards, and a more flexible service responsive to local needs.

NHS 24

Established in 2002, NHS 24 is Scotland's national nurse-led telephone advice and consultation line. Three things made NHS 24 different to NHS Direct:

- A commitment to a national service, thus NHS 24 was established as a Special Health Board.
- Integration (although not at the beginning any form of co-location) with GP out-of-hours co-operatives, A&E departments and the Scottish ambulance service.
- A commitment to front all GP out-of-hours calls.

Thus, unlike NHS Direct, if someone had to be seen by one of the above services, NHS 24 could fax or electronically send their details to the service.

Evaluation of the first three years of NHS 24 showed that, like NHS Direct, it dealt with an increasing call volume. By April 2005, annual call demand was 250 calls per 1000 population per annum; between May 2002 and April 2005, NHS 24 had dealt with just fewer than 2 million calls. Despite being available 24/7, 90% of calls occurred in the out-of-hours period [26]. Out-of-hours, the most frequent disposition (55% of calls) was to contact a GP practice or out-of-hours co-operative within 4 hours; followed by self-care advice (14% of calls). Other dispositions included making an in hours appointment with patient's GP practice (9%), attending A&E (5%) or making a 999 ambulance care (3%). These demand patterns have remained fairly stable, as evidenced by Elliott et al in their analysis of call data for 2011 [25].

NHS 24 had a positive impact on GP out-of-hours co-operative activity, by taking over calls previously dealt with as telephone advice by the co-operatives. The proportion of call requiring a home visit also decreased, while centre visits increased [26]. However, there was no change in activity in either A&E attendances or ambulance services; for both services, NHS 24 appeared to substitute for GP referrals and self-referrals to the services. Patient satisfaction was initially high, but did decrease over the time of the evaluation although the reasons for this decrease in satisfaction were likely to be multiple. Respondents living in rural areas were less satisfied than those in urban areas. An economic evaluation found that, in 2004-2005, the average annual cost of NHS 24 head of population was £8.98. The average total cost per call was £35.69; this could fall to £23 per call, if call volume rose to 2 million calls per year.

The evaluation of NHS 24 also had a detailed qualitative process evaluation of key stakeholders from NHS 24, GP co-operatives, A&E, ambulance service and national policy makers [26 136]. This highlighted some key challenges in the implementation of NHS 24, particularly in relation to professional ownership of GP out-of-hours services and in the tensions between a national service and local flexibility and knowledge. GP out-of-hours co-operatives were still relatively new and were both owned and run by GP memberships; this lead to a strong sense of professional identify which at times was challenged by a new model of care, such as NHS 24 [136]. Call virtualisation of nurse advisor calls created apprehension, with a strongly expressed view about the potential for inappropriate patient referrals resulting from a lack of local knowledge. This was particularly apparent in Board areas serving remote and rural areas, who felt that the centralised model was rigid and did not take account of local requirements. This led to the suggestion that future models of care are "rural proofed" [137].

Integrated exemplar sites

A criticism levelled at NHS Direct was that callers who were advised to contact another service, in particular out-of-hours co-operatives, had to make that contact themselves. The result was the Exemplar Programme in England, in which 34 GP out-of-hours co-operatives joined with their NHS Direct partners to provide a "one-stop" service for patients [138]. In this programme, patients calling their out-of-hours co-operative would initially be diverted to NHS Direct for call handling and triage; if appropriate, their call would then be referred to the co-operative. 31 distinct exemplars were formed, in which 21 (68%) integrated all out-of-hours calls management [139]. Only 9 (29%) achieved single call access for patients. Most patients had to make two calls to contact NHS Direct, and then had to wait for a nurse to call back. There was not enough evidence to say whether NHS Direct could handle all the calls that had previously been handled by co-operative nurses; in addition, there was no consistent pattern to changes in demand in other services. Qualitative process evaluation found that the challenges of integration had been underestimated from the outset, although integration efforts that were team led tended to be more successful than those which relied on an individual [138].

Walk-in centres

Walk-in centres exist in many health care systems, operate both in-hours and out-of-hours and, in some countries offer a doctor-led service. A systematic review of the international evidence found

that walk-in centres were often used when other providers were closed and used mainly for minor illness and injuries [140]. In England, walk-in centres were established in the early 2000s and were predominantly nurse-led [140]. Several studies reported on the impact of walk-in centre, although it must be remembered that walk-in centres operated in hours and for part of the out-of-hours period. A before and after observational study two areas – one with a walk-in centre (intervention area) and one without (control area) – found there was no significant difference between the intervention and control areas in terms of either in hours or out-of-hours activity [141]. The Department of Health funded evaluation also found that walk-in centres had no impact on consultations at out-of-hours services, A&E departments or general practices close to the centres [142 143].

Other services and professional roles

There are several other services and roles that may be of interest to out-of-hours care. Evaluation of the Physician Assistant programme in Scotland found that 3 or the 15 physician assistants had worked in out-of-hours care, however there was no detail about what they had done or where they had worked [144].

Emergency care practitioners (ECPs)work in A&E settings, both in hours and out-of-hours. In one study, ECPs were found to discharge fewer children than the practitioners working in GP out-of-hours service [145]. Another study found that ECPs were as clinically effective as other professionals in other services, including out-of-hours co-operative, walk-in centres or minor injurie units [146].

A new service is NHS 111, designed as a replacement for NHS Direct and part of NHS 24, it manages all requests for urgent care, including out-of-hours primary care, urgent care and requests for health information and advice. NHS 111 triage 277,163 calls in its first year of operation in England. There was no change in emergency ambulance calls, A&E attendances or urgent care use [147]. There was, however, a 20% reduction in calls to OOH Direct.

Several reviews were identified, dating from 1999 to 2014 [50 69 148-150]. Overall, these reviews found that new models of care may have some impact on out-of-hours primary care services, but have much less impact on other services such as A&E attendances and ambulance services.

Conclusion

A range of models have been developed, in some cases well evaluated, but policy changes mean that models do not always become normalised into routine practice. GPs remain central in all countries in terms of providing face-to-face care to patients (whether by home visits or seeing them in a centre) in the out-of-hours period. Nurse-led models of care are especially used in terms telephone triage and, increasingly other models of care and professional are found in out-of-hours care, whether in primary care or other settings, such as A&E.

New models of access, such as telephone triage services and walk-in clinics, appear to have little impact in reducing demand on other parts of the health system. The exception appears to be services such as NHS Direct and NHS 24 which had some impact on reducing GP out-of-hours co-operative demand, mainly by dealing with telephone advice calls themselves. However, there is no evidence of impact on A&E or ambulance services, suggesting that newer models of care create their own demand, rather than dealing with existing demand. Finally, there was little evidence or attempts to co-locate and integrate different ooh provider services, beyond the now abandoned NHS Exemplar Integrated Sites in England. This makes the evaluation of initiatives such as the co-located Highland "hub" important.

Section 5: Interviews with GPs

The views of two groups of GPs were seen as important to this review: doctors who have recently obtained their Fellowship or are otherwise in the early stages of their training; experienced GPs.

Method

GPs were recruited either by personal contacts via the Department of General Practice & Primary Care; a recruitment advert through Facebook and Twitter; and by recommendations from other interviewees.

Interviews were conducted either face-to-face or by telephone. Interviews were conducted by two experience qualitative researchers and transcribed. Transcripts were read and coded thematically.

Ethical approval was obtained from the Research Ethics Committee, College of MVLS, University of Glasgow.

Findings

We interviewed 8 GPs; 2 with between 10 and 20 years experience of working as a GP in daytime practice, other services and on out-of-hours care. The other 6 were early career GPs, wither about to complete their training or in the first five years. Several were combining GP practice with clinical academic roles. All worked in heath boards in the West of Scotland.

Analysis identified a range of issues, which we present here. Where pertinent, we also refer to literature identified in relation to impact on GPs (Appendix 2, Table A6) and GP training (Appendix 2, Table A5).

Organisational Systems

A number of features of the way in which out-of-hours is organised appear to influence GPs willingness to participate in out-of-hours shifts. Shift patterns themselves are an issue and the 'bidding' system which operates within co-operatives means that popular shifts fill quickly. Indeed

shorter shifts are more attractive but are rarely available. In the following extract one GP describes reluctance to take part in week-day shifts:

> *"I have generally avoided doing the week-day evening sessions … because they're quite long and I was never really sure if you're the only GP there and your centre shuts at midnight then how – if it's really busy – I don't know how it works in terms of are you going to end up there 'til two in the morning to finish seeing the patients? And I guess I've just not been confident to be that person …" (GP22)*

The GPs interviewed tended to prefer busier shifts where there is a supportive team around them. As shifts get quieter and staff numbers reduce some less experienced doctors prefer not to be working alone overnight. Previous research conducted in Scotland in 2000 had found that GPs valued overnight shifts as a source of experience in dealing with more serious problems [108]; this suggest that early career GPs may now have a different view of out-of-hours care.

Financial incentives were also discussed frequently within interviews; typically GPs felt that they were not paid enough for the shifts. One suggested that the rate of pay for out-of-hours hadn't increased for more than ten years while another claimed that after tax and insurance that GPs were being paid little more than £5 per hour for out-of-hours shifts. Recent changes to the system were perceived as wholly negative. Some had witnessed a slump in the numbers of GPs doing shifts since April 2015. Shift length also impacted on defence cover which is a particular problem for part time GPs because a five and a half hour shift uses two defence sessions.

There was also no appetite amongst those interviewed for home visits as there was (i) a lack of information about the patient and (ii) consequent feeling of being unsupported. None opted to carry out home visits and worked only in centres. This is somewhat at odds with a recent survey of GP trainees in England, which found that GP trainees expressed high levels of confidence in their ability to carry out home visits [106]. However, that survey had a low response rate of 25%, so the views expresses may be particular to the responding population.

Experience of out-of-hours care

Patient factors

Perspectives on patients who use out-of-hours services were mixed. Some of those interviewed were questioned the appropriateness of patient contact or need to be seen by a doctor.

" Yes, I think I found quite a lot of patients coming in with kind of minor, minor issues, and I feel like it's basically not what we're here for because it's sort of an emergency service and also people will come with different things, I would think unnecessary, but obviously that's my point of view." (GP23)

Others agreed and felt that there was a need to educate patients about what the service was for; one GP interviewed had had such conversations with patients. Others however were more sympathetic or understanding of patients' use of the out-of-hours system. Part of the difficulty, some GPs suggested, is that the current procedure for out-of-hours care is fragmented and offers patients a number of options.

"It's now, I think, being abused to a certain extent. When I walk in on a Thursday evening – I'm working there tonight – it's not uncommon that there would be at least half a dozen people sitting here at 6.30pm. They have just walked in. A lot of people find that it's actually pretty convenient – just pop in there on their way home from work and they don't have to bother with all the hassle of having to phone up …." (GP25)

GPs described patients arriving at out-of-hours services because they believe they are attending a minor injuries unit. Others are displeased with the service of NHS 24, and there was some acknowledgement that getting into the system can be challenging:

I think the biggest issue is the phoning 111 and the palaver that you have to go through to be told to go down to the centre, so I completely understand why people just walk in, but it would be better if the phone system was more user friendly …. (GP22)

I think the whole rigmarole of actually getting them in to see the doctor is its just time consuming and administrative nightmare for patients really. We hear a lot of complaints about that and I think that's why the walk-in culture has started now. (GP25)

Clinical issues

It was also clear from the interviews that the 'traffic' out-of-hours is different. Common problems encountered are palliative care and mental health issues and often less senior GPs lacked confidence to deal adequately with these issues:

Managing patients with psychiatric illnesses, that's a big challenge for me I think as a GP and I think at the moment for example frequently patients with suicidal ideations or some kind of psychiatric illness they see the CPN, … my confidence is not as great at managing mental ill health … so I might end up admitting that patient whereas the CPN would say to me 'No, no, no'" (GP23)

One more experienced GP suggested crisis mental health should be dealt with outside of the GP system.

This lack of confidence in dealing with palliative care patients is certainly evidenced in the international literature (see, for example [46 80 81 151 152]. However, there is little research on dealing with mental health problems in the out-of-hours period, indeed we identified on one paper exploring GPs experiences of responding to psychiatric patients presenting at out-of-hours primary care services [153].

What clearly emerged from the interviews was that in out-of-hours less experienced GPs are concerned about issues of safety and managing uncertainty. Not knowing patients, being unable to judge the right amount of information or how patients might deal with advice means that there is more 'safety-netting' occurring out-of-hours. These concerns have been identified in the international literature.

Certainly, I take much less risk in out-of-hours. I tend to sort of warn patients about, you know, give them worsening statements, quite, you know, probably more clearly in out-of-hours and maybe I am more encouraging to contact the NHS if things don't get better (GP23)

So you definitely safety net a lot more, you spend a lot more time at the end making it really clear what someone would do if they don't get better and because you don't have a sense of how capable someone if of following instructions that you, I do a lot more written instructions …(GP22)

Undoubtedly because it is out-of-hours and patients have been unable to wait until regular hours the nature of problems tended to be more urgent which required a shift in emphasis in terms of skills. As one GP noted they need to be *'more switched on for acute things – allergic reactions, asthma attacks' (GP21)*. Therefore staff need to be more accustomed to inserting intravenous lines, be up to date with CPR and be confident handling such cases.

Having centres housed near to A&E a definite bonus for many GPs and there was some discussion around formalising links between GP out-of-hours and A&E.

Training and appraisal

Much of the discussion around clinical issues led GPs to discussing appropriate training for out-of-hours. It is an area where GPs have to be better at managing uncertainty, be more confident in their decision making ability and have some skills that are more akin to emergency care. Some believed that what you see out-of-hours 'should' be the same as what happens in regular practice but the reality is that it is not and some sort of CPD should fill this gap. There were questions raised by GPs about GPs who, for example, only did out-of-hours shifts and their lack of training and CPD opportunities. There was also a general lack of appraisal with one GP commenting that *'you only hear about it when things go wrong' (GP20).* One interviewee, a GP trainee did have access to a trainer during shifts, which was viewed positively, chiming with published work [106] [107] [110]. However, there was agreement that ensuring that GPs in centres had a mix of length of experience was most beneficial for GPs and patients.

Data and IT

There was universal recognition across interviews that the availability of information has, for both staff and patients, vastly improved the experience of out-of-hours care. GPs more experienced in out-of-hours commented that, in many ways, it has never been easier to be a GP out-of-hours because it was now easier to connect patients with their 'in-hours' data, for example using the Emergency Care Summaries. This reflects the work conducted in Scotland [73]) However some did view the IT system used within out-of-hours as cumbersome and challenging to use.

Workforce

Nurses and Advanced Nurse Practitioners were common place throughout the out of hour's centres but their roles were ill-defined. Some of this appeared to relate to individual personalities and competencies amongst nursing staff but nevertheless there was a sense that this was variable across centres. One GP illustrated that over-triage on the part of nurses could slow up the entire system and become counter-productive.

Some of the nurses will try and see every patient first and do their observations and you know, just seeing them quite quickly and do a urine if its required and maybe just write a sentence or two about the problem and then puts them back in the waiting room.. And that's what I think works really well because the nurse is triaging and everyone gets seen quickly … and the nurse will say, 'I've got a child here that needs to be seen ….' So, if you feel the nurse is good at assessing risk and managing people as they are coming through the door … whereas sometimes some nurses do more, take longer, a more in-depth history, so they seem to be in there for longer and you end up seeing people straight off …(GP22)

The mix of professionals and the system together can make the out-of-hours set up more difficult:

"Well to be honest, sometimes it actually causes problems in that if somebody is doing it the correct way and they have phoned NHS 111, they've taken some details and then they have to wait for a nurse to go back, they take some details from them and then they pass it to the centre and they see a treatment room nurse who'll sort of again take some details and maybe do the blood pressure and things like that, and then they pass them to you. So by the time they get to you it's quite often they have been through five or six times of telling their story and they can be quite annoyed by that stage ….(GP25)

There was limited support for the involvement of more or other professionals in the out-of-hours set-up with a number of GPs feeling that the balance was 'about right'. One GP was clear that for patients continued GP in-put was necessary

I think there was some talk about changing out-of-hours totally to Advanced Nurse Practitioner (ANP) run service and I can't imagine that happening , its totally, I think … I don't think it would be safe. At the moment the majority of cases I see are quite complex medical cases so … (GP23)

General views of providing out-of-hours care

For some, particularly the older more experienced GPs, there was a sense of 'duty' around out-of-hours. It was always part of their work in the past and there was a sense that it was just something they 'do'. One GP outlined their history of out-of-hours experience: *When I was a trainee we used to do our own out-of-hours so the practice was in, you know we just took a rota and then there was the doctors deputising service which basically just took over in groups... They organised it for whatever group wanted to join them, and that was what was used*

in the practice when I first joined. and then maybe fifteen years ago or so the GEMs took over the service and I worked for the doctor deputising service for GEMS and initially it was great because you know you weren't on call all the time really for small numbers so if you're doing your own in the practice it's much more onerous, so spreading it around in some centralised role is really good, and it means that you have set hours. So previously if you were on for the weekend you were on for the whole weekend whereas now if I decide to work a weekend I'll do a six hour shift or whatever, it much, I find it much better. (GP25)

For some GPs the comparison with daily practice was interesting. Some GPs suggested that the 'old way' of GPs working during the day and then picking up a few out-of-hours shifts was out dated in part because of the pressure put on GPs during daily practice. From a practical point of view finishing the day shift in time was challenging, which then encroached on out-of-hours shifts. One GP interviewed felt that their practice was unsupportive of GPs working in out-of-hours because if the knock on effects both in the evening and the morning. The extra time in daily practice appears to be taken up with administrative tasks and not having to engage in such tasks was certainly favoured by some:

It's just basic general practice. I find it a lot easier than working in the practice, like not so much easier but it's just you know you don't have any follow up, you have to make instant decisions. You know, you either treat them or you send then to hospital then you don't have any, you know QOF stuff to fill in and you know referrals and all this kind of stuff really. So it's actually fairly straightforward. (GP25)

There was some discussion of the way in which views of a developing 'crisis' in daytime general practice seeps into GP out-of-hours care. Many of the issues that are challenging in daily practice are writ large out-of-hours, though others like paperwork and administration are reduced. Many of the GPs interviewed suggested that the system attempts to do too much and that some decisions need to be made about what an out-of-hours service looks like

I think you have to work out where everybody goes and what kind of service GPs are providing and Accident and Emergency are providing and Minor Illness and the out-of-hours and try and work out some kind of strategy that you know, works … and easy transfer between them all. (GP25)

More generally, it was also suggested that the messages given to medical students perhaps require a change in emphasis:

I think it's just a sea change. So when this all started in 2004, GPs were used to doing their own on call cover for their own patients. Or they were in groups of practices and they provided help for each other. … Whereas now, during my training, we were in hospitals and deciding if you were doing GP or not and it was so very much that out-of-hours is optional 'you would be a GP, you don't have to do out of ours if you don't want to, was very much the message and what happens now is that people choose session based on their required income. So none of my friends, hardly any of them do out-of-hours. (GP22)

Conclusion

Although only a small group of GPs were interviewed, many of the views expressed chime with the published literature. Although there were only 2 long-serving GPs interviewed, both appeared to view out-of-hours as a sense of 'duty' and something that all GPs should do; although the group of early career GPs also did out-of-hours care, this sense of GP 'duty' appeared diminished.

GPs raised difficulties about the increasingly complex and time consuming demands of daytime practice, which can then impact on the ability to leave to begin and ooh shift. That, coupled with changing financial remuneration, make providing out-of-hours sessions more challenging.

All GPs felt that patients are confused by an increasingly fragmented approach to providing out-of-hours care and, in particular, that there needs to be a clear message about what types of problems out-of-hours should be dealing with, namely urgent care needs that cannot wait until the next routine appointment.

Section 6: Overall summary and recommendations

The evidence identified by this rapid systematic review reveals both feast and famine. The relative ease of collecting quantitative data on demand, use and outcome, coupled with funders likely keenness to fund such work, means that around one quarter of the 274 papers included in this review dealt with such issues. Indeed, over all the research areas, the use of quantitative data and observational methods such as case/record review, routine data and questionnaires predominated. Despite the importance to policy makers of knowing which models are more effective in terms of meeting patient need, only 4 randomised controlled trials were identified. There were also almost no studies which conducted an economic analysis of the costs associated with out-of-hours care.

Much of the work has focussed on GPs, and GP-led models of care, or on nurse-led telephone triage. Thus, new areas such as the role that pharmacists might play in out-of-hours care provision, or of links to third sector organisations or to social care are completely under-researched.

While there has been some work researching the issues faced by service providers – mainly GPs – in caring for palliative care patients, other patient groups are very much overlooked. There was little or no evidence in relation to meeting the needs of elderly patients, particularly frail elderly; patients with dementia; patients with particular communication needs, such as the deaf community; or patients whose first language is not that of the host country. Another key group missing were patients with mental health/psychological health issues. Such gaps need to be addressed and OOH care equity-proofed to ensure equity of access and outcome for all patient groups.

Strengths and limitations of this research

This rapid review is one of the largest recently conducted, with 274 papers included. It took a broad focus to out-of-hours care, including papers which were both set in out-of-hours primary care but also those which, although in a setting such as A&E, might impact on primary care out-of-hours. However, by using the out-of-hours setting as our primary focus, we may have excluded potentially useful papers set entirely in other settings, such as A&E.

Papers located in social care were also excluded, which might explain why social care is absent in our findings. However, we did not exclude primary care-based studies which would have interacted with

social care, so we stand by our conjecture that such work is absent from the peer reviewed literature.

This rapid review focussed on peer-reviewed literature. We are aware of a number of important evaluations of service delivery in this area, some of which were also published in the academic literature. We did, there seek to supplement our knowledge by referring to some of the key evaluations conducted over the last 10 years or so.

Recommendations for future service models

OOH care has developed to deal with acute care needs. Patients use OOH services due to perceived urgency and most symptoms tend to be of 24 hours duration or less. This makes the current OOH model less responsive to the needs and demographics of a 21st century population, namely an ageing population with increasing levels of multimorbidity and complex health and social care needs. In order to develop and future-proof OOH care, we make the following recommendations.

- There is a clear need to engage with patients, service providers, policy makers and politicians to reach a shared view of what level of need OOH primary care should meet – in particular should it address **urgent** care need or **all unscheduled** care need.
- There is a continued need to understand how patients view different out-of-hours service providers and the decisions they make in relation to which service they choose to attend. The role of the media in shaping and assisting patients to "make sense" of OOH providers needs to be addressed.
- Single, centralised systems have to be "future proofed" to address the contextual realities of different areas, for example patients in remote and rural areas have different needs and capacity to respond compared to those in urban areas. This is also true in relation to socioeconomic deprivation.
- OOH care needs to be "equity-proofed" to ensure equity of access and outcome for all patient groups.
- Improved interoperability across IT systems and data monitoring systems is a pre-requisite to facilitate good communication and information sharing across both out-of-hours service providers and across the daytime to out-of-hours interface. This needs to be extended beyond "traditional" health care providers and include other essential sectors such as social care and the third sector.

- Patients need to be involved in the process of improving and extending data sharing to ensure that they both understand, as accept, the need for wider sharing of health and social care information.

- New professionals roles need to be developed and evaluated in out-of-hours care, for example pharmacists; this could be extended to professional groups operating out with traditional health care sectors.

- There should be better engagement with early career GPs and GP trainees and with undergraduate medical students to promote the value and professionalism of providing out-of-hours care.

- There is also a need for career development and training in OOH care for other professional groups and for inter-professional training in the OOH setting.

- Co-location and integration of services will have to be rigorously evaluated, including process evaluations to understand the impact and challenges this brings to different professional groups.

Recommendations for research and evaluation

Future models of care need to be rigorously evaluated using experimental research designs which will allow us to address the effectiveness of the model. Approaches could include cluster randomised controlled trials or stepped wedge designs, to allow for the roll-out of programmes. Such work should pay particular attention to the needs of key groups, including palliative care patients, the elderly, those with communication issues and those with mental health issues.

Future evaluation designs should incorporate economic evaluation to assess not only the immediate costs of a new model, but also the wider impacts on other parts of the health system.

We need to better understand the decision-making of patients in term of (i) what they know and understand of different parts of the out-of-hours system and (ii) what makes them choose one service provider over another (e.g. phoning NHS 24 versus attending A&E).

Co-location and integration of services should be underpinned and informed by evaluation, including qualitative process evaluation to understand the challenges and facilitators to such co-location.

Acknowledgements

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