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**Primary care services co-located with Emergency Departments (ED) across a UK region: Early views  
on their development**

**Suzanne Ablard**

School of Health and Related Research

The University of Sheffield

Sheffield

England

S1 4DA

**E-mail:** [s.ablard@sheffield.ac.uk](mailto:s.ablard@sheffield.ac.uk)

**Tel:** 01142224222

**Colin O'Keeffe**

School of Health and Related Research

The University of Sheffield

Sheffield

England

S1 4DA

**Shammi Ramlakhan**

Sheffield Children's Hospital & Sheffield Teaching Hospital

Western Bank

Sheffield

England

S10 2TH

**Suzanne Mason**

School of Health and Related Research

The University of Sheffield

England

Sheffield

S1 4DA

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## **ABSTRACT (293 words)**

### **Background**

Co-location of primary care services with Emergency Departments (ED) is one initiative aiming to reduce the burden on EDs of patients attending with non-urgent problems. However, the extent to which these services are operating within or alongside EDs is not currently known.

This study aimed to create a typology of co-located primary care services in operation across Yorkshire and Humber (Y&H) as well as identify early barriers and facilitators to their implementation and sustainability.

### **Methods**

A self-report survey was sent to the lead consultant or other key contact at seventeen EDs in the Y&H region to establish the extent and configuration of co-located primary care services. Semi-structured interviews were then conducted with urgent and unscheduled care stakeholders across five hospital sites to explore the barriers and facilitators to the formation and sustainability of these services.

### **Results**

Thirteen EDs completed the survey and interviews were carried out with four ED consultants, one ED nurse and three General Practitioners (GPs). Three distinct models were identified: 'Primary Care Services Embedded within the ED' (7 sites), 'Co-located Urgent Care Centre' (2 sites) and 'GP out-of-hours' (9 sites). Qualitative data was analysed using Framework Analysis. Four interview themes emerged (Justification for the service, level of integration, referral processes, and sustainability) highlighting some of the challenges in implementing these co-located primary care services.

### **Conclusion**

Creating a service within or alongside the ED in which GPs can utilise their distinct skills and therefore add value to the existing skill mix of ED staff is an important consideration when setting up these systems. Effective triage arrangements should also be established to ensure appropriate patients are referred to GPs. Further research is required to identify the full range of models nationally and to carry out a rigorous assessment of their impact.

**Section 1: What is already known on this subject**

- Typologies of GP co-located services exist in the literature but the extent to which they are operational within the UK is unknown.
- Little is known about the challenges associated with introducing co-located GP services into the Emergency and Urgent Care system.

**Section 2: What this study adds**

- Three distinct co-located primary care service models were identified: 'Primary Care Services Embedded in the ED', 'Co-located Urgent Care Centre' and 'GP out-of-hours'.
- There was variation in the operation of the first two GP co-located models, with limited out-of-hours coverage across both models and the services were hampered by a lack of available GPs. The third model was more established but there was no free flow of patients from the ED to these services.
- Two factors which may contribute to the success and sustainability of these models are: (1) Facilitating GPs working as distinct practitioners in the hospital environment so that they can add value to the care of low-acuity patients; (2) Ensuring effective triaging arrangements are established to ensure appropriate patients are referred to GPs. These two factors are likely to be key to the recruitment and retention of GPs working in the hospital environment

## **INTRODUCTION**

Primary care services co-located with Emergency Departments (ED) are one initiative aiming to reduce the burden on EDs of patients attending with non-urgent problems.[1-2] Studies profiling ED demand have identified the proportion of patients suitable for management by General Practitioners (GP) ranging from 10% to 62%.[3-5] Although precise figures are lacking, these studies demonstrated that large numbers of patients are potentially suitable for care at an alternative service.

Four UK medical colleges produced a report recommending the co-location of primary care services at every ED in the UK to ensure patients requiring urgent primary care are assessed and managed appropriately.[6] However, a follow-up review found less than half of EDs in the UK have a fully implemented out-of-hours primary care facility co-located with their ED and a third have no co-located out-of-hours primary care at all.[7] Of the co-located primary care services that are in operation, there is mixed evidence regarding their impact on attendance rates, process time, costs of running the service and outcomes of care.[1, 8-11]

We aimed to establish the proportion of EDs across Yorkshire and Humber (Y&H) that have co-located primary care services and to identify barriers and facilitators to setting up and running these services.

## **METHODS**

### **Design and setting**

We used self-reported surveys and semi-structured interviews with urgent and unscheduled care stakeholders across Y&H, in this pragmatic service evaluation. This area represents 14 acute hospital trusts, with 19 EDs (over 10% of EDs in England). It serves a population of 5.5 million and is a mixture of large urban, smaller urban, suburban and rural settings.

The survey was designed to ascertain the characteristics of any primary care services in operation within or alongside EDs in the region. Interviews were used to identify barriers and facilitators to the establishment and sustainability of these services.

Institutional ethical approval was sought but we were advised that the study met the criteria for 'service evaluation' and therefore did not require ethical review.

## **Survey**

Prior to this study the authors already had a limited picture about the types of alternative urgent care provision in EDs across Y&H. Using this baseline information a survey was created for each ED in the region. [See supplementary material] The purpose of the survey was to confirm the validity of baseline information and to collect additional information, which included: service model type (e.g. location); service provider; length of time in operation; working hours; triage; and referral processes.

The survey was sent to the lead ED consultant or other key contacts across 17 EDs in Y&H. A pragmatic decision was taken not to send the survey to two sites. In one site the authors were aware that they did not have a co-located primary care service. The other site was a specialist ED only seeing patients under 16 years old. If sites did not respond to the initial request for information, 2 further attempts were made. If still no response then the site was excluded. Data collection took place between May and July 2015.

## **Interviews**

Using information collected from the survey, five sites were selected to reflect the various models of primary care services within or alongside the ED across Y&H. Lead consultants within selected sites assisted in the initial identification of key staff for interview based on their involvement and knowledge of the service with further identification of staff via these interviewees. Potential participants were contacted via e-mail inviting them to take part in an interview to discuss their experiences of the co-located primary care service.

A semi-structured interview guide was developed in consultation with an expert in the field (SR), and following review of relevant literature. It was refined after initial pilot interviews. The interview guide covered: description of the primary care service, barriers and facilitators to setting up and running co-located primary care services and views on the future of these services.

Written informed consent was obtained from all participants. One on one interviews were conducted by two of the authors (SA and SR) trained in interview techniques. All interviews were audio recorded and took place at the participants place of work or via telephone.

Data from the interviews were transcribed verbatim and analysed thematically. NVivo (QSR International 10) software was used to help structure the analysis with systematic efforts to check and refine developing categories of data. The data was interpreted using Framework Analysis. This followed the five stages of Framework Analysis including familiarization, identifying a thematic framework, indexing, charting, mapping and interpretation.[12]

One author (SA) reviewed a sample of transcribed narratives and developed the initial framework. Two authors (SA and COK) then independently coded a sample of data using the framework and checked for consistency. Consistency was high between coders but following review of the process, minor amendments to the framework were introduced. One of the authors (SA) then coded the rest of the data using the amended framework.

## **RESULTS**

### **Survey**

Thirteen EDs completed and returned the survey to the research team. Twelve EDs had a primary care service within or alongside their ED. Three distinct models were identified:

1. 'Primary care services embedded within the ED' (7 sites): GPs work within the ED alongside ED staff. In this model patients attend the ED and are triaged into separate streams (e.g. primary care or emergency medicine) by the ED triage nurse. (Figure 1)

*Figure 1. An example of patient flow through the primary care services embedded within the ED model*

**[Insert figure 1]**

2. 'Co-located Urgent Care Centre' (2 sites): separate primary care service located next to the ED. Patients either directed there via a streaming nurse based in the ED or through NHS 111. (Figure 2)

*Figure 2. An example of patient flow through the co-located Urgent Care Centre model*

[Insert figure 2]

Both service types were in the early stages of set-up, often with only ad hoc coverage of GP shifts.

3. 'GP out-of-hours' (9 sites): located next to the ED, on the same hospital site. These services were more established but only available out-of-hours and only accepted referrals from the ED in a few instances. Five sites had this model in addition to the 'primary care services embedded within the ED' model.

Table 1 outlines the working hours and establishment of the different models.

*Table 1. Description of the working hours and establishment of the service for each of the primary care models located within or next to the ED*

<b>Model</b>	<b>Working hours</b>	<b>Establishment of service</b>
Primary care services embedded within the ED (7 sites)	Model operated Monday to Friday (all sites) and at weekends (4 sites). Predominantly operated during working hours (08:00-18:00) with limited out-of-hours coverage. Services characterised by inconsistent staffing.	Most sites had established this service after 2012 with only 2 sites operating this model before 2012.
Co-located urgent care service (2 sites)	One site operated 24 hours a day, 7 days a week. The other site operated during the out-of-hours period, Monday to Friday but this was dependent on staff availability.	One site set-up in 2015; other site set-up for over 6 years.
GP out-of-hours (9 sites)	In all sites that provided data on working hours (8 sites) the model operated during the out-of-hours period (18:00-08:00) Monday to Friday and at weekends.	In all sites the service had been set-up before 2011.

## Interviews

Interviews lasting between 30 minutes and 1 ½ hours were carried out with four ED consultants, one ED nurse and three GPs across five EDs covering a range of co-located primary care services. (Table 2)

*Table 2. Description of the primary care service models co-located with each of the hospital sites*

Site(s)	Model(s)
1	Primary care service embedded in the ED
2,3,4	Primary care service embedded in the ED and GP out-of-hours
5	GP out-of-hours

Four themes emerged: Justification / rationale for the service; level of integration; triage and referral processes; and sustainability.

### Justification / rationale for the service

Most participants stated the reason the co-located primary care service was set-up was due to increasing numbers of patients attending the ED with non-urgent problems. There was an appreciation that GPs have a different approach to risk management compared with ED staff and this approach was better suited to patients presenting with low acuity problems.

*'I guess our emergency medicine approach is we're looking for something dreadful and a GP approach is very different in that most of the time they know it's minor stuff or ... moderate stuff that is self-limiting and so ... they're looking to find symptomatic relief and how can we get this patient home and away from hospital.'* (Consultant)

Interviewees did not refer to any specific guidance or policy upon which they based their decision to implement a particular co-located primary care service model. Decisions were based on what they thought would be best for their department and what was achievable.

## Level of integration

From the ED perspective, when GPs were embedded within the ED they worked closely with ED staff. However, a downside to this was that GPs were sometimes expected to take on responsibilities beyond the normal scope of a GP practice (e.g. interpreting x-rays) for which they did not necessarily have the correct training. Rather than offering a distinct service with alternative skills and approaches to patient care they were sometimes just an 'extra pair of hands'.

*'Once they start becoming like everyone else then they stop being like a GP and they don't necessarily work quickly and effectively which is supposed to be the whole benefit of having them there.'* (Consultant)

This contrasted with the more established 'GP out-of-hours' model, which was a separate service. In this model there were difficulties with communication between GPs and ED staff with limited discussion about each other's workloads or responsibilities which caused frustrations on both sides.

*'There were times when the overnight doctor who was on their own had gone out to do 2 or 3 home visits and they'd come back to find that A&E had transferred over 3 or 4 patients to the sitting room waiting for them and A&E had no idea how many visits that doctor had or how long they would be gone ... we felt that was inappropriate, so actually that was ... a definite lack of communication.'* (GP)

Participants mentioned that ED and GP services should remain separate but with a single entry (triage) point for patients. Patients should be triaged to one of the two services depending on their presenting complaint.

*'If they could just triage them to separate streams and they could just be staffed with people with expertise in those areas without too much crossover on the ... probably 10% of patients who turn out to be more complicated or suitable or ... we can discuss them.'* (Consultant)

Within this model of single entry and separate patient streams, ED consultants remarked they would like to have good communication with GPs to develop positive long-term working relations.

*'If you're all working together ... it's far easier ... to pop over and say ... can I ask you a question about this patient.'* (Consultant)

## Triage and referral processes

Some ED triage nurses worked with a guideline to help identify patients eligible for the GP service. One ED nurse mentioned that the triage guidelines are too restrictive.

*'There were certain things that we could send to the GP and there were things that we could not send. So like your chest pains, short of breath, things like that, even if you knew that some of the chest pains were probably just a cold or... you still couldn't send them.'* (Nurse)

However, some triage nurses find it difficult to decide whether patients should be seen by the GP because they have to use their clinical judgement which they may not be comfortable with.

*'Even though there was a guideline obviously they had to use a certain amount of judgement and it seemed they would often try and find a reason a reason not to send it to the GP so clearly they felt uncomfortable ... There was a lack of understanding by the triage nurses, which you can't entirely overcome with a guideline.'* (Consultant)

Furthermore, criteria for accepting patients often differed between individual GPs generating reluctance amongst triage nurses to send patients to GPs to avoid having them sent back to the ED again. A common reason for patients being sent back to the ED was because some GPs were unable to request (or lacked the skills required to interpret) certain investigations.

*'We don't have out-of-hours access to ECG's or bloods or X-rays so if we thought they needed that or it was something that needed a scan or some further investigation then we would refer them back.'* (GP)

An ED nurse suggested that co-located primary care models could include support staff (e.g. healthcare assistants) that could assist GPs in taking blood samples.

*'Healthcare Assistant or a nurse would be nice as well for them to be able to have blood tests and things like that ... so they feel part of the team, so they're not just in a room.'* (Nurse)

In general, there was limited consensus with regards to the types of patients GPs should be expected to see. Consequently, one ED consultant stated that their GP service had seen fewer patients than expected.

*'We've been underperforming really, from the amount we potentially thought we might be able to see and the number of patients we're actually seeing ... if you actually talk to the GP's they're*

*actually saying the cohort of patients that they're getting through are not suitable because they're minor injuries and we're not trained in minor injuries.'* (Consultant)

It was suggested that ED and GP teams should work together to develop clearer referral strategies.

*'We all just need to sit down and say this is what you will and won't see.'* (Consultant)

## Sustainability

Problems were identified with the recruitment of GP's into the embedded GP model. As a result this service was often provided on an ad hoc basis, with many shifts being left unfilled. The contrasting patient case workload between EDs and primary care were cited as part of the problem with recruiting GPs. For example, GP's saw more acute patients than they do in general practice and this contributed to reluctance to work in the ED environment. .

*'I certainly know 2 or 3 of those who've stopped doing it because they felt they were being pushed too far into what's hospital medicine ... dealing with compromised patients ... severe pneumonias and that sort of patients who were very very poorly, more poorly than the way you're used to anyway, being years and years of a GP.'* (GP)

There appears to be particular characteristics of GPs who would be willing to work within the ED and this is associated with the amount of previous experience they have with ED patients. One ED consultant said it would be hard to sustain such a model in the future because of the shortage of GPs who would be suitable for this working environment.

*'Because you've got proactive individuals, if you expand the workforce to work in a certain way, you're not always going to have those same proactive individuals.'* (Consultant)

It was suggested when designing a service; efforts should be put into creating an environment in which GP's would feel comfortable working.

*'I like to think of designing a service and looking at the set-up ... having the right parties involved in the design process so ... GPs that normally work in a practice setting helping set-up an environment that a GP would feel comfortable working in ... in terms of people enjoying working in the way that they normally work, generally. So having an environment that's suitable, and then*

*knowing that there's a two way point of referral / contact that assists them in that environment I think would be vital.'* (Consultant)

## **DISCUSSION**

In this study, three types of primary care services co-located with EDs were identified across Y&H. Two models: 'primary care services embedded within the ED' and 'co-located urgent care centre' were within the early stages of set-up and often only available to patients intermittently. The third model 'GP out-of-hours' was more established but there was no free flow of patients from the ED to these services.

Through interviews with ED and primary care staff we identified issues which are important to consider for the success and sustainability of co-located primary care services. These are: clear arrangements between ED and primary care services, particularly to support the triage and referral of appropriate patients between services; ED and primary care services, while requiring integrated working to achieve effectiveness, need to remain sufficiently distinct to allow GPs to utilise their skills appropriately. The ability of GPs to work as GPs within the hospital environment is also likely to be key to the recruitment of GPs and the sustainability of these services in the future.

This study has demonstrated the variability in the design of primary care services co-located with EDs within one UK region. This has also been highlighted in a number of other studies.[1,13] The service models we found correspond to those previously identified.[1,14] Other models identified in previous work are a Primary Care Front End Screening (where primary-care practitioners triage non-emergency patients at the front door, either in person or telephone) and an integrated model (where care is provided jointly between ED staff and primary care clinicians for all patients who choose to attend the hospital).[14]

In our study, some GPs working within EDs reported that the demands of the ED meant they were required to act as emergency medicine doctors. This has been highlighted in a previous report which found that in around half of co-located primary care services, GPs were expected to see a wider range (and often more complex and sicker) of patients than would be seen in General Practice. They were also asked to take on extra responsibilities such as interpreting x-rays without receiving extra training.[14]

Problems regarding triaging appropriate patients to primary care services in our study have been identified previously.[15-17] Dale et al,[15] found that 10% of patients streamed to the primary care

stream were subsequently referred to on-call specialist teams and a further 9% were referred to the fracture clinic or ED for follow-up.

Our study was a small scoping study limited to one English region. Given the large area this covers with geographic and ethnic diversity, we are confident the experiences of service configuration in this region are representative of that throughout England. The qualitative interviews were conducted on a small sample of NHS stakeholders, which impacts on the generalisability of these findings. However, the study interviewers (which included an expert in the field - SR) agreed that saturation of themes had been satisfactorily achieved which is evidence that the salient issues were identified with regards to the set-up and management of co-located primary care services.

## **Conclusion**

A key consideration when setting up co-located primary care services is that GPs should remain sufficiently distinct to ensure their skills are utilised appropriately, therefore adding value to the existing skill mix of ED staff. Effective triaging arrangements should also be established to ensure appropriate patients are referred to GPs. These factors are likely to be key to the recruitment and retention of GPs working in hospital environments. Further research is required to identify the full range of models nationally and to carry out a rigorous assessment of their impact on patients, staff, ED performance and the wider emergency and urgent care system.

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## **CONTRIBUTORSHIP**

All authors contributed to the design of the study (SA, SR, COK and SM). SA, SR and COK conducted the study including recruitment, data collection and data analysis. SA prepared the manuscript draft with important input from COK. SM provided intellectual input throughout the entire project. All authors approved the final manuscript.

## COMPETING INTERESTS

There are no competing interests to report.

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