Primary Care and Emergency Departments

Report from the Primary Care Foundation
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Definitions

Two terms are often misused so we have included a definition and use them both in inverted commas throughout this report, except when they form part of a title (such as The Manchester Triage Protocols) or are a commonly used description (such as triage nurse).

Triage

'Triage' is the immediate sorting of patients according to the seriousness of their condition. The terms 'triage' and 'see and treat" are used confusingly. By our definition they are mutually exclusive – a patient cannot be seen by a clinician for 'triage' and then progress to a 'see and treat" consultation.

The process is widely used in emergency departments to assess how quickly a patient needs to be treated and define the skill group that is most likely to meet the patient's needs. We use it in this sense so any consultation that results in completion of the episode of care has gone beyond 'triage'.

See and treat

'See and treat" is a technique that involves seeing patients when they arrive, assessing their needs, and providing treatment. The approach was promoted from 2002 as a process that would address many of the problems of waiting times and specifically as one that would support delivery of the four-hour target defined in the NHS Plan. Whilst one of the principles associated with 'see and treat" initiatives was that more seriously ill patients should be treated in a separate area this did not exclude the possibility that a patient seen by a 'see and treat" practitioner might require further tests, investigations and consultations.

Executive summary

The number of primary care clinicians based within or alongside emergency departments has expanded rapidly in recent years, promising better care for patients who do not need emergency department services and a reduction in admissions.

Primary care practitioners can enhance emergency departments by bringing vital skills and expertise to a multi-disciplinary team. To achieve this, managers and clinicians need to develop strong working relationships. Building mutual respect takes time, but it is vital if initiatives of this kind are to lead to a more integrated service. As one GP put it *"if everyone is involved it becomes seen as a joint baby, not a primary care service in their midst"*.

Successful schemes are the product of sustained attempts to test out new ideas, learn from each other and improve patient care, based on clear recognition of the skills of each group of clinicians and mutual respect. However, in practice there can be a clash of cultures, with staff divided by different training, approaches to managing risk, governance systems, language and their experience of different case mixes.

Cost savings

The stated reason for introducing primary care services is often to improve patient care. Yet we found in many cases the main drivers are, in fact, reducing costs and helping to meet the four-hour waiting time target. The argument is that the payment by results tariff is more costly than a consultation with a primary care clinician and that the higher tariff for a patient who is admitted can act as an incentive to admit, an effect magnified by pressure to meet the waiting time target.

In this context, primary care clinicians may appear to represent a challenge to the financial viability of a hospital trust. Simply adding primary care practitioners may create short-term savings for commissioners but, without commensurate savings being made or other benefits being realised, there is no saving to the NHS or tax-payer. In contrast, services that are integrating urgent care and developing local tariffs, that incentivise all partners to work in the patients' best interests, appear to be heading in a more promising direction. In time, an overall cost reduction may be achieved from this approach.

Our research

The Primary Care Foundation was commissioned by the Department of Health in May 2009 to carry out a study across England of the different models of primary care operating within or alongside emergency departments**.** We were asked to provide a viable estimate of the number of patients who attend emergency department with conditions that could be dealt with elsewhere in primary care.

More details are given under 'Scope and objectives' beginning on p8.

Key Principles

We have developed four principles against which we have assessed the examples of primary care clinicians working with emergency departments.

1. Patient safety comes first. The system must be safe for the patient.
2. Capacity must be matched to demand.
3. Patients should be seen by the skill group best able to meet their needs, but flexibility should be built in to the system.
4. Clinical and operational governance processes should apply to all patients and all pathways across primary and emergency care, supporting the development of safe care and making good use of resources.

For more details, see p12, 'Principles for assessing schemes'.

Main findings

How many services and patients?

Among respondents to our survey it appears that around two-thirds of services have primary care staff operating within or alongside the emergency department. This is not representative, as respondents are a self-selecting group including more of those that have tried or adopted such a model. We estimate that around half of the services across the country have some form of primary care service working with the emergency department.

1.2 When we used a consistent definition and a consistent denominator of all emergency department cases we found that the proportion that could be classified as primary care cases (types that are regularly seen in general practice) was between 10% and 30%.

Different models

We identified three main operational models:

- A GP service located alongside or next to the emergency department. This is by far the most common model across the country.

- GPs working at the front of the department screening attendees and either treating or diverting to other places – effectively acting as a filter.
- GP services fully integrated into a joint operation covering the whole range of primary care and emergency services. We came across a small number of systems that offer a full primary care service to appropriate patients.

All of the services that we examined used staff to direct the patient to the correct skill or service. In the vast majority of cases this decision is made by a clinician whose role is also to ensure the patient does not have a condition that would make it unsafe for them to wait in a queue. We observed three approaches:

- A rapid decision by non-clinical reception staff – often using simple protocols.
- Rapid clinician assessment – typically by a senior nurse and typically taking less than two minutes.
- Patients wait for a full clinical assessment process, usually taking five to 15 minutes.

Most services use primary care practitioners from 8 till late. Very few use primary care staff during the 'red-eye' overnight period. About half ask them to take on responsibilities that are beyond typical general practice, such as interpreting X-Rays and a wider group of tests than are normally available to a GP surgery.

The initial reception process is critical. During our visits we observed that, where primary care clinicians and emergency care staff were at odds, this process was the main focus of discontent. Equally, where there was a feeling that the system worked well, it was clear that considerable joint work had gone into developing and refining the reception process.

Consistency across all parts of the service is important. In some cases, primary care practitioners found the work they were expected to undertake had changed out of all recognition – sometimes for just a short period – with no advance notification that this would happen. Equally some emergency departments complained that the primary care element of the service had sometimes been under-staffed so had stopped seeing most patients. Services need to work together to help each other at times of difficulty, but this requires communication and planning.

Quality of care

Most services, across both primary care providers and emergency departments, see queuing as inevitable. But this is not the case. We observed that the main reasons queues build up are poor scheduling of staff or inadequate premises that make it difficult to deploy staff effectively. This is a feature of overall management and governance. In fact, long queues can be avoided if capacity is sufficient to meet the demands of patients as they arrive, especially if a true 'see and treat' model is implemented.

The vast majority of primary care services use GPs, (some use nurses with primary care training) usually sessional GPs paid for each shift that they undertake with little or no long-term commitment. Services that regularly use the same individuals found that both the GPs themselves and hospital clinicians were confident that it led to more coherent and higher quality clinical decisions.

It must be remembered that the alternative to using primary care staff is that patients with primary care type presentations will often see doctors in training whose clinical skills are not yet fully developed. The result is slower treatment and often excessive investigation.

The proportion of cases that are seen by primary care professionals varies considerably, as does the expectations of those commissioning and delivering these services. There are a number of reasons for this variation – some of which reflect real underlying differences in the case mix, the operational process and model adopted or the different clinical ethos in the service. Many of the variations are also caused by the different way that such cases are counted.

In many services there is a lack of clarity over responsibility for important aspects of the scheme. There appeared to be little, if any, joint clinical or operational governance. Some organisations have started to address the problem of split accountability and the increased risks this involves, by developing closer collaboration across organisational boundaries. There are also examples of more formal collaboration through joint ventures.

Finance

Funding services in a more collaborative way encourages clinicians and managers to work together. Innovative examples of local tariffs show that it is possible to integrate urgent care while at the same time aligning the financial incentives and mitigating the economic risk to individual organisations across the healthcare system.

We need to emphasise that we found it very difficult to access information from commissioners or providers about the cost effectiveness of these services, despite initial requests for information of this kind and further reminders. It may be that this information is difficult to access or that it is not routinely collected. More work needs to be done to develop a consistent format for collecting this information to support wider comparisons across services, an issue we will address in the subsequent commissioning guide.

Academic Review

An Academic Review of the published evidence in this are was commissioned from Warwick University.

Data analysis and results

A narrative analysis of the data was undertaken and found:

- A GP working in the ED may result in less referrals for admission and less tests being undertaken. Cost benefits may exist but the evidence is weak.

- Redirect away from the ED has had variable results regarding future attendances and the assessments of the safety of this intervention have also revealed variable results. Whether or not a primary care appointment was made for patients being redirected from the ED some may not be kept.

- Educational interventions have not been shown to change attendance patterns.

- There is a paucity of evidence available to support the current system.

Conclusion

There is a paucity of evidence on which to base policy and local system design. There may be benefits of systems of joint working between primary and emergency care but at present this cannot be said to evidence based. Local unpublished evaluations may provide some low level evidence not available in this review.

Lessons for commissioners and providers

Finally, there are a number of aspects that commissioners and providers need to address if they are successfully to establish primary care clinicians within or alongside emergency departments.

Ensuring early clinical engagement

Clinical leads should be focused first on devising workable approaches that provide good care for the different groups of patients. Checking that sufficient cases will justify the involvement of primary care clinicians and also that there is sufficient flexibility in the process to balance the workload.

Establishing working groups

Working groups should be set up that allow primary care practitioners and emergency department clinical staff to develop services together to meet the requirements of commissioners. The absence of dialogue between commissioners and both groups of clinicians appears to be a barrier to improving care.

Creating models and an ethos of care

The objective should be to break down the barriers between primary care and emergency care clinicians, between the different organisations that employ the staff, and that promotes good joint-working. However, this must be based on

absolute clarity over the strengths that each group has, how they are best deployed in or alongside the emergency department and what each group is expected to do. Only with this clarity will it be obvious to the clinician involved in a consultation when the expertise of another group needs to be drawn on to meet the needs of that patient.

Addressing all aspects of the service

By using the principles contained within this document and examples of good practice to improve care for patients and manage the risks are inherent in any chosen model commissioners and providers should put patients at the core of the service.

Recognising that there are no quick solutions

Whilst some changes can be made reasonably quickly it takes a long time for confidence to be earned by a any new group of staff operating in an area that is as safety critical as an emergency department. Commissioners should recognise that a degree of caution is healthy – whilst the existing processes and ways of working have their flaws these are understood by the staff involved, who can manage the risks associated with them. The challenge of introducing a host of new elements such as:

- New staff with a different clinical approach from a new organisation
- New processes, protocols and governance arrangements
- New payment mechanisms and incentives
- New operational layouts

is significant. These have to be thought through carefully and jointly developed over time to ensure the system is safe for patients. They will take considerably longer to become fully effective.

Improving and linking IT systems

It is important to consider the role of IT in supporting these developments.

Exploring more collaborative ways of funding

Services that encourage clinicians and managers to work together, including working to develop local tariffs that integrate urgent care while also aligning financial incentives will allow clinicians to focus on what is right for the patient without having to overcome perverse financial incentives.

Looking at the urgent care system

It is important that commissioners see any initiative of this kind within the broader context of the full urgent and emergency care pathway.

Scope and objectives

The Primary Care Foundation was commissioned by the Department of Health to carry out a study across England of the different models of primary care operating within or alongside emergency departments.

The objective set was to report on:

- The drivers behind the schemes.
- How the model was implemented.
- Costs and benefits.

and to give a viable estimate of the number of patients who attend emergency departments with conditions that could be dealt with elsewhere in primary care.

The scope included primary care staff (mainly GPs but also nurses) operating within or alongside emergency departments. It included such clinicians whether employed by a Hospital Trust, Primary Care Trust or by an independent provider organisation. We included schemes where the primary care team was fully integrated within the emergency department, where they operated alongside (for example in an Urgent Care Centre or Out of Hours base) and at diversionary schemes where patients are sign-posted to a nearby primary care service instead of attending the emergency department.

The work has been carried out by drawing on expertise from a reference group, a literature review, undertaking visits to departments and also carrying out a web based survey with completion by emergency departments, primary care Providers working in or alongside emergency departments and the commissioners of these services. Full details are given at Appendix 2. We are grateful for the assistance of all of those involved and have included a list of those who have contributed to our thinking in Appendix 1.

Principles for patient safety

An early objective was to develop some draft principles against which the various different examples we found could be assessed. In this section we provide some discussion under five headings about the issues that were shared and developed with the reference group. The principals are summarised under four main headings at the end of this section.

Early clinical assessment

Patients that present themselves to an emergency department are a self-selecting group – cases may be expected to be of greater acuity than is typical elsewhere in both primary and secondary care. There was general agreement among both emergency medicine consultants and GPs that this is the case. GPs in Exeter

described it as a hybrid between general practice and acute medicine – and it is this that provides the interest for many doctors.

Whenever any concerned patient presents to the NHS an early clinical assessment is desirable, but it is even more important for those presenting at an emergency department. Whilst there will always be a small number of patients that make 'inappropriate' use of the system, processes should be designed on the assumption that the vast majority make sensible decisions to attend emergency departments and that they are likely to have a relatively high proportion of more acute cases.

We firmly believe that patients that attend the emergency department should be seen and treated where and when they attend (using GPs for those with primary care presentations). Referring them back to be seen in a general practice at another time is not good care and is not a desirable experience for the patient. While follow-up appointments or additional care may be provided later by the patient's GP, the immediate needs of the patient should be met whichever part of the NHS they have chosen to access.

Any preliminary assessment (for example by a navigator or triage nurse) to stream or prioritise patients carries a higher risk that an urgent case might be missed than when a full assessment is carried out. This initial streaming is appropriate and safe if the patient moves reasonably quickly to the full clinical consultation. If there is a chance of any significant delay before a full history is taken and the patient receives a full assessment, managers and clinicians must be wary of assuming that this initial prioritisation is entirely reliable in identifying those that may need urgent care.

Emergency departments have to make decisions about where to stream or direct patients so that they are seen by the person most likely to be able to diagnose and treat their condition. Inevitably there will be occasions when a patient needs to be redirected to a more appropriate area/skill group and any constraint that inhibits this is undesirable. Managers and clinicians designing systems should ensure that re-routing patients is easy. They should be wary of introducing barriers between services because:

- they are in different locations
- they use different IT systems
- responsibility is divided between different organisations
- of financial incentives that inhibit the transfer of any patient so that they can be seen by the right specialist.

Governance

Responsibility for governance must be clear and must cover all patients that approach the emergency department and any associated primary care service. Whether patients are diverted from the emergency department to another service (an urgent care centre, a minor injury service, the out of hours service or in-hours primary care services) or whether the different strands of the service are

well integrated, information about the operation of the whole system must be subject to governance scrutiny. This is to ensure not just that decisions are clinically sound but that the way the system operates can be refined.

Without such a governance system, it is impossible to achieve the objective of "continuously improving the quality of services and safeguarding high standards of care" (Scally and Donaldson 1988 and widely cited in definitions of clinical governance elsewhere). Systems where two or more bodies have responsibility for governance of different aspects of the service seem to be very weak at looking at the operation of the overall system – and too often at least one is weak even in the review and analysis of its own area. Commissioners, managers and clinicians should establish a consistent approach to governance, giving one body lead responsibility for improving the service to patients even where more than one organisation is responsible for delivery.

Speed of response

Prompt care is good care – and it is cost effective. There is plenty of evidence that among those with more acute conditions, patients whose needs are addressed sooner rather than later are likely to enjoy better clinical outcomes than those where there was a significant delay.

In less serious cases there is a smaller amount of evidence for an improved outcome because the proportion of patients that do not enjoy a speedy full recovery is so small. But there is no doubt that not only do patients prefer prompt attention but also the chances of picking up an infection are much reduced.

What is less well recognised is that those services that manage their clinicians and capacity to both match the predictable demand from patients and see all patients promptly will also:

- provide more cost-effective care
- reduce the peak load on clinicians, allowing adequate time for proper care.

There is more than enough evidence that processes are costly and ineffective where they allow significant queues to develop which are then cleared as a batch, or involve hand-offs between different people, especially if these also result in delay. Yet queuing and then clearing a batch of patients in a hurry is not an uncommon approach in some emergency departments, particularly at weekends, when doctors focus their attention for a short period to forestall a possible breach of the four-hour target.

Individual clinical productivity is variable for many reasons, for example:

- because clinical judgment is used by individual clinicians as part of every consultation (in deciding how long to devote to a patient as well as over the appropriate treatment);
- because of the variability of conditions and treatment faced in an emergency department;

- because of the variation in training and experience of practitioners even from the same nominal skill group as well as between skill groups.

But services should ensure that staff are sufficiently productive and consistent for the overall service to operate as planned. Good services manage this aspect so that staff feel supported and learn from feedback – but their decisions and productivity are monitored. Otherwise, it is impossible to reliably match capacity to demand and the service will fail to meet its planned performance. This should form part of the analysis in support of governance of the system.

Skill mix

Because of the need for consistency and predictability if the overall service is to operate reliably as expected, there is a danger when temporary or sessional clinical staff are utilised that performance will not be as expected. The experience and training of primary care clinicians means that some will be able to safely manage a very different mix and number of cases than others. For this reason there are strong reasons for ensuring that a group of clinical staff is regularly used to work within or alongside the emergency department. With a regular group it becomes possible to ensure, through training and support, that staff can reliably undertake a consistent mix of cases. Commissioners and services should not assume that any locum will be able to undertake the same case mix.

Unpredictable peaks in demand

Whilst demand is largely predictable and capacity can be matched to meet it, there will be occasions when there are unpredicted peaks. In these instances there is a responsibility on the clinical lead on duty at the time to contribute to the decision about what action to take – particularly to minimise the clinical risk associated with delaying treatment for some patients, redeploying resource etc. Such a decision needs to look at the impact on the whole system, not just on one part, to avoid the case-load being passed on to another part of the service that may be even less able to manage it.

Criteria for assessing schemes

In examining the operation of emergency departments and primary care clinicians operating within or alongside the department we were looking particularly for the following:

1. **Patient safety comes first. The system must be safe for the patient.**
   a. Patients that approach the emergency department should be seen as soon as possible for a full consultation/assessment.
   b. Whilst a quick preliminary assessment to prioritise their treatment or direct them to the right skill group or part of the service may be necessary this is not a full consultation/assessment and should not be regarded as such.
   c. On occasion demand will exceed the level that is predicted. Services should have contingency plans in place for these occasions. The lead

clinician on duty should be involved in decisions when this occurs, for example about prioritising cases, diversion of certain case types, reallocation of resource and calling on stand-by staff. In making these choices they should look at the overall system for patients that approach emergency departments, bearing in mind the loads on the different parts of the service.

d. Patients that attend an emergency department should have their reasonable care needs attended to – the practical reality is that if emergency departments did not provide services that might normally be provided by a GP practice then many patients with a chaotic lifestyle would effectively be denied the care that they need.

2. **Capacity is matched to demand.**
   a. Services should match capacity to the predictable demand. Any service that finds that a queue of patients waiting for their full assessment develops on a regular basis has not matched capacity to demand.
   b. A quick preliminary assessment may be required to safely manage a queue – but good departments that have adequate capacity to meet predictable demand will very rarely need preliminary assessment for this reason.
   c. Services must ensure that they fill their rota and utilise clinical staff with a consistent mix of skills in such a way that the service can reliably see those patients that fall within the agreed protocol case mix.

3. **Patients should be seen by the skill group best able to meet their needs, but flexibility should be built in to the system.**
   a. Protocols for preliminary assessment of patients should focus on identifying and providing the best possible care for the patient.
   b. Protocols need to allow for considerable overlap in cases so that there is the flexibility to safely and appropriately move the workload between groups to respond to varying levels of demand.
   c. Care is taken to recognise that any preliminary assessment is incomplete and so some more urgent cases could be missed until a fuller consultation is undertaken.
   d. Nothing should inhibit the transfer of a patient to another area or person able to provide better care - clinicians should be actively encouraged to involve colleagues from other areas when their expertise may be valuable. Care should be taken that the layout of services, organisational boundaries, financial incentives, IT systems and cultural/political issues promote this co-operation in the interest of the patient.
   e. Staff should be employed by the service regularly enough that they can be relied on to consistently treat a particular mix of patients and confidence can grow in their ability to do this. Introducing a group of staff who can sometimes undertake certain cases and at other times cannot, depending on who is on duty, is not helpful to other parts of the service that need to work with them and have to pick up any ‘overflow’.

4. **Clinical and operational governance processes should look at all patients and all pathways supporting the development of safe care and making good use of resources**
    a. Information should be collected in a way that ensures those responsible for governance can look at the operation of the system for every patient that approaches the emergency department for treatment (even if they are diverted to another service).
    b. Whilst recognising that productivity is variable because clinical judgment is used by individual clinicians as part of every consultation and because of the variability of conditions and treatment, services should ensure that staff are sufficiently productive and consistent for the overall service to operate as planned.
    c. The information about their own performance should be fed back to individual clinicians in a supportive way that encourages learning, reflection and continuing professional development.

Importantly, whilst testing that the issues above were appropriately addressed depending on the model of the service, we were careful not to assume that there was only one way to meet the above principles.

Definitions and types of cases

This area of service is bedevilled by imprecise terminology, which causes confusion and misunderstanding when planning and commissioning services. There are six terms that are used with a confusing variety of meaning and we have tried to provide a working definition to provide clarity:

Primary care case

We have chosen to define a primary care case as a type that would frequently present to a General Practice so that all general practitioners would feel confident in treating such cases.

We describe the benefits that some emergency departments have found from working closely with a small number of GPs that have or develop a special interest in urgent or emergency medicine. We have chosen, however NOT to count the wider range of cases they can treat (particularly many injuries) as being a primary care case because the average GP does not have the opportunity to exercise and develop their skills with such patients.

Minors

Minors is a term which has long been used in emergency departments for cases which are not life threatening and are usually diagnosed treated and discharged on the same day albeit sometimes with follow up. Historically, emergency departments have included primary care type presentations in this definition. The

term minors is misleading, however, as many cases are significant injuries, which if not treated and managed properly and expertly will result in lifelong functional disability for the patient. Because patients with many of the injuries that fall into this category do not frequently present to general practice minors are certainly not synonymous with primary care cases.

Majors

Majors are patients who tend to have more series potentially life-threatening conditions, or who will require more detailed clinical assessment and investigation by specialist staff. Most of this group are elderly patients with long standing conditions that have deteriorated but it also includes patients who arrive after major trauma and require resuscitation. Although most PCTs and Trusts exclude majors from any analysis of primary care cases, many of the patients that fall into this category are the same patients that GPs are dealing with in their homes. Often it is only the marginal deterioration of one condition that leads to them arriving at the emergency department.

Urgent care

There is no common definition of urgent care. Whilst all cases that present to the emergency department are considered urgent by the patient, the term is also used widely in other situations. Some describe what were previously called Walk in Centres as Urgent Care Centres, Out of Hours services describe themselves as urgent care services, and we have ourselves, in another report, defined a request for same day appointment at a general practice as potentially urgent. Whilst each service describing itself as delivering urgent care may make sense to the commissioner, and possibly the providers, the definition is not comparable between sites and areas. It is certainly a term that is not clearly understood by patients. Where we have used the term it is either as part of a title (e.g. Urgent Care Centre) or as a general description of the overall system for urgent care.

Triage

'Triage' is the immediate sorting of patients according to the seriousness of their condition. The terms 'triage' and 'see and treat" are used confusingly. By our definition they are mutually exclusive – a patient cannot be seen by a clinician for 'triage' and then progress to a 'see and treat" consultation.

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from 2002 as a process that would address many of the problems of waiting times and specifically as one that would support delivery of the four-hour target defined in the NHS Plan. Whilst one of the principles associated with 'see and treat" initiatives was that more seriously ill patients should be treated in a separate area this did not exclude the possibility that a patient seen by a 'see and treat" practitioner might require further tests, investigations and consultations.

The objectives for introducing primary care

Why offer primary care?

We are in no doubt from our visits that two main drivers behind many of the initiatives to introduce primary care clinicians were cost and helping to achieve the four hour targets. Interviewees raised issues such as:

"Why should we pay a tariff of £59 for a patient when the average cost of a consultation in primary care if around £20>"

Others talked about an increase in attendance at the emergency department, where the tariff applied meant the PCT had to find cheaper ways of meeting the needs of these patients. Some described how under-staffing within the hospital was leading to regular breaches of the four hour target – the introduction of primary care staff was an attempt to provide additional resource so emergency department staff were able to spend more time on the more complex cases that might otherwise breach the four hour limit.

Yet respondents to our survey often identified meeting the needs of patients or improving the quality of care as the stated reason for introducing primary care staff within or alongside emergency departments.

This raises some serious questions.

- Is the patient really put at the heart of these systems?
- Is the claim that this is about better patient care merely spin, not supported by careful design of the pathway to ensure that optimal care is provided for each patient?

Whatever the original aim, there are certainly some instances where the objectives have become confused. One respondent, who has worked for an extended period as a consultant in an emergency department with a co-located primary care service, regretted the apparent cynicism that his reply displayed but described how:

"*The assumption seems to be that it is so obviously a good idea that the underlying principles can't be questioned. At various times the objects of our scheme have included the following:*

a) *redirecting patients to their own GPs surgery without treatment (sometimes less than one a day);*
b) *seeing and treating simple problems that need no investigation and not much examination;*
c) *attempting to see all walking patients including those that clearly need hospital facilities, e.g. X-ray;*
d) *reducing the number of patients admitted (but not seeing ambulance patients, which account for almost all admissions);*
e) *reducing the number of four hour breaches (which are also almost all in ambulance patients;*
f) *a general desire to ensure that the coming winter will be better than the last (which was difficult as the hospital ran out of beds for prolonged periods).”*

This lack of clarity makes it difficult for services to demonstrate success in achieving their objectives.

Our survey asked respondents to identify the main reason for the provision of a primary care service associated with an emergency department.

What was the primary objective and rationale for introducing Primary Care staff within or alongside the Emergency Department?	Emergency Department	Supplementary from ED	Primary Care Provider	PCT Commissioner	TOTAL
To reduce cost	7	4	2	2	15
To help achieve the 4 hour target	9	3	1	3	16
To meet the needs of patients that came to the Emergency Department	12	6	2	9	29
To 'educate' patients by sending them to the right place	2	2	0	1	5
To make more use of a service with spare/more capacity	2	0	0	0	2
To mitigate hospital staff shortages	1	0	0	1	2
To improve the patient experience	1	0	0	1	2
To improve the quality of care given to certain types of cases/patients	8	1	2	1	12
Other (please describe below)	8	3	1	5	17

The main reason was to meet the needs of patients or improve quality of care (41 respondents). This was followed by achieving the four-hour target (16) and reducing cost (15). We also asked the respondents who ticked ‘other’ to explain – most gave tactical/opportunistic reasons with small numbers referring to reducing cost, reducing attendance/admission and for the benefit of patients.

Most of the respondents believed that the objectives of the service introduced had been met. However there was less certainty among respondents and those we spoke to when visiting services about the delivery of expected cost reductions.

We are sceptical about the response to this question in the survey. In the course of our site visits and in telephone conversations more widely it was apparent that the main driver was most frequently cost reduction.

Evidence that services had met their stated objectives

Reduced cost

We were shown relatively few analyses of cost. Those that were presented often compared the full reference tariff cost with the marginal cost of the PCT running the primary care service. This is not a like-for-like comparison and no assessment was made about whether real savings resulted to the taxpayer.

The waiting time target and reducing admissions

Most primary care services focus on patients who walk into the emergency department. Few of these patients, even in a traditional emergency department model, are ever admitted or have the sorts of complications that mean they are likely to breach the four-hour target. It is difficult to make a direct link between using primary care staff to see this group and meeting either of these aims.

Whilst it is certainly possible that adding resource in the form of primary care staff means emergency department clinicians can be more focused on those patient groups who are often admitted, there are many confounding factors such as the acute medicine model of care in the trust, availability of diagnostics and support from sub-specialities. Because of the complexity of these factors we did not come across any departments and primary care services that had been able to account for them.

It remains a matter of faith that enabling specialists to focus on the classic emergency department cases will allow services to address these problems. Whilst this argument has intrinsic logic we have seen too many cases where the blockage was outside the immediate control of emergency department staff to be convinced that there is anything like an automatic link.

Staffing

Some respondents highlighted a shortage of staff in the emergency department as a reason for introducing a primary care service. Whilst primary care staff may offer one solution to this problem, it does raise the question of whether simply expanding the numbers of emergency department staff would work as well or better.

Educating patients

The stated aim of a small number of services was "to educate patients" not to use the emergency department "inappropriately". We are concerned about this for a number of reasons.

- The risk that some of the most vulnerable patients, for cultural, personal and socio-economic reasons, will almost always turn to the emergency department for their care will effectively be denied access to the health service. There is evidence that those patients who do use the Emergency department "inappropriately" do so for a number of reasons, which are concerned with social factors, and the absence of primary care models that suit their lifestyles and mental health issues. These are the very people that it is vital the NHS delivers care to. Trying to redirect them elsewhere may well mean that they do not receive it at all.

- There is good evidence that the majority of patients choose the correct level of care. A few do not and it is always a risk to plan for the few rather than the many. For instance, patients presenting with a headache to general practice have a very small risk that there is a significant underlying problem producing the symptom. But up to 60% of patients presenting to emergency departments with the same symptom are found to have a significant underlying problem. Using a service model to lower the acuity of the response or discourage patients from seeking care with potential attendant delays will not improve quality.

Initial clinical assessment

Process

Virtually all of the services that we examined placed clinical assessment at the front of the process, to direct the patient to the correct service and ensure the patient does not have a clinical condition that would make it unsafe for them to wait in a queue. This process is generally known as 'triage' (see above for our definition).

We have come across quite firm views on the need for assessment of all patients on arrival. Some felt it was essential that the process be thorough whilst others felt that simple guidance or allowing patients to make their own decision was perfectly adequate. We found there were three main types of process.

Receptionist quick decision (often using simple protocols).
This is not clinical assessment so tends to meet with opposition from clinical staff. Sometimes this may be followed by fuller clinical 'triage' at the point to which the patient is sent. At the Homerton Hospital reception staff use a simple proforma to direct walk-in patients to the GP service or to the emergency department. The process is not complex or time consuming and patients are directed to:

- Paediatric A&E
- A&E (for minor injuries)
- Primary Care (for minor illness)

Patients that are referred to the emergency department then undergo a second 'triage' by a clinician to identify how urgently they need to be seen. However, in the primary care area patients are seen in turn, with waiting times being no more than 20 minutes.

In some of the services we examined, both emergency department receptionists and primary care receptionists occupied the same desk. The patient route depended on which receptionist dealt with the patient first. If it was an emergency department receptionist then the patient went to the emergency department 'triage'. If it was the primary care receptionist then they went to primary care 'see and treat''. Although the services did pass patients back where necessary there seems little doubt that a more considered process would result in less transfer and might allow better balancing of the workload between the two.

Very rapid clinician assessment
This is typically carried out by a nurse and takes perhaps two minutes. Kings in London and Whipps Cross have a 'meet and greet' nurse, an experienced practitioner who directs patients into the appropriate stream. They have labelled these as major, minor and minor primary care – though there are considerable areas of overlap between the latter two. There is thus flexibility for the nurse to steer more patients in one direction or another depending on how busy each stream is. The PCT have only funded this nurse at Kings during the normal working day, which means that in the evenings the service reverts to a full Manchester Triage Process that takes much longer, leading to queues at the periods of heavy demand in the evenings and at weekends.

Full clinical assessment process (perhaps taking five to 15 minutes).
Again, this is typically carried out by a nurse and patients then wait to be called for a full consultation, though some will be sent for tests or X-ray based on the initial assessment. The Manchester Triage system is used by most emergency departments to make an initial assessment of the seriousness and urgency of all presentations. This has been further refined at the Manchester Royal Infirmary, by both consultants and GPs, to define an additional category of cases that can be seen appropriately by primary care clinicians. Nurses implement the 'triage' and it takes, on average, about five minutes. Some patients attend the primary care centre directly (a small number because the service is poorly sign-posted). About 17% of patients who present to the emergency department are diverted to primary care.

Planning for delay

We were surprised to find in both primary care providers and emergency departments that long queues are seen as inevitable. Early clinical 'triage' of patients is designed to manage the risk of delay by identifying those patients that need to be seen more rapidly and distinguishing them from those who can safely wait (with pain relief if necessary).

However such a delay does not enhance the patient experience and, as described earlier, this process of 'triage' followed by a wait is never as safe as seeing, examining, investigating and treating the patient with minimal delay.

The main reasons for queues developing are poor scheduling of staff or inadequate premises that make it difficult to deploy staff effectively. Industry and other parts of healthcare have long worked out that better scheduling and minimal queueing makes much better use of the staff resource, improves the quality of care given and reduces clinical risk.

There are real advantages in adopting a true 'see and treat" model for many of the patients that attend emergency departments with conditions that require only routine quick tests and for which treatment is rapid. A two stage process with an initial 'triage' can take much longer than one where patients are seen once and given any necessary treatment or advice. Equally, for those that require a number of tests, a thorough initial consultation can ensure that all are identified and ordered as early as possible. Whilst a quick assessment may identify the need for an X-ray, too often patients with more complex conditions have to wait for a fuller consultation before the tests required are identified. To achieve this, capacity must be sufficient to keep up with patients as they arrive. This is a more effective use of resources as patients are seen once rather than twice.

Our survey demonstrated that the majority of services use clinicians to 'triage' patients, though in ten cases a non-clinician, the receptionist, guides the patient to the right stream. The example where the patient was expected to make their own decision based on signs is a description of a since abandoned walk-in service established beside an emergency department.

Excluding cases where the patient is in need of immediate clinical intervention which is the best description of the process through which a walk-in patient is normally steered towards the right area/stream	Emergency Department	Supplementary from ED	Primary Care Provider	TOTAL
The patient makes their own decision based on a written notice/sign	1	0	0	1
The receptionist will book the patient in and guide, send or use the system to steer them into the right area/stream	5	5	0	10
The receptionist books them in and a 'navigator', 'triage' or similar nurse/clinician will guide, send or use the system to	23	7	3	33
The patient is seen first by a 'navigator', 'triage' or similar nurse/clinician who will guide or send them into the right	15	3	4	22
The receptionist books them in and GP or Primary Care nurse will guide, send or use the system to steer them into the	0	0	0	0
The patient is seen first by a GP or Primary Care nurse who will guide or send them into the right area/stream and they	0	2	0	2
Except in rare cases, patients will be seen very soon after arrival by the next available nurse/doctor who will,	0	1	0	1
Other (describe below)	6	2	0	8

Control of the front gate

One of the areas that appear from our visits to be critical is the matter of control over the initial reception process. Where primary care clinicians and emergency care staff were at odds with each other, the focus of discontent was most frequently the initial reception process. Equally, where there was a feeling that the system worked well, it was also obvious that considerable joint work had gone into developing the reception process and refining it with experience.

A great deal of operational and clinical time is spent directing people to the right service or redirecting them if they end up in the wrong place. There are often disputes and developing and implementing the criteria for assessment and direction of cases is a lengthy process. We have come across multiple examples of ongoing debate and dispute between commissioners, emergency department staff and primary care staff in relation to the numbers seen by each service and the number that should/could be seen. In most of these situations all sides have a valid view from their perspective as organisations and individuals.

Even in places where considerable effort had been invested in the reception process there were still frustrations if the workload was not balanced between the different work streams. For example in one trust the GP and urgent care lead

expressed frustration that the primary care staff could see many more patients if GPs were to 'triage' cases instead of nurses from the emergency department – and this in a trust that had defined sophisticated protocols to identify cases that might be seen by primary care clinicians.

We were not convinced that extended initial assessment processes added a great deal to the patient experience. The short rapid assessments we saw, coupled with adequate staffing to prevent waiting, seemed a much safer and effective way to run this aspect of the service.

For most survey respondents (62, including some categorised as other, out of 83) it is hospital staff who are responsible for operating the initial assessment process. A small number of services, especially in London, use GPs to carry out the initial streaming of patients. In contrast, when the hospital completely controls the initial reception and assessment process, lower proportions of patients are seen by primary care.

Which organisation has responsibility for the process by which patients are directed to the right area/stream	Emergency Department	Supplementary from ED	Primary Care Provider	TOTAL
The hospital	40	11	5	56
The Primary Care Provider Organisation (including an arms length provider arm of the PCT, out of hours organisation or	5	5	1	11
The PCT (or lead PCT if the service is commissioned by more than one)	1	1	0	2
An organisation that is a legal entity established for the purpose and controlled by a combination of at least two of	1	2	0	3
Other (please describe)	7	3	1	11

Importantly, as we describe in the next section, the process of initial receipt becomes less of a bone of contention if the service is set up to make sure:

- that the boundaries are not rigid
- staff develop trust that clinicians from all sides will steer patients to the right treatment whoever happens to have undertaken the initial assessment.

Types of service

There are probably as many variants in the models of primary care operating within or alongside the emergency department as there are examples – but we have categorised them into three types. Sometimes the model is shaped by the physical constraints of the site or the constraints of technology that make closer integration difficult, but we have also found some interesting examples where a great deal of integration and co-operation has been achieved despite this.

GPs located alongside the emergency department

This is by far the most common model across the country for the introduction of primary care. A Walk in Centre or Urgent Care Centre or a GP Out Of Hours Centre is located on the hospital site. These are often next to or within the emergency department building. The services have a wide range of staffing models ranging from nurse-only through to GP-only models.

There are a number of reasons that have meant that this approach is adopted so frequently:

- It is easy for the PCT to set up and commission – indeed there are cases where they seem to have resorted to this and there has been little detailed discussion of how it will operate or work with the emergency department.
- It allows the emergency department to focus their attention on the more acute cases where their expertise is most valuable, and may help them improve performance against the four-hour target and reduce admissions.
- There appears to be clarity of responsibility – the primary care service is responsible for the staff and patients that are seen by their staff, and the emergency department for theirs.

However having inspected a number of such services we are concerned about the management of a number of issues:

Patient confusion

The signage is often confusing and unclear - not only does the plethora of service names cause confusion in the minds of patients, it is not clear how they decide which service to go into. This raises concerns about our principal 3a, the process for making sure that patients are seen by the skill group that is most likely to be able to treat their condition safely. At one site there were four signs - one for the GP Walk In Centre, one for the GP Out Of Hours service, one for emergency department and the largest stated this was a no smoking site. None had any detail or assistance explaining what the services undertook.

We are uneasy about relying on patients finding their way to the right service without the guidance of reception or clinical staff, an unease that is heightened

when staff involved in delivery of the service cannot clearly describe which cases are best seen by which group.

Whilst there will always be a considerable overlap of cases that might be seen equally well by both primary care clinicians and emergency department staff the lack of clarity seemed to demonstrate that principle 3a (above) and 3d (about clarity over when to involve another clinician with a different skill) are not met.

Governance

In all the examples that we looked at there were split accountability and governance arrangements. This fails to meet our principle 4a – nobody takes overall responsibility for checking the appropriateness and effectiveness of the treatment offered to all patients that have approached the emergency department.

In most places the main formal linkage is via the commissioner who has contracts with the trust and a primary care provider (including PCT provider services) – but this link seldom engages senior clinical staff and does not in practice result in clinical governance review processes that can be said to be effective.

Meeting demand

With two completely separate services, it becomes more difficult to match capacity to demand, partly because smaller numbers will mean greater random variability and particularly because it becomes difficult to provide the flexibility to steer patients in different directions to match varying levels of demand (our principles 2a and 3b). It is also impossible for a senior clinician to exercise judgment about redirecting patients appropriately (our principal 1c).
At one site we found the primary care service overwhelmed with long waits while emergency department staff were sitting waiting for patients.

The more that the two services are separated the more difficult it is to ensure that the need to transfer the patient to another clinician or area for treatment is recognised, and that the transfer is easy to make. Whilst there are ways that this can be managed to minimise risk, a number of the services failed to convince us that there were not practical inhibitions to the transfer of patients that might affect patient care (our principle 3c). Fortunately, in the more acute cases, doctors are (rightly) insistent enough to make things happen regardless of the difficulties inherent in the process.

Each of the above issues can be addressed – for example having two separate services to which patients may find their way to does not preclude both being entirely clear over who deals with which sort of cases and making sure that they are redirected on arrival, if necessary. At Whipps Cross, for example, by working closely together the separate services have made sure that transfer of patients to and from the different streams is encouraged and made as simple as possible.

GPs at the front of the department screening patients

The model of operation some PCTs have chosen to adopt is to place a filter at the front of the emergency department. The aim is to prevent patients with non-emergency problems receiving treatment from the emergency department. Only those patients assessed as requiring emergency treatment get referred on. There are a number of variations on this theme:

- Some are focussed on ambulatory care and patients with "minor" problems.
- Some focus on those patients who are likely to be admitted. The role of the primary care staff is to identify and mobilise alternative avenues such as increased care at home and step down care. In this case much of the attention is on patients that are being referred to the hospital by GPs rather than on patients that have attended in person.
- Some of these schemes are set up to identify patients who seem to have difficulty with or have not bothered to contact their GP with a primary care problem. They are helped to register with GPs or referred back to their own surgery.

The rationale for adopting such an approach includes the ease of commissioning, making the finances straightforward and allowing emergency department staff to focus on those cases where their expertise is needed, improving performance against the four hour target and avoiding unnecessary admissions.

It simplifies the discussion about charging and the tariff – because the patient is never recorded as arriving at the emergency department the tariff is not charged. It is clear that in at least some of the models of this type this avoidance of the tariff was the primary motive for establishing the primary care initiative.

Again the examples that we saw raised a number of concerns, each of which needs to be properly addressed if the system is to operate effectively.

Delays

The process risks introducing delay. Typically it can be 20 minutes before the patient is seen by primary care staff. If capacity is not well matched to meet the peaks of demand it can be much longer. Whilst this may be no more than a patient would wait if they had arrived at the emergency department, too many examples added delays on to the process. When the patient was referred on to the emergency department that they had originally tried to attend, a new 'triage' process started. We were concerned about the clinical impact of such a delay, of the increased time before pain is relieved and (less importantly from the patient's point of view) about whether the start time for the four hour target was counted correctly where systems did not transfer the information about the arrival time.

Staff skills and training

Many of these schemes are staffed by GPs and nurses provided by an agency or out of hours service. They vary considerably in their range of competencies and experience of working in this sort of environment. This can mean that the range and number of cases that are diverted away from the emergency department is dependant on who is on duty at the time (failing to meet our principle 2c).

The situation with nurses is as variable and we found services which on some days had nurses qualified in prescribing and none on other days. This results in an inconsistent service.

We have already described the self-selecting group of patients that have chosen to come to an emergency department. There is an inherent risk in diverting these patients and the standard of assessment should be at a level that manages this risk properly. Whilst we have great admiration for the ability of general practitioners to manage risk, we also know that there are enormous variations in the way that primary care staff will deal with particular cases. By definition, primary care staff put at the front of an emergency department will be seeing patients that are not primary care cases as we have defined them (for example the case-mix will include many injuries, some of which will be acute and will be very rarely seen in general practice).

We received many anecdotes of patients who had been diverted or sent home only to have to return rapidly to the emergency department with a serious deterioration of their condition. Whilst we would be uncertain about using these anecdotes as evidence of poor practice, we are certain that having GPs operating without a clear framework and with no robust governance processes exposes the organisation and patients to risk. Unless the governance process includes detailed review of the clinical decisions made by the GPs and nurses, not just by their GP peers but also by experienced emergency department clinical staff, we would feel that the process failed to meet our principle 4a relating to governance and oversight of the whole process. Hospitals are rightly concerned that, where such diversionary schemes have been established and GPs operate independently, it is their reputation that will be tarnished if something goes wrong.

Primary care services fully integrated

We came across a small number of services that have been set up to offer a full range of care to all groups of patients who choose to attend the hospital site seeking care that day, including primary care. It takes time to set up such a service and some of them had started with the separate model described above. One of the best known examples is of Kings, London which was the subject of a number of reviews when it was established in the late 1980's which has developed from there.

The rationale for adopting this approach included:

Complex patient population

In many urban areas there will always be itinerant and shifting populations with recent arrivals from other Countries. This will include people who have no experience or knowledge of our primary care system and service. Combined with the greater numbers of hard-to-reach groups such as drug and alcohol users and people with mental health problems, and the fact that many of these areas are under-doctored, it seems inevitable that these patients will continue to use the emergency department as their first point of contact. As these patients present many can be registered and fed into the primary care service. But there is a continuing cycle of new individuals arriving so it remains a consistent feature of inner-city health services.

Responding to demand

Pragmatic acceptance that for whatever reason there are a substantial number of people with chaotic lifestyles who will continue to use the emergency department as their main source of care. Meeting the needs of these patients in full at the hospital offers continuity of care for the patient and increases the chance that a full medical record will in time build up, albeit not in a GP practice.

Clear governance

It is clear that the hospital is responsible for governance of the service. The trust will work to ensure that staff are not only making sound clinical decisions within a well-defined framework and subject to good clinical governance but they will make sure that the resource is used effectively (particularly as in places such as Kings where the hospital pays the GPs that work in the service as part of a long-standing contract with the local PCT).

Flexibility

The system can operate more flexibly. Because the service is integrated things can be changed – so, for example, the lead clinician can work with staff to respond to the changes that occur hour by hour during the day or night, adjusting the numbers that are directed to the different streams to make best use of the staff available and balance the workload.

We mentioned that one of the features of these systems is that they take time to establish – but one of the advantages of this is that it allows a regular group of primary care staff to be identified, for them to develop their skills in seeing a consistent mix of cases and for the individuals to gain confidence in each other.

We found some concerns and difficulties with this model of care.

Time to set up

It takes considerable time and effort to establish truly integrated working. It was striking that in many of the conversations that we held with PCTs there was a frustration that the hospital staff seemed unwilling to look at different models of care. On the other hand, the clinical staff from the emergency department

seemed to feel that they could not engage with primary care clinicians to develop such an integrated model of care. There were suggestions that some of this is because commissioners and provider hospitals fail to engage at the level of clinician-to-clinician but rather meet manager-to-manager to discuss commissioning and control of costs. Whatever the reason, getting engagement at clinician level is critical if an integrated model is to be developed.

Charging

The tariff inhibits an integrated approach because of fundamental disagreements over when the tariff should or should not be charged. In these cases the difficulty is one of distinguishing the normal emergency department case from the case that the PCT felt that it had already paid for by block-funding the primary care initiative.

Staffing

Inadequate or inconsistent staffing levels that were changed because of disagreements over the funding that should be provided by the PCT for the primary care element of the service, in particular, where the PCT adopted the view that it was already paying practices to see many of these patients. Some interesting approaches have been adopted to address this issue.

Leadership

In many services there is no clear primary care leadership other than the commissioner placing sessional staff next to or in front of the emergency department. One feature of the King's service is that it has always had strong primary care clinical and managerial leadership.

Staffing and audit

Staff mix and opening hours

Most services that have primary care in the emergency department use GPs from 8 till late. Very few services use primary care staff during the 'red-eye' period. About half ask them to take on a wider case mix than is typical in general practice interpreting X-rays and a wider group of tests than are available to a GP surgery.

What hours are the Primary Care staff normally working within or alongside the department	Emergency Department	Supplementary from ED	Primary Care Provider	TOTAL
Part of the normal working day, weekdays	4	5	2	11
Most or all of the normal working day, weekdays	17	8	3	28
Most or all of the time from 18.00 to 20.00 on weekdays	23	14	3	40
Most or all of the time from 20.00 to 24.00 on weekdays	16	8	3	27
Most or all of the early hours from 24.00 to 08.00 on weekdays	3	5	2	10
Most of the weekend morning	22	13	6	41
Most of the weekend afternoon	24	16	6	46
Most of the weekend evening	21	15	5	41
Weekend overnight	4	5	2	11

The vast majority use GPs, usually sessional GPs paid for each shift that they undertake but with little or no long-term commitment. Relatively few services involve other primary care clinical staff.

What sort of Primary Care clinicians are used within or alongside the Emergency Department	Emergency Department	Primary Care Provider	TOTAL
Salaried GPs	9	1	10
Sessional GPs	28	6	34
Advanced Nurse Practitioners	10	3	13
Other Nurses	5	2	7
Emergency Care Practitioners	3	1	4
Others	0	0	0

To address the issue of getting a consistent group of GPs engaged in the process, one service, Wythenshaw, had put out a tender. The contract had been let to an organisation set up by a group of GPs who had been working in the service. By using the same individuals regularly, both the GPs themselves and the hospital were confident that more coherent and higher quality clinical decision-making had resulted.

Around half of services expect the GPs to see a considerably wider range of cases than would be seen in general practice. This implies refresher training around issues such as X-rays and the interpretation of some tests. We were not clear in many cases how this was delivered or whether the GPs were relying on experience from earlier in their career.

Which of these tasks would you expect the Primary Care staff operating within or alongside the Emergency Department to perform	Emergency Department	Supplementary from ED	Primary Care Provider	TOTAL
Interpretation of X-Ray/radiography	12	8	1	21
Interpretation of Blood tests/haematology	13	10	1	24
Interpretation of Pathology reports	9	9	1	19
Interpretation of Microbiology reports	11	9	1	21
Interpretation of Electrocardiography results	14	8	1	23
Prescribing from a limited formulary	15	9	1	25
Prescribing of a full range of medicines	28	14	5	47
Screen patients to avoid unnecessary admission	18	11	5	34

Inconsistency in staffing

One issue that we came across that seemed to create difficulties regardless of the model was inconsistent performance between parts of the service. In different situations emergency departments, provider services or commissioners appeared to be at fault. No service can expect to operate effectively, and certainly not to work effectively in conjunction with another organisation, if it works in wildly different ways from time to time. Examples that we came across were emergency departments that suddenly began referring large numbers of patients to the primary care service because they were short of staff, PCTs that had established primary care services which (after an initial rush of enthusiasm) were regularly under-staffed, Out of Hours providers that filled slots with different doctors every time, so that no confidence developed in the competence of the clinicians and the case mix taken on varied widely.

The trouble with this inconsistency is that patients suffer. In addition, responsible hospitals, recognising the imperative of having to see patients that arrive at the door with urgent needs, have to retain capacity to handle those patients even when in other circumstances the primary care staff would have dealt with them. We discuss this further in looking at the real costs to the taxpayer below.

Of course services can and should work together to help each other at times of difficulty, but this requires communication and planning. In too many cases, one service found the work that it was expected to undertake had grown out of all recognition – sometimes for just a short period – but with no advance notification that this would happen.

Audit and clinical governance

In many schemes there is a lack of clarity over responsibility for important aspects of the service. In the services we visited we asked questions such as:

- Who has overall responsibility for clinical governance in respect of patients that attend the emergency department?
- Who audits the cases?
- Who reviews the decisions made?
- Who feeds information back to the clinicians involved, who is responsible for identifying any concerns or training needs?
- Who would be responsible if something went wrong?
- Who has operational responsibility?
- Who will make the hour-to-hour decisions to reallocate resources or patients to other clinicians when necessary?
- Who is it that looks at the overall utilisation of clinical and other staff seeing patients that have come to the emergency department, to make sure that best use is made of the total resource?

The answers exposed lack of clarity on these issues and confirmed that, often, the two services were operating independently. There appeared to be little, if any, joint clinical or operational governance. In some services we found front line managers had introduced systems and communication processes which addressed some of the risk, but these were not a formal part of a joint governance process.

We were left with the uncomfortable feeling that in some areas there were gaps in governance between two organisations, and in others that although everyone felt they had a responsibility, nobody was actually making sure that the necessary process of review and learning was in place to ensure that the service is "continuously improving the quality of services and safeguarding high standards of care". Some indication of this lack of clarity for governance is reflected in the responses to the survey (see table below).

Which organisation has responsibility for clinical audit, appraisal and governance for the Primary Care clinicians operating within or alongside the Emergency Department	Emergency Department	Primary Care Provider	TOTAL
The hospital	9	0	9
The Primary Care Provider Organisation (including an arms ler	7	4	11
The PCT (or lead PCT if the service is commissioned by more t	12	1	13
An organisation that is a legal entity established for the purpo	7	0	7
Other (please describe)	2	0	2
How often will formal feedback based on an analysis of cases seen, case notes and clinical decisions be fed back to the Primary Care clinicians involved in the service			
Monthly	7	1	8
Every Quarter	2	1	3
Twice a year	1	2	3
Once a year	2	1	3
Less frequently than annually	0	0	0
Depending on volume of cases, but at least annually	1	1	2
Don't know - it is the responsibility of the PCT or hospital	15	1	16
The process does not yet happen routinely but all clinicians h	0	0	0
A process is not yet established	9	0	9

Some organisations have started to address the problem of split accountability across organisations, and the increased risks this involves, by developing closer collaboration across organisational boundaries. One approach currently being tested at the Urgent Care Centre alongside the emergency department at the Royal Sussex County Hospital in Brighton is to establish a joint venture. This ensures that there is greater clarity about governance arrangements and offers a way of improving co-operation between primary and secondary providers by setting up a formal arrangement for how they work together. It involves an independent provider, South East Health and Brighton and Sussex Universities Hospital Trust, supported by local PCT commissioners NHS Brighton and Hove.

The joint venture, established in April 2009, will run for at least 18 months to allow the PCT to evaluate how well the partners collaborate to deliver urgent care at the front of the hospital. If successful, it will shape the future service specification for urgent care in Brighton, developing a seamless service for patients.

It aims to increase the numbers of people cared for in the Urgent Care Centre, improve access for patients, reduce waiting times in the emergency department,

integrate the skills of primary care clinicians with those working in more specialised roles in acute care and provide better value for money for the PCT.

Proportion of primary care cases

How many emergency departments offer primary care?

Do you currently have arrangements whereby Primary Care clinicians operate within or alongside an Emergency Department so that they will see some patients that attend the department?	Emergency Department	Supplementary from ED	Primary Care Provider	PCT Commissioner	TOTAL
Number in survey answering Yes	37	17	7	21	82
Number in survey answering NO	26	10	2	6	44
Number in survey with no answer	0	0	0	0	0

Among respondents to our survey it appears that around two-thirds of services have primary care staff within or alongside the emergency department. This is not necessarily representative as respondents will be a self-selecting group including more of those that have tried or adopted such a model. We estimate that around half of all services have some form of primary care service operating within or alongside the emergency department.

What proportion of emergency department activity is primary care?

When we used a consistent definition and denominator of all emergency department cases, we found that the proportion that could be classified as primary care (cases of a type that are regularly seen in general practice) was between 10% and 30%. Detailed ongoing operational audit at Whipps Cross Hospital has shown 27% of overall attendances are completed by the primary care clinicians.

We were asked to provide "a viable estimate of the number of patients who attend emergency department with conditions that could be dealt with elsewhere in primary care". Equally, in discussion, many of those that we have spoken to have wanted to know "the percentage of cases that might be seen by a primary care clinician".

The first implies that the patient might be sent elsewhere to access primary care, with an associated delay. Presumably there are certain cases that if seen on a weekday morning could happily be referred to a GP practice and appropriately dealt with that day – but that could certainly not wait from Saturday until after the bank-holiday weekend. The proportion of cases that could be seen by a

primary care clinician available at the time is much higher than the proportion that could be referred to primary care to be seen later.

Both GPs and emergency department clinicians share common training over many years and undertake a very similar mix of work for at least two years following qualification. Some GPs maintain an interest in urgent and emergency medicine whilst others do not. For this reason the answer to the second question is that it depends on the clinician.

In discussion with the reference group we agreed to answer a different question - what proportion of cases are seen and completed by a primary care clinician and what factors lead to variation in this proportion?

Variation in the numbers of primary care cases

The proportion of cases that are seen by primary care clinicians varies considerably, as do the expectations of those who are commissioning and delivering services.

There are a number of reasons for this variation – some of which reflect real underlying differences in the case mix, the operational process and model adopted or the different clinical ethos in the service. The nature of the local patient population and the quality of primary care are also important issues. Many of the variations are caused by the different ways such cases are counted.

At King's in London the service measures the proportion of minor cases that are seen by a primary care clinician. They have an established cohort of regular primary care staff, most of whom have worked for the service for a number of years and have undergone some joint training with the emergency department staff. Those professionals see some cases that go beyond our definition of primary care cases (cases of a type that are regularly seen in general practice). Here, 40% of the minor cases are seen by primary care staff, which equates to 28% of the overall numbers that attend the emergency department.

In Scarborough the proportion of cases directed to primary care by 'eye-balling' them on arrival has been measured on two occasions at 11%, a figure that they estimate could rise to 25% based on an analysis of the case-mix seen by the emergency department.

At another inner city teaching hospital, the proportion of cases was much lower at 18%. The prioritisation system was developed and managed by the hospital service. This figure does seem low for a major urban city centre site. On the day we visited the emergency department had significant numbers of patients waiting – while primary care staff were waiting for patients.

It is interesting to contrast this proportion with one of the early studies of this service that identified 41% of patients who were classified at 'triage' as presenting

with primary care problems.[1] The definition of primary care is very similar to the one used in this report *"to include self-referred, non-emergency problems that could have been managed in an 'average local general practice'"*.

Discussing the apparent difference in these numbers, Professor Jeremy Dale, one of the authors of the original report, made clear that there had been good operational reasons for not staffing up the primary care part of the service so that every patient that could be seen by primary care staff was directed to them – not least because it would have resulted in under-utilisation of emergency staff. He felt that there had been little change in the percentage of primary care cases or in the proportion that were seen by primary care staff over the 15 or so years since the study.

Funding

Funding & cost effectiveness

We had significant reservations as to the reality of the claimed savings for a number of reasons. These include:

- the failure to compare like with like – often looking at the marginal cost of the additional cases referred to an existing primary care service against the tariff which includes on-costs;
- the failure to recognise the cost that the emergency department had to bear of providing back up (for example when the primary care service was unable to provide the staff to deliver the promised service).

How are the Primary Care staff funded	Emergency Department	Primary Care Provider	PCT Commissioner	TOTAL
From the tariff for the case	4	0	4	8
Separately commissioned by the PCT but is funded on a cost per case	3	2	1	6
Separately commissioned by the PCT as part of a block contract	19	2	7	28
Separately commissioned as part of a PBC initiative	2	1	2	5
Other (describe below)	9	2	12	23

However, we have no doubt that an effective primary care service associated with an Emergency department can be a successful way of managing patients with primary care presentations.

[1] *Primary care in the accident and emergency department: I. Prospective identification of patients*, BMJ 1995;311:423-426, 12 August)

The question of costs and savings also raises an issue that is more to do with finance rather than good patient care. When work is removed from an emergency department and carried out by the PCT or their contracted provider, the ultimate result will be a rise in reference costs for emergency departments, as many of their costs are fixed.

Even where there appear to be some savings for the PCT, we remain unconvinced about there being any saving for the system as a whole. For a saving to be made for the tax-payer the emergency department has to reduce its costs by at least as much as the cost invested by the PCT (or to deliver other benefits that are equivalent to this). In those examples that we have seen the question as to whether the savings were actually made is not addressed. In addition most of the examples ignore the additional costs of training or re-training staff to deliver care to the transferred patients, and the ongoing costs of recruitment and retention of qualified staff.

Developing local tariffs

Some local health systems have tried to develop initiatives based on an agreed tariff for urgent care that incentivises organisational and clinical behaviour to promote the best interests of patients. The key features that characterise these schemes are a comprehensive, system-wide attempt to integrate urgent care and to align the financial incentives and mitigate the risk to individual organisations.

NHS Birmingham East & North and Solihull NHS Care Trust introduced a new local tariff In April 2008. It seeks to incentivise the transfer of patients to a primary care discharge unit rather than admitting them to a hospital bed. In this way they aim to reduce the perverse financial incentives of a very short stay emergency admission.

The project seeks to incentivise all three partners – the PCT as commissioner, the PCT as provider, and the acute provider. The service differs from many, as rather than being a primary care 'filter' at the front of the emergency department, it works as a service into which patients are discharged from the department. Under the new tariff, emergency department attendances continue to be fully reimbursed whether or not their discharge is facilitated by primary care staff. But if the primary care discharge unit discharges a patient within a set time, then no payment is made to the Hospital Trust for the in-patient admission. Instead, a lower incentive payment is paid. It has also been agreed that both partners share in any surplus or deficit that arises from the scheme, sharing the risk as well as jointly agreeing how any benefits are reinvested to improve local care for patients.

In Doncaster, the whole system is working together to integrate urgent care, involving a new unscheduled care service combined with new financial incentives. Doncaster and Bassetlaw Hospitals NHS Foundation Trust and NHS Doncaster

have just introduced a new system designed to rapidly see, assess and treat all patients within 15 minutes at the new Unplanned Care Centre (incorporating the former emergency department and primary care centre) and a new 8 to 8 centre within the town. From 2nd November 2009 a new tariff has been introduced, effectively for a trial year.

There is an understandable nervousness on all sides at making this change, with the Hospital Trust concerned about fluctuations in activity and the PCT unclear whether easy access for patients will mean that the new services are overwhelmed with high levels of demand. But transparency across the system with an open book approach will mean that all sides can review the impact of the changes and work together to align incentives within the system to improve patient care.

Summary

Our research shows that primary care practitioners can enhance emergency departments by bringing vital skills and expertise to a multi-disciplinary team and offer a better service to patients who do not need the full range of skills and services of the emergency department.

The stated reason for introducing primary care services is often to improve patient care - yet we found in many cases the main drivers are, in fact, reducing costs and helping to meet the four-hour waiting time target. It is not clear that either of these objectives is being met.

But innovative examples of local tariffs highlighted in this report show that it is possible to integrate urgent care while aligning the financial incentives to promote patient care and to promote savings across the healthcare system.

We hope commissioners and trusts will consider the examples of successful services described in this report. Lessons drawn from these models will help to ensure staff are not only making sound clinical decisions within a well-defined framework, subject to good clinical governance across the system, but are using resources effectively.

What happens next? We believe PCTs, services and practitioners will find the key recommendations outlined in this report helpful. They are detailed in the Executive Summary under 'Lessons for commissioners and providers'. It is vital that if primary care clinicians are to work within or alongside emergency departments that they are properly integrated. This is not a quick fix. Getting it right takes time but when established with clinician engagement such initiatives can provide safe and timely care for patients and should offer real cost savings.

The Primary Care Foundation will offer further support in this area. We plan to produce a commissioning guide and carry out further work to assist PCTs and

acute trusts in setting up new services and to ensure existing schemes are effective and successful.

Summary of literature survey (included at appendix 3)

Objectives

The objective of the literature survey was to:

- Identify models that have been designed to manage patients attending the emergency department with primary care type illness and injuries
- Examine the characteristics of reported models in terms of healthcare provision, study design, intervention, outcomes and effectiveness

- Undertake a narrative analysis of the data.

This review used a single structured search strategy. No language or study design limitations were applied. The following databases were searched Medline, Embase, Cinahl, Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Health Technology Assessment Database, and the following NHS Evidence Specialist Collections: Emergency/Urgent Care, Health Management, Innovation Improvement.

Studies were included if they reported interventions for managing patients with primary care type conditions, however defined, with objective measures attributable to the intervention, either within or in close proximity to the emergency department (ED).

The characteristics of relevant studies were extracted onto evidence tables categorised by intervention type.

A narrative analysis of the data was undertaken and found:

- A GP working in the ED may result in less referrals for admission and less tests being undertaken. Cost benefits may exist but the evidence is weak.
- Redirect away from the ED has had variable results regarding future attendances and the assessments of the safety of this intervention have also revealed variable results. Whether or not a primary care appointment was made for patients being redirected from the ED some may not be kept.
- Educational interventions have not been shown to change attendance patterns.
- There is a paucity of evidence available to support the current system.

There is a paucity of evidence on which to base policy and local system design. There may be benefits to systems of joint working between primary and emergency care, but at present this cannot be said to evidence based.

Appendices

Appendix 1 – the national reference group

We would like to offer our thanks for the challenge and support given by members of the reference group, both formally at two meetings and informally by email and phone. The project was considerably improved by their involvement but, as always, the responsibility for the content of the report rests with the Primary Care Foundation alone.

Member	Organisation & role
James Adedeji	Deputy Branch Head, Urgent and Emergency Care, Department of Health
Jenny Aston	Chair, Royal College of Nursing Advanced Nurse Practitioner Forum
David Carson	Director, Primary Care Foundation
Henry Clay	Director, Primary Care Foundation
Professor Mathew Cooke	Warwick Medical School & HEFT
Professor Jeremy Dale	Director, Centre for PHC, University of Warwick
Chris Dowse	Head of Urgent and Emergency Care, DH
Mary Elford	Non-executive Director, CAMIDOC; and Barts & the London NHS Trust
Catherine Fiegehen	Urgent & Emergency Care Team, Department of Health
Agnelo Fernandes	Clinical Champion Urgent Care, Royal College of General Practitioners
John Heyworth	President, College of Emergency Medicine
Mabli Jones	Associate Director, Primary Care, Tower Hamlets
Sarah Randall	Ambulance and A&E Policy Manager, Department of Health
Julian Redhead	PCF Associate and Consultant in Emergency Medicine, St Mary's & Imperial
Nicholas Reeves	Advisor, Urgent & Emergency Care Team, Department of Health
Dr Paul Rice	Assistant Director of Clinical Service Development, North Yorkshire & York PCT
Lis Rogers	Clinical Lead for Urgent Care, Doncaster PCT
Rick Stern	Director, Primary Care Foundation
Rick Strang	Commissioning Support for London, Leading on Polyclinics Programme
Ken Wenman	Chief Executive, South Western Ambulance Service
Nigel Wylie	NHS Alliance, Urgent Primary Care Leadership Group & Chief Executive Urgent Care 24

Appendix 2 – methodology

A literature review was commissioned and is included at appendix 3. A web-based survey was offered to all acute trusts, providers of primary care in emergency departments and all PCT commissioners. This was followed up by a further questionnaire to the lead consultants in each emergency department

Visits were carried out to 10 sites across the country to experience at first hand the methods of operation, the issues experienced and to identify those aspects that are worthy of widespread adoption.

Findings were tested as we progressed with a reference groups whose membership included representatives from the Royal College of General Practitioners and the College of Emergency Medicine. It also included key individuals from PCTs and providers as well as officials from the Department of Health. The reference group provided valuable assistance in refining the principles for ensuring safe treatment of patients attending an emergency department, which were used as a framework against which to test the examples that we saw during our visits.

A rapid review exploring the interface between primary and emergency care in England

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Contents

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Conflict of interest

Dr Joanne D Fisher - None
Dr Bilal Salman - None
Professor Matthew W Cooke – Appointed National Clinical Director of Emergency and Urgent Care for the Department of Health as of 4th January 2010.

List of Abbreviations

CCTR	Cochrane Controlled Clinical Trials Register
CDSR	Cochrane Database of Systematic Reviews
CINAHL	Cumulative Index to Nursing & Allied Health Literature
DARE	Database of Abstracts and Reviews of Effectiveness
ED	Emergency Department
EMBASE	Excerpta Medica Database
HMIC	Health Management Information Consortium
MEDLINE	Medical Literature Analysis and Retrieval System Online
PCT	Primary Care Trust

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Summary

Aim
The aim of this review is to explore the literature relating to the interface between primary and emergency care.

Objectives
- To identify models that have been designed to manage patients attending the emergency department with primary care type illnesses and injuries.
- Examine the characteristics of reported models in terms of healthcare provision, study design, intervention, outcomes and effectiveness.
- Undertake a narrative analysis of the data.

Data Sources
This review used a single structured search strategy (**Appendix 1**). No language or study design limitations were applied. The following databases were searched Medline, Embase, Cinahl, Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Health Technology Assessment Database, and the following NHS Evidence Specialist Collections: Emergency/Urgent Care, Health Management, Innovation Improvement.

Study selection
Studies were included if they reported interventions for managing patients with primary care type conditions, however defined, with objective measures attributable to the intervention, either within or in close proximity to the emergency department (ED).

Data Extraction
The characteristics of relevant studies were extracted onto evidence tables categorised by intervention type.

Data analysis and results
A narrative analysis of the data was undertaken and found:
- A GP working in the ED may result in less referrals for admission and less tests being undertaken. Cost benefits may exist but the evidence is weak.
- Redirect away from the ED has had variable results regarding future attendances and the assessments of the safety of this intervention have also revealed variable results. Whether or not a primary care appointment was made for patients being redirected from the ED some may not be kept.
- Educational interventions have not been shown to change attendance patterns.
- There is a paucity of evidence available to support the current system.

Conclusion

There is a paucity of evidence on which to base policy and local system design. There may be benefits of systems of joint working between primary and emergency care but at present this cannot be said to evidence based. Local unpublished evaluations may provide some low level evidence not available in this review.

1. Introduction

Increases in attendances at United Kingdom (UK) Emergency Departments (ED), and the drive to improve waits and the patient experience[1] has focused attention on a number of systems affecting ED functioning, such as case-mix, skill-mix, patient flows and care pathways.[2]

The case mix of patients attending ED has received much attention, as for a number of years, there has been an appreciation that many patients attending EDs could be equally well cared for in primary care[3-31 43-6] and for some, primary care may provide better care.

The proportion of patients attending ED with primary care type conditions is estimated to range from 6-60%.[7-8 15-18] These patients tend to be young,[9] with symptom duration greater than 24-hours, with conditions not related to injury[9] and a high proportion of these patients (28%) will have consulted their General Practitioners (GP) first.[10] This issue is not restricted to the UK and is reported in the international literature.[8 11-13 14 15 16 17 25-37]

However, the numbers attending ED have been measured using various techniques and found to be highly variable. This variation may be true (e.g. locally related) or artificial (due to the methodology used for detection); most measures are retrospective and so could not be applied clinically.

It is known that there are a number of factors that influence a patient's choice of where to obtain healthcare.[3 19-24] These include process factors such as the organisation of primary and emergency care[17-20] and psychological factors such as peoples' schemas for obtaining healthcare advice and treatment.[21 22]

Currently, primary care services in the ED can be classified as follows:

1. **Re-direct** – Patients present to the ED and are sent to a primary care service:
    1. Adjacent out-of-hours service.
    2. Adjacent walk-in-centre.
    3. Adjacent primary care/community service.
    4. Advice only/self-care.

2. **Managing patients in the Emergency Department**

    a) **Gatekeeping in ED** – Primary care service based at the front of ED to manage patient entry to the ED service.

    b) **Primary care within ED**:
    - GP working in ED:
        - Employed by PCT
        - Employed by Acute Trust.
    - Other primary care clinician.
    - ED clinician.

- Co-located walk-in centre.

Whilst patients with primary care type conditions attending the ED are seen by some as a cause of increased waiting time, inefficient care, staff stress and preventable cost,[39-41] others have focused on how these patients might be managed within the ED environment.[4] [42-44] One approach that has reported benefits in resource utilisation, costs and patient satisfaction is the employment of sessional General Practitioners (GP) in EDs.[43] [45] Others have suggested that these patients could be re-directed to alternative less expensive care.[23-26] However, some have raised concerns regarding the safety of re-directing patients from the ED. In a study to determine the safety of redirect guidelines it was found that 33% of patients that would have been re-directed were appropriate for ED attendance.[27] A systematic review, undertaken by the King's Fund, exploring the impact of primary care and community based interventions on the demand for emergency care, found evidence for broadening access to primary care, charging for the service, gate keeping, and employing GPs to manage patients with minor illness and injury.[28] Whilst the Kings Fund[28] suggests there is evidence of cost effectiveness for employing GPs in EDs, it is important to remember that this is based on only three studies[24] [29] [30] one of which presents no formal economic analysis[30] and the other two studies[24] [29] which both have limitations with regards to the full costs accounted for in their economic analyses. In addition, of those studies presenting formal economic analyses, only one is applicable to the UK. Anecdotal evidence suggest that many EDs have established systems for primary care patients and then abandoned them because the expected benefits have failed to materialise. Hence, the extent to which a primary care service in the ED may be useful is difficult to assess from this data.

In order to determine how best to manage patients attending the ED with primary care conditions, it is important to determine the range and effectiveness of different models of care and to establish the context in which these interventions are beneficial.

The systematic review undertaken by the King's Fund in contains studies pre-1990, with some evidence dating back to the 1970s. Given the continued increase in demand for healthcare in ED, and the treatment of patients with minor illness and injury that are neither accidents nor emergencies,[4] it is important to review further this interface between primary and emergency care, especially in the light of changes in primary care out-of-hours.

1.1 Aims

The aim of this review is to:

- Explore the interface between primary and emergency care.

- Identify models that have been designed to mange patients attending the emergency department with primary care-type illnesses and injuries.
- Examine the characteristics of reported models in terms of healthcare provision, study design, intervention, outcomes and effectiveness.
- Undertaken a narrative analysis of the data.

2. Methods

2.1 Design
A systematic review of the literature and narrative analysis.

2.2 Types of studies
No restrictions were placed on study design.
No language restrictions were applied.

2.3 Types of participants and setting
Patients of all ages seeking primary care attending a service:
- integrated within the emergency department
- co-located in the emergency department
- separate from the emergency department located within the grounds of the hospital
- located within close proximity to the hospital.

2.4 Types of intervention
Interventions for managing patients with primary care type conditions, however defined, either within or in close proximity to the emergency department.

2.5 Types of outcome
Studies were included if they reported data on:
- Attendance at primary care.
- Attendance and or re-attendance at emergency departments with primary care type conditions.
- Adverse events.
- Patient satisfaction.
- Investigations requested.
- Referrals requested.
- Prescriptions issued.

2.6 Search strategy for eligible studies
The search strategy was developed for Medline (**Table 1**) Searches of other databases were adapted from this search template (**Appendix 1**).

Table 1 - Ovid MEDLINE(R) 1950 to October Week 2 2009

#	Searches	Results
1	primary care.mp. or exp Primary Health Care/	86520
2	exp Physicians, Family/	13732
3	general practitioner$.mp.	29173
4	exp After-Hours Care/ or out-of-hours.mp. or OOH.mp.	1750
5	4 or 1 or 3 or 2	118328
6	exp Emergency Service, Hospital/ or exp Emergency Medical Services/	74654
7	((accident and emergency department) or emergency department or casualty).mp.	28841
8	6 or 7	87974
9	8 and 5	4169
10	limit 9 to (humans and yr="1990 -Current")	3529

2.7 Inclusion criteria

Studies were included if they reported primary data on interventions for managing patients with primary care type conditions, however defined, with objective measures attributable to a defined intervention, either within or allied to the emergency department.

2.8 Study Identification

The titles and abstracts of the retrieved studies were reviewed independently by two reviewers (JDF/BS) (**Figure 1**). The reviewers extracted the data onto the evidence tables.

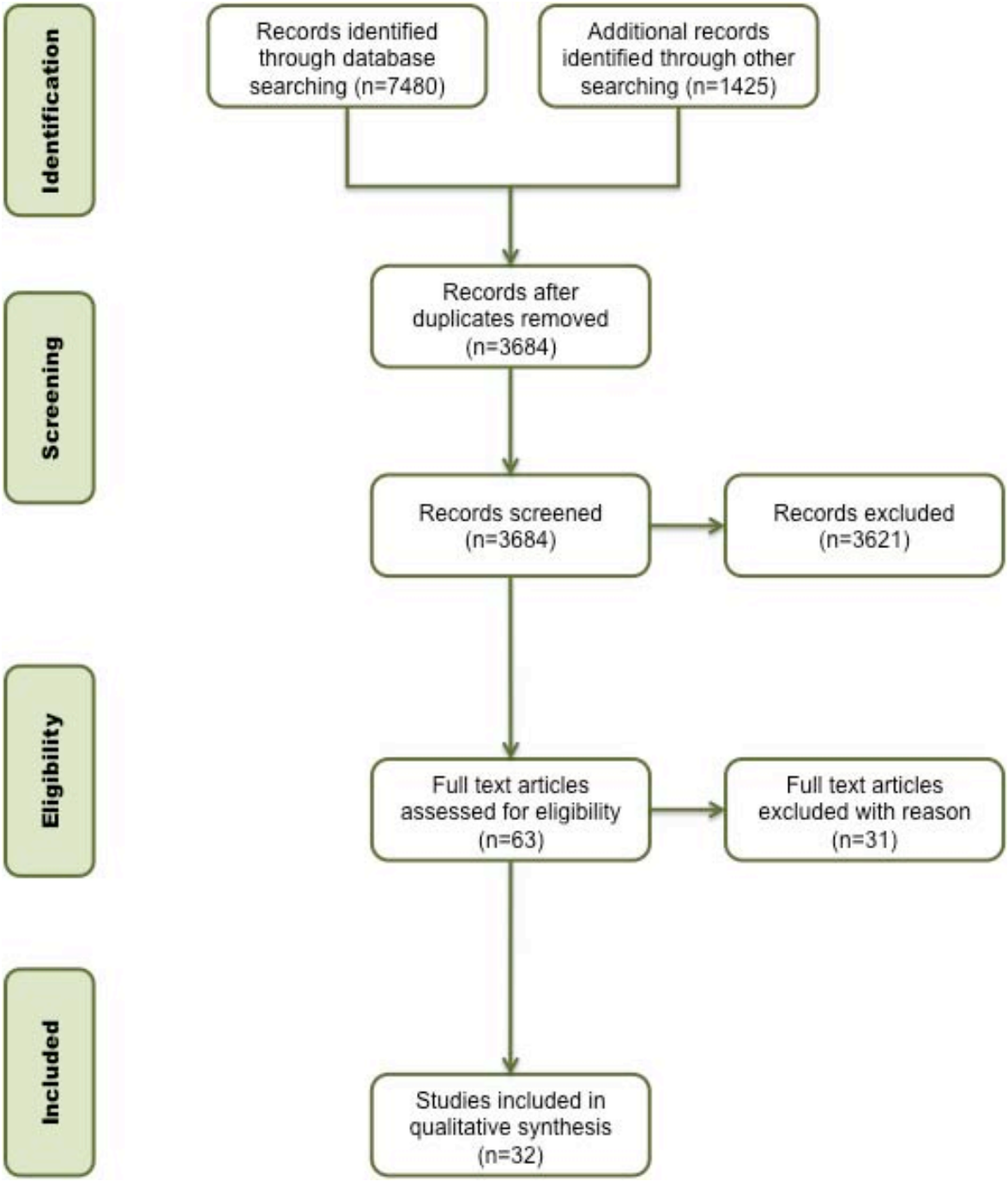

Figure 1 – Study identification[31]

3 Results

The search revealed 31 eligible studies (**Tables 2-6**) with interventions designed for the management of patients with primary care type conditions at the interface between primary and emergency care. There were 11 studies were reporting different aspects from the same primary research and these have been presented together on the evidence tables.

The studies have been categorized three groups by intervention type: the management of primary care patients within the Emergency Department (ED) emergency department, re-directing primary care patents from the ED and interventions designed to educate and inform patients on the appropriate use of emergency departments.

3.1 Managing Primary Care Patents within the Emergency Department

There were 10 studies (**Table 2 & 4**) with four from the UK exploring the management of patients with primary care type conditions within the emergency department. The majority of studies reported using a triage system either by a nurse or a doctor, although Gibney et al.,[32] reported that receptionists triage patients into urgent and non-urgent. The majority of interventions reported employing General Practitioners/Physicians to manage these cases.[24 25 29 30 37] These studies reported a number of benefits including cost benefits such as fewer investigations requested,[24 29 30] fewer prescriptions issued,[24] fewer referrals,[24 30] reduction in ED attendace,[35 38] fewer hospital admissions[33 35] and increased patient satisfaction,[33 34]

These findings were not universal Ward, found no differences in the number of prescriptions issued,[30] Gibney et al.,[32] found GPs more likely to issue a prescription and Murphy et al.,[29] found no differences in the number of referrals.

Four studies[24 29 30 33] indicated potential cost benefits. Dale et al.,[24] estimated the cost per patient excluding admission was £19.30 for House Officer, £17.97 for a Registrar and £11.70 for a GP and including admission costs was £32.30, £58.25 £44.68 respectively. The costs were based on the staff time, diagnostic tests, treatments and referrals. Murphy et al.,[29] estimated the total cost saving for the 15 month study period to be £lr95,125 based on the investigations, staff time, and average admission cost based on the hospital admission profile. At follow 30-day follow up Murphy et al., found that at one month follow-up 12% of patients managed by a

GP re-attended with the same complaint compared to 9% of patients managed by ED doctors. They also found that more patients managed by a GP visited their own GP (12%) for the same complaint compared to patients managed by ED doctor (9%). Ward et al.,[30] did not present any cost effectiveness data but surmised that because GPs ordered less investigations and made fewer referrals there would be cost savings to Trusts.

All the UK studies involved patients being allocated to the GP by other staff. No studies were found where the GP selected cases appropriate for her/him, although such systems are known to exist.

3.2 Re-directing Primary Care Patents from the Emergency Department

There were 20 studies (**Table 3 & 5**), with one study from the UK, exploring redirecting patients with primary care type conditions from the emergency department and discouraging subsequent utilization. The majority of studies reported a triage system where patients are screened. Patients designated non-urgent are referred to primary care.[14 39-46] In some cases an appointment was made for patients.[14 43 44] However, where patients had received advice and they were happy with that advice they were less likely to attend the referral.[40 46] Patients were then followed up to see if they had attended primary care. A number of studies suggest that there is an increase in primary care attendance and a decrease in ED attendance.

The extent to which the studies followed patients up varied.[39 40 44 45 47 48] One study[47] exploring the clinical outcomes of 588 indigenous children denied emergency department access reported a large proportion 45% (265/588) with no follow up regarding the health status.

A number of studies report on the safety of redirecting patients from ED.[39 44 45 48] Gadomski et al., observed 216 children denied ED access to determine any detrimental effects. The found that it was a safe practice but that re-directing patients had no significant effect on their subsequent health seeking behavior and they were as likely to re-attend the ED as the comparison group. Shaw et al.,[47] found that two children that were re-directed were later admitted to hospital.

3.3 Educating Primary Care Patents attending Emergency Department

Only one study was directed towards modifying patient's health seeking behaviour (**Table 6**). The study by MacKoul,[49] was a longitudinal educational program undertaken in primary care setting

and designed to enable carers to identity peadiatric emergencies. There were guidelines on when to seek urgent medical care and details of alternative care for non-urgent conditions. There is also a bi-monthly newsletter and public lectures. The program was directed at three groups of patient's **1**-Medicaid patients with unrestricted access to ED, **2**-group A – access to ED via physician and co-payment, **3**- group B – unrestricted access to ED but co-payment required. MacKoul,[49] found that the patients in group 1 were significantly ($p<.001$) more likely attend the ED and had significantly ($p<.04$) lower severity scores than patients in the other two groups. The study design was weak with no control and the results may reflect the fact that the patients in group 1 had unrestricted non-fee paying access to ED.

Table 2 – Managing Primary Care Patents within the Emergency Department – UK Literature

Study ID Country	Study Design	Population/N Attendances p.a.	Intervention	Outcomes	Results
Ward, 1996[30] United Kingdom.	Prospective survey.	N=970 Adults and children 6,477 p.a. during study period.	Nurse triage of primary care patients using decision tree. Patients screened as Minor B/primary (less likely to need investigation(s)) care were seen by GP or ED doctor. Study period – 6-weeks Weekdays (14.00-17.00hrs; 18.00-21.00hrs) Weekend 2-sessions-(10.00-13.00hrs; 14.00-17.00hrs)	Number of investigations. Prescriptions issued. Number of referrals.	58.4% seen by ED-GP (566/970) ED doctors undertook significantly more investigations ($p<0.001$). No significant difference in those requiring advice or prescribed medication. There were differences in the number of onward referrals. ED doctors more likely to refer to on-call teams (10.6% v 4.5%; $p<.05$). ED doctors more likely to refer to ED review clinic (11.7% v 5.4%) – ($p<.05$). ED doctors more likely to refer to make outpatient referral (22.3% v 11.2%) – ($p<.05$). GPs more likely to advise follow-up with community GP (70.9% v 55.3%) – ($p<.05$).

					ED staff were positive about ED-GPs. ED consultants and GP cited patients seen by appropriately trained doctor as greatest benefit. No analysis of wait times – but the staff questionnaire found junior ED doctors and nurses hoped there would be a reduction.
Clancy and Mayo, 2009[50] United Kingdom.	Observation Study.	N=525 Children >1-year triaged as green/blue on MTS. Attendances p.a. – not reported.	Paediatric nurse triage eligible patients directed to nurse-led protocol based see and treat. Weekdays (12.00-17.00hrs; 20.00-21.00hrs)	Not reported.	90% of (474/525) patients are managed at see and treat. 10% (51/525) are referred on. Average consultation 22 minutes. Limited details – no control or follow-up.
Dale et al., 1995[25] and 1996[24] United Kingdom.	Quasi-Randomised Study.	N=4641 Adults and Children. Integrated with the emergency department. 70,000 p.a.	**Intervention** n=1702 managed by sessional GPs. **Control** n=2382 managed by ED SHO. n=557 managed by ED registrars. Nurse triage – allocate	Number of referrals. Number of prescriptions issued. Number of investigations ordered.	ED doctors were significantly more likely to order radiographs, prescriptions, and make more referrals (p<.05). Patient satisfaction (based on n=565): clinical assessment 77% (430/562); treatment 75% (418/557); consulting manner 88%

			patients to primary care or ED. n=419 3-hour sessions were sampled; n=215 GP sessions; n=204 ED doctor sessions. (10.00-13.00hrs; 14.00-17.00hrs; 18.00-21.00hrs)	Patient satisfaction. Follow-up Cost.	(434/492). Follow up – 3-months n=1458 23% contacted their own GP at least once for the same condition. Patients that had seen by a GP in the ED made more visits to own GP, underwent more subsequent investigations, and were referred more. Cost Senior House Officer - £19.30 Registrar - £17.97 GP - £11.70

Table 3 – Re-directing Primary Care Patents from the Emergency Department – UK Literature

Study ID Country	Study Design	Population/N Attendances p.a.	Intervention	Outcomes	Results
McGugan and Morrison, 2000[51] United Kingdom.	Observation study (pilot).	N=179 children and adults attending with complaints of 3-days duration. 60,000 p.a.	Re-directing patients from ED Patients were assessed by doctor who: 1-diected to ED n=23. 2-given advice and discharged n=19. 3-directed to PC n=137.	Referral to GP Adverse events.	Follow-up for 88% (121/137) of re-directed patients. 49% (67/137) made an appointment to see their GP. 19% (26/137) required further investigations or referrals. No adverse outcomes.

Table 4 – Managing Primary Care Patents within the Emergency Department – International Literature

Study ID Country	Study Design	Population/N Attendances p.a.	Intervention	Outcomes	Results
Jimenez, et al. 2005[33] Spain. [abstract only]	Before and after study.	Adults and children.	Triage by doctor GP in Fast Track Area Hours: 08:00-00:002 resident physicians, 08:00-24:00hrs.	Investigations. Time to be seen/time to treatment/length of stay. Admissions. Re-attendance. Leaving without being seen.	Reduction in number of tests ordered (41% less) Significant reduction in time to be seen (20% less), time to treatment (25% less), length of stay (36% less). Reduction in patients sent to observation ward (78% less) Re-attendance rate reduced (75% less)

				Perceived quality of care. Cost.	Reported improvement in perceived quality of care. Reported lower costs.
Kool et al., 2008[34] Netherlands.	Before and after study.	N=12,940 (ED-GP-no separate figure combined with below) Intervention and control sites 20-30,000 p.a.	**Intervention** Integrated Emergency Posts (IEP) 1 - Purmerend) Integrated primary and emergency care. Triage/Telephone triage according to protocol by GP assistent. Allocate patients to: ED doctor, GP, or nurse specialist. **Control** (Lelystad) Traditional primary and emergency care. 17.00–23.00hrs GP assistants-3; GPs-2; ED doctors-1; nurses-4/5. 23.00-08.00hrs 17.00–23.00hrs GP assistants-2; GPs-1; ED doctors-1; nurses-3.	Number of patients seen. Patient satisfaction (location, wait time, reception, interpretation of problem, treatment, information, autonomy, discharge, and aftercare). Staff satisfaction (autonomy, clarity of tasks, staffing, patient care, use of personal capacities, social climate, information, culture, work and organisation).	Reported decreased waiting/consultation times following introduction of IEP – limited statistics provided to support this. No significant differences in patient satisfaction in terms of accessibility, waiting time, reception, information and communication, autonomy, discharge and aftercare, interpretation of the question, and treatment. Significant differences in patient satisfaction with IEP telephone contact for accessibility, interpretation of the question, information and communication, and discharge and aftercare ($p<.05$). Significant differences staff satisfaction with IEP for autonomy, social climate, being informed, culture, use of personal capabilities/skills for intervention IEP ($p<.05$).
Kool et al.,	As above.	N as above.	**Intervention** (IEP) 2 -	As above.	As above.

2008[34] Netherlands.		Intervention and control sites 10-20,000 p.a.	Haarlem) Integrated primary and emergency care. Triage/Telephone triage according to protocol by Nurse. Allocate patients to: ED doctor, GP, or nurse specialist. **Control** (Zaandam) Traditional primary and emergency care. 17.00–23.00hrs GP assistants-4/5; GPs-2/3; ED doctors-1/2; nurses-3/4. 23.00-08.00hrs 17.00–23.00hrs GP assistants-2; GPs-1; ED doctors-1; nurses-2.		
Selby et al., 1996[38] United States.	Before and after study.	N=30,276 Adults <64 years and children ≥1 years.	Kaiser Permanente HMO Intervention Introduction of a co-payment $25-$35 Control 1 – n=60,408 Control 2 – n=37,539	Number of ED visits	Significant decline in the number of ED visits (p<.001). No indication of adverse events in co-payment group.
Gibney et	Randomised	N=1878	Receptionists (no	Investigations	GPs significantly more likely to

al., 1999[32] Republic of Ireland.	controlled trial.	25,047 p.a.	training) screen non-ambulance patients into two categories: 1-urgent 2-non-urgent Patients randomized to ED or GP teams. Intervention – GP team n=771 Control ED team n=1107 **ED team** 1 consultant 2-registrars 5-SHO **GP team** 3-GPs	ordered. Prescriptions issues. Referral. Admission.	issue a prescription and refer patients. No significant difference in requesting investigations between the groups. Increase in use of resources for GPs hypothesised as a result of lack of training.
Murphy et al., 1996[29 37] Republic of Ireland.	Before and after study.	N=4684 all new patients attending with conditions that were classified as semi-urgent or delay acceptable. 40,159 p.a.	Intervention – 3 GPs on a sessional basis. Patients triaged into 4 categories: 1-life-threatening 2-urgent 3-semi-urgent 4-delay acceptable **Intervention** Patients in categories 3 & 4 were managed by	Referral. Prescription. Disposal. Patient. Satisfaction. 30-day Re-attendance. Health status 1-month. Comparative costs.	For patients categorized as semi-urgent there was a significant difference in the number of investigations order GPs ordered fewer (64% 460/719) v (76% 601/795) For patients categorized as semi-urgent there was a significant difference in the number of investigations order GPs ordered fewer (51% 260/515) v (61% 215/353).

			sessional GPs **Control**-usual care		No significant differences between the two groups for referral. No significant differences in the number of prescriptions issued for category 4. In category 3 GPs issued more prescriptions The GPs were significantly more experienced as measured by time since registration. 95% Follow-up for re-attendance. No significant effect for re-attendance intervention 41.1% (908/2209) compared to control 43.2% (978/2263). There is a discrepancy in the reported figure for follow-up in the results section and the table.

Table 5 – Re-directing Primary Care Patents from the Emergency Department – International Literature

Study ID Country	Study Design	Population/N Attendances p.a.	Intervention	Outcomes	Results
Kuensting, 1995[40]	Prospective survey.	N=100	**Intervention**	Attendance at primary care.	79% (79/100) of re-directed patients did not attend primary

United States.		Children with minor illness.	Children were triage by a nurse at ED. Advise given and referred to primary care.	Satisfaction with re-direction. ED triage nurses understanding of the nature of the child's problem.	care for follow up. 79% (79/100) were satisfied with being re-directed. 81% (81/100) felt ED triage nurse understood of the nature of the child's problem.
Gadomski et al., 1995[39] United States.	Before and after with control.	N=216 Children on the Medicaid program denied ED access. Children aged 6-days – 18 years (M=4.4 years). 17,500 p.a.	**Intervention** n=216 Non-authorized patients attending ED are screened. Patients triaged as non-emergent are denied access and referred to their primary care provider. **Control –** analysis of all ED visits 6-months pre-intervention.	Health status. Prescriptions issued. ED utilization.	Re-directing children triaged as non-emergent to primary care can be a safe practice. No significant difference for number of prescriptions issued. No significant difference for subsequent ED utilization. Follow up 1-week telephone/home visit follow-up no adverse health outcomes were reported. 6-months – higher hospitalization for re-directed group.

Kelly, 1994[41] [52] United States.	Before and after observation study.	N – not stated Adults and children Patients triaged as non-emergency	Triage and re-direct patients from ED to PC.	ED utilization. Attending PC	Decrease in non-emergency attendance and increase in primary care attendance. Cost saving of $70 per patient
Piehl et al., 2000[42] United States.	Before and after with control.	N=54,742 Children aged >0-18 years. Primary Health Care 54,742 p.a.	**Intervention** n=20,663 Introduction of North Carolina's Medicaid managed care plan. **Control** n=34,079 Non-Medicaid recipients.	Number of ED attendance for non-urgent conditions.	24% reduction in the average number of visits per month from 33.5 to 25.6 (p<.001).
O'Brien, 1999[43] United States.	Randomised Controlled Trial.	N=189 Patients that stated the ED was their regular source of care and who do not have access to PC.	Re-direct patients from ED to PC. Intervention – making an appointment with a PC provider with detailed instructions. Control – usual care.	ED utilization. Attending PC.	No significant differences between the two groups for ED utilization. The intervention group were more likely to attend PC appointment.
van Uden et al., 2005[35] Netherlands (Maastricht).	Before and after study.	Co-located in ED N=4,477 n=2,199 (before) n=2,278 (after) ED – 27,358 p.a. OOH – 16,125	Creation of OOH primary care co-operative. Triage by primary care doctor or practice nurse directs pt. to PC/ED. Evening/night/weekends.	Service utilisation. Adverse events.	Proportion of patients utilizing emergency care decreased by 53% and the proportion of patients utilizing primary care increased by 25% (p<.001) – this was the largest for patients with musculoskeletal disorders or skin problems.

		p.a.			Reported no adverse events. These were indirect measures of health outcome: outpatient visits and annual death rates.
van Uden and Crebolder, 2005[8] Netherlands (Limburg).	Before and after study.	Separate from ED. N=24,100 n=11,781 (before) n=12,319 (after)	Creation of OOH primary care co-operative. Weekdays (17.00-08.00hrs) Weekends (17.00hrs Friday-08.00hrs Monday)	ED utilization.	Significant increase 9.8% in demand for OOH PC. Significant decrease 8.9% in demand for OOH ED.
van Uden et al., 2003, 2005, 2006[53-55] Netherlands (Heerlen).	Before and after study.	Separate from ED. GP 230/per 1000 p.a. ED 66/per 1000 p.a.	Creation of OOH primary care co-operative. Telephone triage - doctor directs pt. to PC/ED; walk-in triage by doctor Weekdays (17.00-08.00hrs) Weekends (17.00hrs Friday-08.00hrs Monday)	Satisfaction. Cost. Referrals.	No significant difference in overall GP satisfaction between the separate and integrated OOH service. GPs significantly more satisfied with the organisation in the separate service (Heerlen) compared to the integrated service (Maastricht) (p=.020). Cost for OOH PC integrated in ED €3.004 million - €10.54 per capita per year. Significantly more self-referrals to ED 51.7% compared to 15.9% at Maastricht (p=.001).
van Uden et al., 2003, 2005, 2006[53-55]	Before and after intervention study.	Co-located in ED GP 279/per 1000 p.a. ED 52/per 1000	Creation of OOH primary care co-operative. Telephone triage - doctor directs pt. to PC/ED	Satisfaction. Cost. Referrals.	No significant difference in overall GP satisfaction between the separate and integrated OOH service. GPs significantly more satisfied with the

Netherlands (Maastricht).		p.a.	Walk-in triage by doctor Weekdays (17.00-08.00hrs) Weekends (17.00hrs Friday-08.00hrs Monday)		organisation in the separate service (Heerlen) compared to the integrated service (Maastricht) (*p*=.020). Cost for OOH PC integrated in ED €2.179 million - €11.47 per capita per year. Significantly fewer self-referrals to ED 15.9% compared to 51.7% at Heerlen (*p*=.001).
Washington et al., 2002[44] United States.	Randomised Control Trial.	N=156 adults study sites primary care clinic 91,000 p.a.	Triaged by nurses for eligibility – set deferred care criteria for non-acute conditions. Referral out – randomly allocated **Intervention** n=75 or to differed care – given a next day appointment **Control** n=81 usual care Weekdays – Mon-Thurs (09.00-15.00hrs)	Self-reported health status. Unscheduled heath service utilisation (visits by doctor and hospitalisations).	Significant improvements in health status for both groups. No patients in either group were hospitalized or died. No significant difference in physician visits or hospitalisation for both groups. Follow-up – 1 week.
Derlet and Nishio, 1990[45] United	Before and after study.	N=21,069 Adults and children >15 years	Triaged by nurses for eligibility 1 of 50 minor complaints; vital signs within specified range; no abdominal/chest pain.	ED re-attendance. Adverse events.	Follow-up letters and telephone calls. 1% (42/4,186) re-attended the ED within 48 hours of initial

States.			**Intervention** n= 4,186 Refusal of ED care. Triage out to clinics for same day or next day care.	Patient satisfaction.	triage. Reduction in ED attendance of 10%. No patients required re-triage at ED. 1.3% (54/4,186) complained about being re-directed.
Derlet and Hamilton, 1994[48] United States.	Before and after study.	N=195,371 Adults and children >15 years. 60,000 p.a.	Triaged by nurses for eligibility 1 of 50 minor complaints; vital signs within specified range; no abdominal/chest pain. Intervention: n=32,482 Refusal of ED care. Triage out to clinics for same day or next day care.	ED attendance Primary care visits.	Contact with the referral clinics revealed no patients were 'grossly' mis-triaged. Follow-up on 5,365 patients. 39% care same day. 35% care within 3-days. 1% care at another ED. 26% no further care. 'insignificant' adverse outcomes – but no details reported.
Gill, 1996[56] [57] United States.	Retrospecti ve audit.	N=444 Medicaid recipients without regular primary care. Adults <65 and children	**Intervention** Patients without regular primary care were referred to primary care physicians and obstetricians (n=444). **Comparison** Overall Medicaid population (N = 40,860).	ED attendance Primary care visits.	Reduction in ED attendance of 24% for the intervention group versus 4% for the comparison group. An increase in primary care visits of 50% for the intervention group versus 13% for the comparison group.
Hansagi et al., 1987[46]	Before and after with control.	N=454 Adults and	**Intervention** n=192 Seen by a nurse who Ascertained nature of	ED attendance PC attendance	N=192 (55%) were triaged to alternative care.

Sweden.		Children >16 years 90,000 p.a.	complaint. Provided medical advice. Advised about alternative healthcare. Helped to make an appointment at alternative site. Mon-Fri (08.00-17.00hrs) **Control** n=107 Usual care for non-urgent cases seen outside the intervention times or when the nurse was not available. Mon-Sun (07.00-21.00hrs)	Healthcare status Patient satisfaction	N=155 intervention patients were seen in ED. N=107 control. No significant difference in patient satisfaction between the control and intervention groups. Within the intervention group patients for whom an appointment had been made were significantly more satisfied. A significant difference in improvement of presenting complaint for the control group (86%) compared to the intervention group (69%) (*p*=.01). 7% misclassified.
Franco et al., 1997[14] United States.	Before and after with control.	Birth-13-years	KenPAC **Intervention** Introduction of Insurance program – with preauthorization for ED attendance for reimbursement. Approval to visit ED from primary care doctor or nurse.	ED attendance	Significant increase in number of appropriate ED visits following intervention (p<.00001).

			Patients arriving at ED were triaged by a nurse then their primary care doctor was contacted and asked to authorize. Control - retrospective audit of ED attendence. Weekdays – Mon-Fri (08.00-17.00hrs)		
Shaw et al., 1990[47] United States.	Observation Study.	N=588 Indigent children.	**Intervention** Patients denied EC admission. Arranged appointment to primary care.	PC attendance. Health status.	Follow-up available for 66% (388/588). 60% (352/588) attended PC. 2/588 patients were hospitalised.

Table 6 – Educating Primary Care Patents attending Emergency Department – International Literature

Study ID Country	Study Design	Population/N Attendances p.a.	Intervention	Outcomes	Results
MacKoul, et al., 1995[49] United States.	Observational Study.	N=299 Pediatric patient <21 years. Unspecified who the intervention is direct towards. 30,000-32,000 p.a.	Longitudinal patient education for identification of pediatric emergencies, preventative medicine, guidelines on when to seek medical care, public lectures, bi-monthly newsletter with details of alternative care for non-urgent problems.	ED utilization.	Medicaid patients were significantly more likely to utilize the ED compared to patients from group A and B (P<.001). Medicaid patients had significantly lower severity scores compared to patients from group A and B (P<.04).

			Three insurance groups: **1**-Medicaid patients with unrestricted access to ED **2**-**group A** – access to ED via physician and co-payment. **3**- **group B** – unrestricted access to ED but co-payment required.		

4 Discussion

The review identified 38 eligible studies that were designed to study the management of patients with primary care-type-conditions at the interface between primary and secondary care. The studies were divided into three categories based on their intervention type.

The first category of interventions was those designed to manage patients within the emergency department (ED), either in a separate stream within or adjacent to the ED with ED staff, or employing general practitioners. The majority of these studies employed general practitioners to manage the primary care stream, and some reported benefits in terms of costs, processes, and patient experience. However, Ward, found no differences in the number of prescriptions issued,[30] Gibney et al.,[32] found GPs more likely to issue a prescription and Murphy et al.,[29] found no differences in the number of referrals.
Four studies[24 29 30 33] indicated potential cost benefits. Dale et al.,[24] and Murphy et al.,[29] reported substantial savings for managing primary care patients in ED with GPs. Dale et al.,[24] reported a 40% cost saving between an SHO managed patient and a GP managed patient, and Murphy et al., reported a £lr95,125 cost saving for the 15 month study period. Ward et al.,[30] did not present any cost effectiveness data but surmised that there would be cost saving employing GPs to manage primary care attenders at ED.
However, these reported costs benefits should be treated with caution as not all the costs could be accounted for in their analysis. Dale et al.,[24] acknowledged that referrals to GPs and other primary care services in the community were not accounted for. In addition, at 30-day follow-up they found that 12% of patients managed by a GP re-attended the ED with the same complaint, compared to 9% of patients managed by ED doctors. They also found that more patients managed by a GP visited their own GP (12%) for the same complaint compared with patients managed by an ED doctor (9%). No account of this subsequent utilisation of healthcare was accounted for in their model.
Murphy et al.,[29] based their cost on the investigations, staff time, and average admission cost based on the hospital admission profile. Therefore, no account was taken of treatment costs, referrals, or prescriptions. The average admission cost was based on the hospital admission profile and may therefore escalate the cost, as it is unlikely these cases were the same case-mix. Ward et al.,[30] do not present any cost effectiveness data and therefore an estimate of cost savings cannot be determined.
The methodological quality of the studies varies considerably with few randomised trials.[24 25 43 44] The studies also vary in the outcomes measured, the experience of both GPs compared to ED doctors, triage process, and the healthcare systems in which these interventions were trialed. Given that fixed costs between Trusts vary because of their

locations and populations, and with only one of the studies presenting formal economic analyses applicable to England, it is impossible to determine the relative cost-effectiveness of such systems.
The second category of interventions was designed to re-direct patients out of the ED to primary care. Typically, patients are triaged into urgent and non-urgent; patients categorised as non-urgent are re-directed to primary care providers. In some, but not all studies an appointment is made for the patient. The evidence for the effectiveness of this intervention is mixed; some research suggests that ED attendance can be reduced and primary care attendance can be increased[14 41 42 35 45 57] whilst others found no effects on subsequent ED utilsation,[39 43] or increases in primary attendance,[44] and one study found perceived health improvement was less for re-directed patients compared to patients treated in ED,[46] and perception of primary care healthcare facilities was less favorable compared to patients treated in ED.[46]

However, whilst a number of studies reported the safety of re-direction[39 44 45 48] some have questioned its safety. A number of studies reported misclassification of patients.[46 48] Gadomski et al.,[39] found no adverse effects after one week follow-up, but at six months, more children in the re-directed group were hospitalised. In addition to concerns over safety, this finding has implications for economic benefit. More seriously, in the study by Shaw et al.,[47] exploring 588 indigenous children denied emergency department access, it was reported that a large proportion, 45%, were lost to follow-up, and of those followed up two children (0.3%) were admitted to hospital. However, following the study period, Gadomski et al.,[39] reports that the intervention reported by Shaw et al., was terminated due to two adverse events, the first involving a child diagnosed with a cold suffering a respiratory arrest, and the second where a child suffering a febrile convulsion requiring intubation. This is of concern, and highlights the importance of rigorous methodological design and including adequate follow-up.

The final category was an educational intervention designed to reduce non-urgent ED utilisation. One study was found that examined the effect for patients with three different types of healthcare insurance (Medicaid patients with unrestricted access to ED, access to ED via physician and co-payment, and unrestricted access to ED but co-payment required registered with a primary care provider) were given information on appropriate sources of healthcare for their children's non-urgent problems, supported by newsletters and public lectures.[49] The study found that even though there was some evidence to suggest the effectiveness of the educational program in identifying paediatric emergencies, this failed to alter the attendance pattern for the Medicaid group, who were of lower acuity than the other two groups and were significantly more likely to attend the ED. This pattern of attendance is more likely to result from their insurance status rather than the

educational intervention, as the other two groups were restricted in terms of approval and co-payments.

4.1 Conclusion

Overall the evidence is weak, this is mainly because of a paucity of studies undertaken in this area, the poor research design[50] and reporting[50] of those undertaken, and the marked variability between the studies in terms of study design, study length, sample size, period of follow-up (where the number lost to follow up can be large),[47] definitions of primary care/non-urgent type condition, age range, and population (for example, some studies focused on particular populations such as children)[14 39 40 42 49 50] which means it is difficult to compare studies and undertake further analysis such as meta analysis.

Little has changed in the evidence base in the last ten years since the last reviews[28 58] in this area of research and the conclusions remain largely the same; in order to determine the effectiveness and cost effectiveness of such interventions, more rigorous research needs to be undertaken. It is known that many EDs and Primary Care Trusts (PCTs) have undertaken interventions relating to primary care attenders in the ED. Despite this there is a paucity of literature available. PCTs may have undertaken local evaluations that have never been published.

There is a need for more evidence to support current system design rather than it being based on anecdotal evidence and supposition.

Table 7 – Exclusion Table

Study ID	Citation exclusions
Afilalo et al., 2004[59]	Exploring why people choose to visit ED or PC.
Afilalo et al., 2004[60]	ED attendance as a result of barriers to primary care access.
Afilalo et al., 2007[59]	Communication between ED and primary care.
Anderson, 2004[61]	Dental care.
Avery et al., 1999[21]	Presentations to primary care and ED.
Avery, 1995[62]	Preparing for rare emergencies in PC.
Backman et al., 2008[63]	Patterns and characteristics of patients attend ED and primary care.
Baren, J. M., E. D. Boudreaux, et al. (2006)	Improving primary care follow up after ED intervention.
Barker, 2003[64]	Veterinary Medicine.
Bedford et al., 1992[65]	Reasons why parents use ED
Begley et al., 2006[35]	Number of ED admission which are suitable for primary care management.
Bell, 1991[66]	PC in ED related to prevention of childhood illness.
Benger and Jones, 2008[67]	Patients actions prior to ED attendance.
Bezzina et al., 2005[68]	Classification of patients attending the ED.
Bindman, 1995[23]	Editorial regarding triage in ED.
Blochliger, et al.,1998[69]	ED utilization by asylum seekers and refugees
Bolton, 2002[70]	A study comparing GPs and ED doctors in the management of PC patients.
Bower, 2007[71]	Veterinary Medicine.
Bradley et al., 1995[72]	Comparison of children attending paediatric ED and GP.
Bullock et al., 2008[73]	Role Family physicians have in providing emergency care outside of the ED.
Burge et al., 2003[74]	Family physician provision for specific end of life care in known cancer patients within ED.
Bury et al., 2000[75]	Description of the current A&E structures in Ireland and the potential contribution of PC.
Campbell et al., 2005[76]	Re-utilization of services in ED, family practice, minor injury centre.
Campbell, 1994[18]	Study exploring the effects of the GP appointment system and self-referral to ED.
Carlisle, 1998[77]	Study to GP out of hours activity and deprivation and distance from accident and ED.
Carret, 2009[78]	Inappropriate ED attendance.
Carter and Jones, 1993[79] [80]	The beliefs of GPs regarding accident prevention.
Chan, 2002[81]	Exploring whether doctors with ED

	qualifications practice primary care.
Cho et al., 2005[82]	Paper/details not available.
Choyce and Maitra, 1996[83]	GPs satisfaction with ED.
Cohen, 1987[3]	Overview.
Coleman et al., 2001[24]	Why patients attend ED.
Cooke and Finneran, 1994[84]	Not an intervention.
Cooke et al., 2003[85]	Patient triage, treat and discharge from ED by ED staff.
Cooke, 1996[86]	Doctors – ED or GP.
Cottingham, 1998[87]	Data on the proportion of primary care attenders in a sea-side resort.
Cottingham, 1998[88]	Response to Dale and Glucksman, 1998[88]
Crilly and Plant, 2007[89]	Better utilization of primary and secondary care.
Dale and Glucksman, 1998[90]	Critique of Cottingham, 1998.[88]
Dale and Green, 1991[91]	Perception of GPs by ED nurses.
Dale et al., 2008	Doctor-patient communication 1990-2005.
Davies, 2001[92]	The measurement of healthcare quality in Primary and secondary care.
Diesburg-Stanwood, A., J. Scott, et al. (2004).	ED triage and referral to primary care if suitable.
Dobbs, 1995[93]	European study of GP referrals.
Drummond-Fowler, 1996[94]	GP referral unit-patients referred by GP for investigations and admission.
Egleston, 1998	Comment on Leydon et al., 1998.[58]
Elley et al., 2007[95]	Identification of patients presenting to ED that could have been managed in Primary care.
Evans et al., 2002[96]	An audit of care for PC attenders.
Fleming, 1995[97] Sharvill, 1995[98] Wilson, 1995[99]	Response to Rawlinson, 1995.[100]
Fleming, 1995[97]	Comment on Rawlinson[101]
Forero et al., 1994[102]	Study to determine PC attendance.
Fraser-Moodie, 1995[103]	GP OOH and affect on ED-comment.
Freeman et al., 1999[104]	A survey not an intervention.
Freeman, 2007[105]	Follow-up following ED visit.
Gbolade et al., 1999[106]	ED staff feeling about the introduction of an emergency contraception service.
Gibney et al., 1995[36]	Survey of ED staff regarding services offered by GPs.
Giesen et al., 2006[107]	Lack of co-working and communication between GP OOH and ED.
Greenberg et al., 2000	Follow-up at ED/PC following minor RTC.

Gribben, 2003[108]	Looking at the proportion of ED attenders that could have been treated in Primary Care.
Guessous et al., 2006[109]	Introducing preventative medicine to the ED.
Guly and Grant, 1994[110]	Attendance at two EDs with the same condition.
Guttman et al., 2003[111]	Reasons for attending ED with non-urgent conditions.
Hansagi, 1987[13]	Too old.
Hirshberg et al., 1997[112]	Comparison of physician assistants, primary care physicians, and emergency physicians management of five common primary care medical problems.
Hughes, 2007[113]	Not an intervention.
Hull et al., 1997[19]	Study exploring attendance rates at ED.
Hutchison et al, 2003[114]	A comparison of patient satisfaction for walk-in-clinics, EDs, PC.
Ingram et al., 2009[115]	GP OOH 'risk taking' and patterns of emergency admissions.
Ionescu-Ittu et al., 2007[116]	Why PC patients attend ED.
Jankowski, 1993[117]	Comparison of patients attending an inner London ED and one outside London.
Keith, 1993[16]	Study exploring the interface between ED and PC and the extent to which PC is delivered in ED.
Kempe et al., 2000	Exploring the quality of care and use in US primary care.
Kendrick and Marsh, 1997	Risk assessment for unintentional injury in children.
Kerr et al., 2005[118]	Exploring primary care and emergency department utilisation by IDUs.
Kheterpal et al., 1995[119]	Quality of referral letters.
Kronfol et al., (2006)	Leaving ED without being seen – patients identified as having problems that could be dealt with in primary care.
Laffoy, 1997[120]	Comparison of GP referrals and self-referrals to ED.
Laursen and Jenson, 1999[15]	Audit to determine number of inappropriate attenders that could be treated by GP.
Lee et al., 2003[9]	Referral to GP from ED and ways of reducing on urgent attenders.
Lee et al., [34-36]	Inappropriate ED attendance.
Lee, L. 2004	Nurse led telephone service for ED discharge information.
Lega and Mengoni, 2008[121]	Identifying non urgent at tenders to ED and percentage suitable for GP treatment.
Leibowitz et al, 2003[122]	Review.
Leydon et al., 1998[58]	Systematic review of relevant studies –

	references checked and relevant studies extracted.
Lo and McKechnie 2007[123]	Patient perceptions of health needs and ED attendance patterns.
Lowe et al., 1994[27]	Study to determine the safety of triage guidelines for re-directing patients.
Lowy et al., 1994l[7]	Measuring inappropriate attendance in ED.
Luiz et al., 1997[124]	Cooperation between prehospital care, primary care, and emergency care in Germany.
Malcolm, 2000[125]	An audit of the interrelationship of primary and secondary care utilization.
Marinos et al., 2009[126 127]	Explore which cases PC in ED.
Marsden, 2000[128]	The efficacy of nurse telephone triage in an eye hospital.
Maslove et al., 2009[129]	Exploring discharge summaries.
McGee and Kaplan, 2007[130]	Use of ED nurse practitioners.
McKee et al., 1990[131]	Factors influencing attendance.
McNulty et al., 2001[132]	Study exploring ED doctors assessment and management decisions based on primary care status.
Mehrotra et al., 2008[133]	Exploring why people choose to visit ED or PC.
Meislin et al., 1988[134]	Fast track in ED.
Middleton and Whitney, 1993[135]	Minor injuries unit.
Montalto, 1991[136]	Exploration of letters from GPs to EDs.
Morrison and Pennycook, 1991[137]	Exploration of letters from GPs to EDs.
Morrison et al., 1990[138]	GPs expectation of an ED.
Munro et al., 2005[139]	Impact of NHS Direct on demand for ED and GP OOH care.
Murphy AW, Bury G, Plunkett PK, Gibney D, Smith M, Mullan E, et al., - A comparison of general practitioner and usual medical care in an urban accident and emergency department in terms of process, health status, and comparative costs. *BMJ.* 1996;312:1135–114	This reference is untraceable the journal details are for 'Randomised controlled trial of general practitioner versus usual medical care in an urban accident and emergency department: process, outcome, and comparative cost.'[29]
Murphy, 1998[3]	Overview of ED and PC.
Murphy, 1998[4]	Review of ED attendance to determine PC/inappropriate attenders.

Myers, 1982[5]	Survey of the number of patients attending ED with PC conditions.
Naylor, 2005[140]	Veterinary Medicine.
Nguyen-Van-Tam and Baker, 1992[10]	Study exploring the outcome for patients already seen by their GP and self-referred to ED.
Nicol et al., 1998[141]	Paper describing the benefits of a six months secondment in primary care.
O'Brien et al., 2006[142]	Fast track in ED.
Oterino de la Fuente D, 2007[143]	An analysis of the relationship between visits to ED and PC.
Oterino de la Fuente et al., 2007[143]	Increased primary care resources as a means of reducing ED workload.
Patel et al., 1997[144]	Satisfaction/dissatisfaction with ED telephone advice.
Pennycook et al., 1991[145]	Inappropriate utilization of emergency ambulances.
Pesanka et al., 2009[146]	Safety and handovers.
Poncia et al., 2000[147]	Study to assess the needs of >75-years.
Prince and Worth, 1992[148]	Inappropriate attendance at ED in children.
Rawlinson, 1995[100]	Letter regarding deputizing GPs and resuscitation and care of bereaved families.
Roberts and Mays, 1998[28]	Systematic review of relevant studies – references checked and relevant studies extracted.
Rubio Montanes et al., 1992[149]	Examination of primary care attendance at pediatric ED.
Rutschmann and Vermeulen, 2003[150]	Not an intervention.
Sanchez Bayle et al., 1990[32]	Survey exploring the reason for attendance of children with primary care conditions at ED.
Sanders, 2000[151]	Exploring health professionals and patient attitudes towards 'inappropriate' attendances in ED.
Sempere-Selva, 2001[30]	Survey of ED attendance to determine inappropriate use.
Shah et al., 2006[152]	Physician phone triage to Emergency Medical Services (EMS) determine appropriate patient destination and reduce ED inappropriate admissions.
Shipman et al., 1997[153]	Audit of utilization of ED and PC in London.
Siddiqui and Ogbeide, 2002[31]	Survey of ED to determine inappropriate attendances.
Siminski et al., 2008[154]	Primary care presentations to the ED.
Singh et al., 1991[21]	Survey of call to ED for advice.
Snooks et al., 2004[155]	Primary care in pre-hospital care.
Sprivulis, 2003[156]	Volume of GP case presenting to ED.

Thomas et al., 1996[157]	Exploring data collection and use.
Thomson et al., 1995[158]	Survey of ED attendance to determine PC/inappropriate attenders.
Ting, 2008[159]	Comment on Masso et al., 2007.[27]
Tremlett, 2007[160]	Veterinary Medicine.
UdDin and Ramakrishnan, 2007[161]	Use of acute medical units.
van Uden al., 2006[54]	Deals only with potential cost savings of GP integrated OOH with ED and GP co-operatives for OOH care.
Vasileiou et al., 2009[162]	Evaluation of common ENT presentations to ED and appropriateness for GP management.
Wass and Illingworth, 1996[163]	Information preference of GPs following admission to ED by their patient.
Willcock, 2008[164]	GP working/training in ED may enrich GP trainees lives and boost recruitment.
Wilson and Sharma, 1995[165]	Comparison of insured and uninsured hyperglycemic emergencies.
Wilson, 2005[40]	Proposed benefits of Co-locating GP and ED staff.
Wise, 1997[166]	Review of inappropriate attendance at ED – no interventions.
Zwetchkenbaum, 2003[167]	Out-of-hours dental care-comment.

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out-of-hours emergency primary health care services]. *Tidsskrift for Den Norske Laegeforening* 2007;127(10):1339-42.

Appendix 1 – Search Strategies

Table 8 – Ovid EMBASE 1980 to 2009 Week 42

#	Searches	Results
1	exp general practitioner/ or exp general practice/ or exp primary medical care/ or exp primary health care/	81636
2	(after-hours-care or out-of-hours or OOH).mp.	1095
3	1 or 2	82394
4	exp emergency health service/ or exp emergency ward/ or exp emergency medicine/	43729
5	((accident and emergency department) or emergency department or casualty).mp.	22286
6	4 or 5	52100
7	6 and 3	2698
8	limit 7 to (human and yr="1990 -Current")	2191

Table 9 - EBSCO CINAHL - September 2009

S	Searches	Results
17	(S10 or S11 or S12 or S13 or S14 or S15) and (S9 and S16)	914
16	S10 or S11 or S12 or S13 or S14 or S15	30630
15	TX casualty	1099
14	TX accident and emergency department	763
13	TX Emergency department	13074
12	MM emergency medical services	9104
11	MM Emergency care	8828
10	MM Emergency medicine	1668
9	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8	40525
8	TX OOH	23
7	TX out of hours	285
6	TX After Hours Care	76
5	TX general practitioner*	5273
4	MM Family Practice	4108
3	MM Physicians, Family	2563
2	TX Primary care	28660
1	MM Primary Health Care	11152

Table 10 – OVID HMIC Health Management Information Consortium September 2009

#	Searches	Results
1	exp PRIMARY CARE/ or exp GENERAL PRACTICE CONSULTATIONS/ or exp GENERAL PRACTITIONERS/ or exp GENERAL PRACTICE/	14755
2	exp DEPUTISING SERVICES/ or exp "OUT OF HOURS HEALTH SERVICES"/ or exp "OUT OF HOURS CARE"/	549
3	('out of hours' or OOH or 'after hours').mp.	2922
4	1 or 3 or 2	17112
5	exp "ACCIDENT AND EMERGENCY DEPARTMENTS"/ or exp "ACCIDENT AND EMERGENCY PATIENTS"/	991
6	(emergency department or casualty).mp.	729
7	6 or 5	1354
8	4 and 7	215
9	limit 8 to yr="1990 -Current"	177

Table 11 - Cochrane Database of Systematic Reviews (Cochrane Reviews), Database of Abstracts of Reviews of Effects (Other Reviews), Cochrane Central Register of Controlled Trials (Clinical Trials), and Health Technology Assessment Database (Technology Assessments) – September 2009

Searches	Results
(primary care or general practitioner* or out-of-hours or OOH* or after hours) and (Emergency care or Emergency department or accident and emergency department or casualty)	669

Table 12 - NHS Evidence Specialist Collections - September 2009

Search strategy	(primary care or general practitioner* or out-of-hours or OOH* or after hours)		
Specialist collection	**Emergency/ Urgent Care**	**Health Management**	**Innovation/ Improvement**
Guidance/Pathways	121	148	9
Evidence	323	74	37
Reference	50	587	60
Education and CPD	2	13	0
Patient Information	0	1	0