HEALTH SYSTEMS AND POLICY ANALYSIS

POLICY BRIEF 74

Dealing with the challenges in urgent and emergency care

What are the policy options?

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This policy brief is one of a new series to meet the needs of policy-makers and health system managers. The aim is to develop key messages to support evidence-informed policy-making and the editors will continue to strengthen the series by working with authors to improve the consideration given to policy options and implementation.

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List of acronyms

A&E	accident and emergency
CPR	cardiopulmonary resuscitation
CT	computed tomography
ECG	electrocardiograph
GP	general practitioner
QALY	quality-adjusted life year
RETTS	Rapid Emergency Triage and Treatment System
STEMI	ST-elevation myocardial infarction
WHO	World Health Organization

Key messages

Urgent and emergency care is for patients that need prompt attention – with emergency care treating more serious cases. It is provided in a range of settings from the community to hospitals.

- **Getting urgent and emergency care right is important** in achieving quality outcomes, maintaining public confidence in the health system and reducing the overuse of hospital services.
- **Primary care should be the first point of contact for urgent care but is often bypassed** because:
  - there is insufficient capacity in the system to provide same-day appointments and out-of-hours care
  - family medicine is struggling to recruit and retain enough staff to adequately meet demand
  - patients may lack confidence in the quality of primary care
  - systems can create perverse incentives that encourage overuse of hospital services (for example, co-payments for primary but not for emergency care).
- **Minor injury treatment models can offer an extra layer between primary care and hospitals**, catering for walk-in patients including out-of-hours services to relieve pressure on emergency departments, but they may sideline primary care and create demand.
- **Ambulance services are important in emergency provision** and require:
  - the capability to treat patients at the scene and to make decisions – including when not to take patients to hospital
  - clear arrangements for the safe handover of patients
  - integration with the whole system, access to records and remote advice from specialists
  - appropriate staffing including by paramedics.
- **Hospital emergency departments may be an effective way of focusing resources but are difficult to establish from scratch.** Key to this are:
  - a dedicated group of specialist medical and nursing staff with the right training; and
  - physical facilities, appropriate internal organization and links to the wider hospital.
- **System-wide planning and coordination can improve patient flows, integration and oversight.** Policy-makers will want to consider:
  - evidence-based design principles and behavioural insights into how people use emergency care
  - the wider health care system context, local factors and public expectations
  - how resource allocation can incentivize optimal delivery
  - improvements in data, monitoring and performance measurement.
- **Developing the right workforce mix requires creating suitable incentives and training** for staff in primary care, particularly in remote settings, paramedics and, potentially, emergency medicine specialists.
- **Coordinated working helps reduce barriers to effective operation** and entails using digital tools and aligning objectives, payment and performance measures across providers.
- **Improving public trust in the health system, and particularly in primary care, improves utilization patterns** as does explaining how the system works and how best to use it.

Executive summary

Urgent and emergency care is a key part of the health care system. These services are highly visible to the public and their performance is critical to delivering high-quality outcomes as well as maintaining public support and confidence in the health care system.

Urgent care is the care provided for illnesses or injuries that require prompt attention but are typically not sufficiently serious to need more specialist emergency care services. Emergency care is time-critical and more serious.

Urgent and emergency care covers a continuum of services from the community to health centres to primary care clinics to hospitals, and integrated planning and implementation of these services can lead to greater efficiency and effectiveness, delivering economies of scope and scale across disease- and population-specific programmes.

Differences in history, geography and resources mean that there is no standard model for an emergency care system. The system is complex and not necessarily easy for patients, the public or health professionals to understand. Nevertheless, a number of common features are important to ensure that these systems are effective and resilient. However, demand is increasing, bringing urgent and emergency care services under pressure, often leading to overcrowding and long waiting times for treatment. This is also having a negative impact on staff morale and retention.

What elements are needed to respond to the growing demand for urgent and emergency care?

To deal with the day-to-day need for urgent and emergency care effectively requires sustainable and effective services in the community, primary care and hospital settings to meet demand outside the emergency department:

- **First contact and triage** is needed to direct patients to the right care modality quickly and reliably. Local, practice-based triage systems have greater case resolution and refer fewer patients to primary care or emergency departments as they may be more familiar with the patients and the alternative services that are available locally. National telephone and online triage services have not been found to decrease primary care or emergency department utilization in the absence of other policy measures and in some cases they have led to an increase in utilization.
- **Virtual care** can be delivered using video, web services or the telephone for those patients where it is appropriate. The appropriateness of virtual care varies depending on the quality and availability of other services and the digital literacy of the population served.
- **Primary care** is at the heart of responding to the need for urgent and emergency care as it should be the first point of contact for most patients with urgent care needs (excluding the very severe or life-threatening). Its ability to do this depends on the capacity and capability of primary care providers, access to rapid diagnostics, opening hours and the availability of out-of-hours primary care services.
- **Urgent care and minor injuries** treatment can be organized in different ways, but these services are there to support or supplement out-of-hours primary care. Urgent care can cater for walk-in patients or provide an additional layer of services between primary care and hospitals to relieve pressure on the main emergency department. However, this model may create supply-induced demand.
- **Ambulance services** need to be closely integrated with the rest of the system, including having access to records and remote advice from specialists. They also need the capability to treat patients at the scene and to make decisions about the most appropriate care pathway – including decisions not to take patients to hospital. There are different staffing models that are capable of delivering this, but services are increasingly using paramedics. Arrangements for the safe handover of patients are important and an area of significant risk.
- **Other community services** include: **care homes**, where the upskilling of care home staff can reduce hospital admissions for older people; **community responders** in more rural, remote and island communities, where medical responses may take time to reach the patient; and **community pharmacies** which can be much more accessible to patients and provide a wide range of services.
- **Hospital emergency departments** typically provide triage, diagnostics and basic first aid through to advanced resuscitation. Effective emergency departments need a dedicated group of medical and nursing staff with the appropriate training. A number of other important issues about the internal organization of emergency departments and how it relates to the rest of the hospital have an impact on patient experience and outcomes but these are beyond the scope of this brief.

What drives patient use of emergency services?

The ways in which patients use services and navigate patient pathways are driven by overlapping and intertwined factors, notably the shape and availability of emergency services. These overlapping drivers include: the capability and capacity of primary care; patient confidence and perspectives; and patient incentives and choice.

Ensuring the **capability and capacity of primary care** means ensuring that health care workers in primary care have the requisite skills and training to fulfil their potential to meet most patient needs at this level of the system without the need for referral, and that they have the resources available to do so. In many countries family medicine is struggling to recruit and retain staff, compounded by the fact that it often has lower pay and is seen as less prestigious than hospital specialties. Workforce challenges and high levels of demand mean that the availability of on-the-day or short-notice appointments can be a significant problem and important driver of emergency service use – especially for those with long-term conditions.

Weak **patient confidence** in primary care can also be a factor as perceived problems with the capability or capacity of primary care providers to meet their needs encourages

patients to access emergency care instead. This can be compounded by **patient incentives and choice** in the system that encourage overuse of hospital services, which may relate to access problems at weekends and out of hours, but other factors such as the perceived quality of care available in primary care, poor health literacy, and copayments for access to primary care but not hospital care can also play a role. Having some level of friction (financial or non-financial – such as referrals) can encourage people to seek care at the appropriate level and does have an impact on utilization, but extreme caution is needed with imposing copayments for accessing health services to ensure equity.

What policies are being used to improve patient flow and oversight in urgent and emergency care?

The evidence on the planning, management and evaluation of emergency services shows that a **system-wide planning** approach is required for **managing patient flow** from requesting help to receiving care so that the right care is provided, in the right place at the right time with minimal steps or obstacles along the way. To ensure policies are having the desired effect requires **system oversight and performance measurement**.

Planning is required to shape the system because emergency and urgent care requires a coordinated system in order to be effective. There are evidence-based design principles that can be used to develop a well-functioning urgent and emergency care service but how these are deployed is very sensitive to the wider context of the health care system, local factors and the expectations of the public. Policy-makers will want to ensure that the allocation of resources allows the right balance of capacity and demand, and that this creates a system where it is easy for patients to make choices that are in their best interests as well as being cost-effective for the wider system. The **data and measurement** of emergency care activity needs to be improved both to support more effective day-to-day management but also for quality improvement, planning and public accountability.

Primary care is central and needs to be able to deal with most patients who require urgent care – and be available with the skills and technology to provide it when needed. The level of demand may mean that primary care will need to be supported by a triage system capable of safely directing patients to the right care provider, which may not always be the family doctor. This may also require primary care operating at a larger scale or at least being part of a network to increase its capability and resilience. The training of staff, providing out-of-hours services, improving the attractiveness of working in rural areas and the provision of diagnostics equipment would all require attention.

Incentivizing the development of an appropriate workforce that can better meet the complex needs of patients with multimorbidity is important too. The development of the speciality of emergency medicine is one response to this, but the availability of general internal medicine skills and geriatric medicine will also become increasingly important. The shape of specialist medical training and the incentives to attract staff into what can be demanding and difficult roles will need to be considered. The development of paramedics to support ambulance services will also be important, particularly in those countries where policy-makers may want to consider whether the deployment of doctors as first-line ambulance staff is the most cost-effective way of using this scarce resource.

Making the system easier to navigate requires understanding how the public use emergency care and drawing on behavioural insights to design services that are informed by this. Providing the public with better information about how the system works, and offering web and telephone support to help them make best use of it, will also be important. Improving public trust in the whole system, and particularly in primary care, will be necessary too.

Removing barriers to coordinated working can be facilitated by digital tools such as electronic patient record systems to improve the handover process, but also by aligning different payment methods, performance measures and objectives between providers to reduce the barriers to effective operation of the system. **Emergency departments are a key way of focusing resources**, but in countries that do not currently have them, it will be challenging to create the appropriate physical facilities as well as to develop specialist staff and new ways of working with other parts of the hospital.

What important challenges remain?

Urgent and emergency care is a classic example of a complex adaptive system. As such it requires different approaches to policy and management from other less complex parts of health care – and the context in which policy or service model ideas are applied really matters. This means that some elements of the system cannot be subject to centrally defined top-down change.

Moreover, patients and the public are not passive actors in the system, and how they understand, trust and interact with the system are key determinants in how it works. A deep understanding of this needs to be incorporated into the design of policies and other interventions.

POLICY BRIEF

1. Introduction

The provision of high-quality and responsive urgent and emergency care is a key capability of health care systems and very important in meeting the World Health Organization (WHO) goals of achieving universal access to emergency care for all (WHO, 2023a). The WHO resolution on 'integrated emergency, critical and operative care for universal health coverage and protection from health emergencies' emphasized that urgent and emergency care is a continuum of services from the community to health centres to primary care clinics to hospitals, and that integrated planning and implementation of these services can lead to greater efficiency and effectiveness, delivering economies of scope and scale across disease- and population-specific programmes (WHO, 2023b). However, meeting the needs of the population is proving increasingly challenging.

Urgent care is care provided for illnesses or injuries that require prompt attention but are typically not sufficiently serious to require more specialist emergency care services. Emergency care is time-critical and more serious. Services and policy for large-scale disasters, mass casualty incidents and major emergencies are outside the scope of this brief and extensive resources can be found on the WHO website (WHO, 2025). The internal organization of hospital emergency services is an important issue but is also outside the scope of this brief.

A Europe-wide challenge

Many health systems are experiencing high and growing demand for emergency care (EUSEM, 2020). While the aging of the population is a factor (European Union, 2023), the growth of multimorbidity (McKeown, 2009; Barnett et al., 2012) is also an important driver of emergency demand, hospital admissions, longer lengths of stay and readmissions (Aminzadeh & Dalziel, 2002). Increased survival from serious illness or injury can lead to higher levels of demand as patients may be left with long-term health issues. In one study from the United Kingdom it was found that improvement in hospital survival rates between 2000 and 2009 explained 37.3% of the total growth in unplanned admissions (Laudicella et al., 2018).

There is an increasing trend for younger people to prefer to attend the hospital emergency department for concerns that could be dealt with by primary care (Carret, Fasset & Domingues, 2009; Durand et al., 2011; RCEM, 2021). In the future this trend may increase as higher educated and younger population sub-groups use more telephone and online triage services (Chambers et al., 2019; Turnbull et al., 2023) Migration can also mean that populations have limited access to primary care or bring with them an expectation that the hospital is the first point of care.

Increased demand and difficulties in discharging patients from hospital has led to problems of overcrowding and long waits in emergency departments. For example, in the Netherlands[1], a quarter of patients attending the emergency department wait over four hours for treatment (NOS, 2022). In England (United Kingdom), the proportion of patients spending more than 4 hours in hospital emergency departments has increased substantially to just over 40% (Quality Watch, 2023). The number of patients waiting over 12 hours for admission after a decision to admit has also increased rapidly. Overcrowding and long waits are associated with significant adverse effects for patients, including sub-optimal care and increased mortality (Morley et al., 2018; Jones et al., 2022).

The traditional model of care based on episodic specialist care for single diseases is increasingly poorly aligned to the needs of patients who are more likely to be older and more likely to have multiple concurrent conditions. In many countries the composition of the health workforce (particularly with the growth of sub-specialization) and the organization of hospital care are poorly adapted to deal with this. The structure of the wider health system, the levers and incentives, and the ways in which the population interacts with services are often the product of history rather than design and are increasingly proving sub-optimal. The evolution of different models and changes in services, often planned with limited reference to other services, means that systems are complex, difficult to navigate and poorly understood by the public and professionals.

The result of these changes is that the workforce in these health systems are under increasing pressure and their wellbeing is a growing concern. There are worrying staff shortages in many countries, with rural areas facing particular challenges (Zapata et al., 2023). A number of countries are reporting frequent temporary closures and growing numbers of permanent closures of facilities due to understaffing (Vaughan & Edwards, 2023).

There are similar issues in the ability of primary care to respond to the demand for urgent treatment. The average waiting time to see a general practitioner (GP) in Spain has doubled in the last 5 years, reaching on average almost 9 days in 2022. The percentage of people who accessed primary care in 24–48h after requesting an appointment decreased from almost 48% in 2018 to 27% in 2022. At the same time the number of emergency consultations in primary care out-of-hours settings went from almost 530 consultations per 1000 people in 2020 to 636 consultations per 1000 people in 2021 (Rada, 2022). In 2023, Italy and the United Kingdom both had a 10-day wait, France 6 and Germany 4 (Statista, 2023). Long GP waiting times in England are a source of public discontent (Nuffield Trust & King's Fund, 2023a).

There are opportunities to improve these systems and to deliver effective care through: a better understanding of the nature of demand; planning services to meet this demand supported by appropriate technology, well-trained and motivated staff and properly designed models of care; and the planning and management of regional networks to support them.

[1] Note that Netherlands (Kingdom of the) comprises six overseas countries and territories and the European mainland area. As data for this Report refer only to the European territory, the Report refers to it as the Netherlands throughout.

The patient journey

The path that the patient takes through the system varies within and between countries but there are several common components (Figure 1).

A patient who feels unwell has a number of options depending on the perceived urgency of the problem:

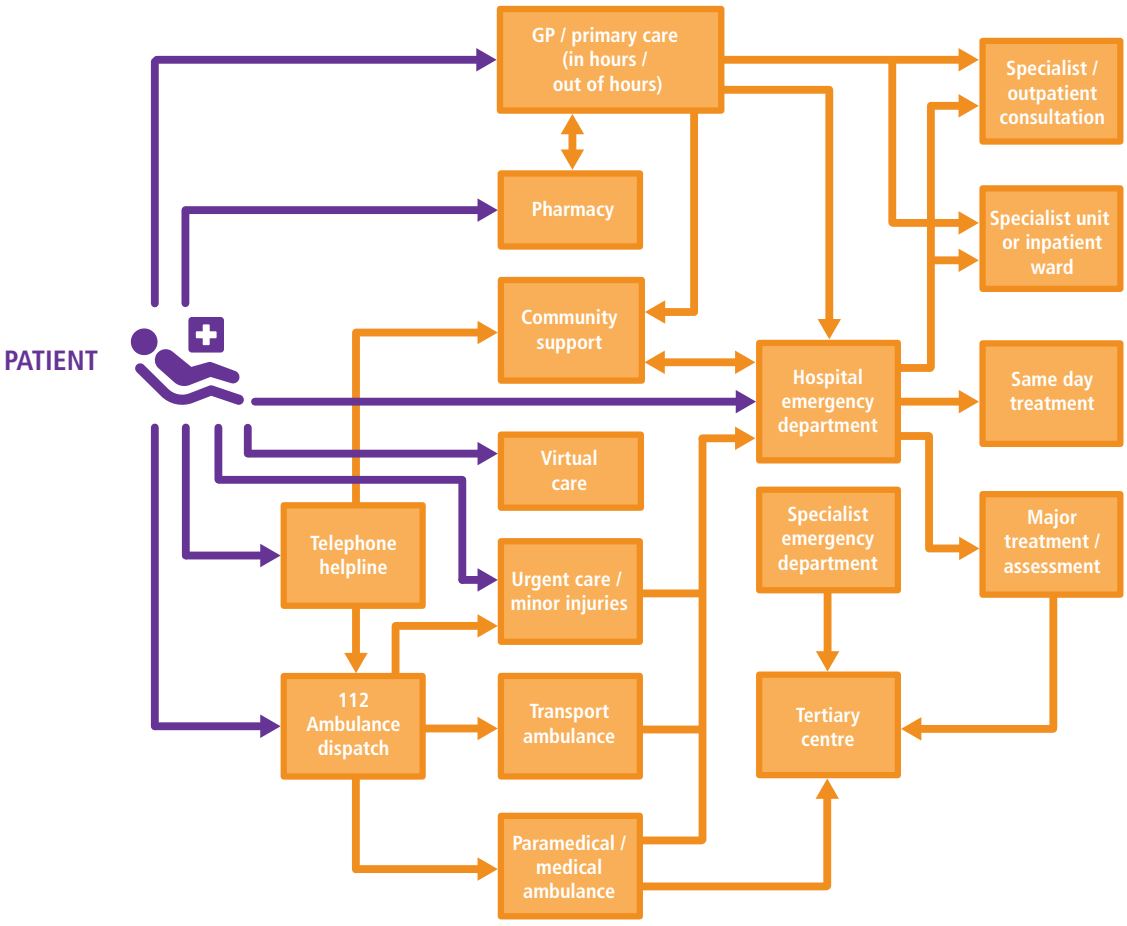
- In some countries they can access telephone advice lines or an online version of these.
- They may call an ambulance, which will take them to an emergency department or in some cases treat the patient at the scene or convey them to a primary care centre.
- In working hours they can seek care from their family doctor, who can see-and-treat or in some cases refer to a specialist.
- Out of hours they can access an emergency primary care service or the hospital where this is not available.
- In most countries they can go directly to the hospital emergency department.
- In some systems they can go to a specialist without a referral or be referred to a 'hot clinic' for a rapid consultation with a specialist.
- There may be access to urgent treatment centres for more minor conditions.
- For some minor conditions pharmacies can offer advice and treatments.
- Some countries may have community responders who attend before an ambulance arrives.

Patients with an injury are more likely to use the hospital, urgent care centre or ambulance routes. Patients with a mental health emergency may follow this pathway or, in some countries, they may access a range of other specialist helplines and services and bypass the general hospital.

Once at the hospital there is a wide variety of approaches to the internal organization of services, for example whether there is a single emergency department or different specialist units, the ways in which staff are deployed and the arrangements for escalation to more specialized services.

There are some types of emergency cases that do not neatly fit into the common care pathways (e.g. bleeding in early pregnancy, mental health crises) or where the emergency department is not an appropriate or safe environment and patients need to go directly to specialized units or have other arrangements made for them.

Figure 1: Patient pathways through urgent and emergency care



Source: Authors' own.

The system is complex and not necessarily easy for patients, the public and health professionals to understand. In some countries there is regional variation in how the system works, the telephone number to call for less urgent care, and 112 (the universal access telephone number) is not always in use or there are alternatives. There may also be variation in the opening hours of primary care and some of the other facilities and services. The following sections explore the components of the pathway in more detail.

This policy brief aims to provide policy-makers with an overview of the elements needed to respond to the growing demand for urgent and emergency care, and the sense of crisis in some health systems. Firstly, the brief describes the elements needed to create sustainable and effective services in primary care and hospital settings to deal with the day-to-day need for urgent and emergency care effectively: triage and first contact; virtual care; primary care; urgent care and minor injuries; ambulance services; other community services; and hospital emergency departments. Next, the brief describes what drives patient use of services, namely the capability and capacity of primary care to meet high levels of demand in the face of staffing shortages, as well as weak patient confidence in primary care and incentives in the system that encourage overuse of hospital services. Finally, the brief explores the evidence on the planning, management and evaluation of emergency services: the patient flow and system oversight. The brief then concludes by outlining the policy implications of the evidence presented.

2. Urgent and emergency care services: approaches, trends, best practices

Providing efficient urgent and emergency services revolves around effective triage to correctly route patients to the most appropriate services and providers. This section describes: the patient pathways through urgent and emergency care shown in Figure 1; the approaches to organizing these services; trends in how they are changing; and what we know about best practices. In the sub-sections below, different elements of the patient pathway are described from the initial call to emergency services, through the range of entry points to the system, including virtual care, primary care, urgent care/minor injuries, ambulance services, community support, and, where indicated, specialist services for emergency care.

Triage and first contact: calling emergency services

A key element in the response to the pressures on emergency care is to ensure that patients quicky get to the part of the system that is most appropriate for their needs without the need for multiple wasteful interactions. For this reason, and because patients do not always choose the most appropriate service, many countries have been establishing national-level telephone advice and triage services, and have an emergency telephone number for out-of-hours urgent care (Steeman et al., 2020). This has also been a response to growing levels of demand and following trends in other sectors of the economy where a telephone service has become a normal point of entry. An internet version of elements of this service may be available too. These national triage approaches aim to provide advice and to direct and filter patients to the right care provider first time in order to reduce the numbers of unnecessary appointments in both primary care and the emergency department.

National telephone and online triage services have not been found to decrease primary care or emergency department utilization in the absence of other policy measures (see below) and in some cases they have led to in an increase in utilization (Nuffield Trust, 2017; Rushton et al., 2019; Boggan et al., 2020). This may stem from a heavy reliance on algorithm-based triage, which tends to be more risk averse than decisions by health professionals (Chambers et al., 2019).

There is limited evidence on the clinical outcomes from **telephone triage** and mixed evidence on patient adherence to advice. However, potential safety concerns have been identified relating to under-triage and non-adherence to advice (Lewis et al., 2021; Sexton et al., 2022). Potential triage errors have been found in reviews of services, where patients appeared to have received insufficiently high urgency advice. Patients can also become frustrated with the perceived irrelevance and number of triage questions (Sexton et al., 2022). There may be a risk that patients determined to see a health professional learn how to answer triage questions in a way that will increase their chances of

prioritization, although there is limited evidence for this. There is variation in the qualification of call handers in non-emergency call centres across countries. Some countries use mainly non-clinical call handlers while others use nurses and GPs (Baier et al., 2019). Broadly, clinicians (nurses or GPs) have been found to have higher levels of appropriate referral rates than non-clinicians (Turner et al., 2021). This is both safer and more efficient.

Online triage services have been found to have variable and low diagnostic and triage accuracy (Riboli-Sasco et al., 2023). The English NHS online triage service and virtual triage service may have increased utilization of health services and created a more confused triage system (Turnbull et al., 2023). This seems to be for reasons of safety; in order to avoid missing critical conditions, online tools need to be more risk averse than those systems with a human operator who can pick up cues and ask follow-up questions more effectively. A key question is the extent to which patients comply with the results of online triage and this is not currently well understood (Chambers et al., 2019).

Local, practice-based triage systems have greater case resolution and refer fewer patients to primary care or emergency departments compared to national systems as they may be more familiar with the patients and the alternative services that are available (Rushton et al., 2019; Boggan et al., 2020). These local, practice-based, telephone-based triage systems are generally connected to local GP out-of-hours services. This also means there is the possibility of using these services to book appointments in primary care, which can be a useful way of ensuring that patients are seen in the most appropriate part of the system.

The high level of demand in most systems and the range of services available means that a consistent triage process provided by services of this type will be a key part of the urgent and emergency care system in future, and improving the ability of these services to provide a high-quality response in which patients have confidence will be very important.

Virtual care

While many patients require investigation and treatment that needs to be delivered face to face, there are some for whom services can be delivered virtually, using video, web services or the telephone. The proportion of patients for whom this is appropriate will vary depending on the quality and availability of other services and the digital literacy of the population served. The payment system may be an obstacle to virtual care if there is no mechanism for financing this type of care.

- The Quirónsalud Virtual Urgent Care Programme in Spain uses telemedicine in the emergency department to cut overcrowding by reducing potentially avoidable visits and wait times. The programme gives patients considering an emergency department visit access to on-demand remote care, while also providing support to on-site emergency department staff through an emergency department-based virtual visit service, attending to selected low-acuity patients who present with qualifying symptoms via videoconference (Short Apellaniz et al., 2023).
- Victoria in Australia offers a virtual emergency department using physicians and nurse practitioners, which manages a high proportion of eligible patients who would otherwise need to make an emergency department visit.
- Hospital at home has been used successfully to manage patients who would otherwise require admission, although the evidence base is still limited. The development of virtual wards was successful in supporting patients with COVID-19 through remote monitoring and telephone calls (Vindrola-Padros et al., 2021). The NHS in England has recently significantly increased the scale of its virtual ward model to provide an alternative to hospital admission for a range of patients, including frailty admissions, respiratory conditions and heart failure. Early indications are that this can provide a way of avoiding emergency admissions (Norman, Bennett & Vardy, 2023).
- There has also been some success with models that provide telemedicine and other outreach support to care homes, including advanced care planning so that residents can make their wishes about being taken to hospital known (NHS England, 2019). This allows the staff in care homes to be better able to deal with problems without having to send the patient to hospital.

Primary care: in- and out-of-hours

Primary care is the foundation of the system for responding to the need for urgent and emergency care. Where possible, it should be the first point of contact for most patients with urgent care needs (excluding the very severe or life-threatening) as it can deal with a high proportion of these cases. Its ability to do this depends on the capacity and capability of primary care providers, access to rapid diagnostics, opening hours and the availability of out-of-hours primary care services.

Opening hours vary between countries and regions, and a range of approaches is adopted in Europe. These include dedicated out-of-hours provisions delivered by specialist out-of-hours primary care services, physical facilities and units, some of which provide home visits, or, in the absence of a dedicated primary care service, the hospital may be the default provider. In some cases, larger centres in an area may offer extended opening hours or even 24-hour services.

In Europe it is now rare for individual primary care providers to be responsible for 24/7 care and a range of co-operatives, rota groups, collective models and deputizing services are the most effective approaches to delivering safe and accessible out-of-hours care (OECD & European Commission, 2016; Steeman, et al. 2020). Some countries have contractual obligations for primary care physicians to undertake shift work in primary care out-of-hours collectives, whereas in other countries this is delivered through private providers and directly employed health care staff.

Potential advantages of GPs consolidating their out-of-hours service provision over a larger geographical area include: patients having a central point of contact; GPs doing fewer shifts out of hours; and economies of scale in providing support services (e.g. call handlers, IT systems, transport, diagnostics) (Baier et al., 2019).

Urgent treatment and minor injuries

In addition to, and often supporting, out-of-hours care, several different models of urgent primary care centres have developed. Some are designed to cater for walk-in patients and are focused more on minor injuries and treatment, with the expectation that most patients attending will have a completed episode of care. There is sometimes co-location of GP out-of-hours services within these facilities that require booked appointments via telephone triage.

Examples of these include (Baier et al., 2019; Steeman et al., 2020):

- Denmark – service centres providing out-of-hours care and home visits.
- France – out-of-hours health centres and home visit service.
- Germany – practices bring primary care staff together on hospital sites; solutions are different in rural areas (Schmidt & Wildner, 2019).
- The Netherlands – primary care centres providing out-of-hours care.
- Norway – a network of pre-hospital emergency care centres/wards staffed by nurses and on-call GPs.
- Spain – primary care centres offering extended hours and overnight and weekend urgent primary care.
- Sweden – out-of-hours primary care centres.
- United Kingdom – urgent treatment centres, minor injuries services and primary care walk-in centres.

Some of these are open in normal primary care working hours and, in some cases, provide an additional layer of services between primary care and hospitals (for example, in Norway and the United Kingdom) so that there is an option to refer patients to another setting and relieve pressure on the main emergency department.

These centres are often linked to hospitals and increasingly are located on the hospital site, sometimes within the hospital building. They typically have access to laboratory tests, imaging, electrocardiograph (ECG) and other diagnostics, which greatly enhances their ability to diagnose and treat patients and prevent escalation to hospital. However, evidence on the impact of these models on emergency department attendances is currently poor (Baier et al., 2019). A risk with these models may be that they create supply-induced demand (McFadzean et al., 2022), as patients might otherwise wait for routine services to be available and their condition may resolve in the meantime. Patients also might become used to considering hospitals and urgent care centres to be their main primary care provider, or use them instead of standard primary care to bypass delays in getting an appointment. Factors encouraging supply-induced demand include lack of access to primary care in working hours (e.g. long waits or because patients cannot get time off work) or 'doctor hopping' due to dissatisfaction with a previous consultation, a desire for a second opinion or trying to obtain certain medications (e.g. antibiotics or opioids) (Biernikiewicz, Taieb & Toumi, 2019; Vogel et al., 2019; Kruse et al., 2020).

In Latvia and Estonia, hospital emergency departments are the main providers of out-of-hours care for urgent and emergency primary care, although a telephone option is available for primary care advice in Estonia. Hospitals are also the main provider in parts of some other countries, such as Bulgaria, Finland and Poland.

The provision of rapid access to outpatient consultation and ambulatory can reduce the use of the emergency department and provide safe and effective treatment. Examples include urgent access to services for frail patients, critical limb ischaemia or recent-onset neurological symptoms.

The involvement of different providers means that it is important for services to have read/write access to patient records, and that there are clear standards and protocols so that a consistent approach is provided. The inability to access electronic care records across the system can often be a major barrier to providing effective care. This is also important for ensuring continuity of care between different providers as many urgent presentations will be related to pre-existing conditions or be an indication of an emerging problem that needs to be addressed in routine primary care once the immediate issue has been dealt with (Li et al., 2022).

Ambulance services

As with other forms of emergency care, ambulance services are having to adapt to increased demand, health care advances and changing patterns of need within the population.

Organizational models

There is some commonality between countries in how ambulance services are organized, although different bodies may be responsible for their management, including fire services, local government and hospitals as well as specialist ambulance providers in both the private and voluntary sectors. There is no evidence to suggest which, if any, of these ownership models, is most effective.

The quality of call answering and assessment is important in ensuring that the right services are dispatched. There is variation across Europe in the extent to which call-handling staff are clinicians or can rapidly access a clinical opinion (Baier et al., 2019). As with the advice and triage services, there are advantages to having clinical input into decision making. There is increasing use of software for decision support about dispatch and to determine where ambulances should be stationed.

Historically there has been a division between the United States of America/United Kingdom 'load and go' model and the Franco-German 'stay and stabilize' model (also referred to as 'scoop and run' and 'stay and play'). The latter relies on mobile medical doctors who can often refer patients directly to hospital specialities and avoid the emergency department (Sagan & Richardson, 2015). The increasingly common deployment of paramedics and nurses with additional training on ambulances means that there is less of a stark difference between these models than in the past. There is some evidence that doctors are often over-qualified for the majority of calls and there is a risk of their becoming deskilled if they are not rotated through emergency departments (Van Biesen et al., 2023). The costs and benefits of increased specialization need to be kept under review.

There are some opportunities to use technology to improve response times, treatment at the scene or the response to emergencies – examples are shown in Box 1.

Box 1: Improving emergency response

Stroke ambulances with CT scanners

The development of specialist ambulances equipped with a computed tomography (CT) scanner means that patients can be diagnosed and treated quickly and then directed to the most appropriate unit. These are an expensive option, with a cost per quality-adjusted life year (QALY) in excess of $40,000 based on 300 patients treated per year (Shuaib & Jeerakathil, 2018; Lund et al., 2022; Navi et al., 2022; Gonçalves et al., 2023).

Helicopters

Helicopters are increasingly being deployed for dealing with major trauma and to support remote locations. The cost of operating these services is high and their effectiveness and cost-effectiveness is highly context dependent (Taylor et al., 2010).

Telemedicine support to ambulances

In Stockholm, ambulances use a protocol and teleconsultation to assess patients eligible for endovascular thrombectomy. This can be used to make decisions about which hospital patients should be taken to and to alert the receiving hospital (Keselman et al., 2022).

Response times vary across Europe, with prioritization of calls for life-threating cases (Bos et al., 2015). Many countries have implemented ambulance response time targets by categories of need (European Commission, 2003). However, there can be unintended consequences of response time targets, such as creating barriers to the use of higher clinical skills by paramedics and potentially incentivizing unnecessary conveyance if there are targets around time to convey to the emergency department (Wankhade, 2011).

Conveyance to hospital

In addition to decisions about whether to take a patient to hospital, ambulance services are increasingly required to make decisions about which hospital or alternative pathway is most appropriate. This particularly applies to cases where specialized services have been centralized and the ambulance should bypass other hospitals and increasingly to major trauma, stroke and patients that require a cardiac intervention. This increases journey times and can have implications for response times for other patients. Evaluations of the impact of these reconfigurations have shown mixed results (NIHR, 2012, 2016; Flojstrup et al., 2023), which suggests that care is required in the planning of these changes and how they are resourced.

Increasingly, ambulance services are responding to patients with complex care needs where there are opportunities to avoid unnecessary conveyance to hospital. This has been facilitated by improved skills and equipment, and the development of care models that are focused on supporting older patients in the community or within residential care homes (e.g. dementia, falls or end-of-life care pathways) (NIHR, 2016).

Emergency services in mental health

People with mental health problems (including anxiety, depression, psychosis, acute behavioural disturbance, drug overdose and self-harm) also pose particular challenges for ambulance staff and services, and represent an increasing proportion of call-outs (NIHR, 2016). Call-outs can be lengthy as they often involve referral and waiting for other services to attend (Moore et al., 2023). The ambulance service can be the service of last resort even when issues are not physical, but social and mental health related (Evans et al., 2023).

The benefits of preventing avoidable hospitalizations are well recognized by patients, paramedics and stakeholders, and there is supporting evidence for a positive impact on patient-centred care and operational efficiency. However, there are patient safety challenges resulting from incorrect triage decisions, inadequate training and a lack of formal partnerships between ambulance and supporting services (Blodgett et al., 2021).

Evidence on particular models is limited but there are promising approaches for older people and those in mental health crises (NIHR, 2016). Diversion schemes that aim to prevent admissions seem to be more effective if they have the following components (Blodgett et al., 2021):

- Ongoing evidence collection that demonstrates patient safety and effectiveness. This provides confidence in using schemes and roll-out at scale.
- Clear localized (i.e. adapted to the individual health system) triage tools and pathways to guide accurate decision making by ambulance clinicians; for example, the Swedish-based Rapid Emergency Triage and Treatment System (RETTS) (Wireklint et al., 2022).
- Training on correct use of alternative care schemes, including triage tools, overview of processes and learned examples to provide confidence in diverting to schemes without hesitation.
- Formal partnerships between ambulance services, primary care, urgent care centres, minor injury units or psychiatric and social teams to facilitate referral or alternative transportation of patients.

Without well-established pathways of care, ambulance clinicians are forced to rely on ad hoc decisions and, as a result, are often unsuccessful in finding an appropriate alternative source of care.

It is therefore essential that these alternative pathways are responsive (NIHR, 2016).

In London, ambulance staff have access to patient records, including detailed information on advanced care plans for end-of-life care that mean decisions can be made about whether conveyance to hospital is the most appropriate choice (Smith et al., 2012). The NHS in England has been developing a suite of policies to reduce unnecessary conveyance to hospitals. This includes: allowing ambulances to take patients to minor injuries or urgent treatment centres; mobilizing community services to visit the patient; a specialist ambulance team for patients with falls; and methods for mobilizing urgent mental health expertise (Knowles, Long & Turner, 2020).

Patient handover: from ambulance to emergency department

Communication failures are a major cause of adverse events in clinical settings and the point of handover from the ambulance service to the hospital can be one of significant risk as the emergency departments of hospitals are often busy environments with high-acuity patients (NIHR, 2016).

Barriers to effective clinical handover between the ambulance and the emergency department include: a lack of common language or understanding between health care disciplines; inattention to handover and lack of active listening skills; variable quality and quantity of information exchanged during handover; lack of clear leadership; lack of teamwork skills; a busy and complex environment; and repetition of handover (Bost et al., 2010).

Improved approaches should centre around robust electronic patient records that include clear care plans and advance care directives, standardized handover formats and approaches, and being clear on roles and responsibilities within the ambulance and emergency department teams (Bost et al., 2010; NIHR, 2016).

Other community resources

In addition to the more formal components of the health care system, there are other services and resources that have a role in supporting patients and assisting in the more effective management of demand.

Care homes

Care homes for older people generate a high volume of emergency demand for ambulances, emergency departments and hospital care. A study from the United Kingdom found that 41% of emergency admissions to hospital from care homes could have been averted through better provision of preventative primary care, other community support and the upskilling of care home staff, including providing telemedicine support (NHS England, 2019).

Preventative primary care measures include advance care planning, medicines optimization, protocols for common presentations and the designation of a GP to look after the patients in a care home supported by a multidisciplinary team and, if possible, input from a geriatrician (British Geriatrics Society, 2016; Wolters et al., 2019; Giebel et al., 2020).

Community responders

Community responders are often volunteers who receive basic emergency care training and respond to appropriate medical emergencies while an ambulance is on its way or to provide first aid and other support. They are connected to the ambulance service or primary care out-of-hours service. They are often used in more rural or remote areas and island communities, where medical responses may take time to reach the patient.

Community responders are often trained to respond to cardiac arrests. There is little evidence to support the effectiveness of dispatching community first responders for cardiac arrest survival in adults or children. Dispatching community first responders can result in higher rates of cardiopulmonary resuscitation (CPR) and defibrillation before the arrival of emergency services, but evidence is limited on whether this significantly increased survival (Barry et al., 2019).

Community pharmacies

Community pharmacies can be one of the most accessible parts of the primary care system as they are located in communities and patients can just walk in (Nuffield Trust & King's Fund, 2023b). However, they can often be disconnected from other services.

There is an opportunity in some countries to make better use of the skills and expertise of pharmacists through enhancing and formalizing the community pharmacy clinical service 'offer' with the twin aims of providing accessible care to patients and reducing demand on the wider urgent care system. The enhanced offer is often underpinned with robust connectivity to primary care, for example patient records and activities undertaken, clinical guidelines and payment systems. This is reliant on the development of 'Independent Prescriber' qualifications that allow pharmacists to deal with some conditions at the more minor end of the scale of urgent care. For example, pharmacies in Wales and Scotland (United Kingdom) are providing minor ailments services (see Box 2) and are connected to the wider health record system (including prescribing antibiotics for uncomplicated conditions) (NHS Wales, 2023; Nuffield Trust & King's Fund, 2023b).

Box 2: Welsh pharmacy Common Ailments Service (NHS Wales, 2023):

- Acne
- Allergic rhinitis
- Athlete's foot
- Chickenpox
- Cold sores
- Colic
- Conjunctivitis
- Constipation
- Diarrhoea
- Dry eye
- Dry skin
- Dyspepsia
- Haemorrhoids
- Head lice
- Ingrown toenail
- Lower back pain
- Mouth ulcers
- Nappy rash
- Oral thrush
- Ringworm and intertrigo
- Scabies
- Sore throat
- Teething
- Threadworms
- Vaginal thrush
- Warts and verrucas

Additional services delivered by community pharmacists are often popular with patients and the public, due to accessibility. Extended roles for community pharmacists require robust performance management using data to ensure appropriate prescribing and antibiotic stewardship.

Hospital emergency departments

In those countries that have them, the hospital emergency department is often the most accessible part of the urgent and emergency care system, with patients generally able to access care through walking in. This results in a mix of many types of need and patients who are undifferentiated – even if they arrive by ambulance – and means that it is necessary to separate and stream patients within the emergency department to ensure they receive the right level of care and that acute emergencies are not overwhelmed by high volumes of relatively minor conditions. This is why prehospital triage and alternative services have grown in importance.

There are a number of other important issues about the internal organization of emergency departments and how it relates to the rest of the hospital that have an impact on patient experience and outcomes but these are beyond the scope of this brief.

The emergency department typically provides triage, diagnostics and basic first aid through to advanced resuscitation. Around 70–80% of hospital admissions are emergencies and most of these are routed through an emergency department in those countries that have them (see below).

There is wide variation in the emergency department visits per 1000 population per year across European countries. The Netherlands has one of the lowest at 124 attendances per 1000 population a year, whereas Spain and Portugal have some of the highest levels (at 595 and 707 respectively). Consequently, the Netherlands has one of the highest percentages of patients admitted from the emergency department (32%), whereas Spain and Portugal have one of the lowest (10%) (EUSEM, 2020). This reflects factors relating to the accessibility of primary care, but there has been a general trend of a 2–3% increase in emergency department attendance each year across Europe (EUSEM, 2020).

Various emergency department models are found in different countries. In some, the emergency department provides a triage and signposting service to direct patients to the right specialist. These tend to be associated with more medically delivered pre-hospital care, which means that it is more likely that decisions have been made about the specialist services required before arriving at the hospital. In contrast, countries such as the United Kingdom and the Netherlands have a model based on large units that provide diagnosis and care for largely undifferentiated patients and, after investigation, onward referral of those that require specialist care. Many patients do not arrive with a clear diagnosis and therefore a detailed assessment by an experienced clinician is an important step to ensuring that the right care is delivered. There appears to be a general trend towards these types of unit being established.

Effective emergency departments need a dedicated group of medical and nursing staff with the appropriate training. The changing nature of patients using emergency department services increasingly requires specialists with a wide range of generalist skills and, in response to this, emergency medicine has been developing as a distinct specialty over the last 50 years. It now encompasses skills for the management of a wide range of acute and urgent illness and injury across all age groups. This includes physical and mental illness and the ability to deal with undifferentiated patients (Hansen et al., 2020).

Not all countries recognize emergency medicine as a specialty and, where they do, training places are often limited. As a result, emergency services operate with fairly low numbers of trained specialists in emergency medicine and small numbers of resident posts. This means that patients may be seen by relatively junior staff, sometimes with a long wait to see a specialist. Where patients require specialist input this needs to be highly responsive so that patients can quickly move to an inpatient bed or be discharged and avoid the risks associated with overcrowding and boarding (patients staying in the emergency department rather than being admitted to a hospital bed) discussed below.

The use of social workers and allied health professionals in the emergency department can assist in preventing some admissions and act as a link to home care services. One study found a reduction of 2% in the admission of older people and a positive impact on the workload of other staff, patient satisfaction and referrals to other services. However, the evidence is somewhat limited and the cost-effectiveness of these services has not been evaluated (Cassarino et al., 2019).

Pharmacists working in emergency departments can also provide helpful input to support: safe prescribing; avoiding missed or delayed doses; providing advice; and avoiding adverse reactions (Henderson, Gotel & Hill, 2015; Sinopoulou et al., 2021). Where they have advanced skills and prescribing training they may also clinically manage some patients (Aiello et al., 2017).

Embedding mental health staff in the emergency department to liaise with other services provides more rapid access to services than arrangements with external providers and improves the quality of care. However, the local context and types of patients that are seen will affect which model is most effective (Evans et al., 2019).

In the United Kingdom, GPs have been deployed in emergency departments in an attempt to manage high levels of demand. This might involve them in triaging patients, by streaming primary care type cases to them or fully integrating them into the staffing of the department. There is little evidence about whether this works effectively to manage workload or whether it is cost-effective (Gonçalves-Bradley et al., 2018; Cooper et al., 2020). As noted above, emergency departments with distinct primary care services have been found to potentially attract demand for primary care because these services were visible and allowed patients quick and direct access to health care (McFadzean et al., 2022). This is not desirable and can take resources from primary care.

Triage

Triage in the emergency department is an important process of assessment to ensure that the patients in the most need are seen first and that patients can be directed to the most appropriate level of care. Models vary, but quite often more junior physicians or nurses are the first point of contact undertaking triage. However, triage by a more senior decision-maker early in the patient pathway can enhance emergency department performance and improve decision making – although cost/benefit research is still required for this arrangement (Abdulwahid et al., 2016). Patients need to be appropriately streamed into services according to urgency and risk, and where patients are in the emergency department for extended periods the triage may need to be dynamic to ensure that changes in their condition are identified and, where appropriate, the response is changed (Davies et al., 2024).

Nurse-led triage can be effective and efficient but additional training may be required and the nurses need time to dedicate themselves to the patient and triage them without disruption (Fekonja et al., 2023). Machine learning triage tools within the emergency department have shown promise in their predictive ability to determine patient outcomes (Sánchez-Salmerón et al., 2022), but these tools are still in development.

Specific patient groups

There are certain specific sub-groups of patients where it may be more appropriate to provide services that rapidly stream the patient away from the emergency department or avoid the emergency department completely. Care is needed to ensure that services are not created as a parallel set of assessment services that leads to duplication, but also that patients in these categories with an urgent need for hospital-level treatments are identified and not deflected.

Examples of these streams for specific patient groups include:

- Early pregnancy complications. Some countries have early pregnancy services and protocols which either have a separate 'door' to services or can be streamed out of the emergency department so that they can access areas with privacy. These services can improve patient care and service delivery (Wendt et al., 2014; VanArendonk et al., 2020).
- Patients receiving chemotherapy with a fever or uncontrolled pain can often attend the emergency department but this is not an appropriate place for immune-compromised patients; specialist emergency medical oncology services with appropriate isolation could improve the patient's experience and outcomes, and reduce demand on the emergency department (Lash et al., 2017; Tabriz et al., 2023).
- Patients identified as having a ST-elevation myocardial infarction (STEMI) who need to go directly for catheterization (Dorsch et al., 2008).
- Patients being transferred from other facilities who have an established diagnosis and are being transferred for specialist care. These patients should go directly to the unit taking over their care where possible.
- Patients with mental health problems are often a challenge for emergency departments. While separate services for mental health emergencies are desirable, there will be patients with mental health problems who also need medical attention for somatic health problems and others where mental health follow-up is required, for example patients treated for self-harm, where liaison and specialist support will be required.

3. Drivers of patient use of services

The ways in which patients use services and navigate patient pathways through the system are driven by overlapping and intertwined factors, notably the shape and availability of emergency services. This section focuses on three sets of drivers for patient use of services with particular and significant policy implications, that is, policy responses and strategies to effectively steer the use of accident and emergency (A&E) services. These overlapping driving factors include: the capability and capacity of primary care; patient confidence and perspectives; and patient incentives and choice.

Capability and capacity of primary care

There are growing shortages of family medicine doctors (GPs) and other primary care staff in many European countries. In many countries family medicine is struggling to recruit and retain staff, compounded by the fact that it often has lower pay and is seen as less prestigious than hospital specialties (Kroezen, Rajan & Richardson, 2023; Russo et al., 2023). Workforce shortages reduce primary care capacity, which can hinder availability and access to services, while the perception of family medicine impacts the perceived capability of primary care to meet the needs of patients. Both elements can encourage patients to choose going to emergency care in preference to primary care.

In some countries the restriction of medical school places may have biased the intake of students away from those with a more primary care orientation (OECD, 2016). The training of family medicine doctors varies across Europe and this affects the capability and confidence to move the care of some conditions out of the hospital and into primary care (WHO, 2015). A number of countries have a shrinking and aging health workforce and there are also problems with health worker migration. The challenge is particularly serious in many rural areas (Russo et al., 2023).

Workforce challenges and high levels of demand mean that the availability of on-the-day or short-notice appointments is a significant problem in many countries. Telephone consultation and triage have been used to improve access and capacity. The evidence on whether this is an effective way of expanding capacity is mixed and the impact on emergency department attendance is small (Newbould et al., 2017). Measures are required to deal with the risks of under-triage or of some diagnoses being missed, which, while rare, can be hazardous to patients (Payne et al., 2023).

One of the difficulties of establishing whether there is an imbalance between capacity and demand is that information about patients who fail to get through by telephone and therefore may either self-treat or seek different routes into the system is not easily available. The growing use of cloud-based telephony will allow for an assessment of missed calls and for call answering to be spread across networks of providers, where these exist, to allow peaks in demand to be dealt with more effectively.

Primary care capabilities and the services offered vary considerably and this has an impact on emergency demand in other providers as well as affecting patient perceptions of where to go for urgent care and overall patient flow across the system.

A key question is whether primary care has the necessary knowledge and skills to resolve the patient's problem without the need to refer to other providers. Many primary care facilities have very limited access to diagnostic tests. Point of care laboratory testing is not widespread as the equipment is relatively expensive and ensuring quality control can be difficult. Imaging (beyond ultrasound) is also not generally available. Many patients can be diagnosed and treated based on history and examination but without more advanced diagnostics those that need anything more than relatively low-technology test (e.g. urine dipstick or ECG) will need to be referred to other parts of the emergency care system.

The impact of primary care on demand for hospital care is also related to its ability to successfully manage patients with long-term conditions. Across the region there is a high proportion of potentially avoidable emergency hospital admissions which might have been averted through actions in primary care, including reducing polypharmacy and more effective management of long-term conditions (OECD & European Commission, 2016; Auraaen, Slawomirski & Klazinga, 2018; Davies et al., 2020; Zaninotto et al., 2020). To address this, a number of health systems are expanding the capabilities of primary care through multidisciplinary team approaches within larger-scale primary care services – moving away from the traditional solo-GP model (WHO Regional Office for Europe, 2023a). Key components of models include: timely access, adequate coverage, long-term relationships between primary care and patients, care protocols and advice or referral pathways for specialist input, and effective care transitions (van Walraven et al., 2011; Rosano et al., 2013; van Loenen et al., 2014; WHO Regional Office for Europe, 2023a).

There have also been initiatives to develop population health management often supported by care coordinator roles which provide close working relationships with social services and long-term care teams (OECD, 2020). These roles focus on a small number of patients who are frequent users of health services. Improved care coordination, underpinned by timely information flows, has been found to reduce hospital admissions among patients with chronic conditions (other than mental illness) and reduced emergency department visits among older patients (Tricco et al., 2014; Duan-Porter et al., 2020).

Patient confidence and perspectives

There is a concern that a significant proportion of patients opt to attend hospital for conditions that could be treated in a primary care setting. This may be because primary care is not available or accessible – particularly at weekends and out of hours (OECD & European Commission, 2016; Lippi Bruni, Mammi & Ugolini, 2016). It may also indicate that there are issues with the extent to which patients understand the system or have views about its capabilities that shape their decisions. Studies explaining why patients

choose to access emergency and urgent care services identify several factors (Coster et al., 2017; Vogel et al., 2019; O'Cathain et al., 2020):

- patient-perceived urgency
- perceptions about the quality of care available in other providers
- limited access to or confidence in primary care – including the perception (not always correct) that appointments were not available
- views of family, friends or other health professionals
- convenience and accessibility – whether urgent appointment slots are available
- a belief that their condition required the resources and facilities offered by a particular health care provider, for example that they would need x-rays or investigations not available in primary care
- in some cases the absence of co-payments or immediate out-of-pocket expenses in emergency departments relative to other providers
- poor health literacy
- the influence of social networks.

Children and young people may be more likely to attend emergency departments for conditions that can be dealt with in primary care (McHale et al., 2013). In the case of children this might relate to confidence in primary care or the availability of appointments or anxiety about consequences when making decisions about another person's health (O'Cathain et al., 2020). Young people more generally may be less familiar with how to access services and may have different attitudes to how services are used, leading to a higher proportion of them using the emergency department.

A common factor in some of these is perceptions about primary care. In countries where family doctors have traditionally been regarded as providing a lower level of care and where onward referral rates were very high, there can still be a legacy of a bias towards using hospitals for urgent care. Larger-scale, networked primary care with multidisciplinary teams may be able to address some of these issues as they are more likely to be able to offer a wider range of services over extended hours (WHO Regional Office for Europe, 2023a).

In addition to long-term attempts to boost the reputation and capabilities of primary care, the responses to this problem include making the system easier to understand, for example through standardized phone numbers and pathways, shaping patient behaviour through financial incentives, and providing an easy-to-use telephone or web entry point to the system. These are explored in more detail below.

There may be an issue with public trust more generally that is affecting patient choices. Trust in government and in other institutions is in decline and this may affect public attitudes (OECD, 2019) and receptiveness to messages about how to use services. However, there is more that health systems and policy-makers can do to help patients understand the capabilities of primary care and improve public trust and confidence, but this may need to be part of a wider approach to building trust across health systems (McKee et al., 2024).

Patient incentives and choice

There is a choice for policy-makers about whether to follow the revealed preferences of the public or to try and construct systems to channel demand in other directions that may be more cost-effective.

Systems that allow primary care to be bypassed in favour of the hospital put a significant strain on hospitals and undermine continuity of care. Where there is no requirement to register/enrol with a family doctor/GP there can be a risk of patients visiting multiple doctors with the same health concern, which can result in lower-quality care and higher (potentially inappropriate) medication use (Biernikiewicz, Taieb & Toumi, 2019).

Having some level of friction (financial or non-financial) can encourage people to seek care at the appropriate level and does have an impact on utilization. This may be created through the design of co-payments and or deductibles. If co-payments are to be used, it is appropriate for charges in primary care to be lower than those for hospital services. However, policies may not always have the expected result and are hard to design well: when Belgium increased the co-payment level for attending the emergency department without a GP referral it did not seem to result in a decline in emergency department attendance. This may have been due to wider systemic issues around GP out-of-hours coverage and patient awareness of GP services (Van den Heede et al., 2017). Out-of-pocket payments in primary care are not desirable as they can be a barrier to care (Hanson et al., 2022), driving unmet need and eventually creating problems for financial protection. Therefore, if they are used, their impact should be monitored carefully and exemptions should be in place for the most vulnerable households.

The most recent data show that 14 of 40 countries in the European Region, for which there is information available, do charge for emergency care visits. There are a number that charge for primary care visits but not for emergency care (WHO Regional Office for Europe, 2023b). This can create perverse incentives and it is not clear what the rationale for this is. Health systems and their incentives have evolved over time and there are cultural norms around urgent and emergency care use. In the Netherlands there is a strong gatekeeping role in primary care and it is common for Dutch citizens to go to their registered GP clinic, or GP out-of-hours service, even when problems are perceived as urgent or life-threatening. Access to the hospital is expected to be via GP referral and individuals attending the emergency department without referral can expect to be ineligible for reimbursement for the cost of care. Consequently, there is a relatively low number of self-referrals to the emergency department compared to other European countries (Rutten et al., 2017; Baier et al., 2019; Minderhout et al., 2019).

A feature of the Norwegian and Danish system is that patients are not permitted to seek treatment at the emergency department directly but must either be referred

Table 1: Indicators of emergency department utilization

Countries	Hospital emergency department visits/1000 population	Ambulatory emergency department visits/1000 population	Emergency admissions/1000 population	Emergency admissions/ED visits
Denmark (2013)	156	111	45	28.7%
France (2013)	279	218	61	21.7%
Netherlands (2012) 32.0%	124	84	40	32.0%
United Kingdom, (England) (2013–2014)	264	200	70	26.7%

Note: Ambulatory care is any care not requiring admission to hospital.

Source: Baier et al., 2019.

by a GP or brought in by ambulance (WHO, 2020). When Denmark put in place the requirement for patients to obtain a referral from the urgent care call centre or GP to enter the emergency department it was supported by a comprehensive information campaign explaining the new emergency care system (Baier et al., 2019; Flojstrup et al., 2023). By contrast, the restricted opening hours of primary care in Spain leads to significant use of emergency services, particularly by adults who cannot get time off work. The impact of these policies can be seen in the differences in utilization and in the rate of conversion of attendances into admissions shown in Table 1.

Alternative methods for shaping patient choice are to set up minor treatment services based in primary care or to expand primary care opening hours (see Box 3). The results of such initiatives have been mixed and, as discussed, there is a risk of creating supply-induced demand with few benefits to the wider system, plus there is little evidence about patient outcomes or the cost-effectiveness of what are, in some cases, duplicative models.

Box 3: Expanding primary care opening hours in the United Kingdom

A study in the United Kingdom estimated that 7-day GP opening reduced emergency department attendances by patients of pilot practices by 9.9% with most of the impact at weekends when the fall was 17.9%, with most of this reduction occurring in cases of moderate severity. The study also found a 9.9% fall in weekend hospital admissions driven by a reduction in admissions of elderly patients. The impact on emergency department attendances appears to be larger for wealthier patients. The cost-effectiveness and outcomes were not reported.

Source: Dolton & Pathania, 2016.

4. Planning, management and evaluation of emergency services

As shown above, demand for emergency care is driven by system-wide issues, so shaping patient flows through the system requires system-wide planning to ensure that resources are effectively distributed. This section shows how the organization of emergency services encompasses all features of service provision and interfaces between service providers, as well as ensuring that payment systems reflect policy goals. Managing patient flow within the emergency department is also an important feature of planning highlighted here, particularly for when emergency departments are at capacity. Finally, system oversight and performance measurement, while difficult, are discussed as important for quality monitoring and public accountability.

System-wide planning

The urgent and emergency care system is complex and developing a system requires planning and some direct intervention by payers and policy-makers to ensure that:

- Resources are effectively distributed between the different parts of the system, in particular to make sure primary care has the capability and capacity to meet demand (see above).
- The interfaces between different parts of the system allow for the easy and safe handover of patients. This requires the standardization of pathways and the response at the entry point to the system to ensure that there are no gaps in the service and that patients are routed to the most appropriate care setting with the minimum number of onward transfers as these add delay and create risks for patients.

- Hospital networks allow for the escalation of patients and, crucially, ensure that patients sent to specialist centres can be stepped down to lower levels of care when they no long require these services. In some cases, the hospital network may need to be reorganized to balance between the need for access by individual communities and larger footprints that enable higher levels of risk pooling and efficient consolidation of staff, equipment and facilities.
- Developing systems and processes to allow ambulance services, family doctors and other referrers to offer a range of responses to patients' needs and giving them the ability to mobilize community services, home care or telemedicine support to help reduce the need to take patients to hospital or to select the correct location of care where patients have more specialized needs.
- Payment systems are designed to ensure that incentives are in place to support policy goals. This might include volume caps or reduced rates of reimbursement for activity above specified levels, capitation models and other approaches that share risks and gains across the system, and for emergency departments a blend of reimbursement for fixed costs and a marginal activity payment.

A number of countries have taken steps to centralize hospital emergency care services as well as create more specialized and supra-specialized services – in particular the treatment of stroke, trauma, STEMI and other specific conditions in specialized units (Baier et al., 2019). These reforms have been driven by the need to increase efficiency and consolidate the health care workforce to enable 24/7 care delivery and by a concern about the quality, safety and cost of units seeing very small numbers of patients, often staffed by clinicians with low levels of training or experience (see Boxes 4 and 5).

Box 4: Hospital reorganization in Denmark to concentrate emergency services

Following the 2007 structural reform of the health system, the newly introduced regions redesigned the hospital structure based on guidelines from the National Board of Health.

The number of acute care hospitals was reduced from around 40 in 2006 to 21 in 2015. That goal was primarily based on an assumption that a catchment area of between 200 000 and 400 000 persons was needed to ensure quality of care and to allow for cost-effective staffing.

The National Board of Health issued a report aimed at guiding the regional planning process for acute care, including prehospital treatment, the designation of four trauma centres and the development of emergency departments (acute patient admissions are organized in one ward). This is a change from a more specialty-oriented to a more process-oriented admission, transcending professional as well as specialty barriers. In August 2007, the government set aside a DKK 25 billion (€3 billion) fund for capital investment in new and improved hospitals.

It is not clear that these changes have had a significant impact on mortality and the impact of additional travel for patients may have been underestimated (Flojstrup et al., 2023; Vaughan & Browne, 2023).

Box 5: Guaranteeing accessibility and quality of emergency care in the Netherlands

There is broad agreement that the acute health care landscape must undergo radical transformation within a few years, to guarantee accessibility and quality of care for every Dutch citizen. To stimulate this transformation, patient organizations, national associations of health care providers, health care professionals, health insurance companies and government organizations have concluded a national agreement to achieve this.

The Netherlands currently has 93 emergency departments and 122 out-of-hours GP services catering for citizens with less serious urgent acute care needs.

Currently, a national requirement is in place that every Dutch citizen must be able to reach an emergency department within 45 minutes. This means sparsely populated areas have emergency departments with very little demand outside office hours. The 45 minutes requirement is being dropped on the basis that ambulances are now better equipped to handle emergency care so patients can travel longer distances (DutchNews, 2022).

For polytrauma, the current quality standard is that 90% of polytrauma patients are immediately taken to a specialized trauma centre (that must have a minimum of 240 cases a year). Currently, around 65–70% of polytrauma patients are taken directly to a specialized trauma centre.

Parties have agreed to an integrated care agreement to improve these quality standards and the Dutch Health Care Inspectorate will also enforce this more strictly.

In addition, parties have agreed to create a real-time overview of regional acute care capacity, but the machinery to implement this and manage change is not yet in place (Ministry of Health, Welfare and Sport, 2022).

Managing patient flow in the emergency department

The overcrowding and busyness of the emergency department is a common problem in many countries, and this has a negative impact on both patients and staff. Overcrowding and boarding are associated with reduction in the quality of care and a poor patient experience (Morley et al., 2018; Rasouli, Aliakbar Esfahani & Abbasi Farajzadeh, 2019; Badr et al., 2022), as well as higher levels of medical errors, increased costs and longer length of stay (Liu et al., 2009; Di Somma et al., 2015). One study found increases in mortality once patients had waited more than five hours in the emergency department, with an increase in absolute mortality of around 2% (8.2% to 10.1%) at 30 days for those who waited more than 6–8 hours (Jones et al., 2022).

High levels of demand are likely to remain an ongoing issue and the emergency department generally has few tools to manage overcrowding because it is the result of problems in the wider system (see above: Drivers of patient use of services). An important cause of emergency department overcrowding is the inability of the emergency department to move patients on – either to send them home or admit them to a ward (known as exit block). Pushing the problem downstream by moving patients to wards that are already busy carries significant risks and may increase mortality in these areas as well. Reducing inpatient length of stay in response to overcrowding is also risky (Vaughan, 2022).

Policy and planning for emergency systems need to pay very close attention to mechanisms for ensuring patient flow through the system with safe and appropriately quick discharge home. There is a wide range of other operational improvements that can be made in the emergency department and wider hospital to address overcrowding (Rasouli, Aliakbar Esfahani & Abbasi Farajzadeh, 2019).

Having protocols for dealing with situations when the emergency department is at full capacity and a culture that supports it during periods of peak demand is important (Alishahi Tabriz et al., 2019). However, the key to a sustainable solution is to realign health care financing to enable hospitals to keep inpatient bed occupancy below a critical threshold that allows for flexibility and the ability to absorb surges in demand. Different figures are suggested for this and the precise level of occupancy will be determined by the pattern of demand during the day and the case mix of the hospital. Paediatric and intensive care beds may need to operate at a lower occupancy rate than general beds to guarantee that a bed will be available when required. Crowding will likely occur when hospital occupancy exceeds 85–90% (Kelen et al., 2021). Sources from the United Kingdom quote 85% occupancy (at midnight) but the basis for this is open to debate (NICE, 2018). System dynamics or discrete event simulation modelling using local data provide a more reliable answer.

Approaches to improve flow in the hospital often include focus on ensuring the pace of care is maintained and on the appropriate and timely discharge of patients. This relies on having capacity in the wider system to support discharges that is responsive and capable. Interventions include:

Interventions in the hospital

- Frequent ward rounds and the use of plans and criteria to allow discharge by senior nurses or junior doctors.
- The availability of rapid pharmacy responses at discharge and timely transport.
- Internal processes in the hospital to reduce delay, including high-quality early discharge planning, multidisciplinary team working and communication.
- Minimizing patient moves within the hospital.
- Early rehabilitation and mobilization of patients.
- The use of hospital control rooms.

Interventions in the wider system

- Rapid response services to help patients return home and to provide appropriate support – this might include social care support, or nursing for injections, intravenous fluids or antibiotics.
- The availability of nursing or care home places or home care support with minimal bureaucracy and delay.

The creation of hospital-wide control rooms or even control centres for larger areas to provide real-time management of capacity and demand may be an effective response to this (Franklin et al., 2022).

Performance measurement

WHO has developed a set of tools for the assessment of the emergency care system that can be used on a one-off basis to create a comprehensive picture of services (WHO, 2023c).

Emergency care systems are multifaceted and complex, so measuring their performance is difficult. Day-to-day performance management systems in Europe vary in their scope and some relating to primary care are still in their infancy (European Commission: Directorate-General for Health and Food Safety, 2018). Emergency departments are also complex and a review of this area found 202 indicators of performance (Austin et al., 2020).

There will be many more indicators for internal management and to guide improvement than are required for oversight of the system, quality monitoring and public accountability. The principles for developing indicators that policy-makers will wish to consider could include the following:

- where possible the data are already collected reliably
- the measures are robust to gaming and do not incentivize it
- they do not distort care and they promote care for those that need it most
- they should be patient-centred
- they should capture information about the behaviour of the system that allows an understanding of where attention should be directed.

The design of the indicator will need to capture key aspects of process that determine patient outcomes and experience. These might include:

- measures related to the timeliness of care
- waiting times for treatment or decision to admit
- time spent in the emergency department – especially extended waits
- patient boarding – patients who need admitting but where no bed is available
- ambulance handover times
- ambulance response times
- ambulance non-conveyance rates
- patient experience
- staff experience.

Some of the above are also indicators of the performance of other parts of the system. For example, excessive patient boarding or long waits may indicate poor internal processes in the emergency department or the hospital, or problems with discharge due to issues with community services or access to long-term care. Measures such as the proportion of attendances that are admitted may indicate issues with the responsiveness of other parts of the health care system or issues of policy design. Information systems to provide a close to real-time understanding of the capacity and demand in the system will be valuable and in some cases this is being done as part of the development of regional command centres (Franklin et al., 2022).

Some more granular measures have been used, such as call to thrombolysis times for stroke, but a focus on single measures for performance management can cause distortions that have a negative impact on other important measures (Guilfoyle, 2012; Berry, Gardner & Anderson, 2015; Edwards & Black, 2023).

Trauma outcomes including assessment of long-term disability, morbidity and mortality as well as more immediate process measures are relatively well developed. A number of countries in Europe operate registries for major trauma to enable benchmarking and the long-term tracking of patients (Scharringa et al., 2023). Registries for hip fractures have also been established in several countries (Werner et al., 2022).

System oversight

Having governance arrangements that allow the different actors in these complex systems to come together to plan services, understand the nature of patient flows, and develop responses to surges in demand and major incidents are very important. These can include social care, public health and local government as these agencies can influence demand for health care and are often responsible for services that can support discharge and therefore improve flow.

Many countries have these collaborative arrangements for the planning of major incidents but experience in the United Kingdom, Norway and elsewhere suggests that more systematic planning of the wider emergency care system and arrangement for managing periodic crises are increasingly necessary. This is not least because the variability of demand means that large surges in demand and problems with flow are now becoming a standard feature of many health systems, rather than rare events.

5. Policy implications

Patient and public choices about using the system

It seems to be difficult to influence public behaviours in this area through publicity campaigns or other generic messaging. It also appears that if patients get advice on where to go for care that does not accord with their views about the appropriate choice, they are likely to disregard it and use the emergency department unless this is prohibited or backed up with financial penalties or other incentives. However, a more concerted effort to ensure that the population understand the capabilities and capacity of primary care, along with ensuring that it is easy to access both in- and out-of-hours does seem to be an effective long-term approach.

Planning is required to shape the system

Emergency and urgent care requires a coordinated system in order to be effective. Such systems do not emerge without planning and design. There are evidence-based design principles that can be used to develop a well-functioning urgent and emergency care service but how these are deployed is very sensitive to the wider context of the health care system, local factors and the expectations of the public. Policy-makers will want to ensure that the allocation of resources allows the right balance of capacity and demand, and that this creates a system where it is easy for patients to make choices that are in their best interests as well as being cost-effective for the wider system.

Systems for managing emergency and urgent care across areas are going to be increasingly necessary and relying on individual organizations to coordinate between themselves may not provide a sufficient level of coordination or governance.

Some significant changes in the pattern of more specialized emergency care are required in many systems, either to concentrate specialist skills or to deal with workforce shortages. This is controversial and the engagement of stakeholders needs to be a central part of this process.

Primary care is central

Primary care needs to be able to deal with the large majority of patients who need urgent care – and be available with the skills and technology to provide it when needed. In countries where there is no tradition of out-of-hours primary care, alternative models that do not rely on the hospital emergency department need to be considered.

The level of demand may mean that primary care will need to be supported by a triage system capable of safely directing patients to the right care provider, which may not always be the family doctor. At present, while elements of this triage can be automated, this will rely on well-developed systems with clinical input.

A range of other primary care services will be required to balance demand with often highly constrained capacity. The design of this should be able to provide continuity of care to those patients that need it.

This may imply primary care operating at a larger scale or at least being part of a network to increase its capability and resilience. The training of staff, providing out-of-hours services, improving the attractiveness of working in rural areas, and the provision of diagnostics equipment would all require attention.

Incentivize the development of an appropriate workforce

The specialized medical workforce is not well aligned to the emerging pattern of multimorbidity and complexity. The development of emergency medicine as a specialty is one response to this, but the availability of general internal medicine skills and geriatric medicine will also be increasingly important. The shape of specialist medical training and the incentives to attract staff into what can be demanding and difficult roles, will need to be considered. The development of paramedics to support ambulance services will also be important, particularly in those countries where policy-makers may want to consider whether the deployment of doctors as first-line ambulance staff is the most cost-effective way of using this scarce resource.

The development of multiskilled staff for rural and remote areas, combined with incentives and methods to prevent professional isolation, is also an important issue in many countries (McKee, 2004).

Data and measurement

The data on emergency care activity need to be improved, both to support more effective day-to-day management but also for quality improvement, planning and public accountability. Work is needed to develop good measures that capture the performance of the system as well as individual parts of it and to be able to understand how patients move through it to identify bottlenecks, duplication or gaps in services.

Making systems easier to navigate

Understanding how the public use emergency care and drawing on behavioural insights to design services that are informed by this will be an important part of creating urgent and emergency care systems that are fit for the future. Providing the public with better information about how the system works, and offering web and telephone support to help them make best use of it, will also be important. Improving public trust in the whole system, and particularly in primary care, will be necessary too.

This requires more standardization of systems and processes and the creation of standard operating procedures both within and between providers. A standardized approach to entry into the system will have a number of advantages and would mean that patients get routed to the most appropriate modality of care.

Providing staff in the system with up-to-date access to a directory of services and how to use them is valuable, and the development and updating of these needs to be commissioned by national or regional authorities.

Removing barriers to coordinated working

The absence of an electronic patient record available across the local health and care system is a key barrier. As patients can enter the emergency care system at different points, and their care will often involve handovers between providers and organizations, the use of a single care record is an important tool for reducing fragmentation and avoiding the loss of vital information.

The different payment methods, performance measures and objectives should be aligned between providers to reduce the barriers to effective operation of the system. Payment systems that pay full cost for emergency department activity may create unhelpfully powerful incentives that discourage collaboration. A block sum with some marginal payments for higher-than-planned levels of activity are likely to be more appropriate and reduce some of the perverse incentives that may otherwise operate.

Emergency departments are a key way of focusing resources

The development of emergency departments with specialist staff is an important step. In countries that do not currently have them it will be challenging to create the appropriate physical facilities and develop specialist staff and new ways of working with other parts of the hospital.

6. Conclusions

Urgent and emergency care is a classic example of a complex adaptive system because of its interconnectedness, the presence of feedback loops, the variability in demand, and the fact that it is made up of different organizations and individuals who have varying objectives, operating models and speeds of operation. These systems need different approaches to policy and management from other less complex parts of health care, such as planned surgery, and, in particular, should have much more regard to the context in which policy or service model ideas are applied (Braithwaite et al., 2018). This means that some elements of the system cannot be subject to centrally defined top-down change. Such an approach will be appropriate for the more rules-based and simple elements, such as a centralized triage system, but this approach is less likely to work for the more complex parts of the system – such as the internal operation of the emergency department. Choosing which approach to change is required will be very important.

There are some basic principles that should be adopted, but the exact ways in which these are applied will need to take into account the context and contingencies. One complex element is that patients and the public are not passive actors in the system, and how they understand, trust and interact with it is a key determinant of how it works. A deep understanding of this needs to be incorporated into the design of policies and other interventions. This has been somewhat neglected in thinking about urgent and emergency care and it would be wise to place it in a central position in the future.

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