



9 ORGANISATION AND PAYMENT OF EMERGENCY CARE SERVICES IN SELECTED COUNTRIES

Chapter authors: Wilm Quentin, Natalie Baier, Mickael Bech, David Bernstein, Thomas Cowling, Terri Jackson, Johan van Manen, Andreas Rudkjøbing, Alexander Geissler

9.1 Introduction

9.1.1 Background

In Belgium and in most high-income countries, the number of visits to hospital emergency departments (EDs) has increased considerably over recent years.¹⁹² The reasons for this increase are multifaceted and include factors related to both patient characteristics (e.g. demographic change, socioeconomic conditions, lack of knowledge about different options for emergency care, or changing preferences) and service characteristics (e.g. lack of access to primary care services, inconvenient primary care out-of-hours services, complexity of the care system for unscheduled urgent and emergency care).

In many countries, the high number of patients at EDs has led to increasing workload for providers, long waiting times for patients, reduced quality of care, and inefficient use of resources.¹⁹³⁻¹⁹⁵ In addition, a considerable proportion of patients at EDs have been found to attend for conditions that do not require urgent attention or complex interventions¹⁹² – and could potentially be managed by primary care providers in a timelier manner and at lower costs. In fact, these visits to EDs are often referred to as ‘inappropriate’ ED visits, although there is considerable debate about the concept of ‘inappropriateness’.^{16, 192, 193}

The organisation of emergency care services and payment systems for these services differ greatly across and often also within countries. Several countries have undertaken reforms over recent years with the aim of reducing the number of inappropriate ED visits and rationalizing the use of emergency care services. The aim of this chapter is to compare the

organisation of and payment systems for emergency care services in Australia, Denmark, England, France, and the Netherlands. In addition, the chapter will provide examples of promising reforms that were undertaken in these countries.

The next section of this chapter describes the methodology we have adopted in order to gather relevant information for the analysis of emergency care services across countries. We then provide an overview of the availability and use of emergency care services across countries. Section 9.2 presents information about the organisation of emergency care services in the five included countries, focussing on urgent primary care (out-of-hours) services, emergency departments, and call centres and coordination. Section 9.3 explores payment mechanisms used to reward emergency care providers and professionals. Section 9.4 describes reforms and debates in the selected countries and presents particularly interesting examples of reforms that have (1) improved the availability of urgent primary care services, (2) supported better coordination of EDs with urgent primary care, (3) streamlined emergency care provision for specific groups of patients by concentrating highly specialized services, and (4) rationalized the distribution of EDs in the country. Finally, section 9.5 concludes with a summary of our findings and lessons learned for policymakers.

9.1.2 Methodology

A scoping review was performed using Health System in Transition (HiT) reviews, web-search, and contacts with experts in order to identify countries, where the organisation of and payment for emergency care services was expected to provide interesting examples for discussions about emergency care reform in Belgium. Table 23 shows basic information on 13 countries, which were considered to potentially provide relevant examples for the Belgian debate. The table also indicates which of these countries were selected for inclusion in our study. In particular, we included countries where primary care was coordinated with emergency care services, where interesting payment systems existed for EDs, and/or where the number of EDs has been reduced over time.

**Table 23 – Selected countries, simplified health system characteristics and specialist payment models**

Countries	Health System characteristics	Inclusion (Yes/No)	Reasons for inclusion/exclusion
1 Australia (New South Wales, Victoria)	Decentralized, NHI	Yes	Cooperation with primary care, case-mix system for emergencies
2 Denmark	Decentralized, NHS	Yes	Strong gate-keeping, reduction of EDs, cooperation with primary care
3 England	Centralized, NHS	Yes	Cooperation with primary care, case-mix system for emergencies
4 France	Centralized, etatist SHI	Yes	New call centres, new primary care (out-of-hours) providers
5 The Netherlands	Centralized, etatist SHI	Yes	Cooperation with primary care, user charges for EDs
6 Switzerland	Decentralized, SHI	Yes**	Cooperation with primary care, population-based allocation of resources
7 Norway	Decentralized, NHS	No	Strongly decentralized, sparsely populated areas
8 Sweden	Decentralized, NHS	No	Strongly decentralized, sparsely populated areas, concentration of acute care hospitals, better education of patients about health-seeking behaviour
9 Poland	Decentralized, etatist SHI	No	Little information available
10 Hungary	Decentralized, etatist SHI	No	Strong primary care, payment reform, little information available, difficult contacts
11 Italy	Decentralized, NHI	No	Strongly decentralized system, little information available
12 Germany	Centralized*, SHI	No	Little cooperation with primary care
13 Canada (e.g. Ontario)	Decentralized, NHI	No	Strongly decentralized, sparsely populated areas

Notes: * At least concerning SHI; ** Contacted experts failed to provide answers in time; NHI = National Health Insurance; NHS = National Health Service; SHI = Social Health Insurance

Source: Authors' own compilation; health system characteristics based on Bohm et al. (2013).¹⁹⁶



Information on emergency care services is often fragmented and reforms are relatively rarely described in the available literature. Therefore we designed a survey (see annex to Chapter 9 for the blank questionnaire) and approached national experts (see annex to Chapter 9 for a list of participating experts) in order to obtain qualified, comprehensive and detailed information on the organisation of and payment systems for emergency care services in the included countries.

The survey was structured in four sections. The first section asked for general background information, including on planning of emergency infrastructure, emergency health professionals, and indicators of emergency availability and use. The second section asked questions on the organisation of emergency care services, including about different providers, legal requirements, triage and coordination, and on the patient perspective. Section three focused on the payment systems for different providers of emergency care services. The last section contained questions aiming to obtain information about the most important challenges and reforms in each country.

Completed questionnaires were reviewed and country experts answered additional questions about points that had remained unclear in their original responses. Reports and studies that were mentioned by national experts or were identified by searching the available literature were assessed in detail. Experts in Denmark and the Netherlands were asked to complete a second individual questionnaire in order to obtain more specific information on reforms that had reduced the number of EDs in the country and had improved coordination between primary care and emergency care.

9.1.3 Overview of emergency care services across countries

9.1.3.1 Indicators of emergency service availability and use

There is no internationally accepted **definition** for emergency care or emergency cases. In fact, none of the countries included in our survey has a national definition of an emergency case, which is independent of the care provider. Instead, all cases attending emergency departments are generally considered to be emergencies. However, differences exist also concerning

the definition of emergency departments. In Australia, EDs are defined by the Australasian College of Emergency Medicine (ACEM) as dedicated hospital based facilities specifically designed and staffed to provide 24 hour emergency care.¹⁹⁷ These facilities must provide (as a minimum) continuous access to medical staff, have a dedicated resuscitation area, provide 24 hour access to blood products, laboratory, radiology, and access to specialist medical and surgical services.¹⁹⁸ In France, the definition of an ED is similar (see section 9.2.2.4) but in other countries, the definition of EDs is less specific. For example, in the Netherlands, facilities that are open only during daytime may also be considered EDs, and in Denmark, some hospital-based nurse-led outpatient clinics are locally referred to as EDs.

Table 24 summarizes data about the availability of EDs in six countries, including only facilities that comply (more or less) with the ACEM definition, i.e. they are hospital based and open 24/7. The number of EDs per 100 000 population varies considerably from 0.33 in England to 1.25 in Australia. Partially, differences in the availability of EDs reflect differences in the general availability of acute care hospitals in these countries. Consequently, the proportion of hospitals with EDs out of all acute care hospitals is relatively similar in Australia, Denmark, France, and England, i.e. between 37% and 45%. In the Netherlands, where the number of acute hospitals is relatively low (0.78 per 100 000), almost 70% of all acute care hospitals have an ED. However, these numbers need to be interpreted in view of the national context, e.g. with Australia being a sparsely populated country; and caution should be applied because of discrepancies in the organisation of care. For example, numbers shown in Table 24 for Australia do not include EDs at private hospitals (because private hospital EDs do not play an important role and because utilisation data for private hospital EDs are unavailable); data shown for England do not include single specialty EDs (because these may be co-located with other EDs and because they provide care only to a very specific group of patients) nor do they include other providers of unscheduled primary care, such as minor injury and walk-in units, which are often included in national A&E (Accident and Emergency) data.

**Table 24 – Availability of emergency departments in Australia, Denmark, England, France, and the Netherlands**

Countries	Total acute care hospital sites in the country**	Acute care hospital sites/100 000 population	Number of hospital sites with ED*	Hospital sites with ED/100 000 population	Proportion of acute care hospital sites with ED	Population***
Australia (2013-14) ^a	728 ^b	3.15	289 ^c	1.25	39.7%	23 125 868
Denmark (2013)	49	0.87	22	0.39	44.9%	5 614 932
England (2013)	419	0.78	180 ^d	0.33	43.0%	53 865 800
France (2013) ^e	1592	2.41	655 ^f	0.99	41.1%	65 925 498
The Netherlands (2014)	131	0.78	91 ^g	0.54	69.5%	16 804 432

*Sources: AIHW, 2014; Ricroch, 2015; Regions, 2014; HSCIC, 2015²⁵⁻²⁹; ** Sources: Regions, 2014; HSCIC, 2015; WHO, 2015; AIHW, 2015; Deuning, 2015²⁸⁻³²; *** Sources: World Bank, 2015; ONS, 2014^{33, 34}

Notes: ^a The number for Australia refers to hospital organisations, which are usually established at one site but some may have several sites and sometimes several organisations may be located at the same site; ^b Number refers to acute public hospitals; ^c There are also 23 EDs at private hospitals but they are excluded because do not play an important role ³⁵ and because utilisation data is not available for these EDs; ^d Excludes 28 single specialty EDs (e.g. for ophthalmology or dentistry) because these do not provide general emergency care and might be co-located with other EDs; ^e For France the number of hospital sites is underestimated since for public hospitals only information was available at the level of the hospital; ^f Hospitals with multiple EDs are counted only once; ^g In addition, four hospitals have an ED, which is not open 24/7.

Table 25 summarizes indicators of ED use in the six included countries. There is considerable variation across countries in the number of ED visits per 1000 population, ranging from 124 in the Netherlands to 311 in Australia. However, Australian statistics include also patients who visit the ED for planned follow-up and pre-arranged visits. Possibly as a result of this, Australia has the largest number of ambulatory ED visits and the largest number of emergency inpatient admissions, while the proportion of admitted

patients out of all ED visits is only slightly above numbers in other countries, i.e. 33% in Australia versus 27 to 32% in England, Denmark, and the Netherlands. The Netherlands has the lowest number of emergency inpatient admissions (i.e. 40 per 1000 population). However, the proportion of all ED visits subsequently admitted to the hospital is relatively high (32%) because the number of hospital ED visits is also the lowest of the five countries.

**Table 25 – Indicators of emergency department use in Australia, Denmark, England, France, and the Netherlands**

Countries	Number of hospital ED visits	Hospital ED visits/1000 population	Number of ambulatory ED visits (w/o admission)	Ambulatory ED visits/1000 population	ED visits followed by an inpatient stay	Emergency inpatient stays/1000 population	Emergency inpatient stays/ ED visits
Australia (2013-14) ^{1*}	7 195 903	311	5 069 750	219	2 383 578	103	33.1%
Denmark (2013) ²	875 765	156	624 670	111	251 097	45	28.7%
England (2013-14) ³	14 213 148	264	10 791 930	200	3 792 806	70	26.7%
France (2013) ⁴	18 400 000	279	14 400 000	218	4 000 000	61	21.7%
The Netherlands (2012) ⁵	2 079 172	124	1 413 837	84	665 335	40	32.0%

Sources: 1 AIHW, 2014; AIHW, 2015^{25, 35}; 2 Regions, 2014; Statistics Denmark, 2015^{28, 38}; 3 NHS England, 2015³⁹; 4 Cour des Comptes, 2014⁴⁰; 5 Own calculations based on Berchet, 2015⁴¹ and Gaakeer, 2014⁴²

Note: numbers are different from those reported in Berchet (2015)¹⁹² for Australia, England and France because of various reasons: Australia: the number reported here is more recent (2013 instead of 2012); the number reported for England is lower because it does not include visits to minor injury units or walk-in centres, which are intended to provide primary-care like services and are not comparable with EDs in other countries; the number for France is more recent (2013 instead of 2011); Denmark was not included in Berchet (2015)¹⁹²; the number for the Netherlands is identical.

9.1.3.2 Education of emergency staff

One essential difference concerning the organisation of emergency care across countries is the availability of specifically trained staff dealing with emergency medical care. Table 26 provides an overview about qualifications of emergency staff in the selected countries. In all countries except for Denmark, emergency medicine has been recognized as a medical specialty, and physicians working in EDs should generally have a qualification in emergency medicine or be in the process of obtaining a specialisation title. In Denmark, the introduction of emergency medicine as a medical specialty has been debated since 2007. A recent review of the development of emergency medicine in Europe found that by 2012, more than 60% of all EU countries had recognized emergency medicine as a medical specialty.⁴

Increasingly, countries have a variety of training courses that specifically train nurses or paramedics to take on more important roles in emergency care provision. In Australia and Denmark, post-graduate emergency nursing or acute nursing courses exist and there is training for paramedics. In England, multiple different qualification courses exist for emergency nurse practitioners, emergency care practitioners, and paramedics. In France, there are no special training courses for nurses working in emergency departments but paramedics play an important role in staffing ambulances. In the Netherlands, there are no paramedics and ambulances are staffed with nurses that have a training as an ambulance nurse.

**Table 26 – Qualifications of emergency staff in selected countries**

Countries	Physicians with specialisation in emergency medicine	Nurses with further training in emergency nursing	Paramedics
Australia	Yes	Yes (requirements vary across states)	Yes (requirements vary across states)
Denmark	No – but debates to establish a specialty	Yes (optional)	Yes
England	Yes	Yes (optional)	Yes
France	Yes	No	Yes
The Netherlands	Yes	Yes	No

9.2 Organisation of emergency care services

9.2.1 Framework

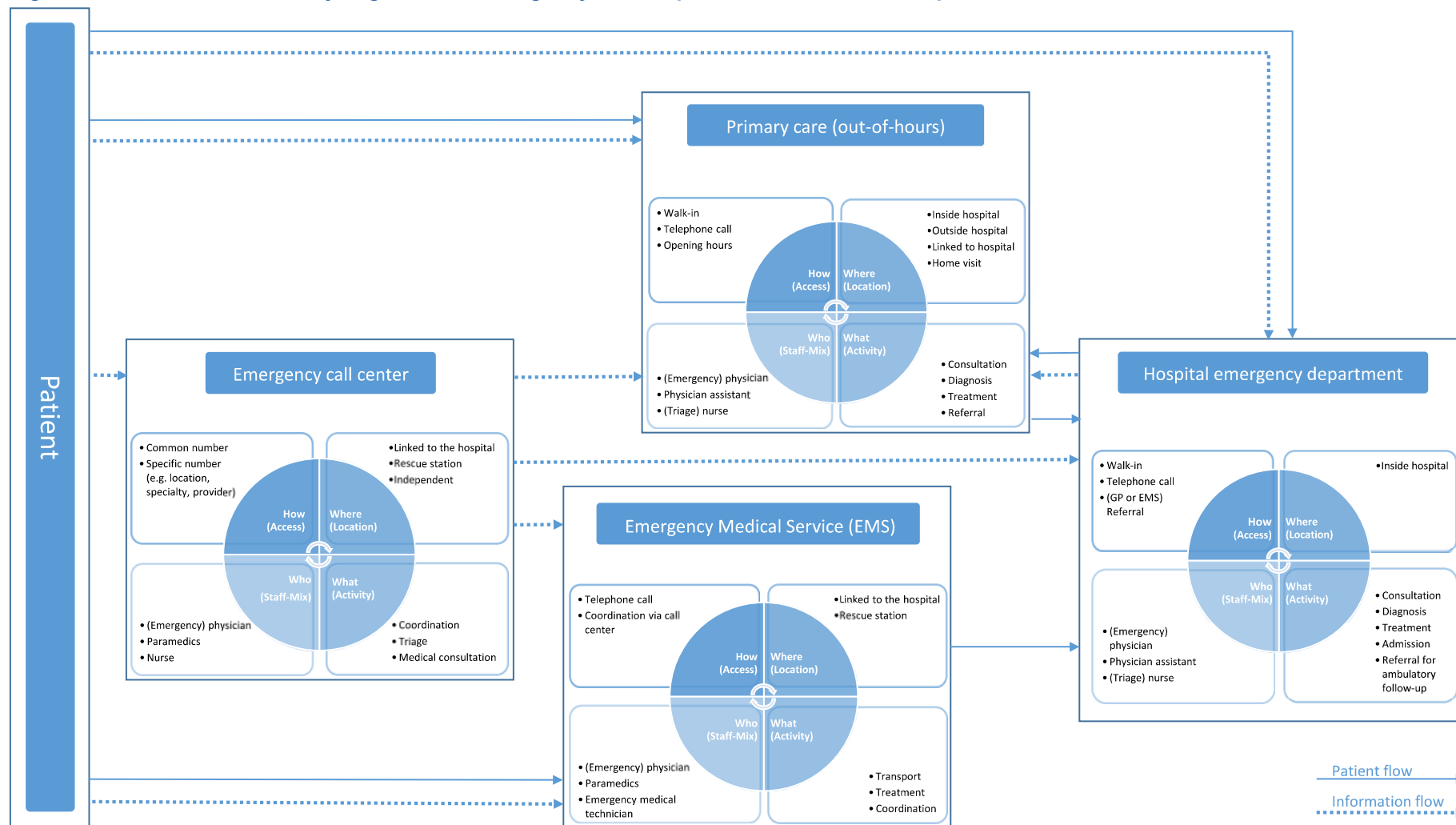
In order to analyse the configuration of emergency care services across countries, it is important to understand the interplay between different providers of emergency care and urgent primary care in a national setting because the boundaries between the two are often blurred. Therefore, we developed a framework to systematically describe different providers of urgent primary care and emergency care and the flow of patients and information through the system. Figure 38 shows that patients in need of urgent or emergency care can contact different providers, which depending

on the country specific organisation may include emergency call centres, primary care (out-of-hours) providers, emergency medical services or hospital emergency departments. The characteristics of each provider can be described by four main dimensions which may differ depending on national/regional or local arrangements:

- Access (How can patients contact the provider?);
- Location (Where is the provider located?);
- Activity (What kind of services are performed?);
- Staff-mix (Who is providing the service/treatment?).



Figure 38 – Framework for analysing different emergency service providers and the flow of patients





9.2.2 Organisation and planning

9.2.2.1 Australia

Context: The healthcare system is highly fragmented, with responsibilities and funding divided between the national, state or territory governments, and private insurance plans. The national government pays fee-for-service for care provided by physicians working in independent private practices (some established near hospitals, facilitating diversion of patients away from EDs) but physicians may charge higher fees to patients, and the difference to the standard fee has to be covered out-of-pocket. State governments pay for hospital inpatient, outpatient, and ED care. Service provision is divided between the public sector (most hospital and emergency medical services) and private sector (private hospitals and ambulatory services). State-based public sector arrangements for emergency services may vary by location of the service (metropolitan, regional cities, rural and remote).

Planning: Each state health department plans hospitals for the state, and as part of this also determines the allocation of EDs. There are no formal criteria for the allocation of EDs and decisions are influenced by local politics. Nevertheless, underpopulated areas usually do not get a fully staffed 24h ED. There is no formal planning of primary out-of-hours care, and consequently there is little coordination between emergency and primary care. Some public hospitals have created general practice annexes to their emergency departments in order to better coordinate the provision of primary care and ED care, and to make sure that patients are treated in the most appropriate setting. However, this is often viewed as cost-shifting away from state budgets (responsible for covering hospital care) to the federal budget (responsible for covering ambulatory care). Small rural hospitals without EDs may have on-call doctors or other arrangements to provide emergency services.

ED Requirements: There are no legal requirements for the operation of EDs. However, requirements exist at the state level to qualify for public subsidies or private insurance coverage. The Australasian College of Emergency Medicine (ACEM) issues minimum requirements for facilities to be designated as EDs for training purposes, which demand that EDs must (1) operate structurally and functionally within hospitals, have (2) 24h nursing staff and a Nurse Unit Manager, (3) daily rostered medical staff and 24/7 access to emergency specialists medical staff or be part of an

Emergency Medicine Network, (4) a dedicated facility to manage emergencies, (5) a dedicated resuscitation area, (6) 24h access to blood products, laboratory facilities, radiology services, specialty care or advice, and retrieval services.¹⁹⁸ Additional requirements concerning the availability of clinical support services (e.g. intensive care, surgical and medical subspecialties, paediatrics) apply for higher levels of EDs (levels 1 to 4, see Table 26). The Independent Hospital Pricing Authority has also issued definitions for six different levels of EDs for funding purposes²¹⁴, but not all of these levels would be considered EDs under ACEM criteria.

Provision of care and patient pathway: Table 26 provides an overview of different care providers available for patients feeling in need of urgent and emergency medical care in Australia. There is a national phone health advice line, which has the primary objective of helping patients to manage their conditions at home, but nurses and general practitioners (GPs) on call will also advise patients if they should wait and visit their GP the next day, call a GP home visit (locum) provider, visit a 24hr clinic, or if they should visit the closest ED in case of emergency care needs. In general, patients may seek care at the provider that is most convenient for them. Patients who place a high value on their time (not having to wait for care at the ED), and those who can afford to pay (or have voluntary health insurance), choose private hospital emergency departments or GP out-of-hours care with multiple fee-for-service charges for associated diagnostic services. Patients who cannot afford (or do not want) to pay co-payments and who value the convenience of having all services available at the ED (consultations, imaging and lab; interpreters for patients with little or no English) choose to attend at the ED.

Challenges and reforms: The most important challenges for EDs are long waiting times, limited inpatient capacity blocking transfer of ED patients to the ward, and shortage of emergency specialists in rural areas. In 2011, a National Emergency Access Target was agreed, setting a goal of 90% of patients leaving the ED within 4 hours of presentation. By 2013, substantial waiting time reductions had been achieved but only 44% of major metropolitan hospitals and only 16% of major regional hospitals had met the target.²¹⁵ Many EDs have problems admitting patients because of limited capacity in wards, which is called 'access block'.²¹⁶ This has sometimes led to EDs being closed for ambulances (i.e. ambulance diversion), which then need to transport patients to another ED, although this practice has been in



Victoria prohibited since the end of 2015. There has not been a national or regional strategy against these problems but states and hospitals have responded in different ways. Some EDs have established assessment and planning beds in units adjacent to the ED to be able to formally discharge

patients from the ED. Some GP-type 24h clinics have been established to divert low-acuity patients to these facilities, which are institutionally separated (with separate premises and different staff) but located adjacent to the hospital.

Table 27 – Emergency and primary care in Australia

Service		How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
Primary care (out-of-hours)	24 hr clinics	<ul style="list-style-type: none"> walk-in 	<ul style="list-style-type: none"> outside hospital linked to hospital 	<ul style="list-style-type: none"> primary care referral 	<ul style="list-style-type: none"> GP nurse
	locum (home visit) services	<ul style="list-style-type: none"> call (various numbers of locum services) 	<ul style="list-style-type: none"> home visits by locum services 	<ul style="list-style-type: none"> primary care referral 	<ul style="list-style-type: none"> GP
Call centres	primary care/ health advice	<ul style="list-style-type: none"> call 1800 022 222 	<ul style="list-style-type: none"> call centre 	<ul style="list-style-type: none"> general health advice information about locum service connect to emergency call centre 	<ul style="list-style-type: none"> nurse sometimes GPs
	emergency	<ul style="list-style-type: none"> call 000 or 112 	<ul style="list-style-type: none"> call centre 	<ul style="list-style-type: none"> triage for police, fire, ambulance 	<ul style="list-style-type: none"> operator
Emergency medical service		<ul style="list-style-type: none"> through emergency call centre 	<ul style="list-style-type: none"> ambulance station co-located with fire service not hospital linked 	<ul style="list-style-type: none"> emergency care (“scoop and run”) transport coordination 	<ul style="list-style-type: none"> emergency medical technician paramedic (emergency) physician on call
Emergency department (ED)	level 1	<ul style="list-style-type: none"> walk-in ambulance 	<ul style="list-style-type: none"> remote or rural hospital 	<ul style="list-style-type: none"> emergency care (basic primary and secondary assessment) life support and stabilisation primary care planned follow-up care pre-arranged inpatient admission services 	<ul style="list-style-type: none"> access to emergency specialist through Emergency Medicine Network physician on call (sometimes GP) physician (in training) triage nurse



Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
level 2	<ul style="list-style-type: none"> walk-in ambulance transfer 	<ul style="list-style-type: none"> secondary hospital with some sub-specialty services 	as level 1 + <ul style="list-style-type: none"> complete range of primary emergency care response to local major incidents 	as level 1 + <ul style="list-style-type: none"> emergency specialist nurse manager access to social work, pharmacist, physiotherapists etc.
level 3	<ul style="list-style-type: none"> walk-in ambulance transfer 	<ul style="list-style-type: none"> major regional, metropolitan or urban hospital 	as level 2 + <ul style="list-style-type: none"> provide support to other EDs through Emergency Medicine Network 	as level 2 + <ul style="list-style-type: none"> a Director of Emergency Medicine Training Advanced Skills Clinical Nurses Social worker
level 4	<ul style="list-style-type: none"> walk-in ambulance transfer 	<ul style="list-style-type: none"> tertiary or major referral hospital 	as level 3 + <ul style="list-style-type: none"> trauma services provide tertiary level support to other EDs 	as level 3 + <ul style="list-style-type: none"> 24h Emergency Medicine trainees (physicians) Pharmacist, physiotherapist, discharge planner etc. dedicated to the ED

9.2.2.2 Denmark

Context: The Danish public and tax-funded NHS offers equal access to health care for all citizens. The health system is mainly organised and steered by the five regions but system coherence is assured by The National Board of Health (NBH) (Sundhedsstyrelsen), which determines national regulations and standards, and monitors developments in the regions. The regions receive an annual budget from the central government and have the responsibility for health service provision and payment of hospitals, GPs and emergency services. Ambulatory specialist services are mostly provided within hospitals whereas GPs are self-employed entrepreneurs outside of hospitals.

Planning: The NBH determines the national specialty plan, which defines the hospitals that are allowed to provide specific specialized services,

including emergency services at EDs, and it monitors regional plan. The regions are responsible for planning and organising emergency care services and coordinating care across providers, including hospitals, GPs (both within and outside normal working hours) and ambulance services. The overall number and location of EDs (known as joint acute wards, JAWs, or “Fælles akutmodtagelser” in Denmark) is determined by the national specialty plan. The original plan for the establishment of JAWs was made developed by NBH in 2007²¹⁷, which specified that a JAW should cover a catchment area of about 200 000-400 000 citizens. In 2015, there were 22 JAWs, of which 13 had a catchment area of between 200-400 000 citizens, while 4 had a catchment area of more than 400 000 and 4 with less than 200 000. The latter are in remote areas or on islands and cannot hold the same number of specialties on duty available and therefore cooperate with other hospitals. Increasingly the regions (e.g. Capital Region) have tried to



coordinate and integrate hospitals' JAW and the provision of primary health care outside normal working hours.

ED Requirements: JAWs have to meet specific personnel and technical requirements which have been defined by the NBH including: 24 hours availability of specialists in internal medicine (with cardiology expertise), general and trauma surgery, anaesthesiology, radiology (on-call within 30 min) and clinical chemistry (on-call) as well as CT and MRI scanners, clinical laboratory, blood preservation and trauma centre. JAWs usually have own bed capacities and patients can stay up to 48 within a JAW before being referred to a specific ward or discharged.²¹⁸

Provision of care and patient pathway: Table 28 provides an overview of different care providers available for patients feeling in need of urgent and emergency medical care in Denmark. When in need of an ambulance, patients should call the emergency call centre. In all other cases, patients should always call their out-of-hours service centre for medical advice. They can then access the out-of-hours service centre, which is often located at the local hospital but organisationally independent, or arrange a home visit by a mobile GP. Access to EDs has been restricted in all regions since April 2014 to patients arriving by ambulance or having a referral. Walk-in patients always need a referral from their GP or a registration via the emergency call

centre in order to be able to access the ED. In addition, patients have the option to directly access a hospital-based nurse-led clinic. These clinics exist at 26 hospitals – often those hospitals, where a previously existing ED was closed. There are no user charges for emergency care, neither at hospitals nor at GPs (day time and out-of-hours).

Challenges and reforms: Since the mid-2000s, the hospital landscape of Denmark was overhauled by reducing the overall number of hospitals and centralizing ED services in a limited number of JAWs. The number of JAWs was reduced from 57 to 22 (with the aim of further reducing this number to 21), which has led to a considerable increase in travel distances to the next ED (on average 60 km) and an increasing importance of the EMS. In addition, access to EDs was reformed and restricted. Traditionally, GPs have self-organised out-of-hours services in a given geographical, rotating within out-of-hours service centres, but increasingly regions are taking over the organisation of primary-care out-of-hours services with the aim of better coordinating primary out-of-hours care and emergency care. Considerable investments have been made into the development of electronic medical records (EMR). Hospitals use a common system of EMR in the entire country, and it is possible to access and share EMRs across hospitals; but hospitals do not yet have access to data entered by GPs.



Table 28 – Emergency and primary care in Denmark

Service		How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
Primary care (out-of-hours)	out-of-hours service centres (46 locations)	<ul style="list-style-type: none"> walk-in (after prior contact with call centre) 	<ul style="list-style-type: none"> often at local hospital but organisationally independent of hospital 	<ul style="list-style-type: none"> primary care referral to ED/other providers arrange transport arrange appointments 	<ul style="list-style-type: none"> GPs GPs in training nurses
	home-visit service	<ul style="list-style-type: none"> call (through primary care call centre) 	<ul style="list-style-type: none"> home visits by GP based at out-of-hours service centre 	<ul style="list-style-type: none"> primary care referral to ED 	<ul style="list-style-type: none"> GPs
Call centres	primary care	<ul style="list-style-type: none"> call 1813 (in Capital Region) various numbers in other regions 	<ul style="list-style-type: none"> at local out-of-hours service centre 	<ul style="list-style-type: none"> give medical advice connect to out-of-hours service centre/home visit service 	<ul style="list-style-type: none"> GPs nurses
	emergency centre	<ul style="list-style-type: none"> call 112 	<ul style="list-style-type: none"> at local out-of-hours service centre or at hospitals (depending on region) 	<ul style="list-style-type: none"> coordination of rescue activities pre-triage 	<ul style="list-style-type: none"> nurses paramedics GPs
Emergency medical service		<ul style="list-style-type: none"> through emergency call centre 	<ul style="list-style-type: none"> ambulance station co-located with fire service not hospital linked 	<ul style="list-style-type: none"> emergency care transport coordination 	basic life support: <ul style="list-style-type: none"> emergency medical technicians advanced life support <ul style="list-style-type: none"> (emergency) physician in some areas: GPs ambulance assistants paramedics
Emergency department (ED)	Joint emergency ward (JAW)	<ul style="list-style-type: none"> referral from general practitioner (GP) or private specialist referral from emergency call centre by ambulance restricted walk-in 	<ul style="list-style-type: none"> at 22 hospitals throughout the country based on catchment area criteria 	<ul style="list-style-type: none"> manage complete range of emergency presentations response to local major incidents 	<ul style="list-style-type: none"> nurses doctors consultants within medical specialties



Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
Nurse-led clinics	<ul style="list-style-type: none"> walk-in (daytime) no referral 	<ul style="list-style-type: none"> at 26 hospitals (often where previously existing EDs were closed) 	<ul style="list-style-type: none"> emergency care (basic primary and secondary assessment) life support and stabilisation prior to retrieval treatment of minor health conditions and small injuries 	<ul style="list-style-type: none"> specialized trained nurses

DaR: The Danish Association of Regions (developed the DaR-Triage model); DEPT: Danish Emergency Process Triage⁹⁹

9.2.2.3 England

Context: The English public and tax-funded NHS offers equal access to health care for all citizens. NHS England is responsible for managing the NHS budget and oversees local Clinical Commissioning Groups (CCGs), which are groups of GPs working in a geographical area. CCGs manage about 60% of the NHS budget and they are responsible for the planning and purchasing of local healthcare services, including specialist inpatient and outpatient services as well as urgent and emergency care for the NHS. Primary care services are provided by general practitioners who are mostly (66%) private entrepreneurs, while specialist ambulatory care is mostly provided by specialists employed in hospital outpatient departments. NHS inpatient services are mostly provided by public hospitals, although the share of hospital spending on private hospitals services (3.6% in 2012-13) has increased over time.

Planning: As part of the commissioning tasks, the 212 CCGs are responsible for the planning and purchasing of urgent and emergency care, including primary out-of-hours care, ambulance services, and ED services. There are no national planning criteria for urgent and emergency care but NHS England provides guidance to CCGs, e.g. concerning integrated urgent care²¹⁹ or ambulance services²²⁰. Local CCGs are supported by regional

strategic clinical networks (12 for England), which focus on particular diseases (e.g. cardiovascular diseases or mental health). Strategic clinical networks make recommendations on care coordination and concentration. Until 2013, when Strategic Health Authorities (SHAs) were abolished, SHAs played an important role in some regions for the reconfiguration and concentration of care. Furthermore, specialised services, such as major trauma services provided by major trauma centres are purchased directly by NHS England. Planning of different providers is coordinated locally. Finally, as part of the ongoing Urgent and Emergency Care Review,²²¹ Urgent and Emergency Care Networks have been established in 2015 to promote coordination and coherence in the provision of urgent and emergency care services.²²¹

Requirements: EDs are defined as consultant-led 24 hour entities with full resuscitation facilities and designated accommodation for the reception of accident and emergency patients. Specialist hospitals (e.g. for cardiology or oncology) and smaller 'community hospitals' often do not have an emergency department (in total 180 out of 419 hospitals in the country have an ED). Some hospitals have other types of accident and emergency (A&E) facilities, which are also accessible on a walk-in basis. This includes urgent care centres (UCCs), minor injuries units (MIUs), and walk-in centres

⁹⁹ URL: <http://depatriage.dk/>, 13.10.2015.



(WICs), which can be based at a hospital or in the community (149 across England). These services will typically provide diagnosis and treatment services for minor injuries and illnesses; their exact range of activity is quite variable and there is no standard definition for what differentiates these three types of services.²²² Ambulances are required to reach the most severe patients (according to triage category) within 8 minutes, while longer delays (20 minutes or 60 minutes) are acceptable for less severe cases.

Provision of care and patient pathway: Table 29 provides an overview of different care providers available for patients feeling in need of urgent and emergency medical care in England. In theory, patients should call 111 for non-life-threatening conditions and 999 for life-threatening conditions (in some regions they can also directly call a GP out-of-hours/home visit service). At NHS 111, non-clinical call handlers use a clinical assessment tool called NHS Pathways (triage system) to obtain information and to direct patients to the most appropriate provider: connect patients to a GP telephone advice service, book an appointment at the nearest out-of-hours clinic; or arrange for a home visit. In practice, most patients either call 999 or go directly to an ED. Most EDs can be accessed by walk-in, although hospitals are increasingly installing urgent care centres or other triage services 'in front of' the emergency department, such that patients can only enter the emergency department if referred by a triage nurse or doctor. In

addition, patients may access urgent care centres, minor injuries units, or walk-in centres.

Challenges and reforms: The most important challenges are a complex and fragmented emergency care system, misaligned financial incentives and an increase in waiting times at EDs. The large number of different care providers (GPs, urgent care centres, minor-injury units, walk-in centres, EDs) has created a situation, where patients do not understand the system.²²³ GP out-of-hours services are paid by budgets with little incentives for activity, while A&E providers are paid on the basis of activity (see below), which provides incentives for A&E providers to treat more patients. A new payment model has recently been proposed to overcome these unintended incentives.²²⁴ The increase in waiting time at ED (although more than 90% are still treated within 4 hours) has been explained by different reasons, including increasing numbers of patients and insufficient investments in new facilities and staff.²²⁵ There is an ongoing urgent and emergency care review, suggesting plans for restructuring of emergency care in England.²²³ This includes plans to develop Major Emergency Centres, where highly specialized care will be concentrated, although political pressures have so far delayed implementation. In addition, there are plans to transform ambulance services into mobile urgent treatment services, providing care on the spot instead of transporting patients to hospitals.



Table 29 – Emergency and primary care in England

Service		How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
Primary care	GP home visit service	<ul style="list-style-type: none"> telephone call (local number, in some regions) 	<ul style="list-style-type: none"> patient's home 	<ul style="list-style-type: none"> telephone service home visit urgent primary care triage referral to other services 	<ul style="list-style-type: none"> GPs and other clinical staff to support GPs
	Call centres	NHS health advice number (NHS 111) <ul style="list-style-type: none"> call 1111 	n.s.	<ul style="list-style-type: none"> clinical assessment (triage) transfer call to GP coordination of primary-care out-of-hours services (home visits, appointments) 	<ul style="list-style-type: none"> non-clinical call handlers advisors
	Emergency centre	<ul style="list-style-type: none"> call 999 	n.s.		<ul style="list-style-type: none"> ambulance paramedics
Emergency medical service		<ul style="list-style-type: none"> telephone call 	<ul style="list-style-type: none"> at hospital 'ambulance station' 	<ul style="list-style-type: none"> rapid diagnostic transport treatment 	ambulance: <ul style="list-style-type: none"> paramedics 'rapid response vehicle': <ul style="list-style-type: none"> emergency care practitioners
A&E department	Emergency department	<ul style="list-style-type: none"> walk-in (a few with triage service) by ambulance (from home or other A&E providers) referral (from other A&E departments) 	<ul style="list-style-type: none"> at hospital 	<ul style="list-style-type: none"> consultation diagnosis treatment triage 	<ul style="list-style-type: none"> emergency medicine specialist physicians in training nurses
	Others	Urgent care centre	<ul style="list-style-type: none"> walk-in by ambulance 	<ul style="list-style-type: none"> located at hospital 	<ul style="list-style-type: none"> urgent primary care treatment for minor ailments and injuries with access to the full services of the hospital



Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
		<ul style="list-style-type: none"> located away from hospital 	<ul style="list-style-type: none"> urgent primary care treatment for minor ailments and injuries acting as a 'mini-ED' 	<ul style="list-style-type: none"> nurse GP emergency nurse consultant non-clinical advisor
Minor injuries unit	<ul style="list-style-type: none"> walk-in 	<ul style="list-style-type: none"> at hospital or in community 	<ul style="list-style-type: none"> urgent primary care treatment for less serious injuries than would be treated at an urgent care centre 	<ul style="list-style-type: none"> specialised trained nurses, e.g. emergency nurse practitioners
Walk-in centre	<ul style="list-style-type: none"> walk-in no appointment no registration 	<ul style="list-style-type: none"> at hospital or in community 	<ul style="list-style-type: none"> urgent primary care routine primary care treatment for minor ailments and injuries 	<ul style="list-style-type: none"> nurse GP emergency nurse consultant non-clinical advisor

9.2.2.4 France

Context: Almost the entire population is covered by Social Health Insurance (SHI), which pays for about 70% of the costs of ambulatory treatment and 80% of inpatient treatment, with the remainder usually financed by complementary voluntary health insurance covering almost 95% of the population. Most ambulatory physicians are independent private providers, while most hospitals are predominantly public or private non-profit-making, but 25% of inpatient beds are in private for-profit making facilities.

Planning: Since February 2013, Regional Health Authorities (RHAs) are responsible for planning of both, out-of-hours primary care (“permanence des soins ambulatoire”) and EDs. For out-of-hours primary care, RHAs usually have agreements with the local branch of the representative body of doctors (Conseil Départemental de l’Ordre des Médecins), which is responsible for making a timetable (“tableau des gardes”) of physicians voluntarily participating in out-of-hours care. ED planning is part of the general hospital planning and authorization process carried out by RHAs. Hospitals have to apply for an authorization to operate an ED and RHAs will check if they fulfil the requirements (see below). RHAs are also responsible

for making regional health plans to coordinate emergency care provision across providers but often coordination is relatively weak. According to plans of RHA, EDs should generally be accessible within a maximum of half an hour (from patients’ home to hospital by car/emergency transport), although median distance of cases that require emergency medical care is around 8-12 km. The Ministry of Health collects regional emergency care plans and ensures the national coherence between regional plans.

ED Requirements: Minimum requirements concerning human and technical resources of EDs are defined by two related regulations (Décret no 2006-576 and 2006-577^{226, 227}), which demand that EDs must: (1) operate in a facility with inpatient beds in internal medicine, (2) have sufficient numbers of physicians (emergency specialists), nursing staff, and other support staff, (3) have access to surgical services, medical imaging, laboratory services (either within their own structures or through contract with other facilities), (4) a dedicated emergency examination and treatment room, (5) a dedicated resuscitation area, (6) at least two short-stay beds, (7) treat a minimum threshold of patients, which has been set at 8000 visits per year. If hospitals do not fulfil the threshold, they have to create an association with another hospital (Groupement Hospitalier de Territoire),



where they share common functions (management, logistics). Specialized EDs exist for pediatric, geriatric, and psychiatric emergencies. These EDs are required to have specialists of the respective specialty available in order to be able to care for these patients.

Provision of care and patient pathway:

Table 30 provides an overview of different care providers available for patients feeling in need of urgent and emergency medical care in France. In 70 of 95 départements, patients should in general always call the number 15, where a call handler based at the ED of the local hospital will answer the phone. The call handler (or an emergency physician if needed) will usually have information on the local availability of out-of-hours primary care providers and of beds in hospitals (computer based "Répertoire Opérationnel des Ressources"). The operator will take one of the following actions: (1) advise the patient to visit a GP on the next day, (2) transfer the call to the home visit service organized by the local network of GPs (or to SOS Médecins in urban and suburban areas), (3) advise the patient to visit the local ED, or (4) send an ambulance. Patients are free to visit EDs and they often do so for reasons that do not require urgent diagnostic or treatment (representing about 20% of ED visits in 2013).²¹²

Challenges and reforms: The most important challenges are increasing numbers of ED visits, a shortage of emergency specialists, and the

unintended incentive of the current payment system rewarding increases in ED activity. The number of ED visits increased by 30% between 2002 and 2012,²¹² creating considerable pressure in the system. Nevertheless, waiting times at EDs remain relatively low, i.e. 80% of patients spend less than 4 hours at the ED and 50% less than 2 hours,²²⁸ and better availability and faster access to care are reported to be the main reasons why patients chose to visit EDs. Staff shortage in emergency medicine is seen to be an important problem, in particular in small and medium sized hospitals. Incentives of the current payment system (see below) are regarded to be problematic²¹² and the Ministry of Health announced in 2014 that the payment system should be reformed by 2016.²²⁹ There have been delays with the payment reform and details remain unavailable. However, the reform is likely to change the payment system for EDs with little activity to a budget system and provide additional funds for IT and telemedicine. Reforms of the past years have focused on increasing availability of primary out-of-hours care by improving remuneration of physicians for these services and opening after-hours health centres as well as improving coordination with EDs by linking the emergency call centre (number 15) with the GP home visit service.²³⁰

Table 30 – Emergency and primary care in France

Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)	
Primary care (out of hours)	Out-of-hours health centres (maison médicales de garde)	<ul style="list-style-type: none"> walk-in referred by emergency call centre weekends (day time) sometimes weekdays (evenings) 	<ul style="list-style-type: none"> mostly in (peri-)urban areas outside hospital linked to hospital a total of 369 in France 	<ul style="list-style-type: none"> primary care telephone service (give advice, answer questions) minor surgery 	<ul style="list-style-type: none"> GP paramedical staff (nurses) call handlers secretaries
	Home visit service (SOS Médecins or local GP network)	<ul style="list-style-type: none"> Call 3624 (SOS Médecins) or local council number 	<ul style="list-style-type: none"> SOS Médecins - mostly in urban and suburban areas local network of GPs – mostly in rural areas 	<ul style="list-style-type: none"> home visit 24/7 telephone service (give advice, answer questions) primary care 	<ul style="list-style-type: none"> GPs Call handler at call centre



Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)	
	<ul style="list-style-type: none"> through emergency call centre 		<ul style="list-style-type: none"> minor surgery 		
(Emergency) call centre	<ul style="list-style-type: none"> Call 15 or 112 	<ul style="list-style-type: none"> within ED inside hospital about 3-4 per département 	<ul style="list-style-type: none"> advice and triage service transfer call to home visit service (in 70 of 95 départements) send ambulance (different types adapted to the situation) coordination (software indicates which GP is on call, which beds are available in local hospitals) 	<ul style="list-style-type: none"> call handlers (medical secretary qualification) emergency physician 	
Emergency medical service	Service d'Aide Médicale d'Urgence (SAMU)	<ul style="list-style-type: none"> through emergency call centre 	<ul style="list-style-type: none"> within ED inside hospital at ambulance station (organizationally linked to hospital but at a different location) 	<ul style="list-style-type: none"> emergency care ("stay and play") transport 	<ul style="list-style-type: none"> paramedic emergency physician (if needed)
	Fire fighters	<ul style="list-style-type: none"> through emergency call centre 	<ul style="list-style-type: none"> fire station 	<ul style="list-style-type: none"> first aid 	<ul style="list-style-type: none"> firemen
Emergency department (ED)	General emergencies	<ul style="list-style-type: none"> walk-in ambulance 	<ul style="list-style-type: none"> located within hospital (public and a minority of private) 	<ul style="list-style-type: none"> primary care emergency care there is no explicit definition of the activities that have to be performed by EDs 	<ul style="list-style-type: none"> emergency specialist (or physician with 3 years experience in emergency medicine) physician (in training) (triage) nurse social worker secretarial staff
	Paediatric emergencies				<ul style="list-style-type: none"> Specialists in paediatrics, geriatrics, psychiatry
	Psychiatric emergencies				



9.2.2.5 The Netherlands

Context: Since 2006 all Dutch citizens are obliged to purchase statutory health insurance from private health insurances. The insurance market is regulated by public law (managed competition among insurances) and dominated by four companies out of which one operates under a for-profit scheme. Health insurances are legally mandated to provide a standard benefits package (e.g. covering medical care, medical aids and devices, prescription drugs, maternity care, ambulance and patient transport services) and to purchase respective health services from providers. The system is financed by three separate streams: First each insured pays an annual community-rated premium (about € 1100). Second, there is a nationally defined income-related contribution of 7.75 percent of annual taxable income up to € 51 414 (data for 2014). Third there are tax subsidies to low-income households and for children.

Planning of emergency care: In general, there is since 2007 no central planning of hospital capacity but providers are required to assure the availability of emergency care within their region (Care Providers Licensing Act). However, there are 11 trauma centres, providing specialized emergency care and those hospitals running a trauma centre are chairing the ROAZ ('regionaal overleg acute zorg', the regional emergency care consultative bodies) which are responsible for:

1. Ensuring emergency care access in the region, which means that ED should be within 45 minutes travel time, including the time from first call to delivery at ED (this is assured for 99.8% of the Dutch population)²⁰¹;
2. Training and preparing hospitals and ambulance services for large scale accidents and catastrophes;
3. Preparing protocols in order to direct patients to the appropriate facilities depending on their health status.

GPs are required to provide 24/7 care and therefore responsible for out-of-hours primary care. Since early 2000s most GPs associate themselves in regional Primary Care Centres (PCCs), which have dedicated facilities and support staff, instead of working on the basis of local rotation agreements (see Box 18).

ED Requirements: There are several legal requirements, which have to be met by hospitals to run an ED. However, these requirements do not determine the number of staff, level of qualification or equipment. On

emergency departments in hospitals qualified physicians (specialists) must be available or on stand-by. Traditionally, most ED services are delivered by surgeons or intensive care specialists. In some hospitals, the ED is operated by medical assistants and/or specialists in training, with experienced staff available on call. There is a tendency to have an emergency care specialist on duty at all times, but in smaller EDs this is not always feasible.

Provision of care and patient pathway: A patient feeling in need of urgent and emergency medical attention has different options (see Table 31): He can call the national emergency number, answered by the ambulance dispatch centre (ADC), phone the primary care centre (PCC) and subsequently visit the PCC, or visit the ED on their own initiative. Patients are encouraged to primarily catch up with their GP (i.e. where they are registered as a patient), or the respective PCC for out-of-hours care. There is no deductible/co-payment when visiting a GP/PCC. For all visits to an ED or use of ambulances patients are faced with co-payments (up to the deductible, which was between € 375 and € 875 in 2015). Hospital care without referral from a GP is not covered by the health insurance, unless it is an emergency. PCCs are increasingly located near a hospital ED and patients with less severe problems will be treated by the PCC. However, 10% of PCCs are not open 24/7. In fact, at 71 hospitals (out of 91 hospitals with a 24/7 ED), there is a PCC located on the hospital grounds and 31 PCCs are collaborating very closely with EDs, having agreements on patient flows and various aspects of diagnostics and treatment (see Box 18).²⁰¹

Challenges and reforms: Following an agreement to limit the growth of expenditure on hospitals, health insurers agreed to concentrate emergency departments and reduce the number of locations. This was part of a movement to reduce hospital capacity nationwide. The insurers' initiative was faced by resistance of hospital organizations (although the national hospital association (NVZ) party supported the agreement). The competition authority disagreed with the insurers' plans and the reform has stalled. There is a tendency to intensify coordination between PCC and ED. Increasingly, PCCs are located near or in hospitals (57% and 69% of PCCs nearby or within ED or hospital, respectively). This aims to reduce the number of inappropriate self-referrals. Often agreements exist between PCCs and ED concerning diagnostics and treatment but the use of common triage protocols remains relatively rare (i.e. in 13 centres).²³¹



Table 31 – Emergency and primary care: Netherlands

Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)	
Primary care (out of hours)	Primary Care Centres (PCC) (122 locations)	<ul style="list-style-type: none"> walk-in call 	<ul style="list-style-type: none"> nearby or within hospitals (57% and 69% of PCCs nearby or within ED or hospital, respectively) independent from hospital if within hospitals, then coordinated activities (e.g. triage) 	<ul style="list-style-type: none"> daily basic urgent primary care between 18.00 and 08.00, on weekends and bank holidays referrals to ED prescriptions 	<ul style="list-style-type: none"> GPs nurses supporting staff
	Home-visit service	<ul style="list-style-type: none"> call respective PCC 	<ul style="list-style-type: none"> see above 	<ul style="list-style-type: none"> home visit telephone advise 	<ul style="list-style-type: none"> GPs
Emergency call centre	<ul style="list-style-type: none"> call 112 	<ul style="list-style-type: none"> usually share facilities with fire and police call centres 21 locations 	<ul style="list-style-type: none"> basic triage 	<ul style="list-style-type: none"> nurses (at almost all call centres) call handlers 	
Emergency medical service	<ul style="list-style-type: none"> via emergency call centre 	<ul style="list-style-type: none"> ambulance station sometimes nearby hospitals 	<ul style="list-style-type: none"> medical treatment transport to the nearest hospital 	<ul style="list-style-type: none"> nurses with specialized training 	
Emergency department (ED)	Emergency departments (n=95)	<ul style="list-style-type: none"> walk in referral by GP/PCC, by ambulance 	<ul style="list-style-type: none"> most hospitals have an ED not all offer 24/7 service (91 out of 95) 	<ul style="list-style-type: none"> basic and advanced emergency care 24/7 open: n=91 24/7 obstetric care: n=84 	<ul style="list-style-type: none"> specialists (traditionally surgeons and intensive care specialists) specialists in training medical assistants
	Out of these: Trauma centres			<ul style="list-style-type: none"> providing specialized emergency care in case of severe trauma 	



Service	How (Access)	Where (Location)	What (Activity)	Who (Staff-Mix)
	(n=11)		<ul style="list-style-type: none"> coordinating the regional accessibility of emergency departments 	

9.3 Payment of emergency care services

9.3.1 Framework

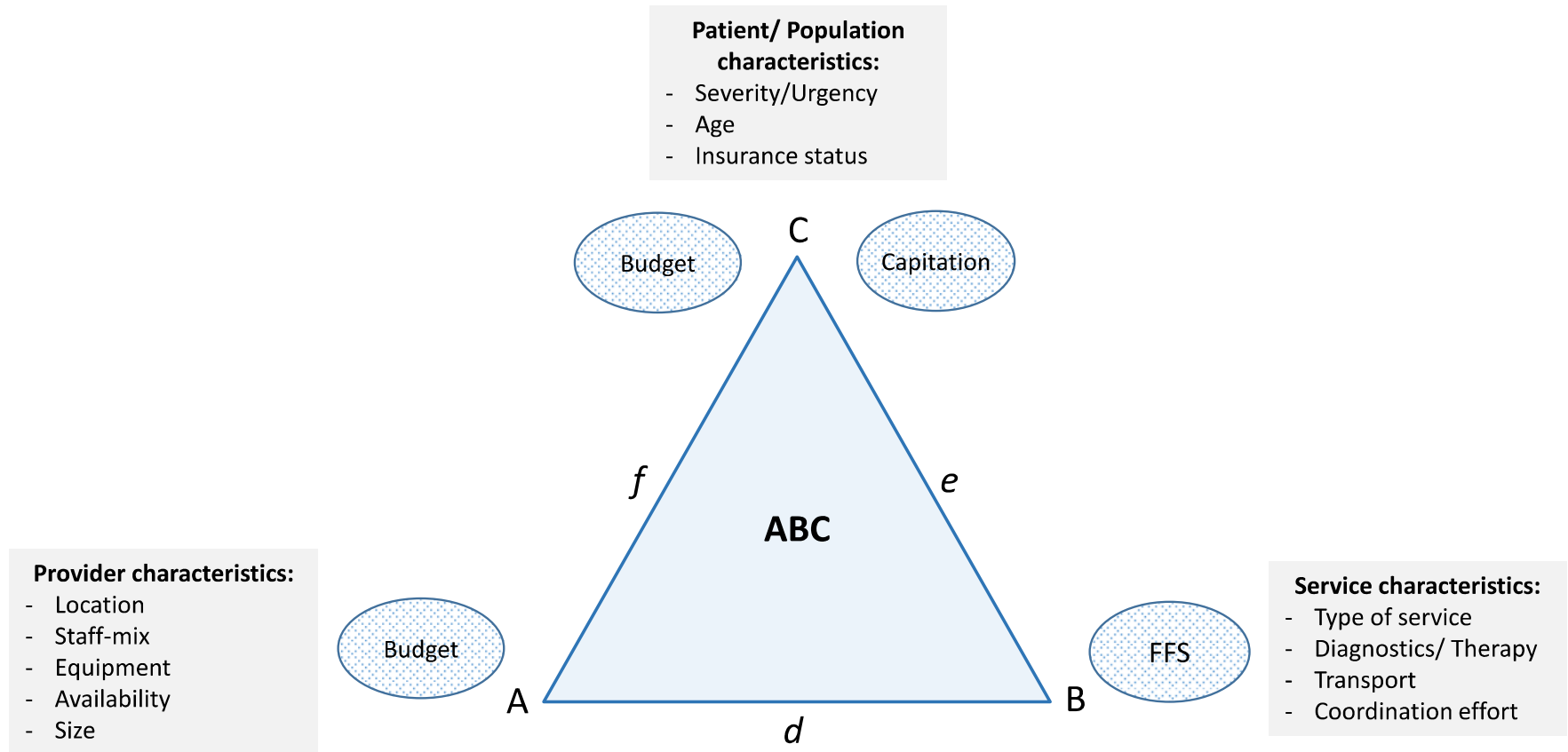
Providers engaged in emergency care can be paid on the basis of different payment mechanisms. In addition, payment systems for EDs or urgent primary care providers in a given country often include a variety of different payment mechanisms. Each payment mechanism has different incentives depending on the type of information that is used to determine payment. Figure 39 illustrates that payment mechanisms can, in theory, be based either on information about provider (A), service (B) and/or patient/population characteristics (C). For example ED budgets may depend on provider characteristics such as: size, location, staff-mix, equipment or 24-hour availability. Alternatively, service characteristics can be taken into account especially if payments for providers are based on fee-for-service

(FFS). Moreover, the population and patient characteristics may influence provider payment, e.g. if ED budgets are adjusted depending on the characteristics of the catchment population or depending on severity or urgency of treated patients.

In practice, payment mechanisms often combine different types of information to determine payment. For example, FFS payments may be adjusted for staff-mix or availability (d). ED budgets could be based on population size and services delivered (e); or they could be based on population size and availability of staff and equipment (f). Finally, payment systems combining all types of information are conceivable, where budgets are determined on the basis of provider, patient and service characteristics (ABC).



Figure 39 – Framework for analysing provider payment mechanisms





9.3.2 Payment of Providers

9.3.2.1 Overview

For patients admitted via the ED, countries may have separate payment streams for (1) the reimbursement of treatment in the ED and (2) the reimbursement of inpatient treatment. For example, in England, hospitals receive one payment for all patients treated in the ED and a second payment if the patient is subsequently admitted for inpatient treatment. The idea of this approach is to make reimbursement of EDs independent of whether the patient is admitted or not, and to make sure that the ED has a separate and identifiable funding stream. However, having two different payment streams (one for EDs and one for inpatient treatment) can potentially lead to unintended incentives at the interface, e.g. that EDs attempt to transfer patients to the ward as quickly as possible. In Denmark, France, and the Netherlands, emergency patients admitted as inpatients are generally paid for on the basis of the usual inpatient payment system, and there is no separate payment for services provided in the ED. The idea of having only one payment for inpatients admitted via the ED is to provide incentives that encourage an integrated pathway for the entire admission episode spanning treatment in the ED and during the inpatient stay.¹⁹¹

Also for non-admitted patients, the interplay between two payment systems may lead to unintended incentives: (1) the payment system for visits to the ED and (2) the payment system for treatment of patients by urgent primary care providers. Countries included in our survey can be clustered into two main groups with regard to these two payment systems. The first group includes Australia and Denmark, where payment of hospital emergency departments is mostly based on global budgets, which are determined on the basis of provider characteristics. Payments related to activity as measured in terms of number (and types) of patients treated or services provided do not play an important role. In contrast to EDs, primary care providers (including during out-of-hours times) in these countries are paid on the basis of a fee-for-service system, encouraging activity of these providers. The second group of countries includes England and the Netherlands, where payment of hospital emergency departments is strongly related to the activity as measured by the number and types of patients treated. In England, these payments are determined on the basis of a casemix system, distinguishing 11 different types of ED patients; and the

same system applies also to alternative urgent primary care providers, i.e. minor injury units, walk-in centres and urgent care centres. In the Netherlands, payments are determined by the national Diagnosis Related Group (DRG-) system, which includes also outpatient care and does not distinguish between emergency care and other outpatient care provided. In both countries, primary care and out-of-hours providers are paid on the basis of negotiated capitation payments or block contracts.

9.3.2.2 Australia (with a focus on Victoria)

Context: Payment for EDs varies by State, while payment for primary after-hours care is the same in all of Australia. Funding arrangements for EDs are currently in flux because of a change of the national government in late 2013. Previously, it had been planned that hospital funding would shift to a national activity-based funding model. However, now the plan is to increase general budget allocations to States with the aim of enabling States to pay for growth in hospital costs. Nevertheless, most States are in the process of adopting activity-based funding models or changing to the national model.

ED payment: The national payment model completely separates payments for hospital EDs from any related inpatient admissions. The hospital receives a payment for each patient entering the ED, which is related to the Urgency Related Group (URG) of the patient. In addition, if the patient is admitted, the hospital receives an Australian-Refined (AR-) DRG-based payment. States are not obliged to follow the national approach to ED funding on the basis of URGs, but most states have adopted some variant of the national approach. In Victoria, for patients admitted as inpatients, there is no separate payment to the ED. Instead, costs of treatment in the ED for inpatients admitted to a ward are included in the inpatient AR-DRG-based payment. For all ED patients that are not admitted to the hospital, Victoria has a budget for non-admitted ED care that is distributed to hospitals on the basis of two criteria: 80% of the budget is distributed to hospitals to cover 80% of their reported fixed costs of the ED for non-admitted care (salaries and hotel goods/services). In addition, 20% of the state ED budget is distributed to each hospital on the basis of its proportion of ED visits out of all ED visits in the state.²³²

The URG system defines 73 groups of ED patients on the basis of information on patient disposition (not admitted, admitted, died in episode, left before being seen, etc.), triage category (5 levels of the Australian Triage



Scale, ATS) and the diagnosis. However, the URG system has been heavily criticized because of its strong reliance on triage category for the classification of patients. This is problematic because the triage category has been found to show considerable interpersonal variation and is difficult to verify retrospectively (e.g. during reviews of hospital coding). The Independent Hospital Pricing Authority (IHPA) has recommended to develop a new classification for emergency care in the near future.²³³ Individual states do not necessarily follow the national model.

Primary care out-of-hours services: Payment depends on the national fee-for-service system, i.e. the Commonwealth Medical Benefits Schedule (CMBS). The CMBS specifies for each service item the contribution that Medicare pays for the service, e.g. the CMBS specifies for service item 597 (one of the basic out-of-hours fees) a fee of \$ 129.80, of which Medicare would cover \$ 97.35.²³⁴ The difference between the Medicare payment and total fee value (25% of the costs) have to be covered by patients. However, large GP practices (24h clinics) and large locum services have so-called

bulk-billing arrangements, where they bill Medicare directly and do not levy a user charge on the patient. There are a total of 22 basic service items for 'out-of-hours attendances', depending on the day, the time, the place (at office, nursing home, or other) and whether care is urgent or non-urgent. Physicians can also bill additional service items for diagnostic services or therapeutic interventions.

Payment of physicians: Physicians working in public hospital EDs are paid a salary, which is negotiated at the state level. In areas with staff shortages (e.g. in regional and rural towns), hospitals may offer rates above the negotiated salaries, or will make fee-for-service arrangements. In private hospital EDs, most physicians are independent practitioners who charge patients directly for provided services. Physicians providing out-of-hours primary care are usually salaried employees of large 24h clinics or locum services but they may also be independent GPs providing services to their patients on a fee-for-service basis.



Table 32 – Payment of emergency departments

	Payment for availability (criteria)	Payment per case (criteria)	Payment for services (criteria)
Australia (Victoria, 2015-16), non-admitted care only¹	Yes – accounting for 80% of State budget for non-admitted ED care (equal to 80% of reported ED costs for salaries and hotel goods/services)	Yes – accounting for 20% of State budget for non-admitted ED care (equal to each ED’s proportion of total reported unweighted non-admitted ED visits in Victoria)	None
Denmark	Yes – varies by region (depends on previous years’ budget and availability of staff/equipment)	Yes – varies by region (depends on different activity measures, including a case-mix system)	No (but certain procedures have an impact on casemix measurement)
England	No	Yes – accounting for 100% of ED payment (in ~70% of hospitals) (depends on patient casemix measured by 11 A&E HRGs)	No (but services, i.e. investigations and procedures influence classification into HRGs)
France	Yes – at least € 471 306 (depends on previous year’s activity: € 471 306 for the first 5000 non-admitted ED visit, about € 165 000 for each additional 2500 visits) + (for EDs with little activity) public interest budget (MIGAC)	Yes – € 25.32 per non-admitted ED visit	Yes – fee-for-service for all services (consultation, imaging, lab tests, surgery, nursing, etc.)
The Netherlands	Yes – but only in certain hospitals (e.g. in certain rural hospitals that are necessary to assure service availability but that do not have sufficient activity, in trauma centres, burn centres, and in hospitals that provide helicopter services)	Yes – accounting for almost all revenue (depends on DBC system)	No (but services have an important influence on the classification of patients into DBCs)

¹ Payment for inpatients admitted via EDs is included in inpatient AR-DRG-based payment system.



9.3.2.3 Denmark

Context: Hospital payment systems vary by region. However, in general, hospitals are paid through a combination of global (historic) budgets and activity-based payment, where a certain proportion of the hospital budget (50-70%, depending on the region) is determined by hospitals' activity as measured by Danish (DK)- DRGs for inpatient activity and by the Danish Ambulatory Grouping System (DAGS) for outpatient activity. However, regions may determine if only specific types of activity (e.g. DRGs or DAGS for patients with long waiting lists) are incentivized through activity-based payment. Acute activity is usually not incentivised by payment per case for additional activity. GPs are paid by a mix of capitation and FFS, with capitations accounting for about one third of their income and FFS for about two thirds.²³⁵

ED payment: Hospital EDs are mostly financed by the global budget. The global budgets for hospitals are determined prospectively but in some regions they take into account the development of acute admissions in previous years. In some regions, an activity-related payment exists. This is different for admitted patients, for whom payment follows the same rules as for other (non-emergency) inpatients (also if they are admitted to observation units of the ED), and for patients who visit the ED without being admitted for inpatient treatment. For non-admitted patients, there are multiple different activity related groups available, which are used by some regions to incentivise a change towards more outpatient rather than inpatient activity. This includes normal outpatient activity measures, such as DAGS, procedure groups, same day treatment groups, substitution groups (rewarding ambulatory treatment of care, which would otherwise be admitted), as well as five specific groups for acute activity (emergency) of the DAGS (including trauma, small surgical injuries, small injuries, observation for accidents and poisoning, and non-visits). In 2015, there were five acute activity groups, including trauma, small surgical injury, small injury, non-visits (if a patient left), and observation for accidents and poisoning.

Primary care out-of-hours services: Payment for primary care out-of-hours services differs across regions as it is determined by regional governments. However, in general, services are paid for through a fee-for-service system. This includes a fee for a GP taking a phone call, and another fee for a phone call in combination with a consultation where the patient

comes to the local out-of-hours service centre. Additionally, the FFS system includes fees for additional services provided during the consultation. In Capital Region, GPs answering phone calls are salaried employees.

Payment of physicians: Physicians working in hospitals are salaried employees but their salary level depends on individual negotiations. GPs are generally self-employed and their income is determined by the mixed payment system consisting of capitation and fee-for-service.

9.3.2.4 England

Context: Hospitals are paid according to a national tariff system for inpatient care, outpatient attendances, and visits to accident and emergency departments (known as 'Payment by Results'). The tariff system is based on Healthcare Resource Groups (HRGs) (the English version of DRGs). Patients with similar clinical characteristics and with similar resource needs are classified into HRGs on the basis of diagnoses, investigations, and operations (currently about 1500). Each HRG has an associated tariff, which differs for elective patients and non-elective patients. In 2015, a new payment model was proposed to support coordination and collaboration within the emerging regional Urgent and Emergency Care Networks.²²⁴ The new model proposes a mixed payment system, consisting of three parts: a budget for availability, volume based payments for activity, and payments based on outcomes (measured in terms of service transformation, patient satisfaction or health outcomes). However, it will likely take several years before the new model is implemented.

ED payment: Hospitals receive one HRG-based payment for every patient seen in the ED, and a second HRG-based payment if the patient is subsequently admitted to the hospital. The tariff for accident and emergency departments is relatively simple and consists of only 11 A&E HRGs defined by broad categories of investigations (e.g. X-Ray, CT, MRI, biochemistry, haematology) and treatment (defibrillation, wound closure, burns review). In theory, the A&E HRGs apply to all types of EDs in the country, including also walk-in centres, minor injuries units and urgent care centres but with different payment levels according to the type of ED. At hospital based EDs, tariffs range from £ 235 (HRG VB01Z) to £ 57 (HRG VB11Z) in 2014/15. Minor injury units and urgent care centres are always paid £ 57, independent of the HRG. However, in practice, some A&E departments still have 'block contracts', i.e. they receive a global budget to provide care. A recent report



suggests that 30% of emergency departments are paid by a block contract. Payments for patients admitted via the ED are higher than payments for elective inpatients. However, two payment adjusters are applied to limit the incentive for increasing the number of emergency admissions: First, the marginal rate emergency rule determines that emergency admissions above a certain threshold value in a year receive only 70% of the full HRG-based payment. Second, emergency readmissions within 30 days of previous admission are not paid for if they breach a locally agreed threshold number within a year.

Primary care out-of-hours services: Out-of-hours primary care services, ambulance services, and the telephone services (999 and 111) are commissioned by local Clinical Commissioning Groups (CCGs). GPs can choose whether to provide 24-hour care for their patients or to transfer responsibility for out-of-hours services to the relevant CCGs. Payment mechanisms for out-of-hours services are not standardised (unlike payment of hospitals), and show considerable variability (e.g. block contracts and HRG-based payments).

Payment of physicians: Specialists are typically National Health Service employees paid by salary, which varies according to seniority. However, there are some opportunities to earn extra money by performing additional work; for example, working in private practice (after completing 44 hours in NHS environment). GPs contracted to provide primary care in-hours may be paid extra for doing out-of-hours work.

9.3.2.5 France

Context: Hospital inpatient payment was reformed in 2005, when DRG-based payment was introduced for both public and private hospitals (with a transition period until 2008). Since then, hospitals have to finance their costs through revenues generated through the provision of services. Ambulatory care (provided by physicians or hospitals) is generally remunerated on the basis of a fee-for-service system.

ED payment: The payment system separates payments for admitted patients from payments for non-admitted patients. For admitted patients, hospitals receive only the normal DRG-based payment. For patients who visit the ED without being admitted for inpatient treatment, hospitals receive three different streams of revenue: a budget for emergency availability, a payment per case, and additional payments for services. The annual budget

for emergency availability (FAU) amounts to € 471 306 for hospitals that had less than 5000 non-admitted ED visits in the previous year (i.e. € 95 per case) and increases by about € 165 000 for each additional 2500 visits.²³⁶ In addition, hospitals can bill a basic ED visit fee (ATU) introduced in 2012 of about € 25 per non-admitted patient visit. Furthermore, each service provided at the ED, including consultations by medical doctors, lab tests, x-rays etc. are paid according to the normal ambulatory fee-for-service schedule and specific fees (“majorations”) apply for visits during night-time or weekends.

Primary care out-of-hours services: Primary care out-of-hours services are paid by SHI according to the normal ambulatory fee-for-service schedule, which has specific supplementary fees (“majorations”) for home visits and consultations (at the office) during out-of-hours periods (20h-8h on weekdays, and on weekends and holidays). In addition, SHI pays a basic availability fee for GPs participating in out-of-hours care, which depends on the duration of their availability (see Table 33). Primary care physicians answering calls in call centres receive € R69 per hour.

Payment of physicians: Physicians in EDs of public and private non-profit hospitals are almost always salaried employees. Only in private-for-profit hospitals (less than 20% of EDs), physicians often work as independent professionals and are reimbursed according to the normal fee-for-services schedule. GPs are almost always independent professionals and paid according to the fee-for-service system.

9.3.2.6 The Netherlands

Context: Since 2005 hospital payment is mainly based on a case-mix system called Diagnosis Treatment Combinations (DBC), which covers both inpatient care and outpatient care. The system distinguishes between DBCs with maximum prices (regulated segment) and those with negotiable prices (free segment). For the latter, prices have to be agreed between hospitals and health insurers. Initially, only a small proportion of DBCs was negotiable. After a gradual increase to 34% of the DBCs in 2011, the negotiable share of the DBCs was set to 70% in 2012, when the DBC system was fundamentally revised. The original system contained more than 30,000 different DBCs, whereas the updated system, called DOT (DBC on the way to transparency) contains 4400 different DBCs. In order to limit overall expenditures, the DBC system operates within a system of a national global



budget. Expenditure exceeding the projected level can lead to ex post charges to hospitals. Additionally, individual SHI usually limit their expenses per hospital by stipulating an agreed upon global budget for the annual payments. An individual hospital will generally have various contracts with SHIs.

ED payment: Emergency services are paid according to the general DBC-based payment system, which classifies patients into groups depending on their diagnoses, treatments, care setting (i.e. inpatient or outpatient) and several other variables. For non-admitted patients, the price of a DBCs is independent of whether the patient is seen in the ED or at the outpatient department. For admitted patients, the price is independent of whether or not the patient was admitted via the ED. The majority of prices are the result of negotiations between hospitals and insurance companies. Small and rural hospitals that are essential to assure access to an ED within 45 min but that have insufficient numbers of patients to be economically viable can claim government subsidies to cover part of their fixed costs. The 10 trauma centres, three burns centres, and the four hospitals providing helicopter services receive additional compensation from the government.

Primary care out-of-hours services: In general, GPs are paid through a mix of capitation and FFS. This system was substantially reformed in 2015, when a so called three tier reimbursement scheme was introduced. Tier 1 is basic GP care, which is reimbursed by a negotiated capitation for every registered patient. Tier 2 consists of payments for several forms of multidisciplinary care, such as COPD, diabetes care etc. Tier 3 allows contracting of other services or to pay bonuses if specific targets are met, e.g. fewer referrals, lower rates of drug prescriptions, taking over care from hospitals etc. PCCs are paid under a budget system, where they receive a capitated amount for the number of inhabitants living in the service area and additional funding for infrastructure cost (e.g. housing or administration). The budget is a result of negotiations between health insurers and the PCC organisation and has to be approved by the health authority. Actual payments to PCCs are made through health insurers.

Payment of physicians: Physicians working in emergency or urgent care settings are paid by various means. Specialists working in hospital EDs are either salaried employees (mostly in university hospitals) or self-employed (in most other hospitals). Self-employed specialists negotiate their fee with the hospital board and there is wide variation across hospitals. Payment may depend upon the number of DBCs provided by the specialists or it may be related to other agreements. GPs are mostly self-employed and they receive a negotiated hourly rate, when working in a PCC.



Table 33 – Payment of primary care out-of-hours services

Payment for availability (criteria)		Payment per case (criteria)	Payment for services (criteria)
Australia	No	Yes (there is a basic consultation fee per case, which differs depending on whether out-of-hours care is urgent or non-urgent. In addition, fee depends on time, day, and place e.g. same fee can be billed weekdays 6 PM-11 PM and Sundays 7-11 PM but is different for a patient visit in the office or at the patient's home))	Yes (additional fees can be billed depending on provided services)
Denmark	No (except in capital region, where GPs at call centres and out-of-hours service centres are salaried)	Yes (there is a basic consultation fee per case, i.e. per phone call and/or per visit)	Yes (additional fees can be billed depending on provided services)
England	GP out-of-hours	Depends on contract with local clinical commissioning group	
	MIU, WIC, UCC	Yes (in some areas)	Yes (in most areas) (payment is based on HRGs but there is only one tariff for all HRGs)
France	Yes – for GPs participating in out-of-hours care (€ 50 for 8 PM-0 AM, € 100 for 0 AM-8 AM, € 150 for 8 AM-8 PM on Sundays/holidays)	Yes (basic out-of-hours fee (“majoration”) depends on day and time, i.e. different for 8 PM-0 AM, 0 AM-6 AM, 6 AM-8 AM, Sunday and Saturday, and place, i.e. in office or at patient's home)	Yes (additional fees can be billed depending on provided services)
The Netherlands	Yes (Negotiated budget depending on capitated amount per inhabitant in the region plus costs for infrastructure)	No	No



9.4 Reforms and debates

9.4.1 Overview

Emergency care provision in each country included in our survey has undergone changes, which may provide inspiration for reforms in Belgium. A range of different measures is available that can (potentially) contribute to rationalizing the use of emergency care resources and reducing the number of inappropriate ED visits, while at the same time improving quality and appropriateness of care.¹⁹² On the one hand, our survey provides examples of different initiatives that have improved the availability of primary care services for urgent conditions, including during out-of-hours times, with the aim of providing patients with an alternative to seeking care at the ED. On the other hand, countries provide examples of a number of reforms that have been implemented to better coordinate different urgent and emergency care providers and to help patients navigate through the (often confusing) provision systems. Furthermore, several countries are working on rationalising and concentrating emergency care provision at fewer providers. In England, emergency care services for certain patients (i.e. acute myocardial infarction, stroke, major trauma) have been centralized in highly specialized centres. In Denmark emergency care provision has been reformed most radically by strongly reducing the number of hospitals with EDs in the country and by restricting access to the ED. England and the Netherlands have developed similar plans for reducing the number of EDs with the aim of improving quality of care and reducing costs but implementation has met significant local resistance. Finally work is ongoing in France and Australia to reform the payment system for EDs but as details of the new payment systems are yet unknown, they are not the focus of this section.

9.4.2 Improved availability of urgent primary care services and better coordination with emergency care

9.4.2.1 Improved availability of urgent primary care services

Several studies have found an association between better accessibility of primary care and lower numbers of ED visits.^{16, 237-239} However, most existing studies are based on cross-sectional designs, and therefore, the effect of improving access to primary care over time remains largely

unknown.²⁴⁰ Given that the number of primary care visits is usually much higher than the number of ED visits (for example in England there were more than 300 million GP visits in 2008 – the most recent year with data available – but less than 15 million ED visits in 2013), small shifts of patients from primary care to EDs can have a large impact on the number of visits at EDs.²⁴⁰

England is the country that **has most strongly invested in expanding the availability of urgent primary care services** since the late 1990s by introducing new types of providers and by improving access to GPs through various initiatives.^{240, 241} New types of providers that were introduced included a telephone hotline for urgent primary care advice (NHS Direct and later NHS 111), Minor Injury Units, Walk-In Centres at hospitals or in the community, and Urgent Care Centres. Initiatives that aimed to improve access to GPs included financial incentives, training of additional GPs, and various extended hours access schemes.

A recent study of a GP-led walk-in centre in Sheffield found a significant reduction of GP type attendances, which was likely to have been caused by the opening of the walk-in centre.²⁴² A relatively recent evaluation of NHS 111 found no statistically significant change in emergency ambulance calls, ED visits or urgent care contacts, and there was an overall increase of activity in the emergency care system.¹⁵² Two recent reviews of different initiatives concluded that while the introduction of new care providers improved convenience and accessibility of care, their effect on ED visits remains largely unclear because there were few rigorous evaluations.^{241, 243} In addition, the introduction of new providers in England is sometimes viewed as problematic because it has led to an increasingly complex emergency care system, where patients are having difficulties identifying the appropriate provider at the time of need.²²³

Improved availability of urgent primary care services may also be a by-product of incremental reforms in the organisation of out-of-hours primary care services, that have taken place in in most countries, also going beyond those included in our survey.¹² Traditionally, out-of-hours primary care used to be organised and provided mostly by local GPs working from their homes and collaborating in a rotation system. This has **increasingly** changed in all countries towards a system of **urgent primary care provided at a central location**. In Australia, 24hr bulk-billing clinics have been established. In Denmark, Out-Of-Hours Service Centres are now organising urgent primary



care. In France, there has been a rapid growth of Maisons Médicales de Garde. And in the Netherlands, out-of-hours primary care is now (almost) exclusively organised by Primary Care Centres (PCC). While the establishment of 24hr clinics in Australia was mostly related to business objectives, the establishment of urgent primary care centres in Denmark and the Netherlands was mostly the result of collaboration of groups of GPs, sometimes referred to as cooperatives.²⁴⁴

The establishment of urgent primary care centres for larger geographic areas has several advantages:²⁴⁴ first, patients have a central point of contact, where they can go to receive urgent and emergency care; second, GPs benefit from having to work fewer shifts as the burden is shared amongst more colleagues; third, urgent primary care centres are usually supported by call handlers, often with dedicated IT infrastructure and triage models, as well as nurses, and drivers, which allows a more systematic and professional response. Evaluations that are available from different countries indicate that these more centralized primary urgent care models may lead to more patients receiving telephone advice, while the number of home visits is reduced (see, for example, Hansen et al. 1998²⁴⁵ for Denmark). However, the establishment of these centres does not necessarily translate into lower numbers of patients at EDs (see, for example, Philips et al. 2010¹⁴¹ for Belgium) unless these centres are located close to EDs (see, for example, Van Uden et al. 2003²⁴⁶ for the Netherlands).

9.4.2.2 *Better coordination of urgent primary and emergency care*

Countries included in our survey have taken various steps with the aim of improving coordination between urgent primary care and emergency care, including better coordination through a unique telephone hotline for urgent and emergency care, the introduction of a systematic referral system for access to EDs, and the establishment of urgent primary care centres co-located at hospitals and cooperating with EDs.

In France, most regions (70 of 95 départements) have **merged telephone hotlines for urgent primary care and emergency care**, and patients should always call number 15, when in need of urgent primary or emergency care. A call handler based at the ED of the local hospital will then answer the phone and has information on the local availability of out-of-hours primary care providers, ambulances, and beds in different hospitals

(computer based “Répertoire Opérationnel des Ressources”). In Denmark, the Regions introduced an **app** in 2013 that will **guide people towards the right treatment at the right place** and the app also includes information about waiting times at EDs.

In Denmark, all regions have progressively implemented a **system of systematic referral to the ED**. Since April 2014, patients can no longer access the ED by walk-in without referral from a GP, the urgent out-of-hours service centre, or from the emergency hotline service. Patients in need of urgent and emergency care should always call the urgent care hotline, where a GP or nurse will decide on the most appropriate response. If the GP or nurse determines that the patient needs to visit the ED, he will book an appointment through the IT system at the nearest ED with the shortest waiting time and the patient can wait at home until the time of his appointment. The regional introduction of the referral system followed recommendations from the National Board of Health and the Ministry of Health, and it was supported by the Danish Medical Association. The set-up of the referral system varies slightly across regions, concerning the location of the call centre (at the ED or the out-of-hours service centre) and whether a GP or a nurse will answer the phone. A large information campaign supported the introduction in most regions, including a letter to every citizen, explaining the emergency care system in the region. In almost all regions, the number of contacts at EDs was reduced considerably after introduction of systematic referral, ranging from 27% in Central Denmark Region, and 25% in Region Zealand, to 10% in Southern Denmark.²⁴⁷

In all countries included in this survey, **urgent primary care providers** are increasingly **co-located with hospitals** although they usually remain organisationally independent. In addition, England and the Netherlands are moving in the direction of encouraging **closer collaboration of primary care providers and EDs**, introducing a shared entrance for urgent and emergency care patients and joint triage.²⁴⁸⁻²⁵⁰ The idea is that patients visiting the ED with urgent primary care needs are treated by the co-located primary care provider, where they receive more appropriate and efficient care, while patients in need of emergency care are treated by emergency physicians in the ED.

Several studies are available, which have analysed the effect of primary care centres co-located with hospitals on ED attendances. Pinchbeck (2014)²⁵¹ found that new urgent primary care centres (Walk-in Centres) located in the



vicinity of hospitals reduced the number of ED visits in England, while new facilities in the community had a very limited effect. A recent study of a GP led urgent care centre co-located with an ED at a London hospital found that most self-referred patients could be treated by the urgent care centre without onward referral to the ED.²⁵²

In the Netherlands, closer collaboration between EDs and primary out-of-hours care has gradually become the rule, and at the end of 2014 75% of EDs had a co-located primary care centre (PCC) (see Box 18).²³¹ Multiple studies have investigated the effect of co-located PCCs on ED use. One study found that the introduction of a co-located PCC strongly reduced the number of ED patients (by 53%, comparing three weeks before and after opening of the primary care facility).²⁵³ Another study found that self-referred patients were much more frequent at a hospital with no PCC than at a hospital with such a facility in place,²⁴⁶ and similar findings (lower ED visits, almost complete absence of self-referrals) were also found in a longitudinal analysis of the introduction of a common emergency access point of a primary care centre with the local ED.²⁵⁰ Furthermore, a recent study including six Dutch regions, of which three had a PCC closely integrated with an ED and three did not, showed that patients living in regions with the integrated model were 30% less likely to visit the ED after controlling for casemix than those living in the other regions.²⁴⁹ Finally, adding a GP to the ED team was found to be a cost-effective intervention in a hospital in the Netherlands.²⁵⁴

Also in Switzerland, two studies found that the introduction of a primary care centre linked to the ED was a cost-effective intervention, reducing utilization of diagnostic imaging and process time.^{255, 256} However, as most available studies do not follow rigorous scientific standards, a 2012 Cochrane review included only three studies and concluded that the available evidence was insufficient and inconclusive about the effect on quality or cost-effectiveness of introducing primary care professionals to provide services within or alongside EDs.¹⁰ It should be noted that the included studies did not concern co-located ED and GP-practices but rather the employment of GPs in EDs. Moreover, two of the three studies showed beneficial results while another found no difference in prescription rates between emergency physicians and GPs. A potential explanation that might explain the different results is that in the former two study a triage system was staffed by a nurse while in the latter study (with no difference) triage was done by administrative staff.¹⁰

Box 18 – Case study: Primary Care Centres in the Netherlands ('Huisartsenposten')

PCCs for urgent primary out-of-hours care gradually emerged since the year 2000 because of a high workload for GPs and increasing difficulties of GPs to comply with the requirement of providing 24hr care. Before the introduction of PCCs, out-of-hours services were organized by individual GP practices, by way of mutual 'stand in' or replacement agreements, where e.g. one GP would stand in for 5 to 6 colleagues in a rotation system. The PCCs changed this by working on a larger (regional rather than local) scale and this reduced the number of shifts for individual GPs.

In 2014, there were a total of 121 PCCs, which were part of a total of 53 out-of-hours service structures ('huisartsendienstenstructuren', HDS). HDS organize out-of-hours care for a total of 7700 associated GPs, with an average of 145 GPs per HDS (minimum 9, maximum 696).²⁵⁷ Less than 1% of the population have a GP who is not associated with a PCC. In most PCCs, the associated GPs still work evening and night shifts in a rotation system, earning an hourly fee for the hours they provide. They may trade their shifts with colleagues, and PCCs often also contract qualified GPs to reduce the workload of associated GPs.

Most PCCs are independent trusts or foundations, with a two-tier board, and they are not allowed to generate profits. GPs associate themselves with the PCCs on the basis of a private association-contract. This stipulates e.g. the number of hours they are supposed to work for the PCC, remuneration (hourly rates) etc. There is a trend towards large scale organizations, e.g. the largest organisation is 'Primair', which consists of nine PCCs with a total of 900 associated GPs, covering a population of 1.5 million inhabitants. These large scale organizations have to fulfil the legal requirements regarding governance etc. as other health care providers such as hospitals. The establishment of PCCs was supported by insurers through financial incentives, providing a capitated budget for out of-hours care for a specified regional population, and paying additional funds for infrastructure (housing and administration costs). PCCs usually provide housing facilities, transport facilities, managerial support and other support staff (e.g. drivers), which enable a more professional response and reduce the costs for individual GP practices. However, individual GPs lost the turnover they made during out-of-hours services (fees for house visits etc.).



Increasingly, PCCs collaborate with EDs. In 2014, 71 PCCs were located at one of the 91 24/7 EDs in the country. Of these, 57 PCCs had collaboration agreements with EDs concerning diagnostics and treatment, 51 were located close to the ED and shared a common entrance, 49 received all self-referrals or there was a common reception desk for the PCC and the ED and 13 were using a common triage protocol.²³¹ Interestingly, collaboration of PCCs with EDs has always been the result of decisions of local providers (often incentivized by insurers) as there have not been explicit national policies mandating or incentivizing collaborations.

Hospitals benefit from a co-located PCC in several ways: patients are more likely to attend to the hospital for follow-up treatments, if they were already seen at the co-located PCC and securing good relationships with local GPs is essential to assure referrals. In addition, because hospitals usually operate under a global budget, it is often more profitable to refer high cost/low revenue patients to PCCs. Furthermore, health insurers may demand collaboration between hospitals and PCCs as a precondition for contracting, or they may offer shared savings deals, in which hospitals are compensated for loss of revenue. Similarly, insurers may incentivize PCCs to collaborate with EDs by increasing capitation payments.

9.4.3 Rationalizing and concentrating emergency care

9.4.3.1 Streamlining emergency care and concentrating highly specialized care for specific groups of patients

Since the late 1990s, Denmark, England, and the Netherlands have started to streamline emergency services for patients with serious or life-threatening conditions and to concentrate care provision for these patients in centres with highly specialized facilities and expertise. The aim of these initiatives has usually been to maximize patients' chances of survival and to assure a good recovery by improving quality, while at the same time saving costs. In particular, care has been concentrated for patients with burns, major trauma, acute myocardial infarction and stroke and pathways for patients with these conditions have been put in place to assure that patients are taken to the appropriate facilities, possibly bypassing by ambulance other closer facilities on the way. Concentration of care is likely to continue in several countries as current initiatives promote further concentration of care, e.g. the Urgent

and Emergency care Review in England²²³ and a report of the National Health Care Institute in the Netherlands²⁵⁸.

In the United States, regional trauma systems developed since the early 1980s, when evidence about survival benefits of centralizing regional trauma care at major trauma centres was starting to emerge.²⁵⁹ Subsequently, centralization of care began also in European countries. In the Netherlands, 10 hospitals (11 in 2015) with neurosurgical facilities were designated by the Minister of Health as trauma centres in 1999, and protocols were put in place to make sure that severely injured patients with polytrauma would be treated by these centres.²⁶⁰ In Denmark, trauma centres were also introduced since the late 1990s and there are four trauma centres operating in the country.²⁶¹ In England, after many years of debates and pilot testing, regional trauma networks, consisting of local trauma units, grouped around 26 major trauma centres and supported by ambulance transfer systems, were established nationwide in April 2012.²⁶²⁻²⁶⁴

Also emergency care services for acute stroke patients have been streamlined and concentrated in several countries. In England, acute stroke services were reconfigured in two metropolitan areas (London and Greater Manchester) in 2010.²⁶⁵ However, concentration of services was much more pronounced in London (population of 8.2 million people), where suspected stroke patients are now systematically transferred directly to one of eight hyperacute stroke units, providing immediate brain imaging and thrombolysis if appropriate.^{266, 267} In the Netherlands, stroke services have been centralized in part of the Northern Region, where emergency medical services and GPs directly transport patients to a central stroke centre (the Groningen University Medical Centre), serving a population of around 577 000.²⁶⁸ In Denmark, stroke services were centralized in Central Region in May 2012,²⁶⁹ leading to a model where acute stroke services for a population of about 1.7 million people are provided by only 2 hospitals with stroke units and thrombolysis services.

Similarly, care for patients with ST-elevated myocardial infarction (STEMI) has been optimized in many countries because it is a very time-sensitive condition, where system delays (i.e. delays from first contact with the health system to reperfusion) contribute to mortality and morbidity.^{270, 271} European guidelines for the treatment of STEMI recommend that emergency medical services diagnose patients within the ambulance, alert the nearest heart attack centre with facilities for primary percutaneous coronary intervention



(PCI), and transfer patients directly to the hospital, possibly bypassing other hospitals on the way.²⁷² In London care for myocardial infarction patients has been concentrated in eight heart attack centres, and patients are taken directly to these centres after prehospital diagnosis and triage by emergency medical services. In general, 81% of patients in England that were treated with primary PCI in 2013/2014 had been directly transported to a heart attack centre after prehospital diagnosis and triage, while 19% had been transferred from another hospital.²⁷³ In France, where a similar system of direct transfer to PCI facilities has been implemented, a recent study found that about 71% of patients were directly taken to PCI facilities by emergency medical services.²⁷⁴

9.4.3.2 Reduction of emergency departments: achieved in Denmark but failed in England and Netherlands

Denmark has recently implemented a large scale reform of its emergency and urgent care system, centralizing the provision of emergency services at EDs of fewer hospitals (see Box 19). By contrast, the Netherlands and England are still in the process of discussing reform plans to reduce the number of EDs, which have been delayed because of resistance from providers. On the one hand, health authorities and payers usually argue that a reduction of EDs would contribute to improving quality by centralizing technology and staff at fewer centres. A wider 24/7 availability of specialists and equipment at these centres would lead to more rapid treatment of patients despite longer travel time. At the same time, efficiency would increase because higher utilisation rates would mean that fixed costs for availability of resources would be spread across more patients. On the other hand, smaller hospitals and local politicians usually argue that concentration of care would lead to longer travel distances for patients, and in case of more concentrated inpatient care to more difficulties of relatives to visit their family.

In the Netherlands, a tripartite agreement (Ministry of Health, health insurers, hospitals) on the development of the health care system for the period 2012-2015 was concluded in 2011. This prescribed limits to the growth of hospital expenditure, a reduction of hospital capacity in the country, and as part of this process a concentration of emergency care provision at fewer sites. Nevertheless, hospitals organizations campaigned against the specific plans of insurers and also the competition authority

disagreed, and the reform initiative was ultimately stalled. Nevertheless, three EDs have been closed since 2013 without affecting accessibility as measured by the national access target of 45 min.

Also in England, some EDs were closed in recent years but this was always the result of local decision making and not of national planning. Where EDs were closed, urgent care centres (staffed by GPs and emergency nurse practitioners) often remained at the sites. These centres are supposed to manage the vast majority of patients without referral to an emergency department. However, the closure and downgrading of EDs was very unpopular and heavily criticized by different stakeholders. Therefore, the impact of ED closures is currently assessed in different regions (e.g. closED project).²⁷⁵

It is clear that national or regional planning procedures for hospitals in general are decisive in efforts to better coordinate emergency care. In fact, reforms of EDs always need to be supported by an overall assessment of hospital capacities and more strategic planning of hospital infrastructure in a country or region – as was the case in the large scale restructuring of hospital infrastructure in Denmark. In particular, countries with many small EDs might benefit from concentration of emergency services in selected hospitals.



Box 19 – Case study: Hospital reform in Denmark

Context: A large scale structural reform of the Danish healthcare system has taken place since 2007. The process was initiated with an administrative reform, which reduced the number of regions from 14 to five and the number of municipalities from 270 to 98.^{276, 277} This was followed by the Quality Reform in August 2007. As part of this reform, the government and the Danish regions set aside 40 billion DKK (5.4 billion euros) for joint investment in new hospitals. One of the main aims of the reform was to concentrate specialized treatments and emergency care in fewer and larger units.²⁷⁸ The idea was that professionals would increase their expertise with higher patient volumes, which, in turn, would translate into higher quality and efficiency. This idea was promoted through slogans such as ‘quality above proximity’ and ‘practice makes perfect’.

Investments in EDs supported by strategic planning: Emergency care was a central part of the reform and significant investments in new hospitals were made in the period 2009-2018 specifically for emergency care. However, hospital investments were approved only if they followed the recommendations for acute and emergency care from the National Board of Health (NBH). These recommendations had been summarized in a report ‘Strengthened acute preparedness – planning for the regional health system’.²¹⁷ The report, proposed a reduction in the number of hospitals with 24/7 EDs from approximately 40 to 20-25 and the establishment of so-called Joint Acute Wards (JAWs), where planned inpatient admissions, ambulatory emergencies and emergency inpatient admissions would take place. Traditionally, each department in a hospital organised its own admissions. The new process was intended to overcome professional boundaries between different specialties,²³⁵ to facilitate more streamlined patient pathways. Quality was intended to be improved through more rapid diagnosis and treatment because all relevant specialists would be available directly in the JAW to take care of patients in need of emergency care.²¹⁷ This was a significant change because traditionally more junior physicians were at the front line, initially receiving the patients. Regions had to apply for investments in new hospitals but it was a national decision that 21 hospitals should have a JAW.

Definition of catchment areas: In discussion papers concerning the planning of surgical specialties from 2005 the Danish Surgical Society and

the Association of County Council (the counties and the association of county councils were abolished in 2007) both proposed a catchment area of 200-300 000 for a JAW.²⁷⁹ In another discussion paper, from 2006, about future regions’ acute care planning, this catchment population was used for both surgery and internal medicine.²⁸⁰ NBH determined that a catchment population of 200-400 000 was necessary to have sufficient case volumes at JAWs for economies of scale and scope. In addition, this case volume would be needed for developing and maintaining professional skills, and for making efficient use of key diagnostic equipment and clinical specialties. Furthermore, the NBH assesses that this catchment population is a prerequisite for the organizational resilience needed to securing the same high quality of care at all times.²¹⁷ However, the figure was not based on any specific methodology. For urban areas, the NBH states that further economies of scale can be achieved with a catchment population of more than 400 000 people. However, in all five regions there are sparsely populated areas with island- or island like geography, which can necessitate specific solution such as pre-hospital arrangements or admission centres at smaller hospitals. In these cases, quality must be maintained through formal cooperation with relevant parties.

Implementation process: The establishment of 21 JAWs proceeded with great variation in terms of time, organisation and physical environment. This variation has been the focus of much debate among central actors and interest groups. In a policy paper published in April 2014, the Danish Medical Association called for national guidelines to assure a more uniform way of organizing the JAWs and the processes of care delivered there.²⁸¹ The establishment of JAWs is taking place in parallel with regions’ efforts to renovate existing facilities and the construction of new hospitals. In 2015, only five acute care hospitals were at their final location. Regions have also expanded pre-hospital emergency capacities by increasing the number of ambulances, physician-led ambulances, helicopters and establishing clinics for patients who do not need care at a central hospital.

Communication strategy: The reform was accompanied by active communication from the regions, national- and local media and through public debates. Every Danish citizen received a letter, explaining the emergency care system: who should be called, which provider should be contacted – and that EDs can no longer be accessed without prior contact to the emergency hotline.



Evaluation: In June 2014, the Ministry of Health, the Danish Regions and the NBH carried out a technical review of the implementation of the 21 different JAWs.²⁴⁷ The review did not perform an assessment following rigorous scientific standards. However, it evaluated specific areas, such as the catchment area, the capacity in the JAW, the physical environment, the processes of care during admission, the referral of patients, triage, waiting times, readmissions, the use of electronic screens, quality, and staffing – including access to different specialists, cooperation with other hospital departments and cooperation with GPs and municipal health- and social care services. The report established that: (1) quality had improved (although there were no hard indicators), (2) waiting times had reduced (although still varying widely across the country), (3) all JAWs fulfilled the recommendations concerning the availability of specialties at the hospital, but only six hospitals had them available 24 hours a day, and (4) JAWs were a good environment for education and training

9.5 Conclusions

No country has yet found the perfect answer to the basic problem: In case of an urgent or emergency medical care need, patients want timely access to high quality treatment. However, they do not know if their problem, consisting of different signs and symptoms, is serious (requiring specialized diagnostic facilities and interventions) or relatively uncomplicated (requiring clinical advice and treatment). In fact, also professionals often know only retrospectively if a particular patient attended for an uncomplicated problem or if he required emergency care attention. Emergency care systems have to respond to patients' expectations. However, given limited financial and human resources in almost all health systems, emergency services also have to be designed efficiently, making sure that patients receive appropriate care at the appropriate time.

In all countries, different organisational and political constraints limit the capacity to implement an optimal design of the urgent and emergency care system. Nevertheless, our review provides many interesting examples of reforms that aim at better coordination between urgent primary care and emergency care. These reforms often target both, improving quality and – at the same time – saving costs. The most important measures taken to achieve these aims are: (1) Improving measures for **guiding patients**

through the system and (2) **reconfiguring urgent primary and emergency care provision** as part of a general reorganisation of the emergency infrastructure. In addition, payment systems can play an important role in facilitating or complicating changes to existing systems.

9.5.1 Guiding patients through the system

Guiding patients through the urgent and emergency care system is important because there are different providers with different opening hours working at different locations, which can potentially take care of urgent or emergency medical problems. In addition, patients can access these providers either directly (walk-in) or by call (emergency call centre, urgent care call centre). Most countries have at least two different phone numbers, one for primary out-of-office care and one for emergency medical services, and two different types of providers, one for urgent primary care problems and one for emergency medical care.

Several countries have implemented measures to better guide the patient through the system. For example, in almost three-quarters of French départements, a unique number for urgent and emergency care has been established (number 15), where a call handler based at the ED has a digital real time resource monitoring system with information on the local availability of resources (Répertoire Opérationnel des Ressources) concerning out-of-hours primary care providers, ambulances and hospital capacities. If a serious condition is ruled out, the call handler can forward the call to the local out-of-hours GP service.

Ideally, the call centre also has clinical back-up staff that can provide clinical advice to the patient and evaluate the need for a home visit. For example, in England and Denmark, health advice is given by GPs who are available via call centres. In addition, Denmark increased the information availability for patients by introducing a smartphone app, which among other functionalities shows the available medical resources, including waiting times at EDs. Taking into account the ongoing development of communication technologies, future integrated call centres will potentially be able to communicate via video calling and open new or edit existing electronic patient records, which are accessible by participating providers and the patients.

Also in case of serious conditions, such as AMI, stroke or trauma, guiding the patient (with the help of emergency medical services) to the most



appropriate provider is essential because survival is highly dependent on rapid diagnosis and treatment. In several countries, including Denmark, England, France, and the Netherlands emergency pathways have been developed for certain groups of patients with serious conditions, and patients are transferred directly to highly specialised facilities after initial pre-hospital triage by emergency medical services.

9.5.2 *Reconfiguring urgent primary and emergency care*

In all countries, the allocation of emergency facilities has developed historically, often influenced by political considerations. In addition, the development and planning of hospital EDs has traditionally been independent of the organisation of urgent primary care. However, several countries are increasingly developing more rational planning approaches, taking into account population distribution, morbidity, geography, transport infrastructure etc. For example, in Denmark, catchment areas for EDs were defined for a population of 200-400 000 people based on considerations about necessary case volumes to justify 24/7 availability of emergency facilities and staff, while adjusting for sparsely populated areas and island geography. As a result, the number of EDs was cut in half and about 55% of hospitals do no longer have an ED (see Box 20). Instead, many hospitals now have nurse-led clinics, where patients receive treatment for minor conditions.

In the Netherlands, availability of EDs is regularly monitored against the national 45 min access target, which includes the time from initial contact with the call centre until delivery of a patient at the ED. In addition, EDs that are necessary to assure the 45 min access target can receive financial support from the government. Furthermore, needs for local availability of EDs are taken into account in the Netherlands, by adjusting opening hours of EDs, which means that four EDs with low caseloads are open only during day time.

Planning of emergency infrastructure also needs to be embedded in general hospital development plans. In Denmark, the reform of ED infrastructure was part of a large-scale hospital reform (see Box 19). Joint planning of emergency and general hospital infrastructure is important in particular for serious conditions (major trauma, AMI, stroke), as highly specialized facilities need to be available 24/7 within hospitals receiving these patients.

One important trend is that urgent primary care providers are increasingly located together with EDs in order to provide care for patients with less serious conditions. As a result, patients have a unique access point, and can be steered to the most appropriate provider after initial joint triage. For example, in the Netherlands, over the last 15 years, GP-led PCCs for primary out-of-hours care have been established at three-quarters of hospitals with EDs, and they are increasingly collaborating with EDs for diagnosis and treatment, often receiving all walk-in patients entering the ED (see Box 18). In England, there has been a wide proliferation of different urgent primary care providers (also during office hours) co-located with hospitals, including minor injury units led by nurses with advanced training or GP-led urgent care centres.

9.5.3 *Supporting integrated emergency and urgent care structures through payment*

Section 9.3 has highlighted that different payment systems for urgent primary and emergency care providers have different incentives. On the one hand, if urgent primary care providers are paid on the basis of fee-for-service (as in Denmark, France, and Australia) or on the basis of a casemix system (as in England), the payment system provides incentives for activity of providers. On the other hand, if urgent primary care providers are paid on the basis of a global budget, possibly calculated on the basis of capitation payments for the population living in the catchment area, the payment system ensures availability of GPs but does not provide incentives for activity. Therefore, countries that aim to promote activity of urgent primary care providers can consider increasing the relevance of payments that incentivize activity.

The same reasoning applies also to EDs. In Denmark and Australia, EDs are paid mostly (about 80% in Victoria/Australia) on the basis of a budget, which is independent of activity and is intended to cover the fixed costs of infrastructure and staff. The explicit intention in both countries is to avoid incentives for increased activity. In case of detailed regional planning of emergency care provision, the budget could be related to planning requirements for ED infrastructure, e.g. hospitals designated to fulfil certain highly specialized functions in an emergency network could receive a higher budget for assuring 24/7 availability of infrastructure and staff. However, also Denmark and Australia have payments per case, which are intended to



cover the variable costs of diagnosis and treatment, and these are essential in order to enable monitoring of provider activity.

Section 9.3 also pointed out that countries differ concerning whether emergency inpatient admissions generate one payment for the hospital or two payments (one for the ED and one for the inpatient department). Both approaches have certain advantages and disadvantages, which strongly depend on the national context and the organisation of care. However, an important consideration is that two separate payments for one patient can potentially generate coordination problems at the interface.¹⁹¹

Several countries are currently debating reforms of their payment systems for urgent and emergency care, although details are not yet available. In England, plans include a proposal for the development of one payment system for both urgent primary care and emergency care.²²⁴ This has the potential advantage that payment for a patient is independent of the provider, encouraging providers to organize care in the most efficient setting. However, given the fact that the bulk of ED costs is related to its availability function, while the availability costs for urgent primary care providers are rather low, good arguments exist also in favour of having different payment systems for EDs and urgent primary care providers. Furthermore, any reforms of payment systems should be careful not to incentivize a shift from regular primary care to urgent primary (out-of-hours) care because even small shifts away from regular primary care would constitute a huge increase for the urgent primary (out-of-hours) care system.

One interesting approach supporting the reorganisation of care when introducing a new urgent primary care facility at the location of an ED is the use of a shared savings program. In the Netherlands insurers have offered shared savings programs to hospitals, when PCCs were introduced at the site of the hospital to compensate hospitals for the loss of revenue (see Box 18). Another approach that can potentially incentivize primary care providers to improve accessibility to out-of-hours care is using resources of an ambulatory care budget for payment of hospitals for ambulatory ED patients. However, given that fact that all payment systems have intended and unintended consequences, monitoring and control systems that verify billing practices of providers are essential in order to counter unintended effects.

Key points

- **Several western countries have undertaken reforms aiming to reduce the number of inappropriate ED visits and to rationalize the use of ED services.**
- **The emergency care system differs across countries. In the selected countries the number of EDs per 100 000 population varies from 0.33 in England to 1.25 in Australia. The proportion of acute hospitals with an ED is 70% in the Netherlands while it varies between 37% and 45% for the other four countries. Also the indicators for ED-use differ (e.g. from 124 ED-visits per 100 000 inhabitants in the Netherlands to 311 ED visits per 100 000 inhabitants in Australia).**
- **Organisational reforms:**
 - **Several countries are working on rationalising and concentrating emergency care provision at fewer providers. While most countries succeeded to concentrate care for time-critical conditions (e.g. stroke, STEMI, major trauma) in a limited number of specialised EDs, only Denmark was successful in drastically reducing the number of acute hospitals with an ED.**
 - **To reduce the number of inappropriate ED-visits all selected countries improved the availability of urgent (out-of-hours) primary care services. Several organisational models exist with variable success. Factors contributing to a reduction in inappropriate ED-visits appear to be: co-location of primary care centre at the Ed, a joint triage, one entry gate. While co-location of EDs and urgent primary care providers was identified in all selected countries, the model where ED and primary care closely collaborate is most prominent in the Netherlands and England.**
 - **Several countries implemented telephone triage systems and telephone advice lines to improve guidance of patients through the system. Although evaluations are limited and a risk of an overall increase of the burden of the emergency care system exists, all countries continue with these efforts.**
- **All countries use a mix of payment systems in an attempt to balance incentives.**



- **For patients admitted via the ED, the two following categories were identified:**
 - **Some countries, like England, separate the payment for the ED and the inpatient part which results in an identifiable funding stream but may create problems at the interface between ED and inpatient care.**
 - **In Denmark, France, and the Netherlands, inpatients admitted via ED are generally paid for on the basis of the usual inpatient payment system, which provides incentives that encourage an integrated pathway for the entire admission episode spanning treatment in the ED and during the inpatient stay.**
- **For non-admitted ED patients:**
 - **In Australia and Denmark payment of hospital emergency departments is mostly based on global budgets (e.g. 80% in Australia to cover fixed costs) which are determined on the basis of provider characteristics. The role of payments related to activity as measured in terms of number (and types) of patients treated or services provided is less important. In these countries primary care providers are paid on the basis of a fee-for-service system, encouraging activity of these providers.**
 - **In England and the Netherlands payment of hospital EDs is strongly related to the activity as measured by the number and types of patients treated. In England, payments are determined on the basis of a casemix system (11 different types of ED patients) with a same system for urgent primary care providers, i.e. minor injury units, walk-in centres and urgent care centres. In the Netherlands, payments are determined by the national Diagnosis Related Group (DRG-) system, which includes also outpatient care and does not distinguish between emergency care and other outpatient care provided. In both countries, primary care and out-of-hours providers are paid on the basis of negotiated capitation payments or block contracts.**