

## SHORT REPORT

# ORGANISATION AND PAYMENT OF EMERGENCY CARE SERVICES IN BELGIUM: CURRENT SITUATION AND OPTIONS FOR REFORM





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## ■ FOREWORD

What do citizens expect from the healthcare system? There is much to say, but one thing is absolutely clear: emergency medical services, for when it really matters, are on top of the list. In case of a stroke, a heart attack or a severe trauma it is taken for granted that all machinery is available to help us 'through the emergency'. Even to the extent that the quality of these emergency care services determines the face of the entire healthcare system. But also when the problem is less severe, apparently we make much - and increasing - use of the emergency care services. Is this due to our culture of immediacy? Or to the belief that a high-tech environment is always better? It would be an interesting topic for a sociological study, but we have not examined this in the current study. The question we were asked to address was already complex enough: how to reform the emergency care services in a way that quality, accessibility and affordability are reconciled.

In itself, indeed, a complex issue, which is additionally embedded in a web of often conflicting interests. The patient wants to be helped fast, close by and cheap (and obviously well). General practitioners see with disappointment that part of their legitimate playing field shifts towards the emergency department. Hospitals certainly do not want to lose their important and vital entrance gate. And the government tries to control growing expenditure.

Obviously we looked at how other countries deal with these challenges, but what works in our neighbouring countries, cannot simply be copied within our own system ...which is currently under reform! We have thoroughly analysed the situation today and the years before, and we have consulted all relevant stakeholders. But an important next step is to take some distance, and to explore new models for the future, away from the past and present, in complete independence, and out-of-the-box when required. A very exciting challenge for KCE - hopefully an exciting and inspiring reading for you!

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## ■ SHORT REPORT

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# 1 INTRODUCTION

## 1.1 What are emergency care services?

The primary aim of emergency care services is to provide care to patients with an 'emergency medical condition' (EMC). There is no international consensus on this concept but the acute onset of symptoms and the need for immediate specialised care are recurrent factors in definitions of an EMC. In the United States, for instance, an emergency medical condition is defined as *"a condition manifesting itself by acute symptoms of sufficient severity (including severe pain) such that the absence of immediate medical attention could reasonably be expected to result in placing the individual's health [or the health of an unborn child] in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of bodily organs."*<sup>1</sup>

Emergency care services are services that are needed to evaluate or stabilize an emergency medical condition including out-of-hospital as well as in-hospital services (emergency departments). In addition, given that emergency departments operate on the cutting edge of ambulatory and hospital care, there is a strong organisational connection with primary care services. The aggregate of both systems (i.e. emergency care system and primary care system for urgent non-emergency conditions) could be best described as urgent and emergency care services. However, for simplicity we use 'emergency care system' throughout the report, with the following classification of types of emergency care services.

### Out-of-hospital emergency care services: call centres and transport

Out-of-hospital emergency services, also known as pre-hospital emergency medical services, are those emergency services that are remote from the medical facility. Emergency care begins with activation of the system (e.g. the European emergency number 112; self-referrals; referral by the general practitioner (GP)). A call centre collects the request for medical assistance by telephone handling and organises the response by dispatching (dispatch centre) the available and most suitable resources and personnel (e.g. a vehicle that is able to transport medical staff and equipment, or alternatively, a vehicle that can adequately transport the patient to a healthcare facility).<sup>2</sup> In some cases, the call centre also provides medical advice to the caller.

### In-hospital emergency care services: emergency departments

In all European countries emergency departments (ED) exist as part of acute care hospitals. Emergency departments can be described as dedicated hospital-based facilities specifically designed and staffed to provide emergency care (often on a 24/7 availability basis). An emergency department cannot operate in isolation and must be part of an integrated health delivery system within a hospital, both operationally and structurally.<sup>3</sup>

### Primary care services: an important role during out-of-hours periods

An important portion of patients (see section 2.4.4) who attend EDs present with health problems that can be dealt with by primary care services. These patients do not have an 'emergency medical condition' and can be divided in two groups:

- Urgent care patients: patients with acute symptoms and complaints that do not qualify as an emergency medical condition for which they are seeking care or are being referred because there is inadequate capacity in other parts of the healthcare system (e.g. out-of-hours care alternatives are unavailable or their healthcare provider cannot treat them quickly enough for an acute problem).<sup>4, 5</sup> In practice, however, there is no strict delineation between primary care and emergency care and only a small part of the ED workload is devoted to patients with an emergency medical condition.<sup>6</sup>
- Non-urgent care patients: patients presenting with conditions for which a delay of several hours would not increase the likelihood of an adverse outcome (e.g. because they cannot judge the level of urgency of their problem or because they do not know the care alternatives). Hence, these patient contacts can be postponed to, for instance, elective primary care.

The reduction of ED visits by these urgent and non-urgent patient groups is a priority for many healthcare systems since primary care services are considered as a potentially efficient and cost-effective alternative for the ED.<sup>7</sup> The access to and organisation of primary care services, during out-of-hours in particular, is an important topic in this respect. Internationally different models for the organisation of out-of-hours primary care exist.<sup>8</sup> These models vary from individual GP practices to large-scale primary care cooperatives but most models are a mixture of approaches.<sup>9</sup> Often several different organisational models are used within one country.<sup>8</sup> Yet, during the



last decade an evolution from local rotation systems towards larger-scale primary care practices can be observed in an increasing number of developed countries.<sup>8</sup>

### Triage

Triage is an inherent element in the organisation of care for patients with unscheduled problems. It is the complex process of determining the level of urgency and type of healthcare required to provide care in a safe, efficient and timely way.<sup>10, 11</sup> Via a triage system it is aimed to achieve an efficient use of available resources (e.g. personnel, equipment, means of transportation). Triage can take place at different places (e.g. call centre, hospital front door, at the scene) and by different types of professionals (e.g. staff of the call centre; ambulance staff; nurse; physician working at the ED).

## 1.2 Scope and objectives

Emergency departments are highly visible, high profile components of modern healthcare systems and often form the frontline for patients facing difficult circumstances.<sup>6, 12, 13</sup> In recent years the number of ED contacts has increased in Belgium as in many other western countries, which poses questions about the efficient use of ED resources.

### Drivers of emergency department use

The main supply-side factors affecting ED use are a lack of access to primary or non-ED secondary care services and a shortage of out-of-hours services.<sup>6, 12</sup> On the demand side, ED use is influenced by individual preferences (e.g. an ED provides convenient out-of-hours care), perceived severity (e.g. an ED gives patients immediate reassurance about their medical conditions) and knowledge and beliefs of alternatives, previous experiences, health needs (e.g. population ageing and increased prevalence of chronic conditions), socioeconomic factors (e.g. no regular GP, lack of social support).<sup>12, 14, 15</sup>

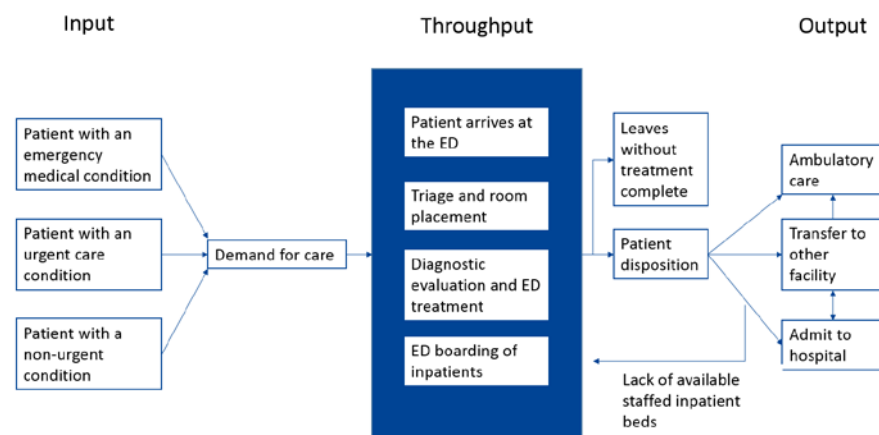
### Focus on input factors of emergency department use

The main focus of this study is on the input component of EDs (i.e. the increasing inflow) as well as on measures to prevent ED use or divert ED use to care alternatives. As such, the study focuses on EDs and the relationship with primary care services, (out-of-hours) GP services in particular.

We did not zoom in on other parts of the emergency care system such as emergency care transport and call centres. Nor did we zoom in on the throughput and output components. Adequate functioning of ED services is also related to the management of patients throughout the care trajectory (throughput component) and to output factors (see Figure 1).<sup>14</sup> A well-known problem is the so-called 'access block' problem. This is a complex problem which can be described as *"the situation where patients who have been attending an ED and need a hospital bed are delayed from leaving the ED because of lack of inpatient bed capacity (ED boarding)"*.<sup>16</sup> Indeed, also for Belgium (year 2012, source Federal Public Service (FOD – SPF) Public Health) there are indications that problems exist with throughput and output given that only 81% of the ED contacts meet the internationally used four hours target.<sup>17</sup> Yet, this problem and its solutions (e.g. efficient bed management and discharge procedures, lean management) are beyond the scope of the current KCE study.



**Figure 1 – Conceptual model of the input-throughput-output of emergency departments**



*Adapted from the ED crowding model in Asplin et al. (2003)<sup>4</sup>*

### 1.2.1 Objective and scope of the study

The yearly increase in ED use (and budget) together with concerns that a large proportion of ED visits can be dealt with in other care settings, questioned the efficiency of the current emergency care system. At the same time, stakeholders praised the high (24/7) accessibility of EDs and describe it as the safeguard of our healthcare system providing access to high-quality care, especially on moments when no alternatives are readily available.

The KCE was asked to explore the strengths, limitations and future challenges and recommend strategies for a more efficient organisation and payment system of emergency departments while access towards high-quality services is maintained.

The **main objective** of the current study is an analysis of the Belgian organisation and payment system of emergency care in light of international evolutions and best-available evidence to draw lessons for a future more efficient emergency care system.

## 1.3 Methods

The study applies a mixed-method approach. The main steps of the research and data sources are summarized in Table 1.



Table 1 – Mixed-method approach

What?	How?
A factual description and critical analysis of the organisation and payment system of Belgian emergency care services	<ul style="list-style-type: none"><li>• Review of Belgian studies on this topic: grey literature, peer-reviewed literature, legal documents, policy papers;</li><li>• Analysis of routinely collected data by the Federal Public Service (FOD – SPF) Public Health and the National Institute for Health and Disability Insurance (RIZIV – INAMI);</li><li>• Semi-structured face-to-face interviews with 16 stakeholders representing hospital management, scientific and professional organisations of general practitioners and emergency physicians, physician unions, federal public authorities, patient organisations, sickness funds.</li></ul>
Lessons learned from international practices	<ul style="list-style-type: none"><li>• An international comparison of the emergency care system in five countries (Australia, Denmark, England, France, the Netherlands) via the submission of a self-designed survey to national experts and a literature review. The selection of countries was based on the following criteria: coordination of primary care with emergency care services, interesting payment system for EDs (including a case-mix payment system such as in Australia) and/or a reduction in the number of EDs;</li><li>• Experts in Denmark and the Netherlands were asked to complete a second questionnaire in order to obtain more specific information on reforms that reduced the number of EDs in the country or improved coordination between primary care and emergency care.</li></ul>
Evidence about solution elements for a more efficient system for the organisation and payment of emergency departments in Belgium	<ul style="list-style-type: none"><li>• A narrative review of systematic reviews about effectiveness of interventions to reduce ED use;</li><li>• For several topics discussed during the stakeholder interviews, additional ad-hoc literature searches were conducted by screening systematic reviews (i.e. definition and prevalence inappropriate ED use; workforce innovations in the ED; quality and performance indicators for ED; access block; safety telephone triage; professional background hospital front door triage) or when systematic reviews were unavailable or outdated primary studies were identified (e.g. impact ED closures, economies of scale);</li><li>• Consultation of experts, stakeholders and key decision makers on the proposed model.</li></ul>
Scientific validation	<ul style="list-style-type: none"><li>• Review of this report by three independent scientific experts (see colophon).</li></ul>



## 2 CURRENT ORGANISATION AND ACTIVITY PROFILE OF EMERGENCY DEPARTMENTS IN BELGIUM

### Box 1 – Selection of data sources

- The Belgian hospital discharge dataset (MZG – RHM) includes a module with a registration of data (e.g. hour of admission, admission complaints, disposition type) for all ED visits in all Belgian acute hospitals. This compulsory registration was used to describe the activity profile of Belgian EDs. The same selection as the National Feedback of EDs was used. All data concern the year 2012, unless otherwise mentioned.
- The billing data (RIZIV – INAMI) give a partial picture of total ED activity since only activities reimbursed by the national health insurance are covered. ED activity related to foreign patients, labour accidents, etc. are not included.
- Data on the hospital budget (Budget of Financial Means) and associated points was provided by the FOD – SPF.
- The description of structural characteristics (e.g. size, location) of EDs and organised duty centres (ODCs) was based on data for the year 2015 provided by the FOD – SPF and RIZIV – INAMI, respectively.

### 2.1 Access to emergency departments: (self-)referrals or emergency calls

Patients can access the ED via a self-referral (walk-in patients), a referral by a physician (GP or specialist) or after an emergency call. Besides the 112

emergency call number, a new telephone triage system for primary care calls (i.e. 1733 number) is being rolled out.

#### Emergency calls: 112 number

Throughout Europe the number '112' can be called free of charge for all emergencies. In Belgium, calls for police services are transferred towards the '101' centre and it is recommended to dial '101' directly when only a police intervention is required (to prevent losing precious time). The 100<sup>a</sup> – 112 call centres handle the 'Medical Urgency Service & Fire Brigade' calls. The 'medical calls' in the call centres 100 – 112 are handled by non-clinical staff based on an initial standardized inquiry and a standardized 'process book'.<sup>18</sup> Based on this triage, it is decided which type of transport will be sent out to the emergency:

- Severe to very severe – an apparent life-threatening situation: 112 ambulance and Mobile Emergency Group (MUG – SMUR);
- Moderate to severe – a potential life-threatening situation: Paramedical Intervention Team (PIT);
- Minor but urgent situation: 112 ambulance.

If the type of transport is not available within a reasonable timeframe, deviations are possible (e.g. PIT instead of MUG – SMUR, etc.). Indeed, some geographical regions are better covered than others but for more than 90% of the Belgian territory emergency care transport can arrive within a 15 minutes time window.<sup>19</sup>

After medical stabilisation at the scene, the patient is transported to a specialised ED (a triage at the scene will potentially influence the choice of hospital: e.g. in case of a STEMI a hospital with percutaneous coronary intervention facilities will be chosen). The lowest care level in case of a 112 call is thus a 112-transport towards a specialised ED.

<sup>a</sup> The 100 number refers to the number to activate the fire brigade or medical emergency transport that existed before the 112 number. When people dial this number, they are transferred automatically to the 112 number.





### Primary care calls: 1733 number

Patients requiring a general practitioner can call their GP directly. During out-of-hours periods local telephone numbers for GPs on call exist. Besides these GP-numbers and the 112 number, a new number '1733' has been launched for primary care related calls. This number exists since 2008 but is only in use in specific project-regions (e.g. Luxemburg). In a first phase, the number 1733 has been implemented as an automatic connection to the GP on call. In a second phase, the 1733 calls will be handled in the 100 – 112 call centres where first a 'medical emergency' is excluded based on 100 – 112 protocols. Next, for non-emergency calls the call handler will advise (based on protocols that are adapted to the GP context) the most appropriate level of care (e.g. consultation GP on call or organised duty centre, GP home visit, scheduled GP appointment). The introduction of this second phase will happen via pilot projects (e.g. a pilot project for the region Leuven-Tienen started at the end of 2015; another pilot project exists in Bruges). In anticipation of the national deployment of the 1733 telephone number, the CHU Liège (Centre Hospitalier Universitaire de Liège) provides a government subsidized local triage alternative to 13 GP circles, four of which also benefit from an ODC.

## 2.2 Role and types of emergency departments

Belgium has two types of emergency departments: specialised<sup>b</sup> and non-specialised<sup>c</sup> EDs. **Specialised EDs** should be able to *"secure, stabilize and restore the vital functions"* and are *"responsible for the care of anyone who presents himself or is brought to the service with a health condition that can or may require immediate care"*.<sup>20</sup> This role includes: intake; first aid and, if required, the resuscitation, stabilization and restoration of vital functions; first diagnostic and therapeutic guidance/orientation; if required, a first observation period (less than 24 hours) with the aim of the diagnostic work-

up and therapeutic guidance; required actions to preserve the continuity of care to patients whether they are admitted to the hospital or not.<sup>20</sup>

Besides other recognition standards (e.g. architecture) it is stipulated that a 24/7 hour service must be provided by at least two nurses (with at least one nurse with a 'special title in intensive and emergency care'<sup>d</sup> or equal) and one physician.<sup>21</sup> The physician should be: a medical specialist in emergency medicine<sup>e</sup> (or in training); a medical specialist in acute medicine<sup>f</sup> or a physician with a certificate in acute medicine<sup>g</sup>. In addition, a transitional measure (until 31 December 2016) allows that a medical specialist or a medical specialist in training (with at least two years of training completed) in one of the following disciplines is on duty: anaesthesiology, internal medicine, cardiology, gastroenterology, pneumology, rheumatology, surgery, neurosurgery, urology, orthopaedic surgery, plastic surgery, paediatrics, neurology and geriatrics.<sup>22, 23</sup>

Acute hospitals without a 'specialised ED' are obliged to have a **non-specialised ED** that is capable to deal with the first care and treatment of patients with an acute pathology. The recognition standards for non-specialised EDs are light compared to these of specialised EDs (e.g. nursing staff is not required to have a special title in emergency and intensive care; one nurse instead of two; medical 24/7 service provided by physician on call for the entire hospital).

The legislator wanted to make a distinction between 'basic emergency services' and emergency services that could handle the more complex cases, such as major trauma or stroke. Although specialised EDs meet the legal requirements, they do not always have the specialised expertise or infrastructure for highly complex cases nor do they all have a critical mass of such patients that allows them to develop and maintain their expertise, as is the case for specialised EDs abroad.

<sup>b</sup> 'Gespecialiseerde spoedgevallenzorg'/'soins urgents spécialisés'

<sup>c</sup> 'Eerste opvang van spoedgevallen'/'première prise en charge des urgences'

<sup>d</sup> 'Bijzondere beroepstitels in de intensieve zorg en spoedgevallenzorg'/'titre professionnel particuliers d'infirmier spécialisé en soins intensifs et d'urgence')<sup>21</sup>

<sup>e</sup> 'Arts-specialist in de urgentiegeneskunde'/'médecin spécialiste en médecine d'urgence' or 'arts-specialisten houders van de bijzondere beroepstitel in de

urgentiegeneskunde'/'médecin spécialiste porteur du titre professionnel particulier en médecine d'urgence'

<sup>f</sup> 'Arts-specialisten in de acute geneeskunde'/'des médecins spécialistes en médecine aiguë'

<sup>g</sup> 'Brevet acute geneeskunde'/'brevet de médecine aiguë'



### 2.3 Vast majority of hospital sites have specialised emergency departments

Belgium has (anno 2015), compared to other countries, a high hospital density with 102 acute hospitals and 198 different hospital sites (see Figure 2).<sup>24</sup> Moreover, most Belgian acute hospitals have at least one specialised emergency department (i.e. 101 out of 102 acute hospitals), which is rather exceptional in an international context (see Table 2).

There are 139 sites (71.2%) with an emergency care structure (131 sites have a specialised ED and 8 sites have a non-specialised ED) and 58 (28.8%) sites have no ED. A high number of specialised EDs at small but densely populated areas can be observed (see Figure 3) in the large cities like Antwerp, Brussels, Liège and Ghent.

**Table 2 – Availability of emergency departments in Australia, Denmark, England, France, the Netherlands and Belgium**

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) <sup>a</sup>	728 <sup>b</sup>	3.15	289 <sup>c</sup>	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 <sup>d</sup>	0.33	43.0%	53 865 800
France (2013) <sup>e</sup>	1592	2.41	655 <sup>f</sup>	0.99	41.1%	65 925 498
Netherlands (2014)	131	0.78	91 <sup>g</sup>	0.54	69.5%	16 804 432
<b>Belgium (2015)</b>	<b>198</b>	<b>1.77</b>	<b>139</b>	<b>1.77</b>	<b>70.2%</b>	<b>11 209 044</b>

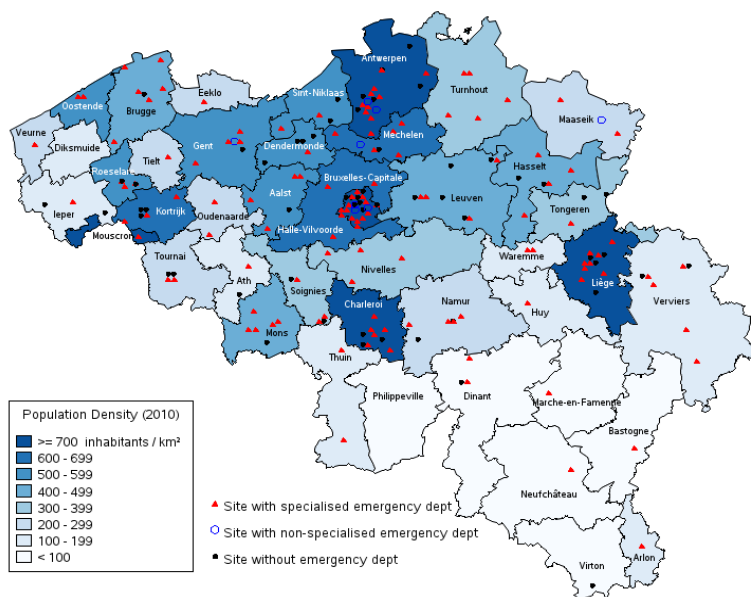
\*Sources: AIHW, 2014; Ricroch, 2015; Regions, 2014; HSCIC, 2015<sup>25-29</sup>; \*\* Sources: Regions, 2014; HSCIC, 2015; WHO, 2015; AIHW, 2015; Deuning, 2015<sup>28-32</sup>; \*\*\* Sources: World Bank, 2015; ONS, 2014<sup>33, 34</sup>

Notes: <sup>a</sup> 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; <sup>b</sup> Number refers to acute public hospitals; <sup>c</sup> There are also 23 EDs at private hospitals but they are excluded because do not play an important role <sup>35</sup> and because utilisation data is not available for these EDs; <sup>d</sup> 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; <sup>e</sup> For France the number of hospital sites is underestimated since for public hospitals only information was available at the level of the hospital; <sup>f</sup> Hospitals with multiple EDs are counted only once; <sup>g</sup> In addition, four hospitals have an ED, which is not open 24/7.



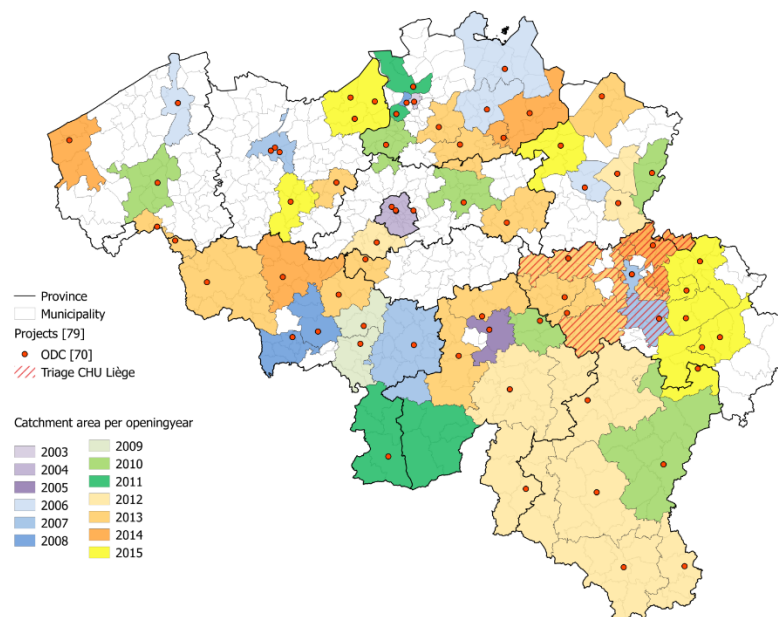
**Figure 2 – Emergency departments and organised duty centres in Belgium (2015)**

### Specialised and non-specialised emergency departments



Source: Density data 2010 from Statistics Belgium (DGSIE – ADSEI)<sup>h</sup> and characteristics of hospital sites from the FOD – SPF Public Health, data September 2015

### Catchment area and location of organised duty centre (ODC) projects per opening year



Source: RIZIV – INAMI, geographic data by Federal Public Service Economics/DG Statistics Belgium

<sup>h</sup> 'Direction générale Statistique et Information économique'/'Algemene Directie Statistiek en Economische Informatie'



## 2.4 Activity profile of Belgian emergency departments

### 2.4.1 *A high and increasing number of ED visits, especially ambulatory and self-referred ED visits*

From 2009 to 2012 the number of contacts in specialised and non-specialised EDs increased from 3 006 321 to 3 195 897<sup>i</sup>, corresponding to 280 ED visits per 1000 population in 2009 and 290 ED visits per 1000 population in 2012. This increase between 2009 and 2012 seems to coincide with a rising number of ED visits labelled as day care (from 20 to 25 ED visits per 1000 population) and ambulatory care visits (from 193 to 198 ED visits per 1000 population). The number of ED contacts followed by an inpatient stay remained stable over the years (i.e. 67 per 1000 population). However, the definition of day-care cases should be interpreted with caution since the numbers include ambulatory ED contacts for which a mini lump sum was charged (see Box 2).

#### Box 2 – ED visits labelled as day care: a cautionary note

It should be noted that ED visits labelled as 'day care' also contain ED visits for which a mini lump sum was charged. In 2012, this concerned 91% of ED visits that were labelled as day care. To be in line with the National Feedback of EDs<sup>36</sup> we report them as day-care cases unless otherwise mentioned. From 2014 onwards these mini lump sums are included in the hospital budget resulting in an increase in the portion of patients that were labelled in the MZG – RHM as 'ambulatory ED visits'.

Although there is considerable variation in the number of ED visits across the studied countries (i.e. ranging from 124/1000 population in the Netherlands to 311/1000 population in Australia), Belgian figures are rather high (see Table 3). The country-specific context should be taken into account when these results are interpreted. Australian statistics include, for instance, also patients who visit the ED for planned follow-up and pre-arranged visits. In addition, countries like Denmark and the Netherlands are known for their strongly developed primary care system. The majority of ED visits in Belgium are ambulatory visits (68.4% in 2012, 76.9% if ED contacts labelled as day-care are counted as ambulatory ED visits). Only 23.1% of the ED visits are followed by an inpatient stay.

The type of ED visit varies across age categories with about 85% ambulatory ED visits for patients between 1 and 20 years of age. This percentage decreases with age to reach about 26% of ED visits for the elderly (80 years of age and older). For children below 1 year of age, the picture is somewhat different with 75% ambulatory ED contacts and only 23% of ED contacts followed by an inpatient stay.

The majority of ED visits are self-referrals (70.3%). The percentage of self-referrals is highest for ambulatory ED visits (79.1%) and ED visits followed by day care (66.5%). For ED visits followed by an inpatient stay, the percentage of self-referrals is much lower (45.8%). The percentage of self-referrals for all ED contacts is 42% and 64% in the Netherlands and England, respectively.<sup>37</sup>

<sup>i</sup> In 2012, 32 500 ED contacts or 1.02% of all ED contacts occurred in one of the eight non-specialised EDs.

**Table 3 – Indicators of emergency department use in Australia, Denmark, England, France, the Netherlands and Belgium**

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) <sup>1*</sup>	7 195 903	311	5 069 750	219	2 383 578	103	33.1%
Denmark (2013) <sup>2</sup>	875 765	156	624 670	111	251 097	45	28.7%
England (2013-14) <sup>3</sup>	14 213 148	264	10 791 930	200	3 792 806	70	26.7%
France (2013) <sup>4</sup>	18 400 000	279	14 400 000	218	4 000 000	61	21.7%
Netherlands (2012) <sup>5</sup>	2 079 172	124	1 413 837	84	665 335	40	32.0%
<b>Belgium (2012)</b>	<b>3 195 897</b>	<b>290</b>	<b>2 455 647**</b>	<b>222**</b>	<b>740 250</b>	<b>67</b>	<b>23.2%</b>

Sources: 1 AIHW, 2014; AIHW, 2015<sup>25, 35</sup>; 2 Regions, 2014; Statistics Denmark, 2015<sup>28, 38</sup>; 3 NHS England, 2015<sup>39</sup>; 4 Cour des Comptes, 2014<sup>40</sup>; 5 Own calculations based on Berchet, 2015<sup>41</sup> and Gaakeer, 2014<sup>42</sup>

Notes: \* The number of ambulatory ED visits and the number of emergency inpatient admissions do not equal the number of hospital ED visits because emergency inpatient admissions may occur also at hospitals that do not have a formal ED; \*\* When day-care ED visits (including 90% ambulatory contacts that are for administrative reasons classified as day-care) are excluded this changes to 2 184 732 ED visits or 198/1000 population.

Numbers are different from those reported in Berchet (2015)<sup>12</sup> 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); the number for the Netherlands is identical.

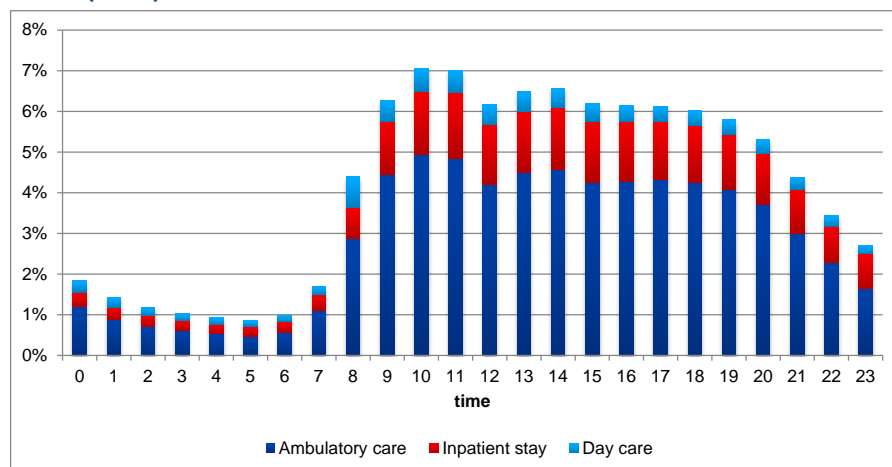
#### 2.4.2 Activity on EDs peaks during office hours

The peak moments of ED visits are situated at daytime between 9 AM and 7 PM. It should be noted that there are a considerable number of ED contacts during late-evening (i.e. 10.5% has a time of admission at the ED from 9 PM to 11:59 PM) and night hours (i.e. 10% has a time of admission at the ED from 12 AM to 7:59 AM) (see Figure 3). The number of ED visits are relatively well balanced over the seven days of the week with a small peak on Mondays (due to a peak in ED visits from 8 AM – 11.59 AM).

In addition, despite the yearly reports in the media about peaks in the number of ED visits during the winter periods, this cannot be observed from the data where the number of ED visits is relatively stable across the months of the year. For 2012, we observed a peak in the number of ED visits in March and May.



**Figure 3 – Percentage of stays per arrival time in the day for emergency visits (2012)**



Source: *National Feedback on emergency department activity in acute hospitals (2012)*

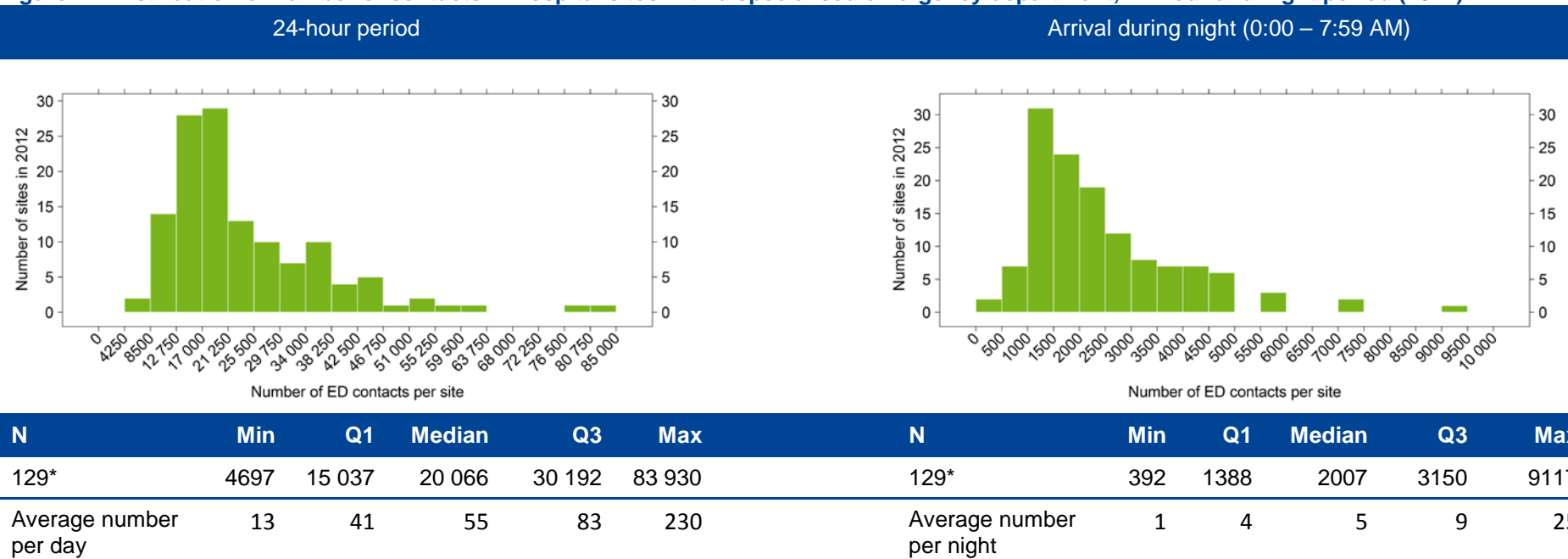
### 2.4.3 EDs have a highly variable caseload

For 2012, the number of ED contacts per hospital site varies from 4697 to 83 930 contacts with a median value of 20 066 contacts. In other words, half of the hospital sites have on average 55 ED contacts per 24 hours (see Figure 4, left-hand side). Also in the Netherlands<sup>43</sup> large variations in ED contacts between hospital sites were reported ranging from 7000 to 50 000 contacts with a mean of 22 800 visits.

Moreover, half of the hospital sites have no more than 2007 ED visits during the night per year (or on average  $\leq 5.5$  ED arrivals per night). The number of ED contacts during the night is, on average, slightly higher in the weekend (or on average  $\leq 7$  ED arrivals per night in half of the hospital sites) than on weekdays (or on average  $\leq 5$  ED arrivals per night in half of the hospital sites). It should be noted that the above results do not represent the total activity on sites between midnight and 7:59 AM but only the new arrivals during this period. If we add up the patients still on site and the new arrivals within this period of time, we see that for half of the sites, there are at least 9 patients per night on site.



**Figure 4 – Distribution of number of contacts in hospital sites with a specialised emergency department, 24-hour and night period (2012)**



Source: FOD – SPF data on emergency contacts in acute hospitals, specialised EDs only (2012)

\* Two hospital sites that were closed or opened during 2012 were omitted

#### 2.4.4 Not all emergency department visits are emergencies, but are they inappropriate?

##### Internationally high levels of inappropriate ED visits reported

The use of ED services by patients who do not require emergency care, by some authors labelled as 'inappropriate ED visits', is a commonly reported problem in various countries.<sup>12, 44, 45</sup> Most international studies report proportions varying from 24 to 40%.<sup>46</sup> Also Belgian studies<sup>44, 45</sup> report high proportions (i.e. 40-56%) of inappropriate ED visits. Yet, it is important to provide some context to these figures.

##### Inappropriate ED visits: no uniform definition or measurement method

There is no uniform definition of what can be considered as 'inappropriate ED use'. Consequently, a wide range of explicit and implicit criteria and measurement methods are used (in a non-uniform way) to identify inappropriate ED visits. Next, in reality patients arrive at the ED with complaints, symptoms and signs but not with a verified discharge diagnosis. Thus, the prospective classification of ED visits as (in-)appropriate in the triage area relies on complaints, signs and symptoms and not on diagnoses which are retrospectively assigned. The limited correspondence between prospective and retrospective measurement classifications<sup>47</sup> can thus be considered as a limitation in the context of triage decisions that redirect



patients towards alternative care settings outside the ED. Another limitation is the generally low correspondence between the views of patients and professionals on the 'need for emergency care'. This complicates the labelling of ED contacts as inappropriate because most ED visits (i.e. 70% for 2012) are self-referrals outside the influence of emergency physicians.

### **Factors associated with 'inappropriate ED visits'**

The factors associated with ED visits that do not require emergency care are: poor accessibility of primary care and the lack of a stable relationship with a primary care physician; socioeconomic variables and age (e.g. phenomenon among young children to bypass the GP to get direct access to a paediatrician).<sup>46, 48</sup>

### **Frequent ED users**

There are special groups for whom the 'appropriateness of ED use' might require attention. A well-known group is that of the frequent ED users. Although different thresholds for defining frequent ED users exist in the literature (e.g. threshold of 3 to 10 ED visits within a period of 12 months), it is estimated that between 1 to 5% of the overall ED population are frequent users.<sup>49</sup> Despite being a marginal proportion of total ED patient population, it is well described in the international literature that frequent ED users have complex healthcare needs (e.g. exacerbations of patients with chronic conditions, frail elderly, substance abusers, nursing home residents) that are not optimally managed within the context of the ED healthcare setting. In Belgium, 3.26% of total ED patient population (year 2012) can be labelled as frequent ED users (i.e.  $\geq 3$  ED visits per year; based on data from the FOD – SPF).

### **Even though exact data do not exist, it is clear that there is room for improvement**

Despite this lack of consensus on the appropriateness of ED visits, the available evidence (e.g. estimated prevalence rates, high degree of ambulatory self-referrals) illustrates that many ED patients could have been treated appropriately at other care levels (e.g. GP consultations) or ED visits could have been prevented (e.g. in case of better care coordination). Although all interviewed stakeholders admitted that a proportion of ED patients can be prevented or safely seen by care alternatives, they assessed the magnitude of the inappropriate use of EDs differently. Only part of the

interviewed stakeholders stressed that the current situation is problematic since it burdens emergency care needlessly and can be considered as an inefficient use of resources. Also internationally the inappropriate use of EDs is a cause of concern for several reasons.<sup>12</sup>

Measures to achieve less inappropriate ED visits are considered as necessary to decrease overcrowding and its consequences such as increased length of stay, the strain of health professionals or aggressive patient behaviour.<sup>50</sup> In addition, it is seen as a measure to prevent unnecessary healthcare consumption and costs. After all, it has been shown that patients are bypassing GPs to get immediate access to specialised tests and that EDs have a higher use of medical imaging and laboratory tests for patients with primary care problems.<sup>12, 46, 51</sup> It is also deemed necessary to guide inappropriate visits away from the ED towards primary care to strengthen the role of primary care and to enable better prevention services, continuity of care and self-management support among these patient groups.<sup>52</sup>

## **2.5 Workforce**

### **Emergency physicians: a heterogeneous group**

One essential difference concerning the organisation of emergency care across countries is the availability of specifically trained staff dealing with emergency care. As in all studied countries (except for Denmark where this is matter of debate since 2007), also in Belgium emergency medicine has been recognised as a medical specialty. Yet, in Belgium, the medical discipline of emergency physicians is not a homogeneous group. Besides emergency physicians (specific recognition or a physician from another discipline with a special title in emergency medicine), also physicians in acute medicine (specialty or certificate) can practice in the ED. A transitional measure (until 31 December 2016) allows on duty services by a medical specialist or a medical specialist in training (with at least two years of training completed) in a selection of disciplines.<sup>22</sup>

In 2012, the Belgian register of physicians counted 41 emergency physicians of whom 35 practising (i.e. billed RIZIV – INAMI nomenclature codes in the ED). In addition, there were 432 medical specialists of another medical discipline with a special title in emergency medicine, 289 physicians in acute medicine and nine medical specialists without a special title in





emergency medicine practising. Finally, there were 147 emergency physicians and 45 acute care specialists in training on 31 December 2012.

It should be noted that physicians with a certificate for acute medicine (1210 certificates over the course of years) are not listed within these data. Although a large part (i.e. 26.3%) of this group concerns physicians with a medical specialty in emergency medicine or acute medicine (represented in the figures), exact figures of other physician groups with a certificate in acute medicine (28.8% GPs, 41.6% medical specialists from another discipline, 3.3% physicians without a specialisation) are not included. It is for those categories not possible in the register to identify if and what portion of their activities are performed at the ED.

### Emergency care nurses

Increasingly, countries organise training courses that specifically train nurses to take on more important roles in emergency care provision. Since 2007, a system of extra bonuses exists in Belgium to reward nurses with a special title in several domains. One of these domains is 'emergency and intensive care'. Nurses with a bachelor's degree can obtain a special nursing title in intensive and emergency care if they follow post-graduate training and are professionally active in the field of intensive care and/or emergency care.<sup>53</sup> In 2014, there were 9955 nurses with a recognised title in intensive and emergency care.<sup>54</sup> It is, however, unclear how many of these nurses (and at what employment status, i.e. part-time or full-time) work in EDs. From the feedback reports of the Belgian Nursing Minimum Dataset we know that the educational level in EDs is higher than in general hospital units. In EDs the vast majority of nurses have at least a bachelor's degree level.<sup>55</sup>

### ED workforce under pressure

Emergency physicians work in a stressful environment and a shortage of emergency physicians is reported.<sup>56, 57</sup> Yet, there is a need to evaluate this in a larger policy context (e.g. task distribution, required number of

emergency departments: see also section 5.5). In any case, interviewed emergency physicians reported that their profession is stressful and undervalued which is also confirmed by the international literature<sup>58, 59</sup> where high levels of burnout are reported among emergency physicians. It has been shown that these burnout levels are related to environmental factors such as workload, staffing shortages, uncontrollable environment, violence, trauma, and stressful situations such as the death of a patient.<sup>59</sup>

Also for nurses the ED environment seems to be stressful.<sup>60, 61</sup> Although this finding may not come as a surprise since nurses in EDs are exposed to stressful work-related events and unpredictable working conditions, this remains an important finding because of its association with psychosomatic complaints and fatigue.<sup>61</sup> Nurses report as major shortcoming in their work environment, a lack of staffing adequacy.<sup>62</sup> Indeed, the adequacy of staffing ratios in Belgian EDs has been questioned before.<sup>63</sup> The recognition standards for specialised EDs require a 24h availability of at least two nurses which corresponds to at least 10.46 full-time equivalent (FTE) nurses.<sup>63</sup> Based on data (year 2008) from 37 hospitals (70 hospital sites), it was found that the median nurse staffing level was 13.13 FTE (Q1=12; Q3=14.3) and 14 FTE (Q1=12; Q3=18.15) in EDs without and with a MUG – SMUR, respectively.<sup>63</sup> Moreover, three EDs did not meet the minimal number of FTEs (i.e. 10.46 FTE) that are required to meet the minimal staffing norms. In addition, empirical evidence confirms that staffing in EDs is insufficiently adapted to the activity level of the EDs.<sup>63, 64</sup> This is problematic in light of a recent evidence review that illustrated that, although evidence is weak, lower levels of nurse staffing in the ED are associated with more patients leaving the ED without being seen, increased ED care time and worsened patient satisfaction.<sup>65</sup> At the same time, Belgium has a very high number of specialised EDs for which a 24/7 staffing by two nurses is required resulting in many EDs with a very low caseload (see section 2.4.3) and many patients have a low acuity level.<sup>64</sup>

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<sup>i</sup> For EDs with a MUG – SMUR a minimum of 15.69 FTE is required.



## 3 ORGANISATION AND ACTIVITY OF OUT-OF-HOURS PRIMARY CARE SERVICES

### 3.1 The context of primary care in Belgium

#### **The ageing GP profession is predominantly organised in solo or small group practices**

In Belgium there are 12 483 (year 2013) active GPs<sup>k</sup> corresponding to a density of 11.2/10 000 inhabitants.<sup>66</sup> There is an unequal spread of GPs on the Belgian territory and large differences exist in their activity level. Generally a higher activity level can be observed in the north compared to the south.<sup>67</sup> In addition, the GP profession is rapidly ageing. The mean age of GPs is 53 years and 9.9% of active GPs are aged ≥65 years.<sup>68</sup> Despite several policy measures aiming to increase the intake into the profession, the 28% of medical graduates choosing GP as their medical discipline will be insufficient to replace this high number of GPs who are close to retirement age.<sup>68</sup> The vast majority of GPs still work in solo practices or small group practices and are self-employed.<sup>69</sup> They frequently run their practices with a medical secretary as the only form of supporting staff. Although the share of lump sum payments for GPs has increased, the predominant payment system remains the fee-for-service system (FFS). Group practices can choose for a fee-for-service payment system like other physicians, but can also opt for a capitation system. These group practices are often called medical houses<sup>l</sup>. In 2014, 139 medical houses covered about 2.7% of the population.

#### **No gatekeeping role for GPs**

Belgian healthcare is characterized by free access to primary, secondary and tertiary care facilities. There is no gatekeeping role for GPs and no need

for a referral to see a medical specialist.<sup>5, 69</sup> The global medical record (GMD – DMG) was introduced in 2001 to increase care coordination and continuity of care. Patients who choose (62% in 2013)<sup>68</sup> for this system allow one GP to manage their medical information in return for a lower co-payment. The proportion of insured citizens with a GMD – DMG has increased since its inception in 2002.<sup>70</sup>

#### **Out-of-hours activities: small portion of GP activity but with a potential impact on ED use**

GPs in Belgium have about 46.25 million contacts<sup>m</sup> per year (data year 2012) of which 1.19 million contacts or 2.6% are performed during out-of-hours periods (evenings, nights, weekends and bank holidays). When limiting out-of-hours to the late evenings and nights (from 9 PM until 8 AM), the number of contacts further decreases to 197 812 contacts or 0.4% of total GP activity. Despite the relatively low portion of GP activity performed during out-of-hours periods, in absolute numbers, GPs accommodate a substantial number of contacts. Small changes in the GP organisation (e.g. disappearance of ODCs) can potentially have a large impact on ED activity.

### 3.2 Organisation of out-of-hours primary care services

#### *3.2.1 Shift from local rotation systems to larger GP cooperatives*

GPs have a legal obligation to ensure 24/7 continuity of care for their patients.<sup>71</sup> For decades GPs were permanently on call for their patients. Later on, local GP organisations, called 'GP circles', started to organise out-of-hours services (evenings, nights, weekends and bank holidays) via rotation systems. GP circles ('huisartsenkring'/'cercle des médecins') (n=147 in 2014) are the official organisations for recognised GPs from a specific geographical area which are, among other tasks, responsible for the organisation of the on call system for GPs in the area. In the majority of cases they use a phone number that immediately leads to the out-of-hours

<sup>k</sup> GPs billing at least 500 RIZIV – INAMI activities in the year of analysis for an employment rate of at least 0.1 FTE in the social security records.

<sup>l</sup> Not all GP practices that are paid via the capitation system are medical houses.

<sup>m</sup> The data presented in this paragraph are based on the billing records of RIZIV – INAMI. Consequently, ED contacts not covered by the national health

insurance are not included. As such these data differ substantially from the number of ED contacts that are presented in section 2.4 which are based on the MZG – RHM and include all ED contacts.





care facility. GPs related to a GP circle are on call for the patient population of that particular area (at least 1 GP per 100 000 inhabitants between 8 AM and 11 PM and 1 GP per 300 000 inhabitants between 11 PM and 8 AM).<sup>72</sup> They can work from their private practices during these out-of-hours periods.<sup>73</sup> In 2003, the RIZIV – INAMI started to finance larger GP cooperatives to organise the on-call duties in ‘organised duty centres’ (ODC; ‘wachtposten’/‘postes de gardes’). These ODCs are well-equipped practices in specific geographical areas. In 2015, 70 ODCs were functional (32 in Flanders; 34 in Wallonia; 4 in Brussels) covering about 68% of total Belgian population (see Figure 2, right-hand side). In general, these ODCs are well distributed across the Belgian territory but regional differences exist. Especially in Flanders there are more areas which are not yet covered by an ODC (coverage 2014 – surface: 47%; population: 53%). In Wallonia (coverage 2014 – surface: 83%; population: 76%) and Brussels (coverage 2014 – surface: and population: 100%) coverage is much larger.

### *3.2.2 ODCs are bottom-up initiatives mainly initiated to improve working conditions of GPs*

It is generally assumed that the main driver of policymakers to financially support ODCs in Belgium was the improvement of working conditions of GPs. After all, the GP profession was considered to be in a crisis<sup>74, 75</sup> and several benefits were attributed to the concentration of an on-call shift in ODCs (e.g. lower out-of-hours workload per GP, improved safety, lower administrative burden).<sup>69</sup> In addition, it is also seen as a step in the direction of larger and more multidisciplinary group practices and in strengthening primary care services in general. Nevertheless, an overall national clear vision on the role and objectives of ODCs is lacking. The role of ODCs in the reduction of ED visits of patients with a primary care profile, for instance, is matter of debate. In fact, ODCs emerged mainly bottom-up without being fit into a larger policy plan and resulting in large heterogeneity (e.g. location, opening hours, staffing). Until now, no evaluation has been conducted to see what works and what not.

### **Decisions where to open ODCs not based on empirically defined priority areas**

ODCs were set up on the request of GPs seeking an answer to their local problems.<sup>69</sup> The RIZIV – INAMI initiated a study<sup>76</sup> (when 40 ODCs were already in operation or planned) to identify the optimal spots where to locate ODCs throughout the country. Since the publication of this study early 2012, 30 new ODCs have been set up with only 17 ODCs located in a spot identified as optimal by the study.<sup>76</sup> In fact, the location of new ODCs still largely depends on local preferences and opportunities rather than on empirical data.

### **Location of ODCs mostly independent from EDs**

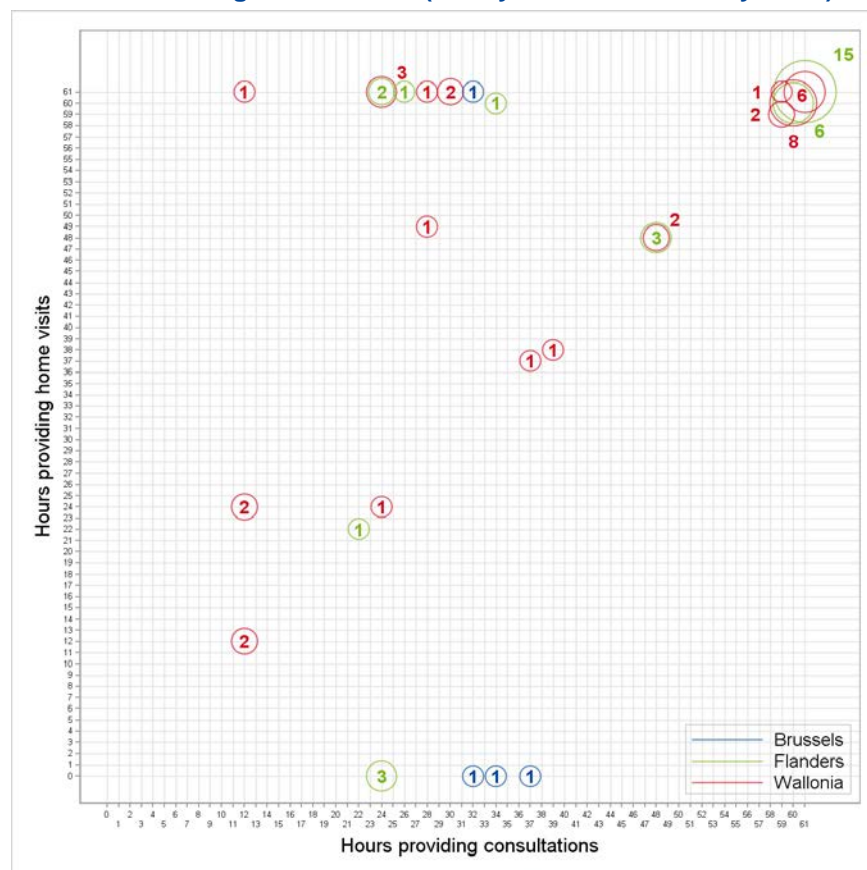
Anno 2015, there are more EDs (n=139) than ODCs (n=70). This is particularly so in large cities like Antwerp (4 ODCs; 8 EDs), Ghent (3 ODCs; 5 EDs) and Brussels Capital (4 ODCs; 18 EDs). Secondly, although 15 ODCs are located at (n=8) or next to a hospital site (< 150 meters; n=7), most ODCs are not and none are truly integrated in an ED. Fifty percent of ODCs is more than 1 km (measured as strait line distances) removed from the nearest hospital site. The differences can mainly be explained by the different visions of the initiators (GPs and GP circles) and their relationships with the local hospital and EDs.

### **Opening hours and available staff differ substantially**

ODCs are primarily funded to open during weekend days and bank holidays. However, they are not required to open during the entire weekend. Only 7 ODCs are open during evenings on weekdays (4 in Brussels, 1 in Charleroi, 1 in Namur, 1 in Liège), of which the one in Namur is also open during the night. ODCs are allowed to organise themselves as they see fit, which has led to large variations in opening hours and availability of GPs during those hours. The recent agreement of the National Commission of Sickness Funds and Providers (the so-called ‘Medico-Mut’) specified that new ODCs will have to be open at least 61 hours (entire weekend from Friday evening until Monday morning) to receive funding.<sup>77</sup>



**Figure 5 – Number of ODCs per number of hours of consultations and home visits during the weekend (Friday 7 PM until Monday 8 AM)**



Source: RIZIV – INAMI

Note: only ODCs are depicted, projects limited to the alternative triage system provided by CHU Liège are not included.

Figure 5 shows that 38 ODCs provide consultations and home visits from Friday evening to Monday morning (between 59 and 61 hours per weekend). This does not imply that they are all organised in the same way in terms of the number of GPs available per hour or the ODC's accessibility. Sixteen ODCs out of these 38 have one or more GPs offering consultations at the ODC and at least one GP doing home visits during the entire weekend. For the other 22 ODCs some parts of the weekend (mostly during night hours) are covered by one GP taking care of both consultations and home visits at the same time.

Twelve ODCs out of 13 that provide less than 37 hours of home visits during weekends are in fact ODC satellites. They are part of projects where one catchment area is covered by one or two larger central ODCs and one or more smaller ODC satellites. Home visits for the entire catchment area are centralised in the larger ODCs for the entire weekend or during night hours when activity is low. The central ODCs in these projects are mostly open from Friday evening to Monday morning, while their satellites offer limited opening hours and are most often closed during weekend nights.

At some ODCs patients can walk in at any time of day or night, where one or two receptionists are always available to admit patients and take calls. In other ODCs patients only get access after making an appointment and receptionists are only available during day time. Night calls are diverted to an external call-taking service, to the driver who drives the GP during home visits or directly to the GP on call.

The number of GPs on call is adapted to the time of day and expected patient flow. This planning is entirely left up to the individual ODCs. Even though the law establishes the minimum number of GPs on call (1 per 100 000 inhabitants between 8 AM and 11 PM, 1 per 300 000 inhabitants between 11 PM and 8 AM), there are no rules as to the maximum number of GPs on call in the ODCs or classic rota systems, nor any binding rules on the number of GPs providing consultations versus home visits in the ODCs. Table 4 shows the distribution of the number of GPs on call per hour for all ODCs in 2015.

**Table 4 – Distribution of the number of GPs on call per hour for 70 ODCs and ODC satellites**

Type of contact	8 AM – 11 PM					11 PM – 8 AM				
	Min	Q1	Q2	Q3	Max	Min	Q1	Q2	Q3	Max
Consultation	0.5	1	1	2	3	0.5	0.5	0.5	1	2
Home visit	0.5	1	1	2	10.5	0	0.5	1	1	10.5

Source: RIZIV – INAMI

Note: 0.5 stands for one GP providing both consultations at the ODC and home visits at the same time

### Low caseload of ODCs, especially during nights

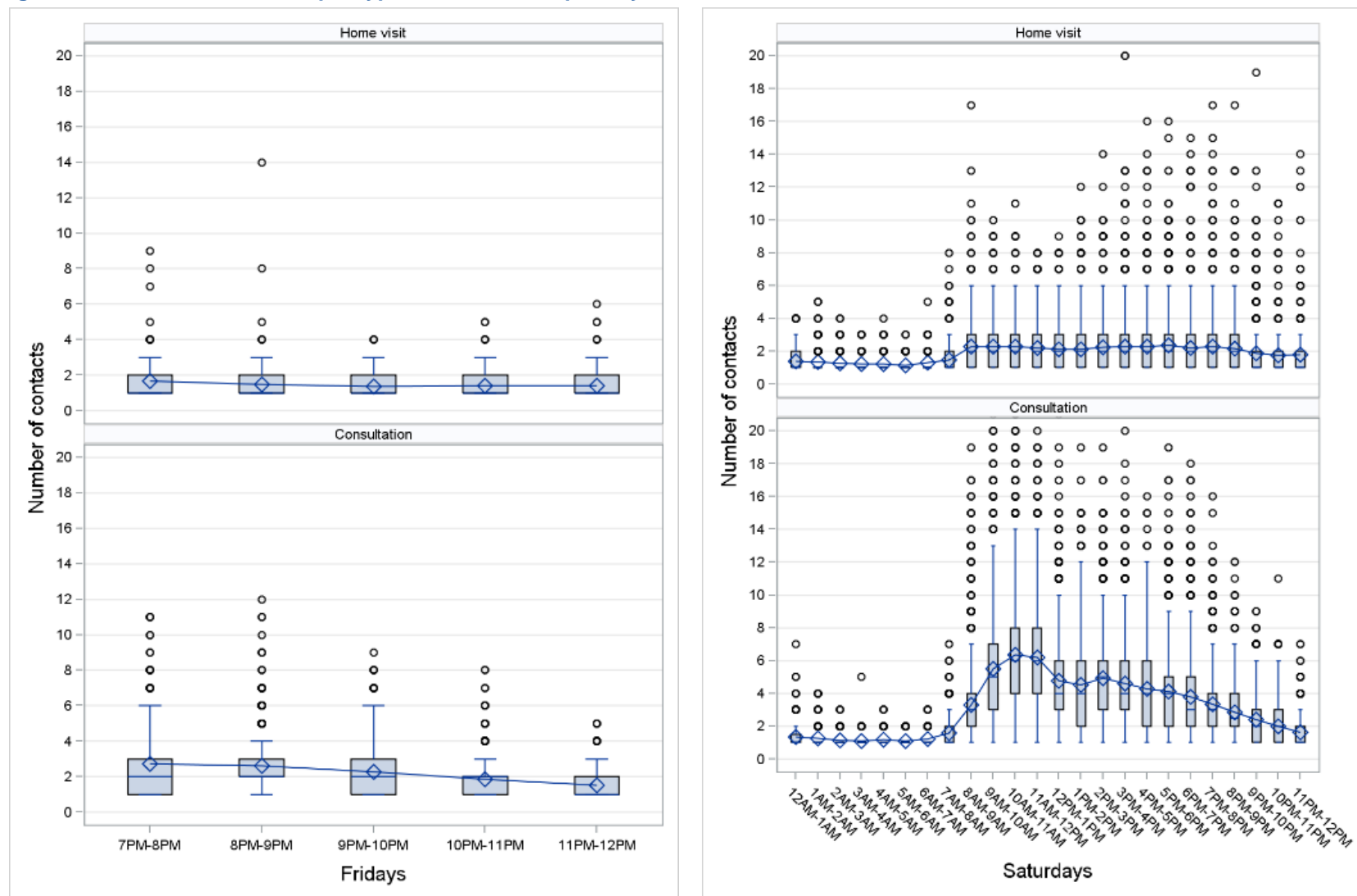
An evaluation of five ODCs in 2009 showed that ODCs that are open at night have low caseloads.<sup>69</sup> Using data on the number of consultations and home visits of 33 ODCs in 2014 we re-evaluated the caseloads during the weekend. A low caseload (consultations and home visits) was confirmed, especially at night. The average number of contacts at night (from 12 PM until 6 AM) ranged from 1 to 3.5 home visits and 1 to 4.1 consultations per ODC. The average number of contacts at night per 100 000 inhabitants ranged from 1.1 to 5.2 home visits and 1.2 to 3 consultations per 100 000 inhabitants per ODC (see Figure 6).

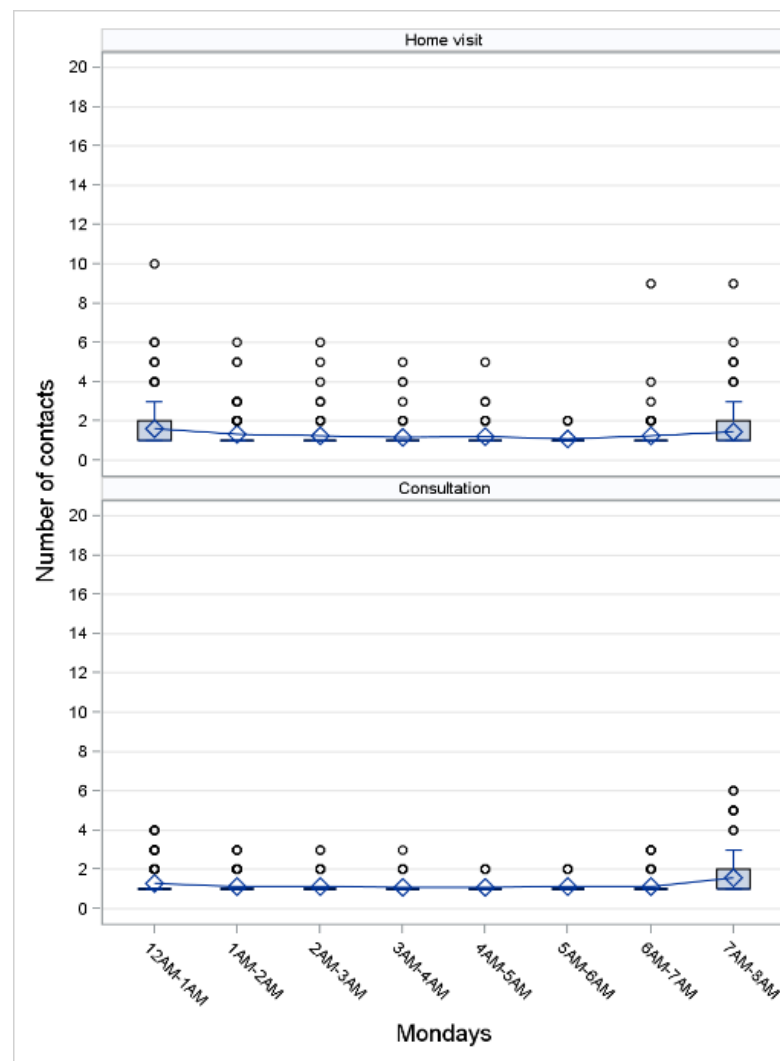
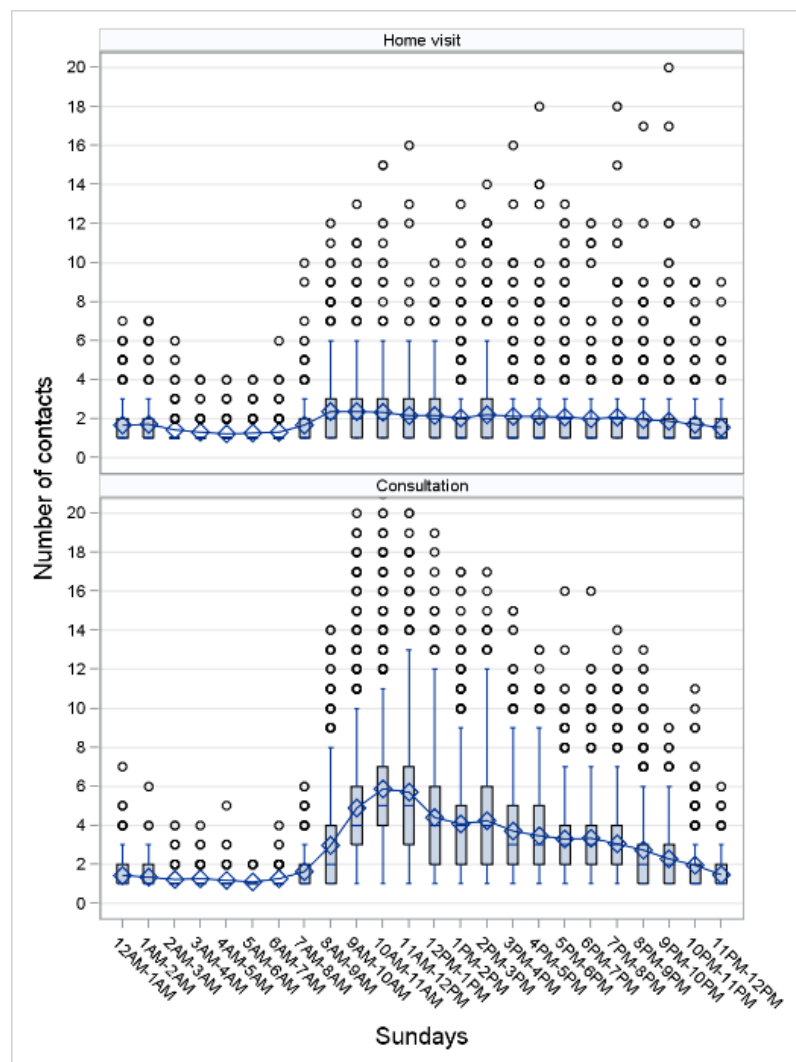
### Modest overall impact of policy measures on GP out-of-hours workload

The implementation of 38 ODCs between 2009 and 2014 did not substantially change the number of hours GPs are on call and geographical differences remained (the median number of hours on call per GP was 587h/GP in rural areas, 324h/GP in semi-rural areas and 198h/GP in urban areas). Yet, the proportion of GPs on call for more than 50 nights per year has dropped in rural areas, while the proportion of GPs on call between 10 and 29 nights per year has increased.



Figure 6 – Number of contacts per type of contact and per day for 33 ODCs





Source: RIZIV – INAMI



## 4 PAYMENT SYSTEMS FOR OUT-OF-HOURS PRIMARY CARE AND EMERGENCY DEPARTMENT SERVICES IN BELGIUM

### 4.1 Public payments for the emergency department and its workforce

#### 4.1.1 *The hospital budget for emergency departments is increasingly based on ED activity*

Public funding of hospitals consists of a global closed-end budget, called the 'Budget of Financial Means (BFM)'. This budget covers non-medical activities such as the services for accommodation, emergency care services and nursing activities. The medical activities are covered via a fee-for-service system. Although several components of the BFM concern the ED, we focus on the B2-part (covering nurse staffing and medical products) and its calculation rules since this is the largest part of the payment system for EDs. Moreover, the system underwent significant changes in July 2013. In particular, the distribution of the closed-end hospital budget among hospitals changed from a calculation method largely based on the hospital size towards a method based on ED activity.<sup>24</sup>

### Box 3 – The hospital payment system in a nutshell

#### The Budget of Financial Means

The Budget of Financial Means (BFM) covers capital and investment costs (part A), operational costs (part B) and some corrections (positive or negative) of budgets for past financial years (part C). A budget year runs from 1 July to 30 June. Subparts B1 (common operational costs) and B2 (clinical costs) are the two major parts of the hospital budget.

#### General principle of the allocation of the B2-budget to individual hospitals

A national closed-end budget for part B2 is allocated to individual hospitals on the basis of a point system by which the national budget is divided by the total number of B2-points 'earned' by all hospitals. This gives the monetary value of one B2-point. 'Justified activities' and the resulting number of 'justified beds', the number of operating theatres and the availability or not of an emergency department determine the number of basic points a hospital is entitled to. Supplementary points can be attributed depending on activity and care profile (e.g. nursing intensity).

#### Justified activities

Justified activities are based on the number and type of admissions during a reference year. A national average length of stay per pathology group (All Patient Refined Diagnosis Related Groups (APR-DRGs)) is calculated, which is then applied to the case-mix of each hospital. Multiplying the national average length of stay per pathology group with the case-mix of a hospital gives the number of justified patient days for the hospital. Per department or group of departments, the number of justified patient days is divided by the 'normative occupancy rate' of the service (in general 80%).

#### The monetary value of a B2-point

The monetary value of one B2-point was equal to €25 410.07 in 2014. Given that 1 FTE nursing staff represents 2.5 B2-points, each hospital received € 63 525.18 per FTE nursing staff in 2013 while the 'theoretical' average labour cost used by the FOD – SPF to calculate the BFM, and based on collective labour agreements, equalled €65 556.





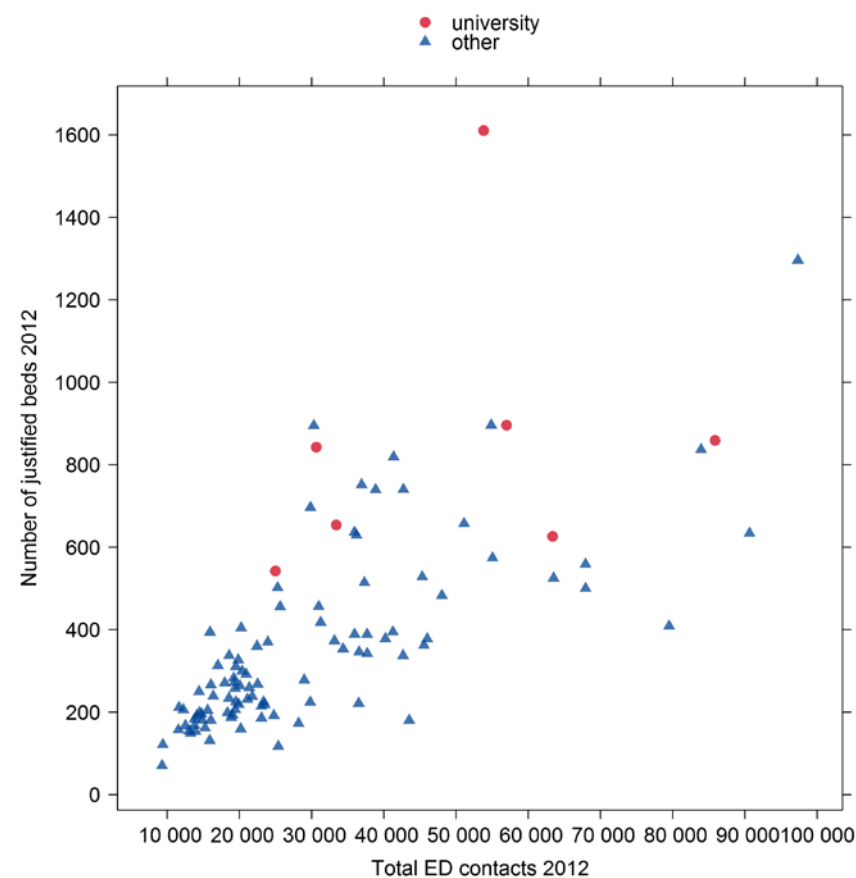
**The emergency department budget before July 2013 was mainly determined by the size and the case-mix of the hospital**

Until 1 July 2013, the basic part of the payment system for EDs was based on the number of justified beds per hospital.<sup>78, 79</sup> Acute hospitals with a non-specialised ED received three basic points per 100 justified beds and acute hospitals with a specialised ED or an intensive care unit received five basic points per 100 justified beds. As such, larger hospitals (with a correction for case-mix differences) received in general larger budgets for their ED.

Supplementary points depended on the amount of supplementary fees for activities performed in the last two years during the night, weekend and bank holidays for hospitalised patients (clinical biology activities are excluded). Hospitals were classified in deciles based on the values of these supplementary fees per occupied bed and the basic points were multiplied by a decile-specific factor ranging from 1 for deciles 1 to 3 to a factor of 2 for hospitals in decile 10.<sup>78</sup>

All interviewed stakeholders agreed that the two main parameters used in the calculation of the hospital B2-budget for the ED, namely the number of justified beds for the basic part and supplementary fees for activities performed during the night, weekend and bank holidays for hospitalised patients for the supplementary part, were insufficiently related to the ED activity. Although in general larger hospitals have a larger ED caseload than smaller hospitals, the relation between the size of the hospital (defined as the number of justified beds) and ED caseload is not necessarily proportional (see Figure 7).

**Figure 7 – Number of emergency department contacts and justified beds, by hospital type (2012)**



Source: FOD – SPF



### **The new calculation method better reflects caseload differences but has a higher risk of inducing inappropriate use**

A gradual implementation of new rules for the allocation of the B2-part of the BFM to individual hospitals has been implemented since July 2013. The old system will disappear in July 2017 (10% of points with new calculation method on 1 July 2013, 20% on 1 July 2014, 40% on 1 July 2015, 70% on 1 July 2016 and 100% on 1 July 2017).

The share of B2-points for each hospital depends on the number of 'ED units'<sup>n</sup> it 'collects'. Hospitals receive 1 ED unit for each patient<sup>o</sup> admitted via the ED, irrespective of the disposition decision (admission or discharge).

For several patient groups supplementary ED units are awarded. The differentiation criteria to earn supplementary ED units are mainly demographic (children aged 0-3 years and 4-15 years, patients aged <75 years and admitted from a home for the elderly or nursing home or patients aged ≥75 years) or pathology-related (e.g. patients with a cerebrovascular disease or with a psychiatric diagnosis and admitted to a psychiatric nursing unit). Also the time of arrival at the ED (between 9 PM and 6 AM) and whether or not the patient is transferred to an intensive care unit determine the number of supplementary ED units. Only one supplementary ED unit can be earned per ED visit.

A minimum of 15 points (or 6 FTE) is guaranteed for all hospitals with a specialised or non-specialised ED. In case there is no other specialised ED within a radius of 25 km, this basic level of guaranteed points is increased to 30 B2-points (or 12 FTE) for hospitals with a specialised ED that have a maximum of 200 recognised beds. A hospital with several hospital sites receives this guaranteed budget of 15 or 30 points only once (see section 5.7.1 for further details about the adequacy of the provided budget to cover staffing costs).

The aim of the new calculation method is to base the number of B2-points more on the ED caseload instead of on the (financed) size of the hospital. Yet, it entails a risk that hospitals are not sufficiently stimulated to curb 'inappropriate use' since more ED activity will result in a higher share of the closed-end budget.

<sup>n</sup> 'Unit spoedgevallen'/'Unité d'urgence'

### **New winners and losers?**

The new calculation method does not change the total B2-budget for EDs but only changes the way the closed-end budget is distributed among individual hospitals. It should, however, be noted that shifts in the budget allocation can be the result of two effects. First, in the new allocation rules the budget share of each hospital is directly linked to the caseload of the hospital, with some adjustments for specific patient groups. Hence, smaller hospitals, defined in terms of the number of justified beds, with a large ED caseload will be entitled to a larger share of the ED-budget compared to the old system. However, with the new system all hospitals have an incentive to increase ED activity to 'earn' more points. This incentive was also present in the old method, but given the direct link between ED caseload and budget, it can be expected to be more pronounced in the new method.

Hospitals with the largest loss of points in 2014 are concentrated among the largest hospitals in terms of justified beds. Among the winners, there is no clear link with hospital size. The first results for 2014 show an overall increase in ambulatory activity in EDs (see also section 5.7.1).

#### ***4.1.2 Fee-for-service reimbursement is still the predominant payment method for physicians working in an emergency department***

### **Emergency physicians can charge one A-fee per ED visit**

Health insurance pays for medical and paramedical services based on a fee schedule, called 'nomenclature', which lists almost 9000 unique covered services, their payment rates and reimbursement level. Specific fees for emergency physicians were introduced in 2007 and are called 'A-fees'. The A-fees cover "the case history, clinical investigation, first care and support for a patient in a specialised emergency department". The fee depends on the educational level (specialist in emergency medicine, specialist in acute medicine, physician with certificate in acute medicine) and the accreditation status of the physician who is on duty in the ED. Fees range from €22.54 to €38.92 (2015). Emergency physicians charge one A-fee for each patient attending the emergency department, irrespective of the number and type

<sup>o</sup> All patients for which a registration in the 'urgency care module' of the hospital discharge data set (URGADMIN in MZG – RHM) must be completed.





of emergency physicians involved, of the provided care, of the patient profile, of the mode of referral and whether or not the patient is admitted to the hospital. RIZIV – INAMI expenses for A-fees realised in 2013 amounted to € 54.7 million. A supplementary fee can be charged for out-of-hours activities (€ 5.56 in 2015) amounting to € 5.7 million expenses realised in 2013.

### **Large differences between hospitals in the share of cases for which a medical specialist is called in consultation by the emergency physician**

Emergency physicians can call another medical specialist in consultation. The fees charged by these medical specialists are called 'C-fees'. The fee depends on the medical discipline and the accreditation status of the consulted specialist. In principle, there is no limit on the number of C-fees that can be charged for one ED visit.

Large differences have been found between hospitals in the ratio between the number of C-fees and the number of A-fees. This ratio varies from 0% to (sometimes more than) 100%.<sup>80</sup> Some stakeholders clearly stated that both percentages are not compatible with the profile of patients who attend an ED and proposed a closer monitoring of this practice, which some of them called fraud. In hospitals with a low share of C-fees patients were seen by a specialist outside the premises of the ED. Since December 2012 the difference between both fees (C-fee and fee outside the ED for the same specialist) has become larger. For example, since 1 January 2016 the fee for a specialist in internal medicine is equal to € 40.05. When the same specialist is called in consultation in the premises of an ED, the fee is equal to € 32.82.

RIZIV – INAMI expenses for C-fees realised in 2013 amounted to € 17.6 million. A supplementary fee can be charged for out-of-hours activities (€ 13.89 in 2015) with a total amount of RIZIV – INAMI expenses equal to € 2.6 million in 2013.

### **The size of the hospital determines the budget available for being on duty in the ED**

The budget available to reimburse emergency physicians to be on duty in the ED comes from two fee codes: code 590181 and 590310. The first code represents an amount of € 25.73 (in 2015) that a hospital receives for every admission in an acute hospital ward (irrespective whether it concerns an

elective or emergency admission). The second code represents an amount of € 5.36 (in 2015) that a hospital receives for every day giving a right to a maximum lump sum or day care lump sum for one of the medical activities from a limitative list or to a reimbursement for day surgery.<sup>81</sup> Hence, the more inpatient admissions or day care activities, the larger the budget for on duty availability in the ED. RIZIV – INAMI expenses in 2013 amounted to € 43.7 million for code 590181 and to € 6.7 million for code 590310.

Since 2008 hospitals with a specialised ED and/or an intensive care unit are entitled to an 'availability fee' during weekends and bank holidays. In 2014-2015 the fee amounted to € 358.01 for being on duty during the weekend and € 214.80 or € 143.09 for a bank holiday, depending on whether the bank holiday is in the weekend or not, respectively. Hospitals are entitled to one fee per specialty, irrespective of the number of physicians on duty. However, the fee is meant to cover on duty services for the hospital as a whole and not only for the emergency department.

Hence, the budget available to hospitals for guaranteeing that emergency physicians or other medical specialists are available, comes from codes 590181 and 590310 and (partly) from the availability fee during weekends and bank holidays. The way physicians are paid for being on duty is determined in the individual contract (financial agreement) between the hospital and the physician.

## **4.2 Public payments for out-of-hours primary care services**

### **4.2.1 *Fee-for-service is also the dominant payment method for general practitioners***

#### **Fee-for-service payment with increased tariff for out-of-hours periods**

- GPs are predominantly paid via a fee-for-service system (fee of € 24.48 for a consultation with a GP with accreditation and € 36.76 for a home visit).
- They can charge higher fees for out-of-hours consultations during the late evening and night (9 PM until 8 AM; extra fee of € 24.49 in 2015) and during weekends or bank holidays (8 AM until 9 PM; extra fee of € 12.24 in 2015). Fees for home visits are higher than for consultations: € 48.88 during the late evening (6 PM until 9 PM), € 84.55 during the



night (9 PM until 8 AM) and € 55.14 during weekends and bank holidays.

- In addition to the normal and out-of-hours-hours fees, a supplementary fee of € 4.06 can be charged by a GP for consultations between 6 PM and 9 PM (code 101113: 'permanentietoeslag'/'supplément de permanence') when the GP is on call for his or her own patients, provided that this service is coordinated with the on-call duty organised by the GP circle to which he or she is affiliated. The same supplementary fee can be charged by a GP participating in the on-call duty directed at the general population (organised by the GP circle) for consultations between 7 PM and 9 PM (code 101091: 'wachtoeslag'/'supplément de garde') when he or she is effectively on call. These supplementary fees cannot be cumulated.

#### Availability fees for organised on-call duties

GPs participating in an organised on-call system (via a rotation system or ODC) organised by the GP circles are entitled to an availability fee. The fee corresponds to a fixed amount of € 6.15 per hour (2015 tariff) during which the GP is effectively on call. It concerns only the organised on-call duties targeting the population of a specified geographical area (and not the out-of-hours services organised exclusively for a GP's own patients) during one of the following time frames:

- Weekend (maximum 48h);
- Bank holiday (maximum 24h);
- Evening/night weekday (from 7 PM until 8 AM).

#### 4.2.2 ODC budgets have been streamlined

The yearly RIZIV – INAMI budget spent to support ODCs has increased from €332 858 for 3 ODCs in 2003 to €16 984 292 for 70 ODCs and 9 alternative projects<sup>p</sup> in September 2015 (budgets for agreed ODC contracts). The global budget of €23 265 000 available for ODC projects in 2015 is part of

the annual budget reserved for physician fees other than those defined by the nomenclature. This is the entire federal budget that, besides the ODC contracts, also includes a budget for coordination of ODCs and budgeted amounts for new ODCs. In the last quarter of 2015, the Belgian government decided to put the further development of ODCs on hold. A sum of €4.95 million out of the global budget of €23 million has been put in reserve, pending a revision of the existing funding principles which are detailed below.

#### How is each individual ODC budget determined?

The individual ODC budgets are based on the ODC's application with a detailed overview of expenses, which is evaluated by the National Commission of Sickness Funds and Providers (the so-called 'Medico-Mut'). The application makes a distinction between investment and recurring costs. Investment costs consist of one-time investments such as construction/renovation, coordination and equipment to set up and launch new projects and smaller investments to improve existing projects. Recurring costs include rent, transport costs, staff, etc. needed for daily operations of the ODC.

- Between 2009-2015 total investment costs per project ranged from €128 up to €848 400, with an average cost of €133 427 (sd=€57 540). The large differences in investments can partly be explained by the aforementioned small investments of existing ODCs. When only taking into account the costs involved in the launch of new projects, differences can be explained by the scale of the project and local opportunities.
- In 2015 recurring costs ranged from €22 236 up to €686 061 per ODC<sup>q</sup>, with an average cost of €255 712 (sd=€132 828). Again, the variation in recurring costs is explained by the scale of the projects and the way they are organised. This includes the number of staff (receptionists, coordination and administrative personnel, drivers), working hours and qualification of the employees, the number of cars commissioned for

multiple ODCs or ODC satellites, the total budget of the project was distributed equally among the number of entities for this exercise.

<sup>p</sup> GP circles without an ODC benefiting from RIZIV – INAMI subsidized participation in the alternative triage system provided by CHU Liège

<sup>q</sup> Budgets on a yearly basis, excluding projects without an ODC which only use the triage system operated by CHU Liège. For those projects that consist of



home visits, in-company human resources or outsourcing, and other choices that influence operational costs (IT, rent, cleaning, accountancy, etc.).

- In an attempt to limit the variation of recurring costs among ODCs, a set of funding principles have been developed and applied since 2012. Recurring costs are classified in large categories (operational costs, coordination and administration, reception and transport) and for each category a maximum amount has been fixed above which no funding is possible. Some of these amounts are fixed, others vary according to objective characteristics of the project. Characteristics that may impact maximum amounts are the number of hours an ODC is open to the public, the surface of the catchment area, the number of inhabitants and the average number of home visits during daytime in the weekend.

#### 4.3 Patient cost sharing for out-of-hours primary care and emergency department services

The majority of healthcare services is not free at the point of delivery in Belgium, but patients are charged a co-payment. The amount patients have to pay out of pocket differs between care settings and depends on the type of service provided and the social status of the patient. For vulnerable population groups, several measures are in place to ensure access to care. For example, people with a low income are eligible for higher reimbursement of their medical costs.

While GP services are paid at the moment care is provided, for ED services co-payments have to be paid when receiving the hospital bill. These delayed payments sometimes create the perception that ED services are cheaper than GP services and therefore patients prefer to go to an ED instead of to an ODC.

##### **Emergency departments are free to charge a higher co-payment for self-referrals**

A co-payment is charged for all emergency department visits. Co-payment amounts when attending an ED depend on referral rules and patient status. Patients referred by a GP pay a co-payment of € 4.5 (or € 1.67 when they are entitled to increased reimbursement of medical expenses). In all other cases patients can be charged a co-payment of € 20.21 (or € 11.23 for

patients entitled to increased reimbursement). However, hospitals are free to choose whether or not they charge the higher co-payments.

No co-payment is charged for C-fees. However, when a patient is treated by the same medical specialist, for example a specialist in internal medicine, outside the premises of the ED a co-payment is charged. In the example of a specialist in internal medicine the co-payment is equal to € 12 for patients not entitled to increased reimbursement and € 3 for patients with increased reimbursement.

##### **No additional co-payments for GP out-of-hours consultations but home visits can be expensive**

Since 1 December 2011, the patient share of supplementary fees for (urgent) out-of-hours GP consultations is fully reimbursed for all patients to reduce unnecessary reliance on hospital emergency departments. Hence, co-payments during normal working hours apply. For home visits co-payments are higher for out-of-hours services. The exact amount depends on reimbursement status, patient residence, patient age, being chronically ill and whether or not the patient has a global medical record, but it can amount to about € 30.



## 5 REFORM PROPOSALS: A MULTI-FACTORIAL APPROACH THAT REQUIRES MONITORING

### 5.1 Telephone triage to guide patients to the appropriate care level and place, at the right moment

In Belgium, patients with a primary care problem can freely access specialised care (e.g. self-referral to ED or other medical specialists). Triage can help to guide patients to the most appropriate care level and place. Triage can take place at different locations (e.g. call centres, at the accident scene, at the hospital front door) and by different professionals (e.g. non-clinically trained call taker, nurse, paramedic, physician). In this section we focus on telephone triage. After all, with the 1733 number it is aimed to better guide patients to the most appropriate care level. However, besides some local pilot projects the system has yet to be rolled out. In this section we describe lessons learned from the literature, international comparison and stakeholder encounters.

#### **Advantages of accurate telephone triage systems: efficiency gains without a risk for patient safety?**

Stakeholders pointed out that a good functioning telephone triage system can have several benefits such as efficiency gains (e.g. less consumption of emergency care services for primary care problems) and decreased ED workload. This is also one of the reasons why it is internationally a widely adopted strategy. Our international comparison showed that a type of telephone triage (sometimes combined with telephone consultation services) is used in four (i.e. Australia, Denmark, France, England) out of five studied countries. Yet, there is a lack of evidence about the effect of validated prehospital telephone triage systems on ED use (see results from the narrative review in Chapter 10 of the scientific report). This is a domain that is clearly understudied.<sup>82</sup> However, an evaluation has been conducted of the English NHS 111 number, a system that is most similar to the 1733 number as it will be implemented in its second phase. This evaluation showed an increase of ambulance incidents after the introduction of NHS 111 in four pilot regions.<sup>83</sup> No increase in ED attendances was found.

Some stakeholders also indicated that it has the potential to increase patient comfort as well as patient safety (e.g. patients that require specialised care will be referred directly towards the ED without losing time or have the discomfort to visit the GP first). An evaluation of the impact of telephone triage on patient safety<sup>10</sup> showed safe performance in 97% (95%CI: 96.5-97.4%) of unselected patients. This high proportion of safe performance (no adverse events: mortality, medical errors, unplanned hospitalisations or ED attendances) for all out-of-hours telephone triage contacts decreased to 89% (95% CI 86.7-90.2%) for patients with high urgency. There is thus room for improvement especially since out-of-hours care involves large numbers of contacts. As such small error rates can have serious implications at the population level.

#### **Higher compliance with advice to attend the ED than with advices that recommend a primary care contact**

The review by Turner et al. (2015)<sup>84</sup> showed compliance rates between 56% and 98%. Yet, higher compliance rates are reported when the patients receive a self-care advice or an advice to attend the ED compared to an advice to contact primary care. The review also evaluated patient satisfaction with telephone triage services and found satisfaction rates ranging from 55% to 97%.

#### **Importance of input from clinicians**

A recent review<sup>11</sup> evaluated these results in light of the clinical background of the call handler. Four types of triage staff can be observed in the international literature: 1) nurses; 2) physicians; 3) emergency medical dispatchers; 4) clerical staff. It was shown that clinicians (nurses, physicians) perform better than non-clinicians. In addition, it was shown that nurses perform better than physicians since more system-elements of an effective triage system were taken into account (i.e. guidelines, documentation, training, standards). Furthermore, the effectiveness of nurses can be improved by training and call-centre standards while this is deemed more difficult for non-clinicians and physicians.

#### **Prerequisites for successful telephone triage system**

Several interviewed stakeholders supported the idea of a telephone triage system for primary care related problems but mentioned several



preconditions to make the 1733 number successful and give their support to 1733 projects:

- Standardized protocols (analogue to protocols for 112 calls) adapted to a GP context;
- Computerized information about local availability of primary care and other services (cf. “*Répertoire Opérationnel des Ressources*” in France);
- Investments in call centres to ensure sufficient and well-educated staff. Many favour call-handling by medically trained staff, or at least an increased medical supervision and the possibility to transfer calls in case of doubt. In addition, several stakeholders suggested to evaluate the potential of telemedicine (e.g. sharing of data from self-monitoring devices; sharing images) to increase the accuracy of triage decisions;
- Information campaigns to increase the awareness of the 1733-system among the general public. These publicity campaigns can be targeted to encourage the use of telephone-accessed healthcare amongst specific groups within a population known to have low knowledge about these systems (e.g. NHS 111 in England is not well-known among the older, male population);
- Most stakeholders favoured a soft gatekeeping by offering advice about the most appropriate level of care while a minority of stakeholders were in favour of making a call to the 1733 number compulsory to get access to primary care or ED care. Yet, it should be noted that such a system was implemented in Denmark and is heavily contested;
- Harmonization between primary care and EDs. A 1733 triage system cannot be implemented stand-alone. Its chances for success are believed to increase when there is a similar triage system at the front door of the hospital for self-referrals (see Box 4) with the opportunity to triage patients with primary care problems to a (preferably co-located) primary care centre (see section 5.2.3). Yet, many barriers exist in the Belgian context to achieve this in the short run. First and foremost it is legally not possible to refuse patients access to the ED based on an initial triage and stakeholders stressed the importance of dealing with liability issues. The current triage system is only used to determine the severity and urgency of the visit in order to set priorities and thus it mainly influences the ED waiting time. In addition, other barriers include

the location of ODCs (independent from the ED), GPs being afraid to lose their independence, emergency physicians questioning the accuracy of triage performed by GPs, too many ED capacity with a too low caseload, etc.

#### Box 4 – Hospital front-door triage: some key messages

- Triage has become an integral part of the function of EDs around the world and has demonstrated its value mainly on organisational performance: e.g. the fast track to handle patients with less serious symptoms resulted in reduced waiting times and time between arrival at the ED and disposition.<sup>85</sup>
- (Inter-)nationally most triage systems rely on an experienced nurse to undertake triage. However, recent evidence reviews indicate that ED performance (e.g. ED length of stay; patients left without being seen) might improve when senior physicians participate in the triage team. The effect on clinical outcomes is understudied.<sup>86</sup>
- Although several triage instruments exist, most instruments result in similar categories linking the level of emergency to a time in which the patient should be treated (e.g. resuscitation: immediately; emergency: minutes; urgent: 1 hour; acute: hours; non-urgent: days).<sup>87</sup>

#### Effect of telephone consultation on GP and ED workload: contradictory results

Some stakeholders assumed that a (medically staffed) telephone consultation system linked to a telephone triage system decreases GP workload. A review of the evidence resulted in contradictory results. The published studies about the effect of telephone consultations (e.g. pre- and post-discharge telephone calls) on ED visits showed mixed results and there are indications (e.g. increased re-visits) that telephone consultations in reality rather delay than resolve the problem.<sup>88-90</sup> This is confirmed by a recent English large-scale clustered randomised trial testing telephone triage and consulting in the management of same-day consultation requests. It was shown that telephone consultation shifts the workload from face-to-face to telephone contact and increases the number of primary care contacts





within 28 days of the initial consultation. Telephone consultation appeared to be safe, but had a negative impact on patient satisfaction and a negligible impact on ED contacts (small non-statistically significant increase in the intervention group). The benefits of telephone consultation might increase when it is focused on specific target groups such as those with long-term conditions.<sup>91-93</sup>

## 5.2 Harmonization organisation of emergency departments and out-of-hours GP care

### 5.2.1 *Should ODCs decrease the number of ED visits? Stakeholders disagree and a clear policy directive is missing*

Interviewed stakeholders indicated that ODCs were mainly developed to increase the attractiveness of the GP profession. The introduction of ODCs as a measure to alleviate the pressure on EDs is much more debated. Several stakeholders criticised ODCs as being taken as an isolated policy measure not integrated in a global vision on the management of the entire emergency care system. Indeed, they indicated that besides supporting the working conditions of GPs, it is expected (especially given the large investments in ODCs) that they could attract patients with primary care complaints that would otherwise go to an ED. Other stakeholders disputed this and see ODCs solely as a measure to support GP working conditions and to strengthen primary care. However, as described above the current landscape (ODCs and EDs) can be best described as one where the supply of services for patients with emergency, urgent (and non-urgent) problems is fragmented and not harmonized resulting in low caseloads in ED as well as in ODC structures. An additional difficulty is that the large investments that were made and the far-developed roll-out of ODCs make them to some extent indisputable, at least in the short run.

### 5.2.2 *Implementation of ODCs: increased use of out-of-hours GP services did not result in a decreased use of ED attendances*

The ever-increasing number of ED visits (see 2.4.1) suggests that the introduction of ODCs did not result in a substitution of ED visits. This increasing trend of ED visits is not unique in Belgium, yet it is steeper than

in most OECD countries.<sup>12</sup> Stakeholders brought up several explanations (sometimes backed-up with Belgian empirical evidence) for this increasing trend in ED use while investments in ODCs were made. We discuss the most prominent explanatory factors below.

### Patient motives influence the choice for ED versus ODC

Patients keep visiting EDs when they perceive their problem as severe and urgent enough to attend the ED or they expect that medical imaging will be required.<sup>94-96</sup> This decision is based on:

- Previous experiences such as satisfaction with received explanation, confidence in competency and experience level of medical staff;
- The easy access: there are still more EDs than ODCs. Moreover, EDs are open 24/7 while opening hours are more restricted and highly variable for ODCs;
- A preference for a high-tech environment.

In addition, ODCs are far less known to the general public compared to EDs.<sup>94, 95</sup> Also the impact of the increased co-payment for self-referrals attending the ED is negligible since it is insufficiently known (or used by hospitals) to influence patient choices.<sup>94, 96</sup> The role of other financial factors is less clear. Nevertheless, several interviewed stakeholders pointed out that the third-party payer system in EDs plays an important role in patient choice of provider which was also confirmed by a study on patient preferences.<sup>95</sup> Another factor influencing patient choice is the socioeconomic background with inhabitants of deprived areas opting more for an ED than for an ODC since these groups typically do not have a regular GP.<sup>97</sup>

### ODCs are not well-equipped to deal with urgent cases

Stakeholders suggested that GPs do not dispose of the necessary equipment to diagnose relatively simple acute problems and are, therefore, obliged to refer patients to EDs. The majority of patients currently attending the ED can be dealt with at the ODC. However, it has been shown that patients choose to attend the ED if they think they will need medical imaging or specialised treatment.<sup>5, 94</sup> Stakeholders considered lack of GP knowledge for certain conditions, which is confirmed by a small-scale Belgian study,<sup>98</sup> as an argument to locate ODCs close to or at hospital sites to facilitate immediate transfers.



### ODCs attract other patient groups than EDs

Stakeholders indicated that ODCs attract another patient population than EDs which explains the phenomenon that patients increasingly turn to an ODC while, at the same time, the number of patient contacts at EDs remains stable or even grows.<sup>99</sup> More specifically, patients go to an ODC during the weekend instead of going to their GP during weekdays to avoid taking off from work. Two studies<sup>100, 101</sup> in the province of Antwerp support this statement showing that the number of ODC contacts increased without affecting ED use, except perhaps for younger children.<sup>101</sup>

#### 5.2.3 *Increased collaboration between ODCs and EDs but to what extent?*

The interviewed stakeholders all agreed about the need for increased collaboration between ODCs and EDs but not about the extent nor the format.

#### **Smoothen the functioning of ODCs and EDs via collaboration agreements**

Some stakeholders limited increased collaboration to making agreements about, for instance, opening hours and referrals. Examples of such collaboration agreements already exist. In some regions ODCs are closed during off-peak periods ('deep nights') and 24/7 duty is covered by EDs. This type of agreements is, according to stakeholders, mainly prompted by a GP shortage in certain geographical areas as well as by the reluctance of GPs to be on duty (e.g. work-life balance, financially not rewarding in areas with a low caseload). Three main arguments were used to keep ODCs and EDs independent and not co-located at hospital sites:

- Large investments in ODCs, often located independently from the ED, were already made, making them indisputable at the short term.
- A location independent from the hospital site prevents hospital-centrism and allows to strengthen the role of primary care.
- Bringing ODCs to hospitals will result in an increased production of medical imaging and laboratory testing. After all, patients treated at the ED receive considerably more technical examinations compared to patients treated at the ODC.<sup>100</sup> The GP is trained to perform a clinical assessment and is more reluctant than medical specialists to prescribe

additional tests. Integration of ODCs in a high-tech environment might risk to decrease the threshold for them to prescribe more diagnostic tests. However, there are indications in the literature that such a risk can be minimised if a triage system is installed to guide patients to the most appropriate physician<sup>7</sup> with maintenance of therapeutic autonomy of each specialism (see below: co-location of ODC and ED but with respect for professional autonomy).

Also the recent 'Medico-Mut agreement'<sup>77</sup> seems to follow this pathway. It foresees compulsory agreements between GP circles, ODCs and EDs in an attempt to decrease the 'inappropriate' ED use. The year 2016 will be used to negotiate a framework for such agreements (e.g. the type of patients that are targeted by ODCs versus EDs) and ODCs will have to comply with these agreements by the end of 2017.<sup>77</sup> Also increased opening hours (the entire weekend) will be imposed for new ODCs. Although a one-size-fits-all solution is probably not realistic nor desirable, a national policy framework will be needed to guide these local agreements. Moreover, it is questionable that such agreements will result in less ED use. After all, self-referrals are the main group in the ED and there is a great risk that patients will continue to attend the ED. Moreover, the evidence about increased opening hours for GP practices as a measure to decrease ED use is contradictory. Furthermore, indications exist that it might unmask latent demand and will increase the overall burden on the emergency care system even more.

#### **Co-location of EDs and ODCs**

Other stakeholders advocated the co-location of ODCs and EDs on one site to lower fixed cost (e.g. infrastructure, equipment, security staff), patient comfort and safety (e.g. no transport needed when referred from primary to secondary care). Since hospitals remain an important attraction pole for patients, it will also result in a clear entrance gate for patients.

Experiments with such models were identified in several studied countries but only Denmark and the Netherlands made a decisively shift to such a model. In the Netherlands, for instance, most EDs have an on-site out-of-office hours GP service. Twenty-nine EDs and GP services work closely together, having agreements on patient flows and various aspects of diagnostics and treatment.<sup>102</sup> GPs remain, however, independent and organise themselves by creating associations called 'primary care centres'. Also in England many so-called 'urgent care centres' staffed with GPs exist



and are co-located at the hospital but many other systems co-exist (e.g. out-of-hours appointments GP practices, nurse-led walk-in clinics).

The evaluated evidence is not straightforward since it is unclear that expanding access to primary care out-of-hours services (including services offered within hospitals) results in less ED use. However, there are indications that a co-location of GP out-of-hours practices at the ED with one emergency care access point has the potential to reduce ED visits. At such an integrated emergency care access point, triage determines whether patients will be seen by a GP or by a physician in the ED. A recent English study with the co-location of an urgent care centre at an ED site showed that the majority of patients visiting the urgent care centre were treated at the centre without a same-day referral to the ED or other specialist care setting. Yet, the absolute number of patients referred to the co-located ED still remains high.<sup>103</sup> Patients went to the urgent care centre because of its superior access (24/7 availability) compared to regular GP care<sup>104</sup> or as an alternative to the ED.<sup>105, 103</sup> A large difference with English studies that failed to show a reduction in ED use is that the urgent care centres with positive results were staffed by GPs and not nurse-led walk-in clinics.

Multiple Dutch studies investigating the effect of co-located GP-practices on ED use, show beneficial effects.<sup>106-108</sup> The most recent study included six Dutch regions, of which three had a primary care centre closely integrated with an ED and three had not. The study showed that, after controlling for case-mix, patients living in regions with the integrated model were 30% less likely to visit the ED than those living in the other regions.<sup>109</sup> Also a study from Switzerland<sup>110</sup> confirms the potential of GP practices co-located at the ED to reduce ED contacts by guiding patients with primary care problems to the GP.

Several preconditions are required to make such a co-location successful:

- A professional triage system including telephone triage and triage at the front door of the co-located ODC and ED. In one of the Dutch studies, for instance, the model with co-location allocated patients to the GP or ED based on a triage performed by a nurse in the joint triage area. For patients who contact the centre by phone, a triage by a trained medical assistant is done.<sup>111</sup> As such patients do not choose themselves who they contact.
- Also during normal office hours the opportunity should exist to guide patients with non-emergency problems towards primary care or to provide primary care access on site (e.g. 24/7 availability of English urgent care centres).
- Triage does not require a diagnostic work-up, it is an estimation of the level of urgency. This will require input from clinicians specifically educated in triage and supported by triage protocols (see also section 5.1). Also in the Belgian context<sup>112</sup> it was illustrated that the current administrative support of ODCs lacks the necessary expertise to perform this triage correctly with secretaries substantially underestimating (a potential safety issue) and overestimating (a potential efficiency problem) the urgency level of patients.<sup>112</sup>
- Measures to safeguard the independence of GPs as co-location of ODCs and EDs can be installed without merging the organisations as such. In the Netherlands, for instance, GPs and EDs at co-located centres each have their own department, while they share one combined entrance and a joint triage area.<sup>111</sup>
- A closer collaboration (or integration) between EDs and ODCs will also require another payment system (see section 5.7).
- A reform of the entire acute care landscape:
  - A sufficient caseload and further concentration of EDs (see section 5.5) will be required to enable the staffing of GPs in ODCs supernumerary to emergency physicians. If the caseload of patients that can be treated by a GP is too low then it is not efficient to set up such a structure. The same reasoning can be applied to the current ODCs with very low caseload.
  - In rural areas with a low density of hospitals well-equipped and advanced ODCs might be needed (especially in Wallonia). In these areas it is not realistic to only set up an ODC at or next to a hospital site.
  - It requires investments in buildings and infrastructure which are deemed unrealistic on the short term by some given the tight budgetary context. Another barrier which hinders the integration of ODCs and EDs is the lengthy application process to obtain, for instance, building permits. Yet, reconversions of existing infrastructure might be possible in the short term.





- To overcome some of the barriers that keep hospitals and GPs from integrating ODCs and EDs some stakeholders recommended to start with pilot projects that can illustrate the benefits of such a collaboration. However, such an approach risks to result in a lengthy reform process. In any case, the advantages and disadvantages of reform efforts will have to be monitored and evaluated.

### 5.3 The impact of public information campaigns

Countries that introduced large reforms also set up public information campaigns. In Denmark, for instance, the reduction of ED capacity, its motives and consequences, were announced in a personal letter to all citizens. Indirect evidence suggests that such campaigns might be successful. The figures about the utilization of the NHS 111 number, for instance, illustrate that it was known to the general public in a very short period. Also evidence from other related areas (e.g. impact of awareness campaigns for stroke symptoms to delay the time between onset of symptoms and care seeking behaviour) suggest the potential of public information campaigns.<sup>113</sup>

### 5.4 Co-payments have only limited effect on steering patients to the right care setting

One argument for patient cost sharing is to increase patients' cost-consciousness and discourage unnecessary or too expensive care. Health insurance reduces the marginal cost of healthcare to the patient and patients purchase more or more expensive care than without insurance. Co-payments are supposed to reduce this moral hazard effect. Another argument for cost sharing is to provide patients with monetary incentives to alter their behaviour towards the consumption of specific, e.g. more cost-effective, care. The increased co-payment for self-referrals attending the ED is an example of an attempt to steer patients to the right care setting.

Very divergent opinions on the role of an increased co-payment for self-referrals were found among the consulted stakeholders. For some, (higher) co-payments are a necessary instrument to reduce the number of ED visits, especially for patients with a 'GP profile'. Most stakeholders, however, claimed that the introduction of the higher co-payment did not change patient behaviour. However, the number of Belgian studies that have been performed on this topic is limited (see section 5.2.2) and hence this

statement cannot be confirmed or rejected. Another argument against co-payments reported by the consulted stakeholders is that patients should not bear any responsibility in judging whether a medical problem requires ED services or not. Therefore, they are in favour of a triage system (possibly combined with co-payments) instead of only financial incentives to steer patients through the healthcare system.

International evidence suggests an (mostly limited) impact of patient cost sharing on ED use.<sup>31, 88</sup> However, except for one Irish study all studies in two reviews were conducted in the US and the reviews are mainly based on observational studies. A second limitation is that studies assessing the effect of cost-sharing in populations with low purchasing power and in the more disadvantaged social classes are absent.

Compared to other countries, Belgium has a highly differentiated co-payment structure. If higher co-payments are used to reduce unnecessary reliance on EDs and to redirect patients to primary care services, these co-payments should be confronted with co-payments for out-of-hours primary care services. At this moment, for some patient groups (depending on reimbursement status, age, etc.) co-payments for out-of-hours home visits are much larger than the increased co-payment for self-referrals attending the ED. Moreover, also the different payment modality (third-party payer versus direct payment) plays an important role in patient choice of provider.<sup>95</sup> No studies were found on the impact of information campaigns on (the steering role of) co-payments.

### 5.5 Rationalisation of acute care resources: small changes or a drastic reform?

#### 5.5.1 Belgium has a high (specialised) ED capacity

#### System design errors cause an imbalanced ED landscape

The interviewed stakeholders attributed the high number of EDs (see section 2.3) and imbalance between specialised and non-specialised EDs to system design errors. Although policymakers initially envisaged to develop a differentiated Belgian hospital landscape with two levels of emergency departments, the number for each ED-type was not programmed. Stakeholders indicated that, originally, about 50 specialised EDs were envisaged. However, today with 131 hospital sites with a specialised ED and only 8 non-specialised EDs these policy intentions



turned out differently. This could have been prevented if the number of EDs had been programmed as was the case for Mobile Emergency Groups (MUGs – SMURs).

Hospitals made great efforts to comply with the recognition standards of specialised EDs since they all wanted to have this important entrance gate to the hospital. In fact, according to stakeholders, many hospitals want to keep their loss-making EDs open to ensure a sufficient number of hospital admissions. After all, the ED entrance gate is perceived as indispensable in the economic survival of acute hospitals, to attract a sufficient number of patients in a highly competitive and dense hospital landscape. A specialised ED is not only an entrance gate for hospital admissions, but it also generates revenue for the polyclinic (e.g. follow-up appointments with a specialist) and is a prerequisite to acquire recognition for other departments (e.g. neurosurgery).

It should be noted that after the 6<sup>th</sup> State reform, the policy instruments that have an impact on the number of specialised EDs (programming, recognition and financing) are further divided between the federal and federated competencies and policy action on this front will require extensive collaboration between the federal authorities and the federated entities.<sup>24</sup>

### **High accessibility but at the cost of a dispersion of the available budget and expertise**

The dense ED landscape results in a 24/7 highly accessible system (with a few exceptions in rural areas) and short travel distances which is especially important for time-critical conditions such as stroke and acute myocardial infarction.

The downside is that this could result in a higher use of these specialised services (e.g. diagnostic tests) than appropriate.<sup>24</sup> In addition, the closed-end budget has to be divided across more hospitals than originally planned. Given the high fixed costs related to run an ED 24/7, these budgets are often perceived as insufficient while in fact caseloads on EDs are very low in a large number of hospital sites, especially during night time. The large number of EDs also has an impact on the available expertise of emergency physicians, nurses and other disciplines. This dispersion of expertise and low caseloads can give rise to quality problems for time-critical conditions such as stroke and acute myocardial infarction for which a minimal patient volume is required. As such it is possible that this fragmentation of expertise

undoes the quality benefits of short travel distances. Concentration of EDs would also enable concentration of other (on-call) services and despite some prolonged travel times even shorten the time to be seen by the most appropriate medical specialist.

### ***5.5.2 Integrate redesigning of emergency departments in a larger reform of healthcare services***

The redesigning of the ED landscape should be included in a larger reform of the healthcare landscape. In fact, the high and ever increasing number of ED visits indicates a high need for urgent and emergency care services. It is possible that it is more efficient to manage a large share of these patients at other care levels, but if this alternative capacity is insufficient or absent a reform of EDs will not solve this issue. In addition, acute hospitals without EDs are considered by many stakeholders as a theoretical option. After all, the immense (financial) importance to keep this entrance gate in combination with the desire of citizens to have EDs close to their place of residence make drastic reductions in ED capacity an unfeasible option. Closing EDs is by many stakeholders regarded as equal to closing hospitals. As such, if there is no differentiation and task distribution between hospitals, it will be difficult to set a reform of EDs in place. Moreover, the impact of other reform efforts on EDs should be taken into account. If there is, for instance, a net reduction of hospital capacity it is possible that the strain on EDs will rise by a risk of increased access block problems. The same holds for policy measures aiming to shorten or avoid hospital stays without investing in alternative capacity. Nevertheless, several building blocks for a future reform of the ED landscape emerged from the current KCE study.

### **Programming the required number of EDs or monitoring the impact of number and location of EDs on system performance**

A programming of EDs can be based on a comparison of the current situation with the desirable situation. This will demand a calculation of the required number of EDs based on objective parameters such as population density, travel times, demographic factors of the attrition population of a hospital. A strict programming is internationally not widespread but exists in countries such as Denmark (based on catchment area adjusted for population density). Nevertheless, also in competition-driven healthcare systems, as the Netherlands, a monitoring of changes on the field and its



implications on objective parameters (e.g. percentage of population that has access to EDs within a politically defined maximum travel time) takes place.<sup>102</sup> It is not that such a study should start from scratch. There are already examples in the Belgian context such as the policy advice about Paramedic Intervention Teams (PITs) that can be used as a starting point.<sup>19</sup> Yet, this could be further developed by including (different levels of) EDs, ODCs etc.

### **Reduction of ED capacity is a policy objective in other countries which seems hard to implement**

Several countries reformed their ED system and some important lessons can be drawn from these examples. Although loco-regional networks (e.g. with several levels of EDs) and a concentration of ED activities in larger centres are conceptually relatively straightforward and there are good evidence-based arguments to undertake such a reform (e.g. volume-outcome relationship, door-to-needle time) to establish them, also in other countries such as the US, the Netherlands and England it seems anything but straightforward to implement them. Factors hindering drastic reforms are: the potential impact on patient satisfaction; the need for social support during care periods further away from home; the need for inter-hospital transport; the financial consequences, status and image issues for hospitals losing an ED; and quality management at network level. Only in Denmark policy makers succeeded to introduce a large net reduction in the number of hospitals with EDs. However, this measure was part of a larger reform effort including a net reduction in the number of acute hospitals. This reform has also been contested and a thorough evaluation of potential negative consequences is still in progress.

Given the anticipated problems with ED closure, other scenarios to reduce ED capacity were suggested: closure during off-peak periods (e.g. EDs with very low activity at night when there are other EDs at short distance), downgrading specialised EDs to non-specialised EDs, a loco-regional network model inspired by the US example, enhanced collaboration between EDs in large cities with many EDs, or closing a very limited number of EDs in cities characterised by a high number of ED sites with very low caseloads.

Empirical evidence suggests there are economies of scale for hospitals with about 20 000 ED visits, a number that is not met by nearly half of Belgian

specialised EDs.<sup>43</sup> It should be noted that the economies of scale can be offset by higher costs in the care pathway downstream the ED (e.g. more coordination for hospital admissions, follow-up outpatient appointments) and should be taken into account in the decision process.

In addition, the empirical evidence about the impact of closing EDs on remaining capacity (e.g. overcrowding) and patient outcomes (e.g. delaying care, longer travel times with a higher risk of mortality for time-sensitive conditions) is limited and should be estimated in advance of every reform effort. Monitoring predefined endpoints when undertaking reforms such as the introduction of PITs was identified as a weak point of the Belgian system by several stakeholders. In any case, sufficient surge capacity to deal with sudden peaks (e.g. epidemics) and disasters should be foreseen.

### **Concentration of highly-specialised services in reference centres**

There are indications from both the literature and the international comparison that concentration of specialised services for conditions such as stroke, AMI, major trauma, etc. might result in quality gains and cost-savings. Also for these serious conditions the guidance of 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 prehospital triage by emergency medical services. In such models a limited number of higher level emergency departments is linked to specialised facilities. Examples are the trauma centres (e.g. eleven designated centres in the Netherlands<sup>114</sup>); stroke units (direct transfer of suspected stroke patients to one of eight hyper-acute stroke units in London<sup>115, 116</sup>); heart centres (direct transfer to percutaneous coronary intervention (PCI) in France<sup>117</sup>). Although positive results of these higher level emergency departments linked to reference centres abroad<sup>118</sup> are reported, this does not imply that such a system should be automatically implemented in Belgium. It will require a careful evaluation of the evidence on the effectiveness, their configuration as well as the required number of such centres in Belgium. Such evaluation was beyond the scope of this study. However, two planned KCE studies (one on major trauma centres and one on the future role of hospitals in the



healthcare landscape) can give additional insights in the need for and requirements of such specialised centres.

### 5.6 Interventions that focus on frequent ED users and other specific target groups

The problems related to frequent ED users and specific target groups seem to exist in Belgium to a similar extent as reported in the international literature. Two interventions for specific target groups such as frequent ED users, elderly patients and patients with multiple chronic conditions, have been studied extensively. Case management is the most-described intervention to reduce ED utilisation among frequent ED users. Although no uniform definition is used in the literature, case management can be upstream (e.g. to prevent hospital admission for chronic conditions by a good follow-up by primary care) or downstream the ED (e.g. better coordination of care with the community for patients who were identified as frequent ED users). Evidence suggests that case management could reduce ED use but additional investigation is needed to determine what specific aspects of case management are most successful and cost-effective.<sup>49</sup> Nevertheless, the breadth of resources and intensity of interventions (e.g. frequency of follow-up; availability of psychosocial services; the aggressiveness of outreach)<sup>119</sup> seem to correlate with better results. Case management is therefore considered as an intervention that is worth implementing in hospital EDs in the context of a proper local evaluation setting. Tailoring of interventions (e.g. identifying gaps in the current supply of services by evaluating prevalent risk factors of frequent ED users) and models of care, rather than standardization of care, may prove to be most effective at reducing high ED use. Case-management models designed to address the special care needs of the elderly (not limited to frequent users) has also proven to be successful.<sup>120</sup>

Second, a wide range of other coordination interventions (e.g. individual care planning, post-discharge telephone calls; relational continuity of care)<sup>121, 122</sup> were studied with mixed results both within the population of frequent ED users and elderly. Coordination interventions that are more intense, multi-layered and that incorporate strong linkages to the longer-term primary and community care services are more successful than single interventions (e.g. individual care planning) or solely hospital-based interventions. For the chronic care patients<sup>123</sup> there seems to be a

relationship with relational continuity of care (same care provider) indicating the important role of primary care in the prevention of unscheduled hospitalisations.

### 5.7 Getting payments for out-of-hours primary care and emergency department services right

Countries combine different provider payment mechanisms in an attempt to achieve an optimal mix of incentives. Each payment mechanism has different incentives depending on the type of information that is used to determine payment. In theory, payment mechanisms can be based on information about the provider, service and patient or population characteristics. In practice, payment mechanisms often combine different types of information to determine payment. For example, emergency department budgets may depend on provider characteristics such as size, location, staff-mix, equipment or 24-hour availability and on patient characteristics such as urgency of treated patients, but many other combinations of provider, service and patient or population characteristics are possible. The concrete design characteristics of payments make an important contribution to attaining the intended goals.

#### 5.7.1 *The current mix of ED revenue sources: a drive for production and no incentives for collaboration with primary care*

#### **Underpayment of the nursing and caring staff at the emergency department**

One of the main complaints stakeholders have with the current hospital budget (B2) is that it is insufficient to pay for nursing and caring staff at the ED. Although a minimum of 15 or 30 points is guaranteed, payments are considered as insufficient to guarantee imposed minimal staffing norms of a 24/7 hour service provided by at least two nurses in a specialised ED. Moreover, during peak hours additional nursing staff above the two FTE is necessary. In addition to an insufficient minimum budget, the monetary value of a B2-point (see 4.1.1) is considered too low to pay for the average labour cost. However, this 'underpayment' should be evaluated in the context of a landscape with many EDs and low caseloads (see also section 5.5.1).

**A 'rat race' between hospitals to get their piece of a closed-end budget**

As was mentioned before, the new calculation method does not change the total B2-budget for emergency departments but only changes the way the closed-end budget is distributed among individual hospitals. The rules to allocate the B2-budget – the old as well as the new rules – create an incentive for production to get a larger share of the national budget.

Some interviewed stakeholders reported that with the old method some hospitals can climb up the decile ranking because they have one or two permanent operating theatres and thus have the necessary personnel (nurse, anaesthetist, surgeon, etc.) available at any moment during the night to perform out-of-hours surgery.

With the new method hospitals earn points and hence are paid for every ED visit, irrespective of the disposition decision (i.e. ambulatory, day care, inpatient care). Although stakeholders agreed that the new system better reflects the ED caseload, they also warned of an increase (above the

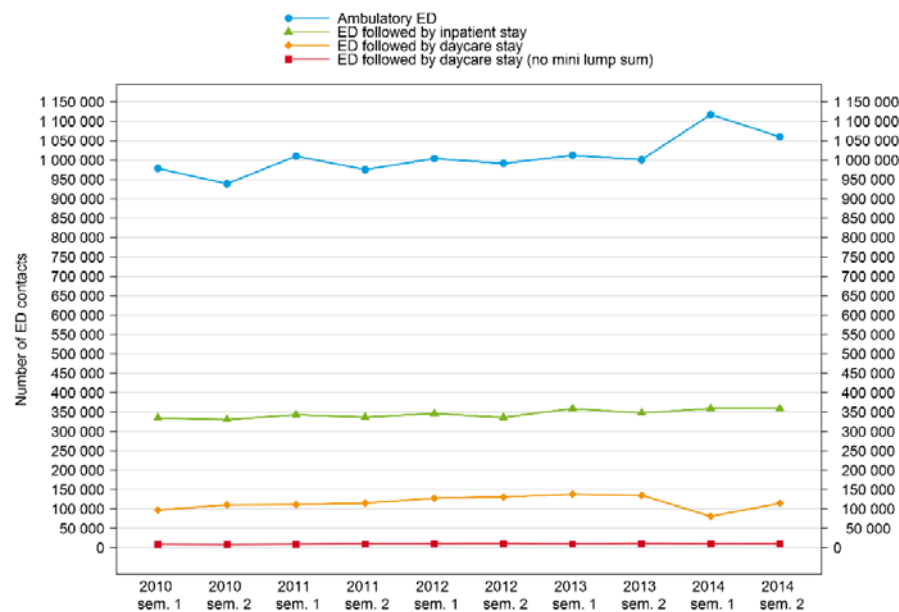
increasing trend of recent years) of ED activity to have more (supplementary) ED units, e.g. by stimulating that patients with a planned admission or consultation enter via the ED. Especially for children stakeholders emphasized the importance of a close monitoring of ED activity per hospital.

Figure 8 and Figure 9 show the caseload of specialised EDs before and after the introduction of the new calculation rules. Only hospitals for which data were available for 2010-2014 are included (93 hospitals). The increase in ambulatory ED visits in the first semester of 2014 (Figure 8) can only partly be explained by the integration of the mini lump sum in the hospital budget (see section 2.4.1). Some hospitals have an ED activity in 2014 that largely differs from their activity in previous years, but an audit by the FOD – SPF is needed to fully understand this divergent pattern.



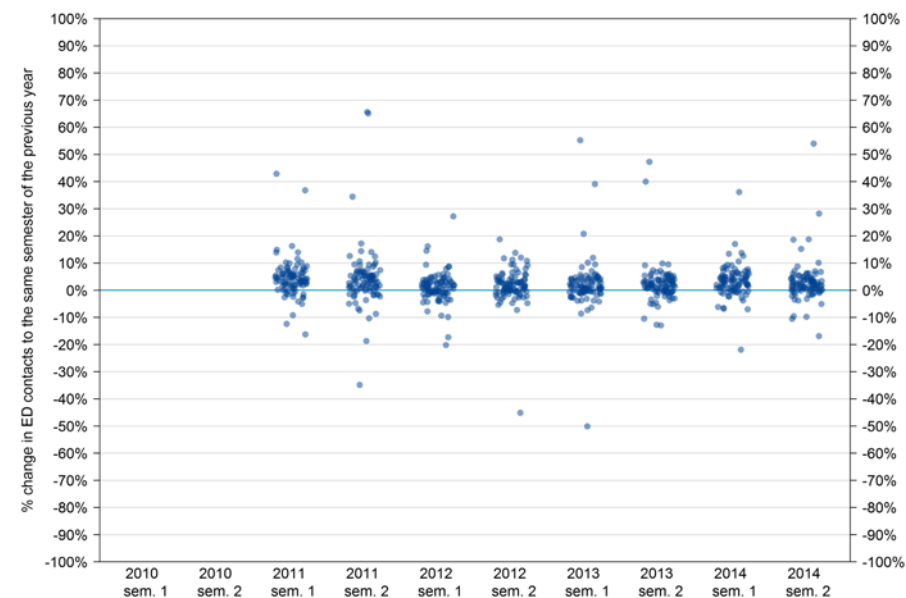


Figure 8 – Caseload in specialised EDs by disposition and semester (2010-2104)



Source: FOD – SPF

Figure 9 – Percentage change in caseload per semester in specialised EDs, by hospital (2010-2104)



Source: FOD – SPF



### Collaboration with primary care settings is punished with the new payment method of the hospital budget

Stakeholders also pointed out that hospitals which made efforts to collaborate with an ODC are punished by the new calculation rules because patients who can be treated by a GP will be transferred to the ODC, resulting in a smaller share of the national budget, a smaller amount of physician fees and additional triage costs. As such, the current system entails no incentives to refer patients to their GP or to an ODC. Also hospitals that took measures to 'relieve' the ED, such as a polyclinic that allows children or other patients without an appointment, will receive of smaller piece of the B2-budget.

### Also the fee-for service system for emergency physicians has an inherent drive for production

Although the fee-for-service payment system is pointed out as one of the contributing factors of a highly productive, motivated and enterprising healthcare workforce, most consulted stakeholders agreed that it should not be the main payment method for EDs because of its inherent drive for production. The possibility to combine an A-fee with one or more C-fees for one ED visit further stimulates this incentive. However, contrary to other medical disciplines, emergency physicians cannot create demand for their own services. Moreover, stakeholders from the side of the emergency physicians consider that working in an ED is mainly teamwork that should be rewarded as such. Therefore, they are in favour of charging A-fees only once per ED visit. On the other hand, they complained that the current fee schedule is too limited (for example for non-invasive ventilation) and not always in line with new scientific insights.

### Fees and budgets do not depend on patient type

The pricing amount of A-fees depends on the educational level and accreditation status of emergency physicians. For all three types of 'emergency' physicians, fees are higher for physicians with accreditation. Some stakeholders criticised this differentiation in A-fees because different amounts are charged 'for doing the same thing'. But the main argument

against the A-fees was the lack of differentiation according to patient type which makes 'primary care' patients very attractive and EDs and ODCs competitors while the services provided by an ED should be complementary to those of an ODC. Also the B2-budget for the ED is (almost) not adjusted for patient type.

On the other hand, stakeholders mentioned (and some of them defended) the current practice of EDs to charge the highest fee whenever possible<sup>80</sup>.

### Box 5 – Stakeholder appraisal of the strengths and weaknesses of the current fee-for-service system

The appraisal of the current FFS system by the consulted stakeholders yielded the following strengths and weaknesses, additional to the abovementioned items which are more specific for emergency physicians. Comparable results for all medical specialists are described in KCE Report 229.<sup>24</sup>

- There is **substantial differentiation in remuneration of medical specialists** and 'technical interventions' are higher valued than 'intellectual activities'. It has been estimated that emergency medicine belongs to the lowest-earning disciplines.<sup>24</sup> Representatives of the emergency physicians complained that those disciplines that have historically strong lobby groups also have better fees.
- **FFS hampers multidisciplinary collaboration** because coordination of care and communication with patients and family is undervalued in the fee schedule. Physicians do not easily refer patients to other colleagues, since this holds the risk that they lose their patient and money.
- Stakeholders stressed that the practice that (part of the) **deductions** on physician fees are used to compensate for the structural underpayment of the hospital should be remediated.





### 5.7.2 *Working in an ODC is rewarding during the day but not at night*

Consultations in ODCs during the day (weekend days and weekdays) are financially attractive for GPs. A GP who sees four patients/hour can charge about €140/hour. Nights, on the other hand, are not rewarding since the caseload is often low. The availability fees tried to compensate for this situation. Also home visits are perceived as generating insufficient income by some stakeholders. The remuneration per home visit seems reasonable but in rural areas, when physicians have to cover long distances, fees are less attractive.

Only taking into account the GP home visit and consultation fees (excluding special medical interventions, supplementary availability fees and lump sum payments in medical houses) €1009 million were reimbursed in 2012 (co-payments not included), of which €46 million or 4.6% were linked to out-of-hours activity. The discussion about the remuneration of ODC activities should be placed in this perspective.

### 5.7.3 *Comparing budgets and activity of ODCs and EDs: value for money?*

#### **Large amounts of money are spent for low caseloads during night time in ODCs and EDs**

As described above, the yearly budget for ODCs has increased from €332 858 in 2003 to €16 984 292 in September 2015. There is a large heterogeneity between ODCs' expenses, even within similar areas. Some stakeholders questioned the relevance of these large investments especially since the intended benefits of ODCs were never proven (or properly evaluated). Moreover, the limited opening hours and activity of ODCs (i.e. low caseloads during night time) make the large investments hard to justify. The low caseloads in a large number of hospital sites (see Figure 4) during nights also questions the large investments (for example, 2 nurses and 1 physician for a specialised ED) that are made to guarantee a 24/7 availability in these hospital sites. Moreover, in some areas ODCs and EDs with low caseloads during night time are available and funded.

### **Incoherence in payment rules for ODCs and EDs**

Some discrepancies or illogical differences exist between payment rules for ODCs and EDs. One example is the compensation for transport. ODCs, for instance, receive a budget for a driver while this is not the case for Mobile Emergency Groups (MUG – SMUR). Another example is the difference in compensation for out-of-hours services between GPs and physicians who are on duty in an ED.

### 5.7.4 *A larger share of fixed payments to emphasize the availability function of emergency care services*

The consulted stakeholders put forward a variety of strategies for paying for hospital emergency services to address the shortcomings in the current payment model, but most of the strategies consist of fixed and variable payments, be it at different levels. The mix of fixed and variable payments follows from the very nature of hospital ED functions such as availability to receive patients and stabilisation or treatment of these patients.

#### **EDs and emergency physicians have a function of public interest**

Most stakeholders were in favour of a guaranteed payment to cover 24/7 availability of emergency physicians and other staff. Some stakeholders called this availability function 'a service of public interest'. Arrivals at an ED vary over different days of the week and different times of the day or night. Hence, EDs can be almost idle or can be very busy. But even when EDs are standing idle, they provide an 'availability product' and are stand-by in case a patient in urgent need of treatment arrives.<sup>124</sup> However, the costs related to have an ED with a low caseload open 24/7 should be weighed against other factors such as a dispersion of expertise, shortage of emergency staff and budgetary constraints in the healthcare sector as a whole.

#### **A budget for the availability function of the ED: at the level of the hospital or a geographical area?**

In general, stakeholders proposed that EDs receive a budget for the availability function and variable payments according to the number and type of patients visiting the ED. Some stakeholders pleaded that the budget is set at a level that is sufficient to cover a minimum staffing level that is required regardless of the volume of cases. Some of them claimed that this can be realised in a budget-neutral way, by reducing the number of EDs. The fixed



part consists of payments for a team that is always available to guarantee continuity of care.

Other stakeholders favoured a combination of fixed and variable payments at the level of a specified geographical area and not at the level of one hospital. They proposed to make fixed payments to a geographical area according to population needs (e.g. the number of inhabitants) to cover costs of emergency nursing staff and physicians. Hence, it is considered as a minimum payment irrespective of whether the ED is located in a large city or a small village and irrespective of the activity level. These base payments also cover infrastructure (e.g. for laboratory and radiology services). A population-based payment system starts from the premise that all EDs, whatever their location, have an equal share of (most) pathologies in the catchment population. Demographic or epidemiological characteristics could be used to adjust the population-based payments. However, stakeholders had very divergent opinions on the use of socioeconomic criteria to determine the guaranteed budget. Some preferred to first define the type of patients or pathologies that preferably should be seen at the ED and to base the fixed payment on the incidence of these pathologies per 100 000 population. Such payment system starts from the premise of a well-functioning triage system.

The international comparison showed that EDs in all five studied countries receive global payments for the availability function: Denmark, Australia (in the State of Victoria, accounting for 80% of the State budget for non-admitted ED care to cover 80% of the reported fixed costs), in specific hospitals in the Netherlands (for example in certain rural hospitals that are necessary to assure service availability but that do not have sufficient activity), France (for non-admitted patients: €471 306 for hospitals with less than 5000 non-admitted ED visits in the previous year plus about €165 000 for each additional 2500 visits) and about 30% of EDs in England are paid by a block contract.

In reform proposals for a new payment model for urgent and emergency care (UEC) services in England, the availability part is called 'fixed core payment' and reflects the 'always-on' nature of UEC services.<sup>125</sup> Additional to the fixed core payment, UEC services receive volume-based and outcomes-based payments in the reform proposal. Research undertaken by Monitor and NHS England in 2014 showed that the share of fixed costs in total costs is primarily determined by whether staff costs are considered

fixed or variable. In Victoria (Australia), for example, staff costs were treated as fully fixed and costs were based on the staffing practices common in most EDs. The fixed payment should, however, be rebased on a regular basis. However, the cost structure varies significantly between different emergency care services (for example ambulance services versus ED admissions).

### **One budget for the ED and emergency physicians: a bridge too far?**

A key policy decision relates to whether or not the guaranteed payment for the availability of emergency physicians is included in the hospital budget for the emergency department. According to some stakeholders, payments for the availability function should be large enough to cover costs for the whole team of emergency physicians, nurses and other staff, including the Mobile Emergency Group which implies a minimum of two emergency physicians on duty. Other stakeholders were also in favour of a large(r) guaranteed payment for the always-on nature of the ED, but were opposed to one integrated budget for the hospital and emergency physicians. The same arguments were given as reported in KCE Report 229.<sup>24</sup> First, stakeholders were concerned that integrated payments for the hospital and emergency physicians would result in more discussions on money than currently is the case. Physicians would first have to negotiate with the management on their share of the hospital budget and then discuss between themselves about how the physician share will be distributed between physicians. Stakeholders also feared that an integrated payment could decrease the motivation of physicians to work hard but no (Belgian) studies have been conducted on this topic.

#### **5.7.5 *Volume-based payments to allocate resources to where care actually takes place***

In addition to a guaranteed payment for being available 24/7, stakeholders were in favour of variable payments which depend on the number and for some stakeholders also on the type of patients visiting the ED. There was less agreement on how close the link between activity and payments should be, on the relative weight of variable payments (compared to the guaranteed payments for the availability function), on the role of patient characteristics to adjust the variable payments and on the role of triage. In a mixed payment system, with a fixed and variable component, a larger share of the variable part means that a larger part of the availability costs (for emergency



physicians to be on duty) are spread over all presenting patients. The interviewed stakeholders suggested a wide variety of possible variables to classify patients and to adjust (variable) payments according to these groups (for example age (children), nursing activities, psychiatric diagnosis or not). Only a minority of stakeholders proposed to make payments dependent on patient pathology as in for example DRG-based hospital payment systems. The main arguments given by opponents of such classification is the lack of a direct with nursing workload (cf. other domains) and the fact that patients present to an ED with complaints, symptoms and signs but not with a (discharge) diagnosis.

Several stakeholders were in favour of a system with payments adjusted for the degree of urgency. They consider such payment system as an important tool to discourage treatment of patients with health problems that can be dealt with by primary care services. With the current payment systems (new calculation rules) these patients are very lucrative because they can be treated in a short time period.

### **A wide diversity of international payment systems related to ED activity**

In all five studied countries EDs are partly or exclusively (England) paid on the basis of payments per case. For patients admitted via the ED, Australia (some states) has separate payment streams for the reimbursement of treatment in the ED and inpatient treatment. The hospital receives a payment for each patient entering the ED, which is related to the Urgency Related Group (URG) of the patient, defining 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. The classification system strongly relies on triage category but is heavily criticized because of the assumed subjective assessment of this category.

In the other countries there are no separate payment streams and hospitals receive the same payment (France, Denmark and the Netherlands) or a higher payment per case (England) compared to elective patients. The tariff for accident and emergency departments in England consists of only 11 groups defined by broad categories of investigations (e.g. X-Ray, CT, MRI, biochemistry, haematology) and treatment (defibrillation, wound closure, burns review). These groups also apply to non-admitted patients. However,

to limit the incentive for increasing the number of emergency admissions two payment adjusters are applied: emergency admissions above a certain threshold value in a year receive only 70% of the full payment and emergency readmissions within 30 days of previous admission are not paid for if they breach a locally agreed threshold number within a year. 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.<sup>42</sup>

For non-admitted patients, EDs in Denmark receive payments on the basis of multiple different activity-related groups available for registering ED activity. This includes normal outpatient activity measures, such as DAGS (the Danish Ambulatory Grouping System), procedure groups, same day treatment groups, substitution groups (rewarding ambulatory treatment of care, which would otherwise be admitted), as well as specific groups for acute activity (emergency) of the DAGS. However, 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 Australia and Denmark. Instead, global budgets are the dominant payment method.

In England and the Netherlands, payments are strongly related to the activity as measured by the number and types of patients treated. In the Netherlands, payments are determined by the national DRG system, which includes also outpatient care and does not distinguish between emergency care and other outpatient care provided. In France, EDs receive a fixed amount per patient but no distinction is made between patient types. EDs also receive payments for all services provided.

### **Fee-for-service is not an attractive payment system in low-volume areas**

Belgium is one of the rare countries that pays its hospital-based medical specialists predominantly on a fee-for-service basis.<sup>24</sup> This also holds for emergency physicians. Although overprovision is an inherent incentive of a fee-for-service payment system, in low-density areas emergency physicians risk to see an insufficient number of patients to earn an attractive income. A possible solution is to pay emergency physicians working in sparsely populated and remote areas an hourly rate, regardless of the number of patients seen. The same problem and possible solution applies to GPs working in an ODC.



Emergency physicians in the studied countries are paid a salary (public hospitals in Australia, Denmark, England, public and private non-profit hospitals in France) or are paid on a fee-for-service basis (private hospitals in Australia and private for-profit hospitals in France). In the Netherlands a variety of payment systems exist.

#### 5.7.6 *A coordinated payment system across care settings*

At this moment, all players involved in out-of-hours primary care and emergency care get paid for what they do in different and uncoordinated ways. The organisation and payment system for acute care services require, however, a general approach with harmonized policy measures. The way the payment system can be integrated will largely depend on the policy decisions taken with respect to the location of ODCs. For example, in case of co-location, one global budget could be made available for the availability function of EDs and ODCs avoiding double payments for expensive infrastructure.

Also in the five studied countries initiatives for a more coordinated payment system across settings are limited. For example, in England the 11 tariffs for accident and emergency care apply to all types of ED, including walk-in centres, minor injuries units and urgent care centres but with different payment levels according to the type of ED. However, coordination between services and settings in a networked approach is central in the reform proposals for a new payment model for urgent and emergency care (UEC) services in England, with the three-tiered payment model (fixed, volume-based and outcomes-based) determined at the level of the network.

## 6 CONCLUSION

What do we, both as individuals and as a society, want and expect from the healthcare system? We desire high quality care, freedom of choice, affordability and accessibility without excluding vulnerable groups. It has become increasingly clear that these four fundamental goals cannot all be maximized at once. As such, policy decisions have important societal and ethical implications. This argument holds especially for the field of emergency care. A limitation of the number of emergency departments (affordability; quality improvement) may, for instance, have important implications on accessibility while introducing triage systems (efficiency) may somewhat limit freedom of choice. The policy recommendations that result from this study tried to balance the four main goals. Nevertheless, policy makers need to be aware of the important interaction between their decision and the policy goals.

### Box 6 – Main study limitations

- **Scope.** The study primarily focused on the inflow of patients into the ED and measures to reduce it. The study did not elaborate on throughput and output factors. In addition, it was decided not to evaluate the role and functioning of emergency care transport, emergency call centres and trauma centres within the current study. Nor did we make an evaluation of the available evidence on topics such as telemedicine, point-of-care testing, etc. This demarcation is somewhat artificial given the interconnectivity. Nevertheless, the current KCE study offers a basic elements for reform which will have to be more concretely calculated (e.g. required number of ODCs and EDs and their location) once political decisions about the direction and contours (e.g. size catchment area, minimal required caseload, maximum travel times) are made.
- **Evidence gathering.** Besides an in-depth analysis of five countries the evaluated international evidence within this study relies on a narrative review of systematic reviews and ad-hoc searches for predominantly systematic reviews. Although this approach allowed us to integrate evidence evaluations on a broad range of topics, this also has methodological and practical limitations. As a consequence of the reliance on systematic reviews the most recent literature is possibly





missed. A citation search of the included systematic reviews in Web of Science was undertaken to overcome this limitation. Another major limitation is that the sifting of the literature and data extraction was undertaken by one researcher only. In addition, some topics were not separately discussed (e.g. co-location of EDs and ODCs was mostly integrated in reviews as a method of increasing access to out-of-hours GP services without a specification of the co-location element) in the original systematic reviews. Nevertheless, also via a citation search for recent primary studies as well as on the basis of the international comparison some recent evaluation studies on this topic were included.

- **Data analyses.** The data analyses mainly rely on routinely collected data such as MZG – RHM and RIZIV – INAMI billing data. This has the advantage that the entire or large parts of the population are covered. On the other hand, there is a certain time lag (e.g. 2012 used as most recent year for the hospital discharge dataset) and the level of detail is limited (e.g. no information on caseload and diagnosis in ODCs). To deal with the latter limitation a survey of 33 ODCs carried out by the RIZIV – INAMI and prior Belgian studies on this study topic were used.
- For the **qualitative study**, a field mapping of stakeholders was used to ensure that the different perspectives of key players were represented in the sample. Yet, this does not imply that the study results of this part of the research can be generalized to the included stakeholder groups. This approach only allows an in-depth analysis of strengths, weaknesses and potential solution elements about emergency care with a variability of viewpoints represented in the sample.

### High accessibility with less emergency departments

All Belgian hospitals (except one) have at least one specialised ED. This is not surprising given the importance of having an ED for financial survival of hospitals. As a result, the Belgian hospital and ED landscape is a very dense landscape with an exceptionally high number of EDs when looked at in an international context. The low caseloads and small distances between EDs raise doubts about the efficient allocation of available resources. Indeed, the available budget and human resources are allocated to a high number of EDs resulting in complaints about underpayment and shortage of physicians and nurses to staff EDs. Therefore, the international discussions (e.g. in the

Netherlands, England) and reforms (e.g. Denmark) aiming to reduce ED capacity are certainly relevant in the Belgian context. There are strong indications that high accessibility to emergency care services can be maintained with less hospital sites having an ED. A reduction of the number of EDs can help to reduce the high fixed costs (infrastructure, equipment, staffing) and can contribute to solutions for problems such as staffing shortages and underpayment of ED services. This will require a firm policy action that fits in a larger reform of the hospital landscape (e.g. reorienting the role of specific hospital sites), the programming of a maximum number of EDs, a reform of the hospital and ED payment system with a larger weight on covering the fixed costs to assure 24/7 availability of staff, etc.

### 'Specialised' emergency departments for emergency medical conditions

Although a distinction is made between specialised and non-specialised EDs in Belgian legislation, also the specialised EDs are rather to be considered as 'general EDs' offering access to basic emergency care services across the Belgian territory. The term 'specialised ED' in other countries rather refers to an ED providing care to patients with specific emergency medical conditions. In most countries it is general practice to have a limited number of EDs playing a role in the care pathway for patients with time-critical conditions that require specialised input (e.g. stroke, STEMI, major trauma). These specialised EDs are linked to prehospital services (triage and transport) upstream the ED and a reference centre (e.g. stroke unit) downstream the ED. The evaluation of these specialised EDs and their need in the Belgian context to improve the quality of care for these particular patient groups is beyond the scope of this study and requires follow-up research. However, it could be considered to recognise a number of EDs as specialised EDs.

### Relocation of ODCs to hospital sites and one front-door triage

The current system is not so successful in getting patients with urgent primary care problems to primary care. A large part of these patients end up at the ED since primary care alternatives are not available, not known to the patient, or the patient prefers to go directly to the ED (e.g. for his comfort, because he perceives his problem as urgent enough), etc. In this context the investments made in recent years in organised duty centres to provide out-of-hours GP care require policy attention. These ODCs emerged bottom



up, were initiated by local GP organisations, without a clear overarching policy objective. This resulted in large heterogeneity in the setup (e.g. location and relationship with EDs), functioning (e.g. home visits, consultations) and availability (e.g. opening hours) of the ODCs. Moreover, they are insufficiently known to the general public and many ODCs have very low caseloads. Although ODCs seem to result in slight improvements in the work environment of GPs (measured as the number of nights and total time on duty during out-of-hours periods), they did not result in other potential policy objectives such as curbing the year-by-year increases in ED attendances.

Other countries encountered similar problems and invested in the collaboration between GP-practices and EDs. Although the evidence is not clear-cut and in Belgium resistance of some stakeholder groups is to be expected (e.g. GPs fearing hospital-centrism), it seems that benefits are largest when GP-practices for urgent primary care are located on hospital sites, but only if specific prerequisites are met. The most important prerequisite seems to be one common entrance gate (this is clear for patients and does not require self-selection) and a joint triage area where a nurse trained in triage and supervised by a senior physician guides the patient to the GP or the ED. Such a model seems to be most efficient (e.g. sharing fixed costs) in terms of getting patients with urgent primary care problems at the GP practice and not at the ED. Other benefits are increased patient safety (e.g. shorter referral times from the GP to the ED for patients with an emergency medical condition) and comfort (e.g. no needless transport of patients between GP and ED), and improved relationships between hospitals and primary care. Since most (inappropriate) ED visits take place during normal office hours, it is indicated not to restrict such a GP-post to out-of-hours periods.

#### **Telephone triage by clinically trained staff**

In most countries also a telephone triage system for urgent primary care problems was installed to alleviate the pressure on EDs caused by patients with a primary care profile. However, the evidence about their effect is not clear-cut. An evaluation of the introduction of the English NHS 111 number showed an increase of ambulance incidents but no increase in ED attendances. As such, it is suspected that telephone triage systems might unmask latent demand causing an overall increase in the burden of the

emergency care system. Moreover, although telephone triage appears safe in the vast majority of cases, safety concerns remain, especially for patients with a high urgency level. This safety problem can be reduced by assuring that calls are handled by clinically trained staff (e.g. nurses) that are trained in the use of standardized protocols.

#### **A payment system supporting the organisational model**

The current payment system is a dual system consisting of a closed-end hospital budget that is allocated to hospitals based on a complex set of parameters and a fee-for-service payment system for physicians. Such system is rather unique in an international context. Both parts of the dual payment system have inherent incentives for production, also because the closed-end budget is considered too low to cover a minimum staffing level. On the other hand, a fee-for-service payment is not an attractive way of remunerating emergency physicians working in low-density areas.

In reforms or reform proposals abroad a large share of total ED payments consists of fixed payments to guarantee a 24/7 availability of minimum staffing levels. Also Belgian stakeholders were in favour of giving a larger weight to a guaranteed budget to cover the fixed costs of infrastructure and staff, including emergency physicians. In addition to fixed payments to provide a 'service of public interest' as some stakeholders called the availability function of EDs, stakeholders were also in favour of variable payments for the ED and for emergency physicians, which depend on the volume and case-mix of patients attending the ED because a FFS system contributes to a productive, motivated and enterprising medical workforce, which helps to prevent under-provision and results in highly accessible services. In case of a 24/7 GP-post at the ED site and a well-functioning triage system it seems less appropriate to differentiate the variable payments according to case-mix.

A reduction in the number of EDs and corresponding fixed costs can free up resources to pay for the fixed costs of infrastructure and staff, for (part of) the front door triage system and for collaboration with ODCs which are located at the site of the hospital. However, a budget impact analysis of reducing the number of EDs was beyond the scope of the study.





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## COLOPHON

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