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Cost-Containment Policies in Hospital Expenditure in the European Union

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European Commission

Directorate-General for Economic and Financial Affairs

Cost-Containment Policies in Hospital Expenditure in the European Union

Christoph Schwierz

Abstract

As hospital inpatient care accounts for 30% of total health expenditure, and as health expenditure will continue rising, due to ageing populations and costly technological innovations, it is necessary to examine how to address the twin objectives of containing costs and ensuring high access and quality of services. Bed capacity has been reduced in all EU countries in the past decade, but cross-country variation in bed capacity and inpatient hospitalisations is considerable. Apart from being a cost factor, this impacts negatively on quality of care, as countries with more hospitalisations per capita tend to have also higher shares of preventable hospitalisations. This suggests that the reorganisation and rationalisation of hospital care particularly in countries with a high bed density is an important factor towards cost containment and possibly increasing quality of care. There are well tested options for cost containment at least in the short-term. Among these, the application of hard global budgets in combination with activity-based payments seems useful. Reducing operational costs has also been widely applied and proven to contribute to cost control in the short term. The impact of the many tools aiming at improving hospital performance via structural changes of the hospital and health care sector is more difficult to gauge. It depends among others on the role of the policy reform within the specific health system, whether it was applied at the same time with other health policy reforms and the time needed to see its effects. This applies to virtually all tools reviewed in this paper. The EU can play a supportive and active role in helping to identify the right tools for hospital reform by using its tools of economic governance, policy advice, evidence building and exchange of best practices and providing funding for investments in the sector.

JEL Classification: I11, I18.

Keywords: Hospital care, cost containment, hospital reform, Europe.

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EXECUTIVE SUMMARY

Public expenditure on health absorbs a significant and growing share of EU countries' resources. With hospital care being the core expenditure item of health systems, political focus on successful cost containment policies in this sector has been at least sustained, if not increased in the past decade. Looking forward, projections of health expenditure point towards sustained fiscal challenges related to rising health care costs. This surely implies for hospitals that they will be targeted also in future as an area for cost containment and increased efficiency, while having to ensure high quality of service provision to all patients.

Change in hospital care seems constant with some general observable trends. Bed capacity has been reduced in all EU countries in the past decade, largely associated with a trend towards lower length of stay of patients and a steep increase in the number of patients discharged on a daily basis. The reduction of bed capacities will need to continue in future in virtually all EU countries to avoid building up over-capacities, which are substantial in some countries already now. The cross-country variation in bed capacity and inpatient hospitalisations is considerable. Some countries, such as Bulgaria, Germany, Lithuania, Hungary, Austria and Romania hospitalise systematically and significantly more patients per capita than other EU countries. The high hospitalisation rates are positively correlated with bed capacity. Fostering policies to build down hospital capacities – where appropriate – should also reduce unnecessary hospitalisations. Apart from being a cost factor, this impacts negatively on quality of care, as countries with more hospitalisations per capita tend to have also higher shares of preventable hospitalisations. In the EU, more than 6 million or 7-8% of all curative care hospitalisations may be preventable, and close to 20% of all hospitalisations seem preventable in Lithuania, Bulgaria, Germany, Latvia and Romania.

The paper summarises documented evidence on a number of policies to contain costs in the hospital sector. Often, hard scientific evidence on the impact of policy tools is not documented, and historical evidence serves as a guide in many cases to gauge the likely impact of a specific tool on cost containment. Nevertheless, the following findings appear from the literature (Table 1):

- **Countries with lower income levels have in tendency more beds per capita and provide also relatively more hospital services. As a consequence, in some of these countries the prices for hospital services seem to be low, which might impact negatively on quality of care. In addition, these countries have in tendency also lower levels of eHealth deployment.** Higher income countries have been able to reduce bed capacity than lower income countries due to a variety of factors such as the availability of investment capital and the introduction of modern medical technology, which reduces the need for more beds. It also indicates the difficult situation that some low income EU countries face, in terms of high excess bed capacity and low levels of payment for hospital activities. In this situation, reducing excess bed capacity and freeing cash flow to be able to raise the payment levels for hospital services and incentivise through this an increase in quality of hospital care seems warranted. Devising a strategy for reducing hospital-centricity in these countries seems particularly needed in order to redirect their limited resources towards fewer, but better hospitals. Similarly, countries with less eHealth have higher shares of preventable hospitalisations and lower hospital price levels. This again suggests that the reorganisation and

rationalisation of hospital care particularly in countries with a high bed density is an important factor towards the effective deployment of eHealth and its potential to increasing quality of care.

- **Improving Financing:** Most EU countries have introduced a combination of global budgets with a more or less important activity-based financing component. Over time, more countries have applied budget ceilings or targets for expenditure on health and these ceilings have become more and more binding over time. This is because soft budget constraints on the level of health systems have partly contributed to the rise of health care spending and harder budgets may effectively reduce spending growth. Overall, budget controls are perceived to have a positive impact on cost containment. Whether activity-based payments, such as diagnosis-related groups, are effective as a cost control tool depends on their usage and combination with other policy tools. Combining activity-based payments with global budgets seems more promising than choosing only one of these tools. As far as cost-sharing is concerned, it has contributed to lowering overall public spending on health in the short run, but is controversial as it poses a potential access barrier to care.
- **Reducing operational costs:** Reducing operational costs was targeted by many EU countries in recent years. If done properly, targeted reductions of input costs may contribute to short-term cost containment goals without negatively affecting the volume and quality of care. Over the long run, operational costs may also be reduced by improving the staff mix and increasing staff performance. However, a systematic evaluation of the long-term impact of strategies to reduce input costs on cost containment is missing.
- **Improving procurement:** Procurement plays an important role in balancing the benefits of modern medical goods with budgetary constraints. As far as medical devices are concerned, there is a trend towards centralisation of procurement processes for medical devices. There is little research results available on which procurement practices help containing costs. Tendering Europe has a high potential to generate savings in European health systems. To achieve this, problems related to lack of transparency on procurement outcomes, procurement irregularities, including corruption and fraud and the low number of tenders used to purchase equipment, should be tackled.
- **Improving continuity of care:** The high share of avoidable hospitalisations in some EU countries seems partially driven by the lack of continuous care. The rising share of patients with chronic conditions and multimorbidity increases the inefficiencies related with fragmented care (OECD, 2015; OECD, 2011). Numerous countries have taken up promising initiatives to improve continuous care. Better performing primary care systems, including functioning gate-keeping systems are key in this regard. Also, planning of hospital capacities with a whole system perspective from primary to highly specialised care, as well including social care could be beneficial for improving health outcomes at a lower cost.
- **Benchmarking performance:** The ability to measure and compare hospital performance is often perceived as a pre-condition for improving their performance, and thus contributing to achieving health system goals. There are countless national and international hospital

benchmarking tools available. Typically, benchmarking occurs in the domains of clinical effectiveness, efficiency in the use of hospital resources, staff orientation and responsive governance. Only few tools benchmark hospitals on fiscal parameters. There seems to be huge potential in learning from current and past initiatives, particularly in terms of a potential tool for hospital system performance across EU countries. An impact assessment of benchmarking tools on cost containment could not be identified.

- **Enhancing hospital competition:** Theoretically, hospital competition is associated with the goals of creating fiscal savings and improving quality and efficiency of health services. There is some evidence that hospital competition enhanced by insurer competition may have positive effects on cost containment. However, the pre-conditions for competition of hospitals to be beneficial at the societal level are not optimal. They are better e.g. in the off-patent pharmaceutical sector, where product information about quality, product homogeneity, the existence of competitors is greater than in the hospital sector. Thus, any policy reforms changing the competition framework between hospitals need to be carefully assessed against the desired health policy goals, including increasing the quality of care and cost containment.
- **Increasing hospital autonomy:** Institutional autonomy is believed to be a contributing factor to achieving health system objectives. In many countries the degree of semi-autonomy was increased throughout time. There is a high variation in the degree of autonomy in institutional/legal terms between and within countries. There is no hard scientific evidence on the impact of increased hospital autonomy on cost containment. It is logical to believe that increases of hospital autonomy make sense foremost in a system that is built on elements of hospital competition as a major incentive to increase hospital efficiency. Increasing hospital autonomy may, however, conflict with integrated care, such that hospitals are well placed within the communities and the spectrum of healthcare services offered at primary care and post-hospital level.
- **Privatising hospitals:** The ownership form of a firm is perceived in the economic literature as an important determinant of performance. Overall, there is a slow trend towards privatisation of the hospital sector. However, according to empirical research, there seems to be no hospital ownership form that excels above the others. While ownership form per se does not seem to be the determining factor in hospitals' performance, hospital privatisations can in specific circumstances be efficiency increasing, e.g. when private investment in upgrading the hospital infrastructure to modern standards improves quality of care at lower cost. Therefore, privatising of hospitals might be, in some cases, an alternative to hospital closures or the continuation of hospital activity under public ownership.
- **Fostering mergers and networks:** There are good reasons to believe that bigger hospitals are better. Economies of scale contribute to lowering unit costs of hospital care production, but economies of scale are exhausted relatively early at a hospital bed size of 100 to 200 beds. Diseconomies of scale may be driven by rising organisational complexity which may be more prone to inefficiency in management.

Table 1 – Cost-containment policies in hospital care

Policy area	Cost-containment policy	Empirical evidence of cost containment?	Notes
Improving financing	Activity (DRG)-based payment	Mixed, but normally associated with reduced expenditures.	May affect service quality; increases transparency of hospital services and costs; DRGs can be used for hospital performance comparisons
	Global budgets	Yes; cost-containment effect depends on how binding (soft) the global budgets is	May affect service quality ;
	"Hardening" soft global budgets	Yes	Particularly important in countries with multi-payer systems, more decentralized and private provision of health care services and weaker subnational borrowing restrictions
	Introducing cost-sharing	Yes, in short-term. In long-term unclear.	May impose a barrier in access to care, and thus be detrimental to health outcomes
	Linking provider payment to evidence of improved performance	Limited.	Only few countries are on this path so far.
Reducing operational costs	Reducing the wage bill	Yes, in the short-term, in long-term unclear; easier to do in countries with centralized wage setting	Can reduce volume or quality of services; centralized wage setting may weaken incentives for structural reforms
	Optimizing spending on pharmaceuticals	Yes	Targeted in most EU countries.
	Improving staff mix	No	May affect service quality
	Improving staff performance through monitoring	No	May affect service quality
Structural reforms of the hospital sector	Fostering good public procurement practices	Yes	There are persistent problems in the way public authorities contract out work.
	Planning of hospital capacity	No, only indirectly as a step to devise a hospital consolidation plan	Should be done with a whole system perspective from primary to highly specialized care and more important in decentralized systems, and where private provision of services is stronger
	Improving continuity of care	Limited	Reduces avoidable hospital admissions.
	Strengthen primary care systems	Some	countries with stronger primary care have a slower growth in health care expenditures
	Gatekeeping	Limited	Gatekeeping systems are operational in only a quarter of the EU countries, with partial gatekeeping system in place in others
	Benchmarking performance	No impact assessments identified	NHS undertakes fiscal benchmarking; Most benchmarking tools compare clinical effectiveness and quality.
	Enhancing hospital competition mechanisms	Some evidence, effects may take a long time to materialize and need sophisticated monitoring and constant reform efforts	Set of conditions to allow for meaningful competition between hospitals is difficult to meet
	Increasing hospital autonomy	Limited, as increased hospital competition is related to cost containment, so is most probably increased hospital autonomy.	Increasing hospital autonomy may conflict with integrated care and can render short-term cost-containment policies more difficult
	Privatizing hospitals	Limited	Ownership form not a determining factor in hospitals' performance. Adaptability of private hospitals to changing market environment can be superior to public ones, but privatization may make cost containment policies also more difficult.
	Fostering hospital mergers and networks	Mixed, mergers may speed up restructuring, but effect on cost containment ambiguous	Economies of scale exploited at relatively small hospital sizes; May have anticompetitive effect due to creation of dominant position in local hospital markets
	Exploring public private partnerships	No scientific evidence that PPPs are cost-effective compared with traditional forms of publicly financed and managed provision of health care	Governments should undertake a financial review of a government's PPP obligations, including all contingent liabilities.
	Improving emergency care	No hard scientific evidence that this contributes to cost containment on the macro level	Several policy options improve the efficient use of emergency care units, such as improving primary care accessibility.
	Improving deployment of eHealth	Limited	Countries with more eHealth have fewer preventable hospitalizations.

Source: Based on a literature review of international databases, including PubMed® and Econlit, as well as material provided by stakeholders in the public domain and systematised into a framework of potential policies and policy effects.

There has been a trend towards the formation of hospital groups and multihospital networks, with over 60 per cent of hospitals now part of some form of partnership in some European countries. Overall, there is little empirical evidence of mergers and hospital networks on cost

containment. However, bigger hospitals, whether achieved by mergers or within hospital networks, may improve quality of care, although the scope for quality improvements is highly context specific.

- **Exploring public-private partnership:** Public-Private Partnership (PPP) is a form of cooperation between public authorities and the private companies, aiming at ensuring the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service. While experience with PPPs in the EU is diverse, many projects seem to have not fulfilled expectations. Governments should undertake a financial review of a government's PPP obligations, including all contingent liabilities. There is no scientific evidence that PPPs are cost-effective compared with traditional forms of publicly financed and managed provision of health care.
- **Improving emergency care:** Emergency care units (ECU) play a central and critical role for payers and patients. A considerable proportion of visits to ECU are considered “non-urgent” or “inappropriate”. Several policy options have been proven to improve the efficient use of resource-intensive emergency care units, but no hard scientific evidence exists that this contributes to cost containment on the macro level. These policies include improving primary care accessibility, encouraging use of tele-medicine and introducing fast-track systems to redirect patients to appropriate care settings. Involving a primary care physician in the ECU and using cost-sharing arrangements are additional policy options, although their effectiveness is not always clear.
- **Improving deployment of eHealth:** EHealth plays a growingly important role for timely sharing of information, and may increase quality of service and create savings in hospital care as well as in health systems overall. There are many good examples of eHealth deployment in EU countries. The extent of deployment of eHealth varies according to the function and there is potential to increase the deployment of eHealth in acute care hospitals (Section 2.6). The empirical evidence on the impact of eHealth on cost-effectiveness and cost containment is still limited, but is pointing towards the positive direction. EHealth seems to contribute more to service quality, but may also reduce operating costs of clinical services and reducing administrative costs (OECD, 2010).

1. INTRODUCTION

Public expenditure on health absorbs a significant and growing share of EU countries' resources. With hospital care being the core expenditure item of health system, political focus on successful cost containment policies in this sector has been at least sustained, if not increased in the past decade. Some of the factors contributing to the need to cost containment are the high current levels of public debt, the efforts of the EU and its member states towards fiscal consolidation, and the perceived future fiscal challenges of hospital systems driven by population ageing, multimorbidity, the growing medical ability to treat patients with non-communicable diseases, such as cancer patients, and the increasing cost of medical innovation.

The current situation of predominantly hospital-centric health systems, hospital over-capacity in many EU countries and the associated costs create continuous calls for reform. Technology developments in the medical sphere and in IT-systems pose tremendous challenges to hospitals to reinvent and optimise their care processes. At the same time, there is the political difficulty to reform this complex, highly labour intensive, high-skills sector. Many countries have failed to implement sufficiently bold reforms to prepare hospitals and health systems to meet the challenges of an ageing patient population, which is more and more in need of integrated care systems that deal appropriately with highly specialised care needs and the growing phenomenon of multimorbidity.

All EU countries are currently focussed (to varying degree) on cost containment in the hospital sector. This provides for a wide range of country-specific policies and experiences that could be exploited, at least in theory. The potential for sharing experiences with good and less good policy reforms between EU countries is huge, as proven by the many international initiatives and publications upon which this paper strongly draws from. In practice, however, many policy reforms are not evaluated, especially concerning their longer term impact. Comparative studies involving several EU countries are available, but still relatively rare. As a consequence, hard scientific evidence on the impact on many policies across several EU countries is limited. Nevertheless, times are improving in the sense of better data availability, and future research should be able to close some current research gaps.

This paper aims to provide a description of some of the (hopefully core) trends facing the European hospital sector, to identify commonalities and differences between EU countries and to identify the challenges it stands for (Section 2). It then presents, based on a literature study some of the most widely observable policies for hospital reforms, focusing on its empirically documented impact on cost containment (Section 3). It also describes the recently more pronounced influence that the EU plays on hospital care (Section 4). Section 5 concludes.

2. HOSPITAL MARKETS

2.1. EXPENDITURE TRENDS

Total (public and private) spending on health in the EU absorbs a significant and growing share of Member States' resources, having grown from an average of about 7.1% of GDP in 1980 to 10.1% in 2013.¹ Public spending on health reached an EU average of about 8% of GDP in 2013, having increased from about 5.7% in 1980.² In the wake of the economic crisis, spending growth has slowed down for most EU countries. This reflects the effect of policies to contain cost growth in public spending after the crisis. In almost all EU Member States, public spending on health covers a large majority of the total spending on health, averaging 77% in the EU in 2013. The share of private spending on total spending has increased from roughly 20% in 1980 to about 23% in 2013. However, there are big differences in spending across EU Member States. Looking at the latest data available, the share of public spending on health in total GDP ranged from 3.2% in Cyprus to close to 10% in the Netherlands. Generally, spending on health is significantly lower in the Member States that accessed the EU after 2004, although the observed differences between countries may be narrowing.

Inpatient care accounts for about 30% of total health expenditure (Graph 1).³ This is followed by outpatient care and pharmaceuticals with around 24% and 17%, respectively. A breakdown of total expenditure growth between 2003 and 2013 suggests that inpatient care was growing slightly below the average growth in total expenditure (Graph 2). However, due to its relative size, inpatient care accounted for the biggest share in expenditure growth: Inpatient care accounts for 27% of expenditure growth, followed by outpatient care⁴ (22%), nursing and residential care (13%) and spending on pharmaceuticals 5 (11%).

¹ The OECD definition of expenditure on health is used. This defines total expenditure on health as the sum of expenditure on activities that – through application of medical, paramedical, and nursing knowledge and technology – have the goals of: promoting health and preventing disease; curing illness and reducing premature mortality; caring for persons affected by chronic illness who require nursing care; caring for persons with health impairments, disability, and handicaps who require nursing care; assisting patients to die with dignity; providing and administering public health; providing and administering health programmes, health insurance and other funding arrangements.

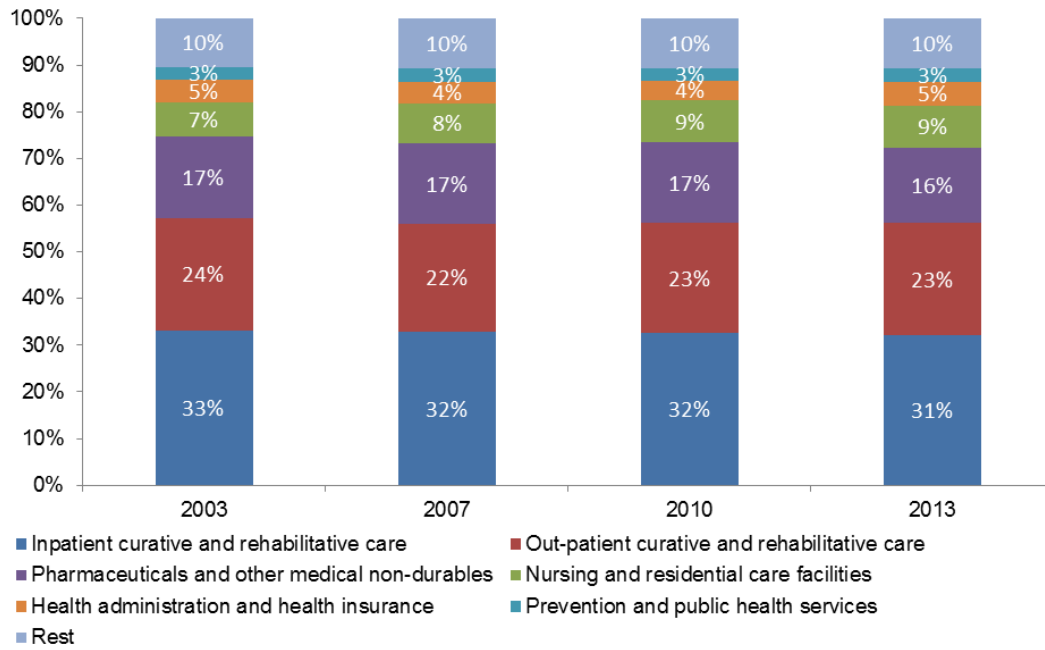
² Note that data on health expenditure used in this contribution comes from international datasets: EUROSTAT, OECD health data and WHO health for all.

³ This item comprises medical and paramedical services delivered to in-patients during an episode of rehabilitative or curative care for an admitted patient. An in-patient is a patient who is formally admitted (or “hospitalised”) to an institution for treatment and/or care and stays for a minimum of one night in the hospital or other institution providing in-patient care. See also Sources and Methods on in-patient care. An episode of curative care is one in which the principal medical intent is to relieve symptoms of illness or injury. Rehabilitative care comprises services where the emphasis lies on improving the functional levels of the persons served.

⁴ An out-patient is not formally admitted to the facility (physician’s private office, hospital out-patient centre or ambulatory-care centre) and does not stay overnight. An out-patient is thus a person who goes to a health care facility for a consultation/treatment, and who leaves the facility within several hours of the start of the consultation without being “admitted” to the facility as a patient. It should be noted that the term “out-patient” used in the SHA has a wider meaning compared to some national reporting systems where this term is limited to care in out-patient wards of hospitals. In the SHA, all visitors to ambulatory care facilities that are not day cases or over-the-night cases are considered out-patients.

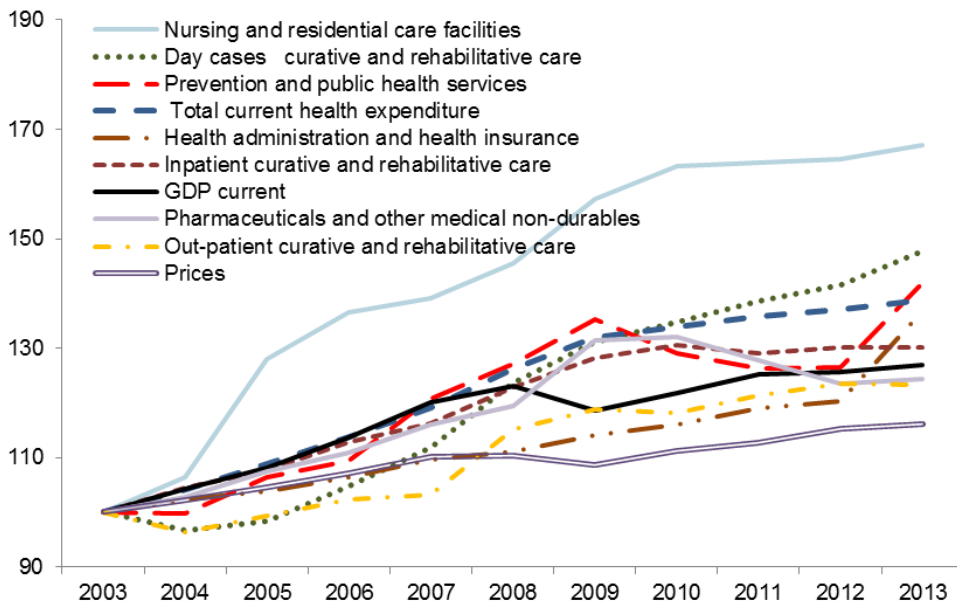
⁵ Total expenditure on pharmaceuticals and other medical non-durables comprises pharmaceuticals such as medicinal preparations, branded and generic medicines, drugs, patent medicines, serums and vaccines, vitamins and minerals and oral contraceptives.

Graph 1 - Distribution of public health expenditure by areas in the EU, 2003 to 2011



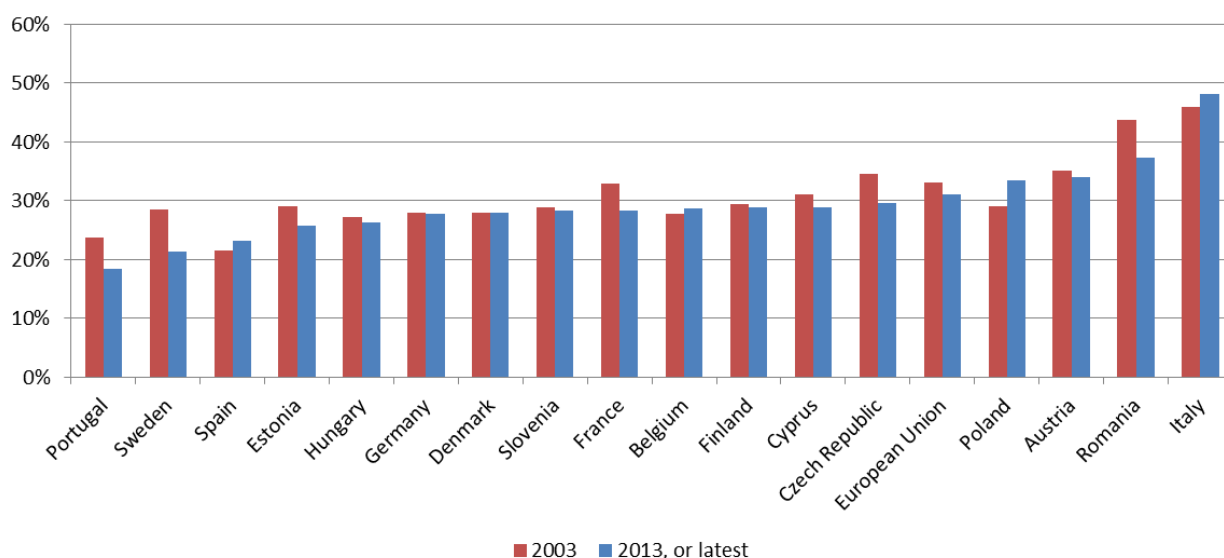
Source: Own calculation based on Eurostat, OECD and WHO health data.

Graph 2 - Evolution of public health expenditure by main areas (2003 = 100) in the EU, 2003-2013



Source: Own calculation based on Eurostat, OECD and WHO health data.

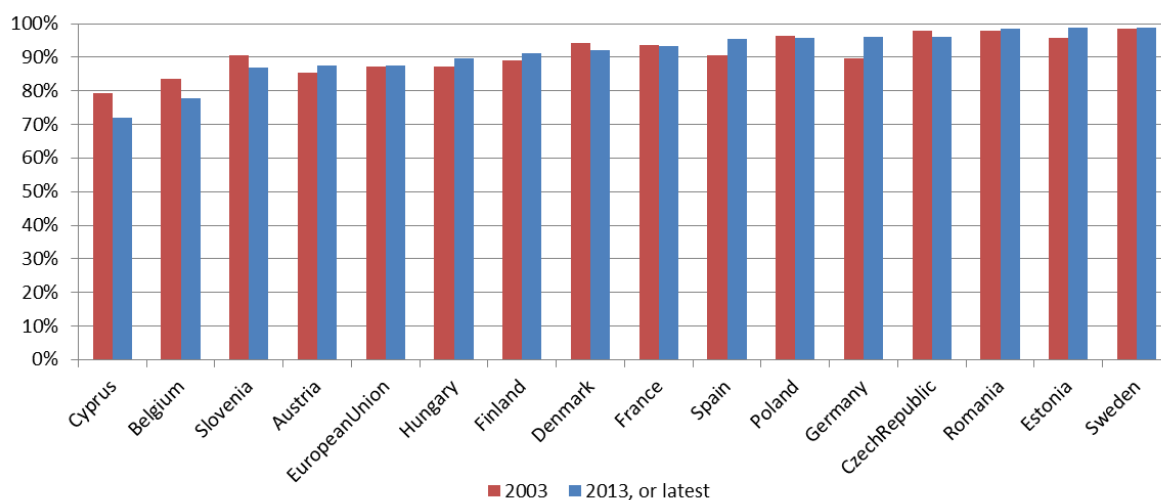
Graph 3 –Shares of expenditure of inpatient in total current health expenditure, 2003 and 2013



Source: Own calculation based on Eurostat, OECD and WHO health data.

The share of inpatient in total current health expenditure has been reduced in many EU countries (Graph 3). Around 90% of spending on inpatient care in the EU is publicly financed (Graph 4). This share of public spending has remained constant between 2003 and 2013. The role of private financing of inpatient care services has increased in Cyprus, Belgium, Slovenia, Denmark, and the Czech Republic.

Graph 4 –Shares of public in total inpatient expenditure, 2003 and 2013



Source: Own calculation based on Eurostat, OECD and WHO health data.

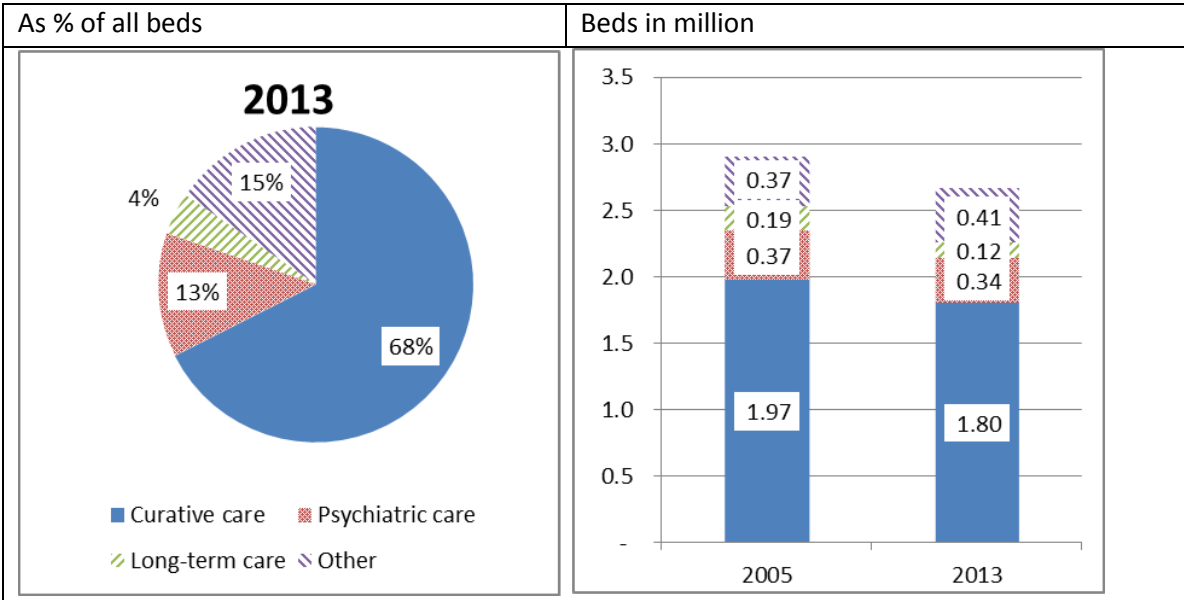
The reviewed data suggests that the expenditure share of inpatient care has not significantly reduced its importance in terms of total expenditure in the first decade of the 21st century. However, this masks significant changes in the provision of health services over time, such as the decreasing number of acute care beds, the shortening in the average length of stay of hospital inpatients, and the rising amount of day case discharges from hospitals (following sections). Still, these changes only slowly translate into shifts in expenditure shares across the various functions of

health expenditure. This is despite the much stated consensus among researchers and policy makers that moving health care out of the resource intensive hospital sector towards more cost-effective primary and ambulatory care services, and providing a bigger role for disease prevention and health promotion can improve the value for money of public health funding. Looking forward, projections of health expenditure point towards sustained fiscal challenges related to rising health care costs (European Commission (DG ECFIN)-EPC (AWG), 2015c). As the major cost item on the health expenditure menu, this surely implies for hospitals that they will be targeted as an area for cost-containment and increased efficiency.

2.2. HOSPITAL CAPACITY

Bed capacity has been reduced in all EU countries in the past decade, although to varying degree. In 2013, 68% of beds were assigned to curative care, 13% to psychiatric care, 4% to long-term care and 15% to other areas of care or not assigned to a particular category (Graph 5). In 2013, hospital bed capacity in the EU was at 5.3 beds per 1000 inhabitants, varying between 2.6 in Sweden and 8.2 in Germany (Graph 6). Building down hospital bed capacity has continued in the EU by 230 000 beds from 2005 to reach a capacity of 2.7 million beds in 2013 (Eurostat, own calculations). Annually bed capacity decreased by 1%. The build down in bed capacities nearly exclusively fell on curative care beds, while bed capacity in psychiatric care, long-term care and other beds has not changed significantly. There is no apparent convergence to a specific hospital bed density, as the speed of the decrease in bed density seems unrelated to the past levels of bed density. Bed density in Germany was reduced by only 0.6% yoy, while in the UK the rate was 4% and in Ireland 8.9%.

Graph 5 – Available beds in hospitals in the EU by type of bed, 2005 and 2013

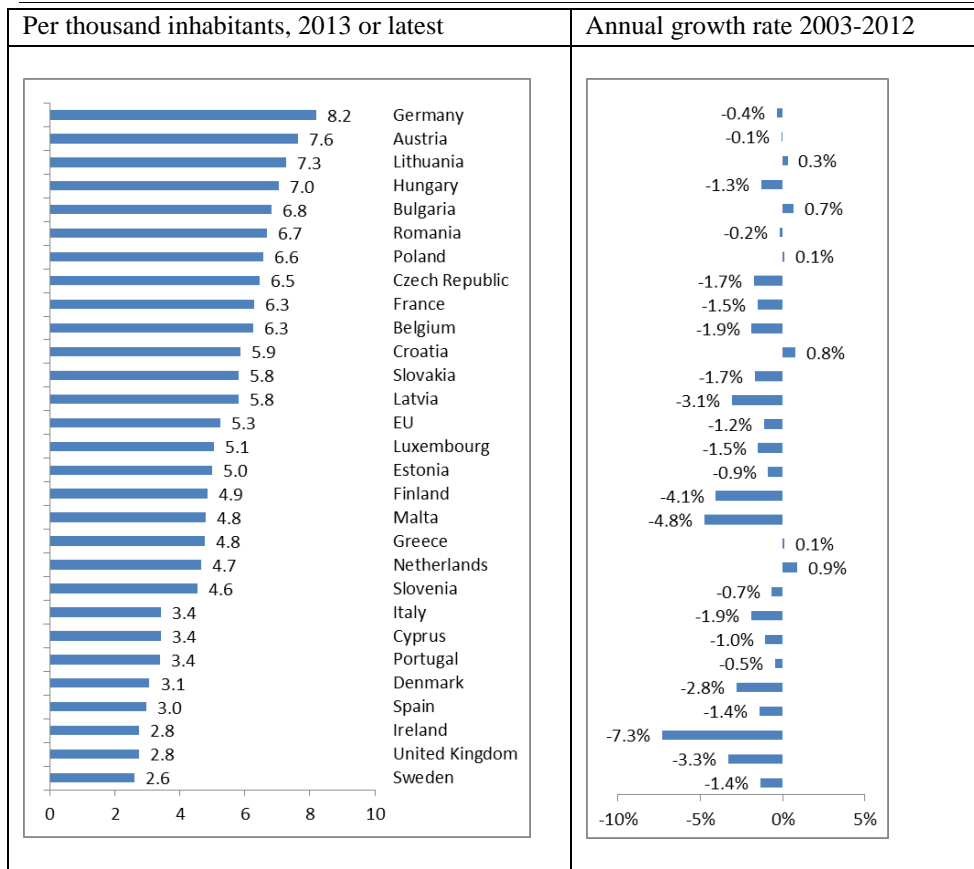


Source: Eurostat, own calculations.

Decreasing bed capacities in curative care are closely related to lower length of stay of patients. The average length of stay has decreased from 2005 to 2013 by 10% from 7 to 6.3 days in the EU, i.e. by roughly 1.2% annually (Graph 7). The decrease was faster for countries with higher length of stay in the past, such as Bulgaria, Croatia, Germany and Poland, signalling a convergence process across

EU countries. Slightly increased number of curative care inpatient discharges could not counteract the decrease in average length of stay, such that total bed days went down by around 1% annually from 552 to 508 million.

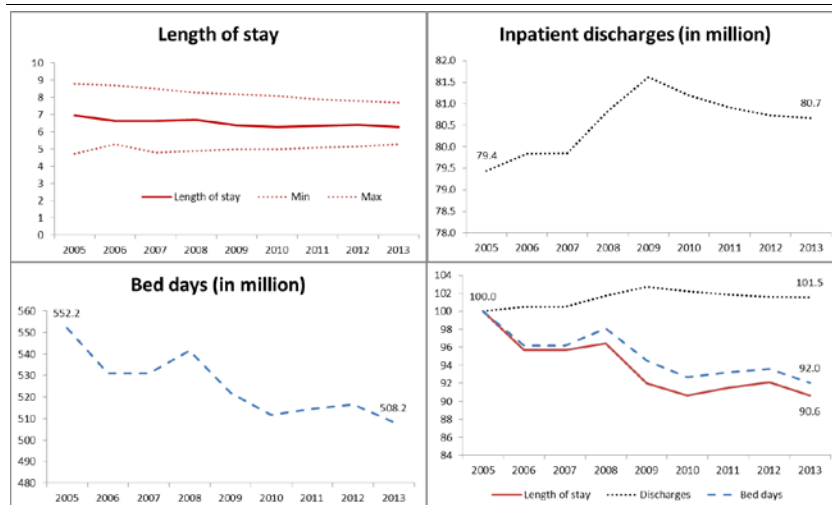
Graph 6 – Available beds in hospitals, per 1 000 inhabitants, 2013 or latest



Source: Eurostat, own calculations.

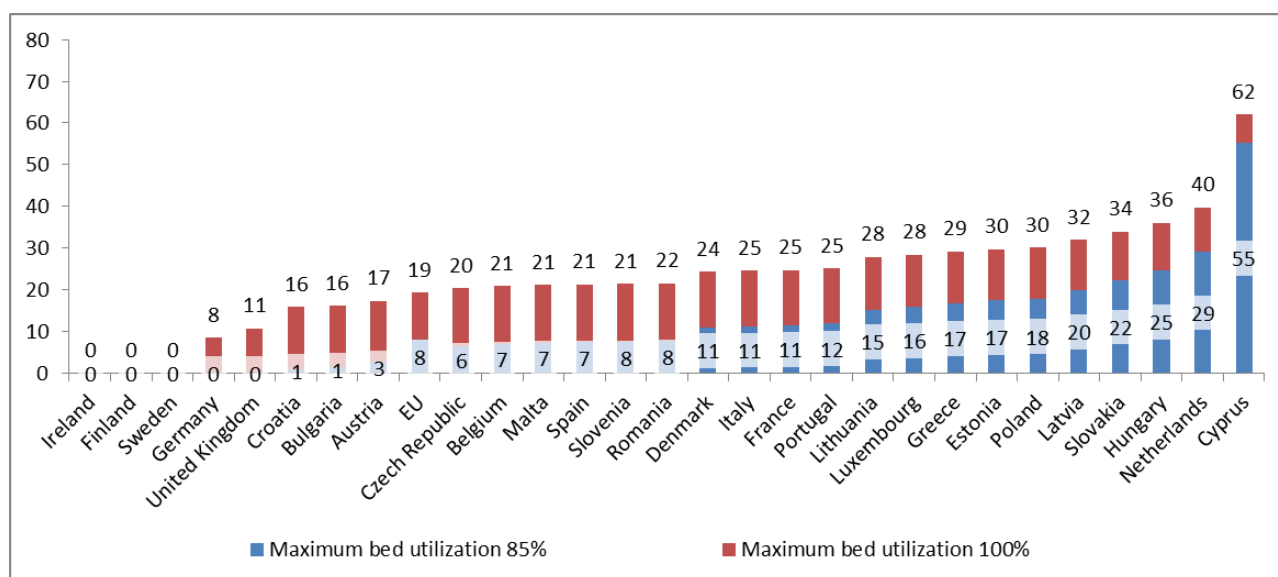
Note: Includes beds in all hospitals, including general hospitals, mental health hospitals and other specialty hospitals, such as prevention and rehabilitation hospitals.

Graph 7 –Length of stay, curative care inpatient discharges, bed days in the EU, 2005 to 2013



Source: Eurostat, own calculations.

Graph 8 –Hospital bed overcapacity curative care, 2013



Source: Eurostat data, own calculations.

Note: For Bulgaria, curative care discharges are estimated based on the number of inpatient discharges in Bulgaria and the average share of curative in inpatient discharges in the EU. Estimates for all countries based on latest available data. Bed overcapacity is calculated as one minus the number of beds needed (effectively used bed-days divided by 365 days and the assumed maximum bed utilisation of 85 or 100%) in curative care divided by the number of beds available for curative care, with the result multiplied by 100.

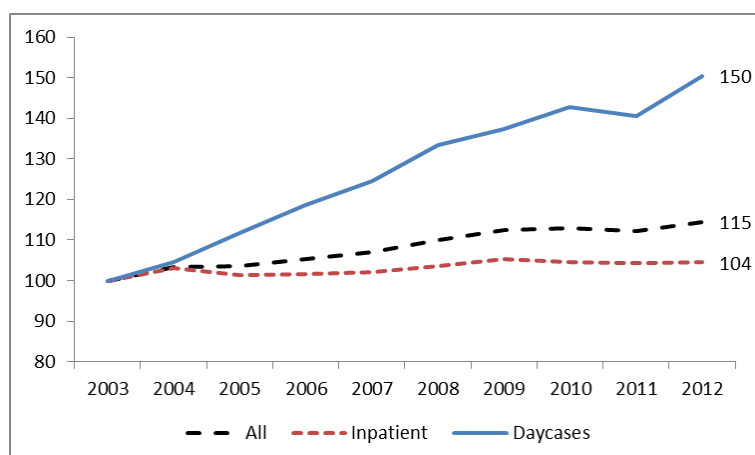
There are substantive bed overcapacities in the EU (Graph 8). Overcapacities are estimated based on length of stay, the number of inpatient discharges, curative care bed capacities with latest available data. Assuming that each bed can be occupied every minute throughout the whole year (100% theoretical utilisation), overcapacities in the EU are at 20% of available beds in 2013. However, assuming a lower utilisation rate of 6 days (or 85%) reduced bed overcapacities to 8% for the EU. Overcapacities range between zero and 62% for individual countries. The data should be interpreted with some caution, because in some countries, beds assigned to a specific type of care may be used in reality of another type of care, but overall the data confirms that important bed overcapacities exist in some of the countries in the EU.

2.3. HOSPITAL DISCHARGES

Growth in hospital discharges was practically driven by a steep increase in the number of patients discharged on a daily basis. The number of all hospital discharges, i.e. inpatient and day cases, in the EU increased approximately from 2003-2012 by 14% from 101 to 116 million (Graph 9). Daycase discharges increased by 50%, while all inpatient discharges stayed more or less constant.⁶

⁶ The data used in this section relies on Eurostat reported data for number of discharges by major disease category (ICD). There are slight differences in the reported number of total discharges between this data and the one used in the previous section.

Graph 9 – Hospital discharges in the EU, inpatients and daycases, 2003 to 2012 (2003=100)

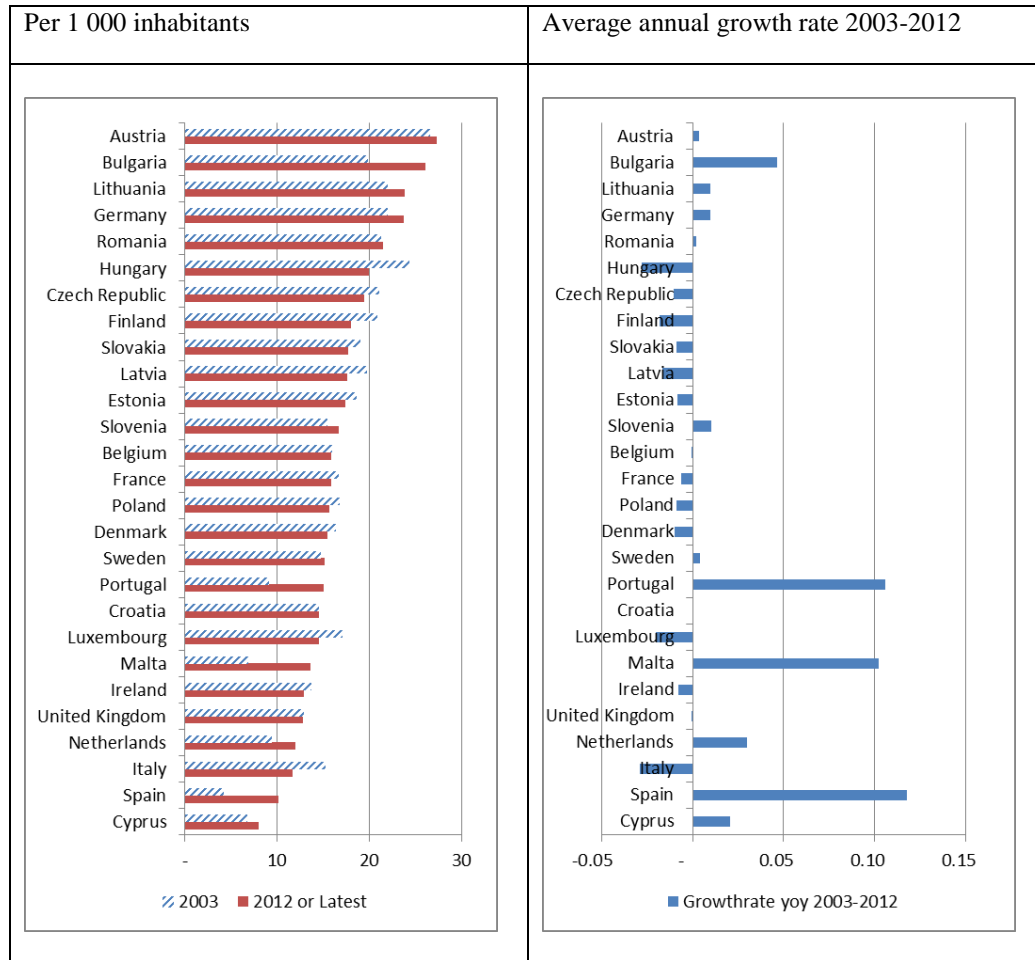


Note: Missing data for country-years approximated by linear interpolation.

This evolution clearly shows the growing trend of providing ambulatory care in hospital settings. This evolution differs, however, significantly between countries. Contrary to the general trend of decreasing numbers of inpatient discharges per capita in most countries (Graph 10), Bulgaria, Malta, Portugal and Spain had positive and high growth rates in inpatient discharges. This seem partly related to a catching up process, as countries with lower inpatient discharge rates in the past had relatively high growth rates until 2012 (Graph 12), with some important outliers such as Austria, Bulgaria, Germany, Lithuania and Romania, who despite high per capita rates in 2003 continued to increase the rates of inpatient discharges per capita. All countries, except for Germany and Italy increased daycase discharges per capita from 2003 to 2012 (Graph 11). However, the evolution does not seem related to the level of daycase discharges provided in the past (Graph 12).

Cross-country variation in inpatient discharge rates per capita is considerable. Some countries, such as Bulgaria, Germany, Lithuania, Hungary, Austria and Romania produce systematically and significantly more discharges per capita in most disease areas compared to the EU median (One or two standard deviations above EU median) (Table 2). This seems not to be confined to a specific disease area, but seems to hold systematically across different disease areas.

Graph 10 – Hospital inpatient discharges, 2003 and 2013



Sources: Eurostat, own calculation.

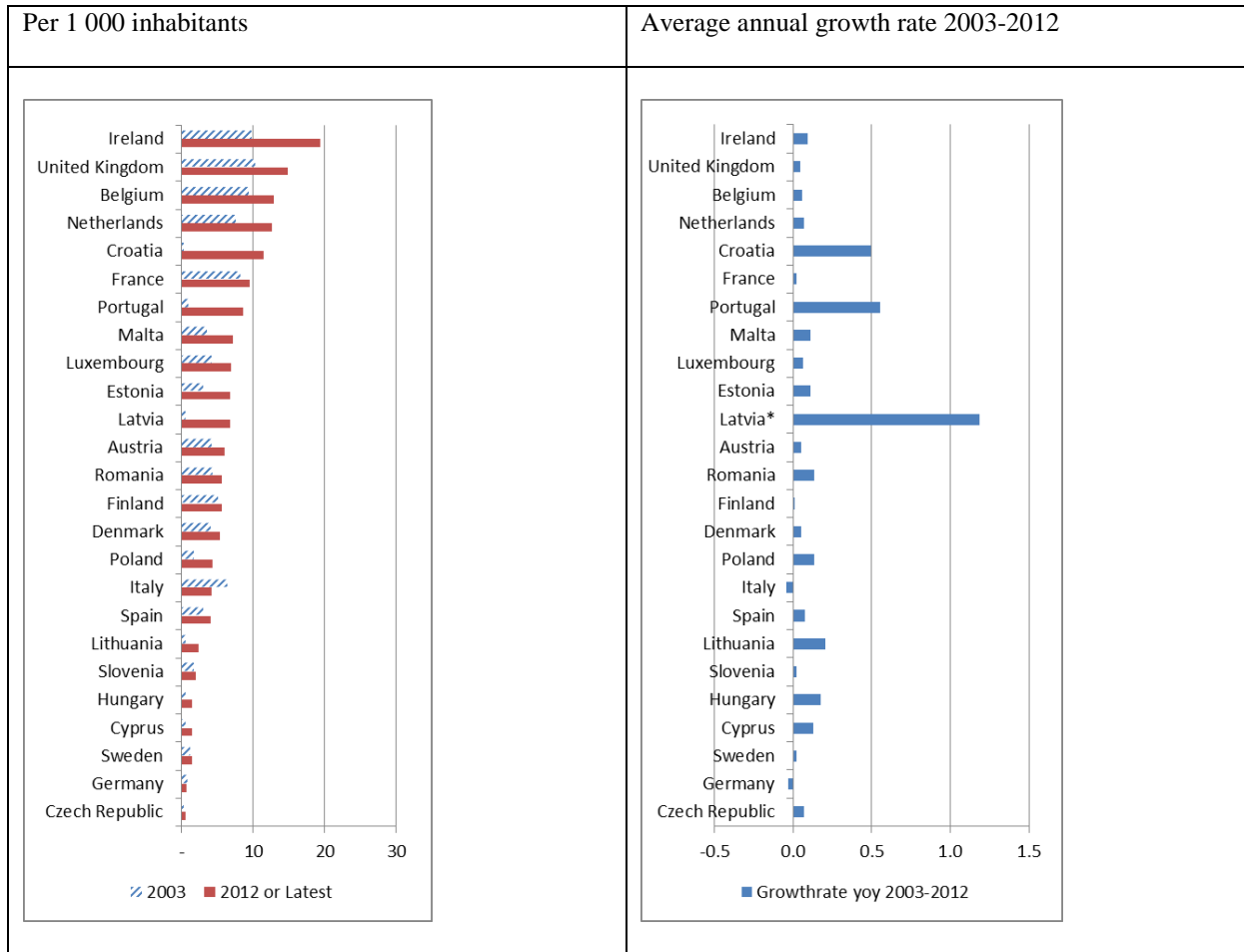
Note: No data for Greece. All causes of diseases (A00-Z99) excluding V00-Y98 and Z38.

Table 2 – Hospital discharges by diagnosis, in-patients, (EU median = 100)

	All causes of diseases (A00-Z99) excluding V00-Y98 and Z38	Certain infectious and parasitic diseases (A00-B99)	Neoplasms	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	Endocrine, nutritional and metabolic diseases (E00-E90)	Mental and behavioural disorders (F00-F99)	Diseases of the nervous system (G00-G99)	Diseases of the eye and adnexa	Diseases of the ear and mastoid process	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Diseases of the skin and subcutaneous tissue (L00-L99)	Diseases of the musculoskeletal system and connective tissue (M00-M99)	Diseases of the genitourinary system (N00-N99)	Pregnancy, childbirth and the puerperium (O00-O99)	Certain conditions originating in the perinatal period (P00-P96)	Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	Injury, poisoning and certain other consequences of external causes (S00-T98)	Factors influencing health status and contact with health services (Z00-Z99)	Other factors influencing health status and contact with health services (remainder of Z00-Z99)		
Belgium	100	100	85	105	145	54	137	53	111	96	104	120	63	140	96	104	22	87	100	121	222	139	Belgium	
Bulgaria	165	169	132	155	255	102	161	329	391	187	231	167	218	108	197	136	143	71	16	102	417	514	Bulgaria	
Czech Republic	123	114	116	92	141	100	100	110	137	134	100	125	161	122	153	105	113	113	124	127	249	294	Czech Republic	
Denmark	98	107	100	148	148	28	71	35	77	87	102	94	86	88	86	82	48	108	164	109	299	192	Denmark	
Germany	150	161	182	113	174	234	158	159	194	170	112	162	155	264	126	80	106	126	143	178	94	67	Germany	
Estonia	110	184	135	93	95	159	90	49	169	153	126	108	133	106	100	124	131	148	27	90	20	20	Estonia	
Ireland	81	98	57	83	64	16	58	32	50	51	97	78	91	44	66	196	111	98	221	85	50	101	Ireland	
Greece																								Greece
Spain	64	44	71	65	50	36	36	31	55	60	86	90	47	70	66	89	76	84	69	65	26	38	Spain	
France	100	73	87	148	122	57	73	124	100	89	79	108	92	115	93	113	139	92	159	100	274	235	France	
Croatia	92	94	132	68	87	124	103	223	76	85	71	81	84	90	92	93	96	162	71	80	165	193	Croatia	
Italy	74	48	85	76	76	44	55	52	63	92	74	81	44	76	77	83	74	111	75	77	143	100	Italy	
Cyprus	50	40	30	41	34	1	16	73	25	22	37	46	41	14	48	39	73	40	461	50	15	27	Cyprus	
Latvia	111	222	121	72	64	219	105	100	111	145	156	115	118	69	101	113	63	113	6	124	6	10	Latvia	
Lithuania	150	241	137	100	100	165	197	244	205	229	198	138	174	132	143	114	195	157	101	124	94	90	Lithuania	
Luxembourg	92	51	100	75	97	149	118	172	83	87	93	95	58	161	103	85	53	57	68	77	28	55	Luxembourg	
Hungary	126	79	178	177	196	169	103	277	148	173	127	108	145	179	129	98	100	86	58	103	73	73	Hungary	
Malta	86	41	64	117	88	67	34	73	46	68	89	93	100	45	95	88	43	60	403	79	169	121	Malta	
Netherlands	75	40	83	83	60	18	37	20	70	81	64	74	47	84	67	79	251	81	196	80	100	121	Netherlands	
Austria	173	160	216	123	206	214	206	328	273	171	132	179	168	315	164	94	72	189	167	234	14	21	Austria	
Poland	99	104	94	98	132	98	101	155	107	122	96	100	114	84	102	108	203	127	89	81	116	15	Poland	
Portugal	95	44	73	49	70	28	48	320	77	60	75	77	86	42	88	69	9	78	28	50	703	240	Portugal	
Romania	135	226	144	124	184	187	112	189	137	142	208	163	199	133	137	115	272	123	56	84	61	78	Romania	
Slovenia	105	130	137	118	102	78	68	90	105	100	109	103	113	100	113	100	109	70	85	114	241	267	Slovenia	
Slovakia	112	100	117	109	105	110	105	129	180	127	103	125	123	108	110	115	178	104	97	104	188	255	Slovakia	
Finland	114	160	127	115	96	193	122	52	83	128	115	99	75	123	102	94	82	109	165	137	38	75	Finland	
Sweden	96	126	96	108	113	145	79	36	87	111	77	88	53	91	74	102	81	100	202	108	157	36	Sweden	
United Kingdom	81	61	66	92	60	41	50	27	52	60	93	86	106	78	89	114	157	98	226	94	100	66	United Kingdom	
Median	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	Median

Sources: Eurostat, own calculation.

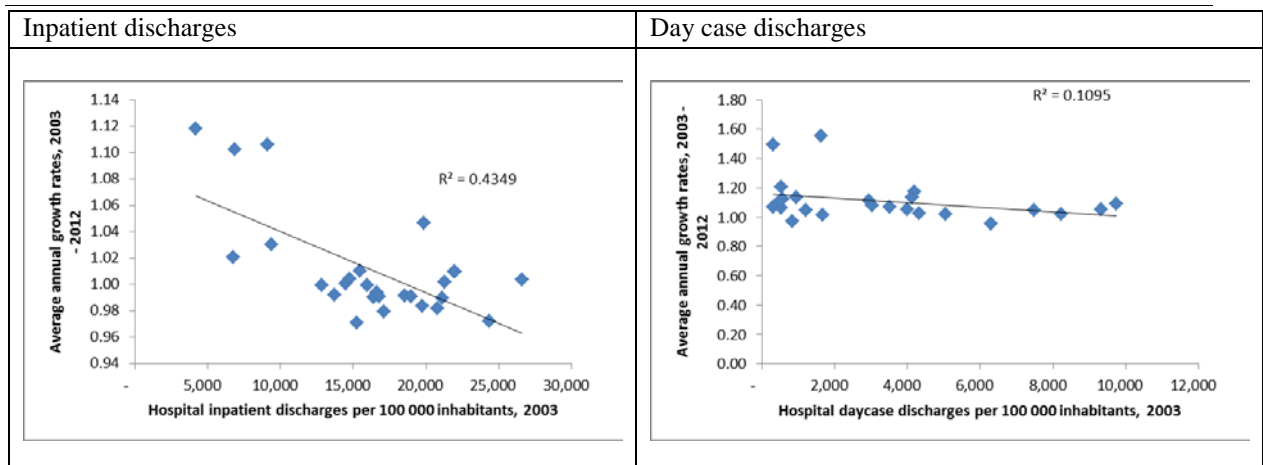
Graph 11 – Hospital day case discharges, 2003 and 2013



Sources: Eurostat, own calculation.

Note: No data for Bulgaria, Greece and Slovakia. All causes of diseases (A00-Z99) excluding V00-Y98 and Z38. Latvia growth rate divided by 10.

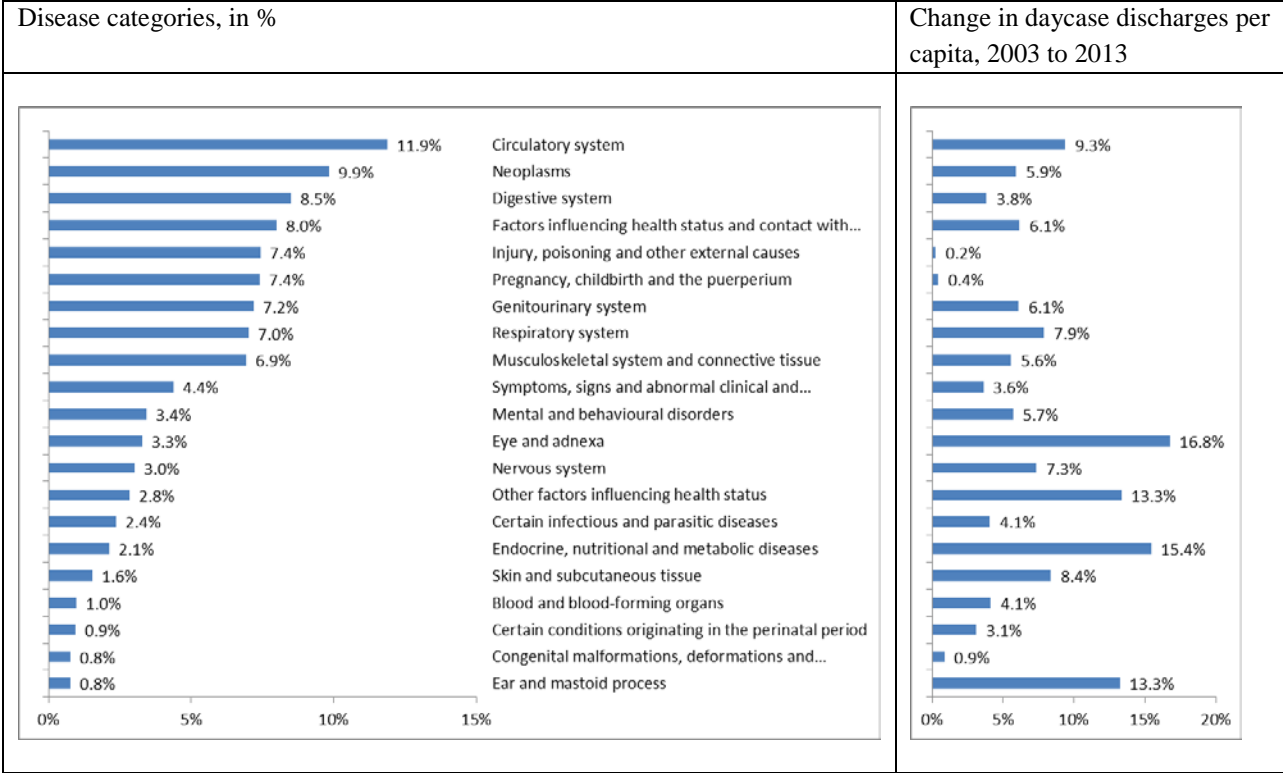
Graph 12 – Correlation between inpatient and day case discharges per capita in 2003 and average annual growth rates 2003-2012



Sources: Eurostat, own calculation.

Over 50% of all discharges are assigned to only five disease categories, the most frequent being diseases of the circulatory system, neoplasms and diseases of the digestive system (Graph 13, left part). Diseases of the circulatory system and neoplasms experienced a relatively high shift into ambulatory care, as the growth rates of day case discharges was significant in this areas of care (Graph 13, right part).

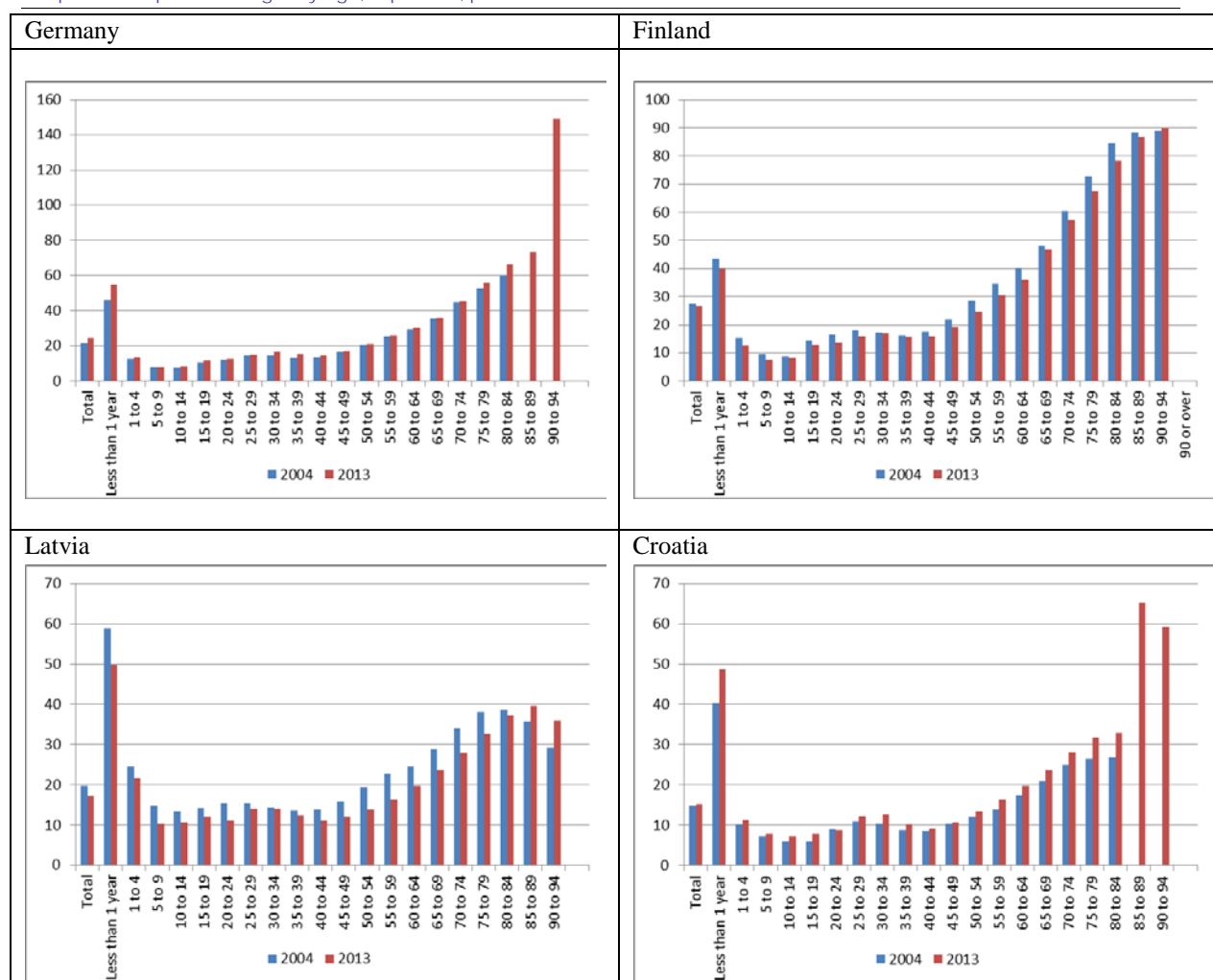
Graph 13 - Hospital discharges by diseases categories, inpatients and daycases, EU 2013 or latest; in %



Sources: Eurostat, own calculation.

Incidence rates of hospital discharges are strongly related to age (Graph 14), with rates increasing significantly typically from the age of 40. While age-specific incidence rates have evolved differently over time across EU countries, there is a tendency of increasing rates for the oldest ones, which occurred in Finland and Latvia against the overall trend of decreasing rates. There seems to be no typical pattern across EU countries in the evolution of incidence rates over time. In Germany and in Croatia, rates have increased faster for the oldest ones than for other age groups. This trend may reflect the increased medical ability of health systems to provide treatment in disease areas also for the oldest segments of population.

Graph 14 – Hospital discharges by age, in-patients, per 1 000 inhabitants



Sources: Eurostat.
 Note: All causes of diseases (A00-Z99) excluding V00-Y98 and Z38.

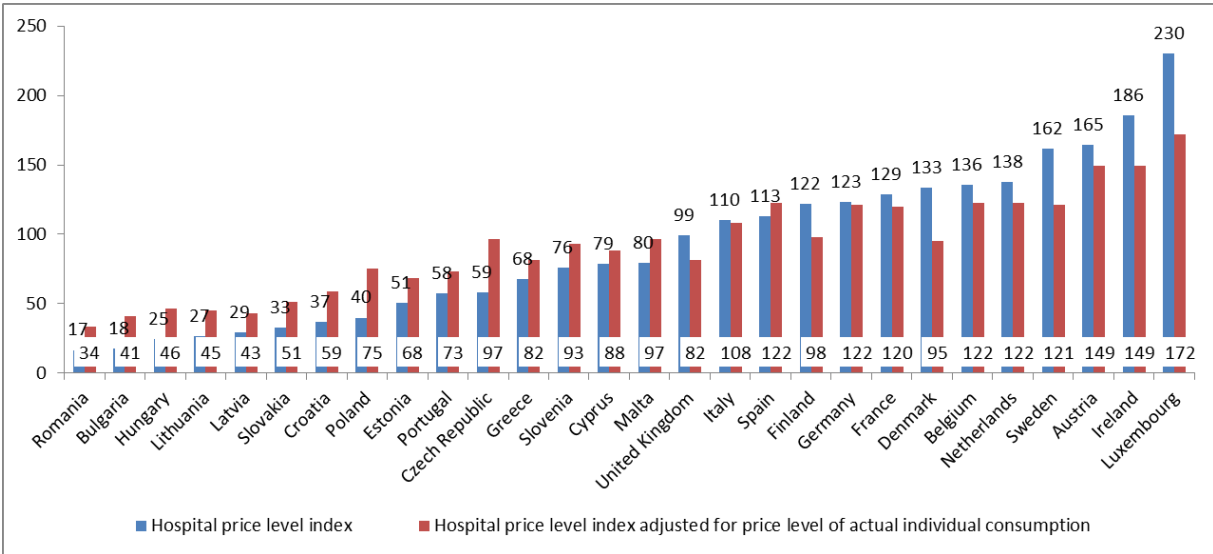
2.4. PRICES

Price levels of hospital services are a key driver of total hospital and health expenditure. The relative price for a comparable group of products can be compared internationally based on Purchasing Power Parities (PPPs). PPPs convert expenditure on product groups or GDP to a common currency at a uniform price level. Since recently, specific PPPs for hospital prices have been obtained. Based on this information, price level indices (PLI) for a comparable basket of hospital services between countries have been estimated (Koechlin et al., 2010). This indicates the number of units of the common currency needed to buy the same volume of the underlying hospital services.

Price level indices for hospital services differ widely across countries (Graph 15). Bulgaria and Romania have price levels at around 17% of the average EU price level, whereas in Luxembourg hospital services are priced at 230% of the EU average, a range of nearly 1 to 14. As noted by Koechlin et al. (2010), the high range of prices may be partially driven by the fact that the basket of hospital services chosen for this analysis may not be fully comparable, as well as the problem that administrative prices do not always reflect real prices. In some countries, informal payments play and

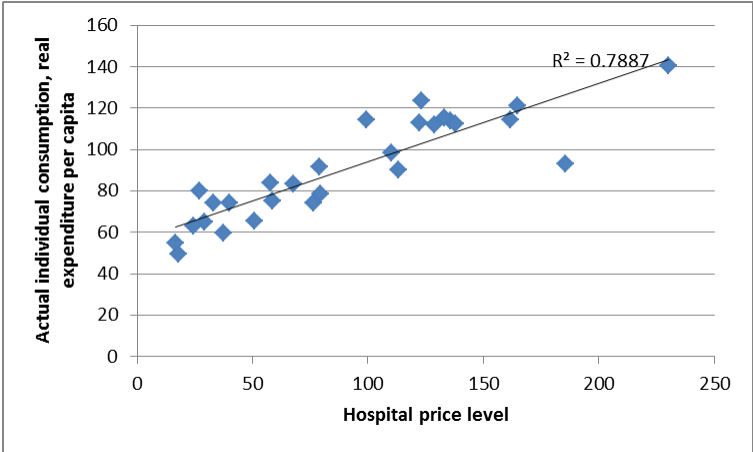
important role and executed budgets are regularly adjusted upwards to account for higher than planned spending in a particular year.

Graph 15 – Hospital Services, Price level indices (EU28=100), 2014



Source: Eurostat, own calculation.

Graph 16 – Comparison of price level indices for hospital services and volume of Actual Individual Consumption per capita, 2011, EU28=100



Source: 2013 Eurostat/OECD Hospitals PPPs Survey; OECD Purchasing Power Parities Statistics 2013
 Note: Total actual individual consumption (AIC) corresponds to household consumption adjusted for social transfers in kind, that is the health, education or housing services provided by government for free or at low cost.

Price levels tend to correlate with income levels: richer countries have generally higher price levels than poorer countries. Comparing the price levels for hospitals with the index of real per capita expenditure on total actual individual consumption (AIC) confirms this strong relationship (Graph 16). It can be interesting to adjust hospital price levels for differences in price levels of actual individual consumption, to account for some differences in income between countries. Such an adjustment reduces the cross-country variation in prices levels of hospital services to some degree, but important differences remain. For instance, in Romania the price level of AIC is 48% of the EU average, while the hospital price level is 17%. In poorer countries, the prices of hospital services are mostly below the price levels of AIC relative to the EU, while it is the contrary in high income

countries. As hospital care is relatively labour intensive this may to a big part reflect relatively low wages of the hospitals' staff in lower income countries. This in turn may signal to some extent that hospital services are under-priced and/or valued relatively poorly in low income countries relative to other sectors of the economy and are vice versa in high income countries.

2.5. AMBULATORY-CARE SENSITIVE CONDITIONS

A considerable proportion of inpatient hospitalisations are ambulatory care-sensitive, which means that they are avoidable. The idea behind the concept of ambulatory care-sensitive conditions (ACSC) is that effective medical treatment of the underlying disease, appropriate management of chronic illnesses and disease prevention can reduce the risk of a specified set of hospitalisations (Sundmacher et al., 2015). Avoidable hospitalisation means that specific diseases can instead be treated in ambulatory care setting or can be fully prevented.⁷ Based on a survey from medical professionals, Sundmacher (2015) estimates that for Germany out of all 18.6 million German hospital cases in 2012, 5 million hospitalisations (27%) are sensitive to ambulatory care, of which 3.72 (20%) were estimated to be actually preventable.

There is a dramatic variation in potentially avoidable hospitalisations within and across countries. Another view on the same problem is depicted by the ECHO project which used the concept of potentially avoidable hospitalisations (PAH).⁸ Systematic variations in PAH offer a critical view on how healthcare organisations provide care to patients with chronic conditions. In particular, PAH variations signal how effectively they are managed in the ambulatory setting. Results for Denmark, England, Portugal, Slovenia and Spain demonstrate (Graph 17) that for a number of defined chronic conditions, there is a dramatic variation in PAH within and across countries, beyond age and sex differences, pointing towards a high potential for improving care (Thygesen et al., 2015).

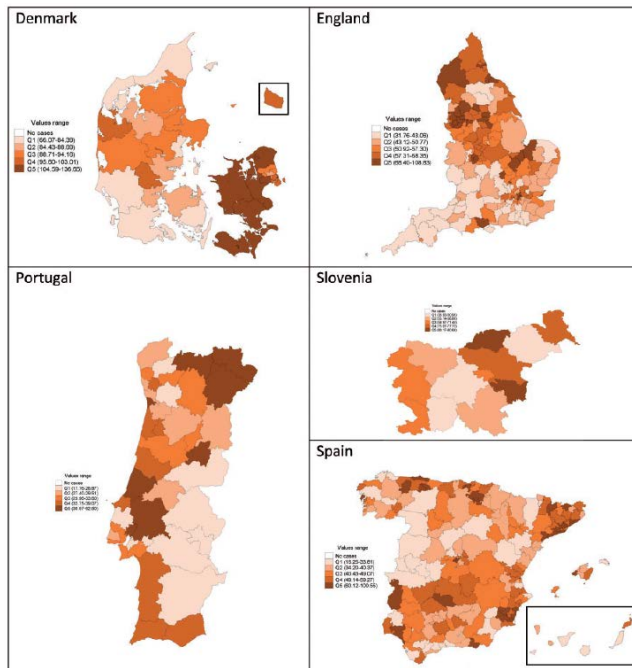
On the basis of Sundmacher's work, this section provides an estimate of the share of ACSC in the EU. As an example, based on Eurostat data, there were roughly 1.6 million hospitalisations categorised as heart failure in the EU in 2013, which is categorised as an ACSC. Sundmacher reports that medical experts assess the degree of preventability of hospitalisation due to heart failure as high as 64%. Applying this rate to the EU level results in roughly 1 million of preventable hospitalisations in this disease category.⁹

⁷ See e.g.: http://www.health.org.uk/sites/default/files/GettingOutOfHospital_fullversion.pdf

⁸ Potentially Avoidable Hospitalisations (PAH) are defined as admissions due to acute deterioration of a chronic patient that could have been avoided with effective ambulatory care. Therefore, high PAH rates can be interpreted as potential shortcomings in ambulatory management of chronic conditions.

⁹ To estimate the number of preventable hospitalisations in the EU, the categories of ACSC reported by Sundmacher (2015) were matched with available disease categories published by Eurostat. For a number of conditions Eurostat data was not available. As a result, for Germany instead of the 5 million ACSC only around 2.5 million of ACSC could be matched. As this would have implied a considerable underestimate on of the potential ACSC in other EU countries, the number of cases was multiplied by a factor 2. Then for each condition the specific degree of preventability of hospitalisation was used to estimate EU country-specific number of preventable hospitalisations.

Graph 17 – Potentially Avoidable Hospitalisations, based on the ECHO project

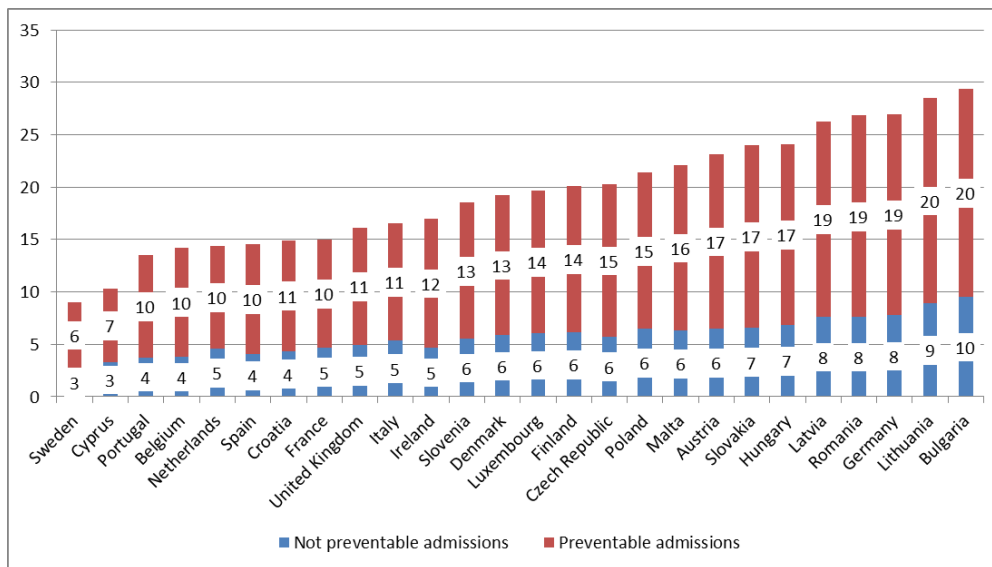


Notes: From Thygesen et al., 2015: Age- and sex-standardised rates of PAH for each of the five countries. The darker the grey, the higher the number of admissions per 10 000 adult inhabitants. Areas are clustered into 5 quintiles according to their rate value (Q1–Q5)—legend within the maps provides the range of standardised rates within each quintile and each country.

According to this rough analysis, all countries in the EU hospitalise patients in ACSC, out of which a considerable proportion is preventable. More than 10% of all hospitalisations are preventable in most EU countries, and close to 20% of all hospitalisations seem preventable in Lithuania, Bulgaria, Germany, Latvia and Romania. In the EU, more than 6 million or 7-8% of all curative care hospitalisations appear preventable based on this analysis (Graph 18).

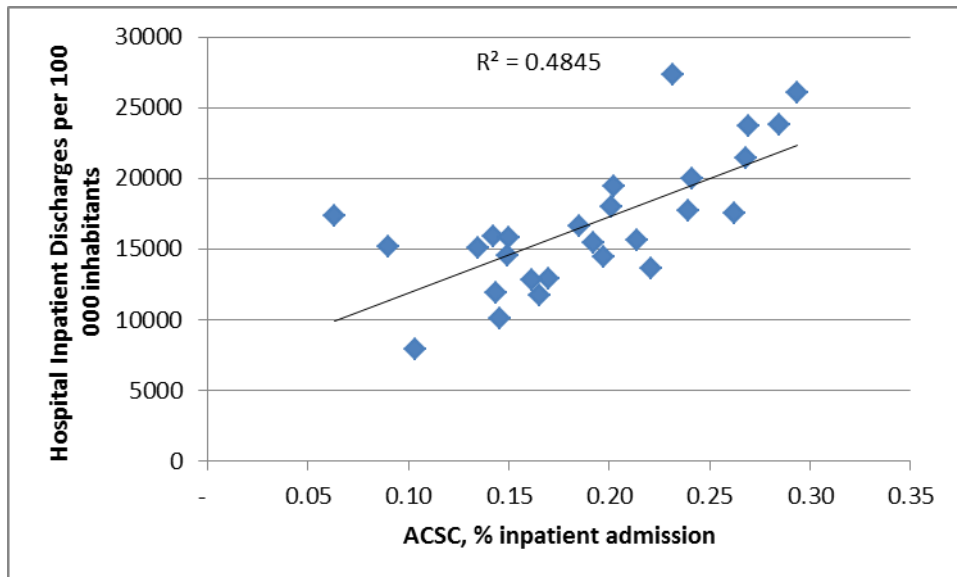
There is a strong positive correlation between the share of ACSC and overall rates of hospitalisations per capita (Graph 19). This indicates that countries with high hospitalisation rates have a higher potential to improve quality of care by reducing the number of preventable hospitalisations.

Graph 18 –Ambulatory-care sensitive conditions in the EU, preventable and not preventable, as % of inpatient discharges



Note: Based on available conditions in Eurostat database and selected ambulatory-care sensitive conditions according to Sundmacher (2015). Conditions are: Malignant neoplasms of skin; Diabetes mellitus; Mental and behavioural disorders due to use of alcohol; Hypertensive diseases; Angina pectoris; Heart failure; Varicose veins of lower extremities; Other acute lower respiratory infections; Other lower respiratory diseases; Other noninfective gastroenteritis and colitis; Alcoholic liver disease; Gonarthrosis [arthrosis of knee]; Dorsalgia; Inflammatory diseases of female pelvic organs. The degree of preventability and the total number of ACSC is aligned with the number of ACSC estimated for Germany as in Sundmacher (2015).

Graph 19 –Correlation between rates of hospitalisations per capita and share of ambulatory-care sensitive conditions

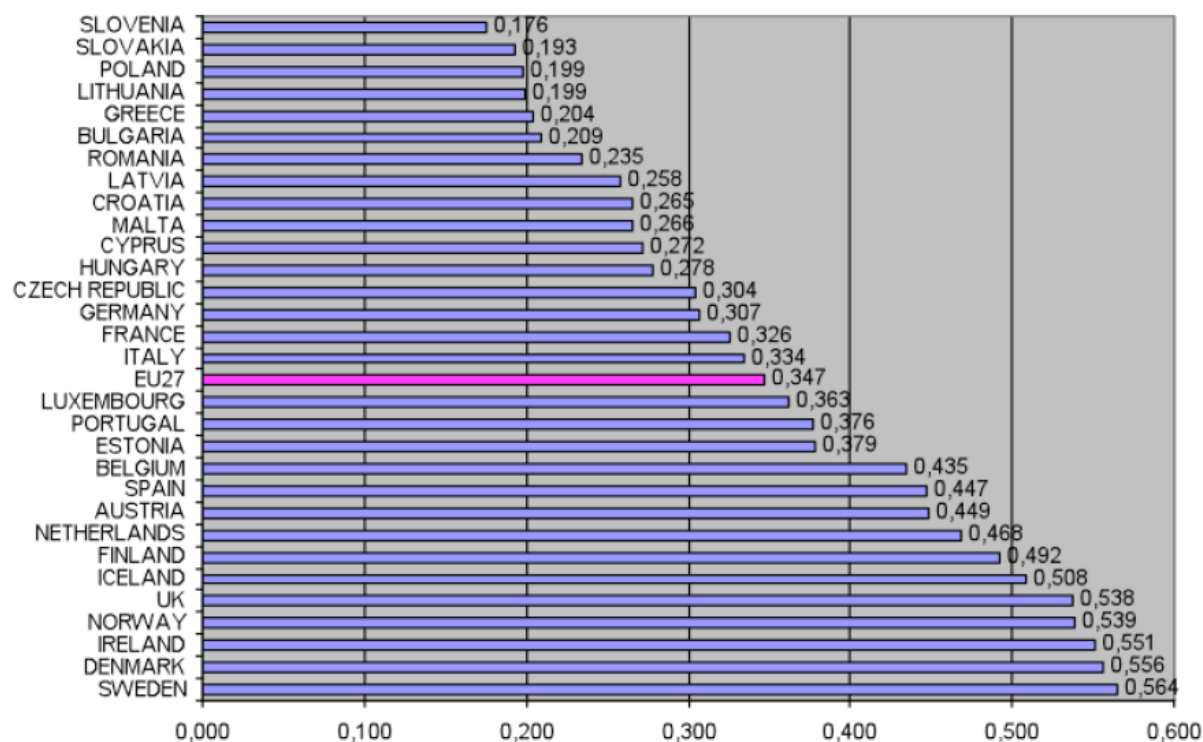


Source: Own calculations.

2.6. EHEALTH DEPLOYMENT IN ACUTE CARE HOSPITALS

EHealth plays a growingly important role for timely sharing of information, and may increase quality of service and create savings of resources in hospital care as well as in health systems overall. Based on Codagnone and Lupiañez-Villanueva (2011) this section summarises the results on the deployment and impact of eHealth on cost containment as well as quality of care.

Graph 20 – Hospitals' eHealth Deployment Composite Index: Country Ranking



Source: Codagnone and Lupiañez-Villanueva (2011)

The extent of deployment of eHealth varies according to the function. More than 80% hospitals in the EU are connected to an extranet or internet network. More than 70% of acute European hospitals have electronic patient records, an integrated system for billing management, an electronic appointment booking system and electronic clinical tests. However, only 4% of hospitals provide their patients with online access to their personal health records and only 8.7% provide tele monitoring services. A third of the hospitals exchange electronically clinical information with hospitals outside their own system, and with outpatient specialists and general practitioners. Only 5% of hospitals exchange information electronically with healthcare providers in other countries. As far as security and privacy of data is concerned, all hospitals state that transmitted data are encrypted and follow national level regulation.

There is lots of room to increase the deployment of eHealth in acute care hospitals. The average EU composite index value for eHealth deployment is below 0.5 (with 1 being the top value), implying potential to improve. There is a high variability among countries with mostly Nordic countries scoring high and lower income countries scoring low. Looking at the components within the composite index, the highest deployment rates are in eHealth infrastructure, whereas electronic information flows and exchange lag behind.

2.7. PROJECTIONS OF HOSPITAL BED OVERCAPACITY IN CURATIVE CARE

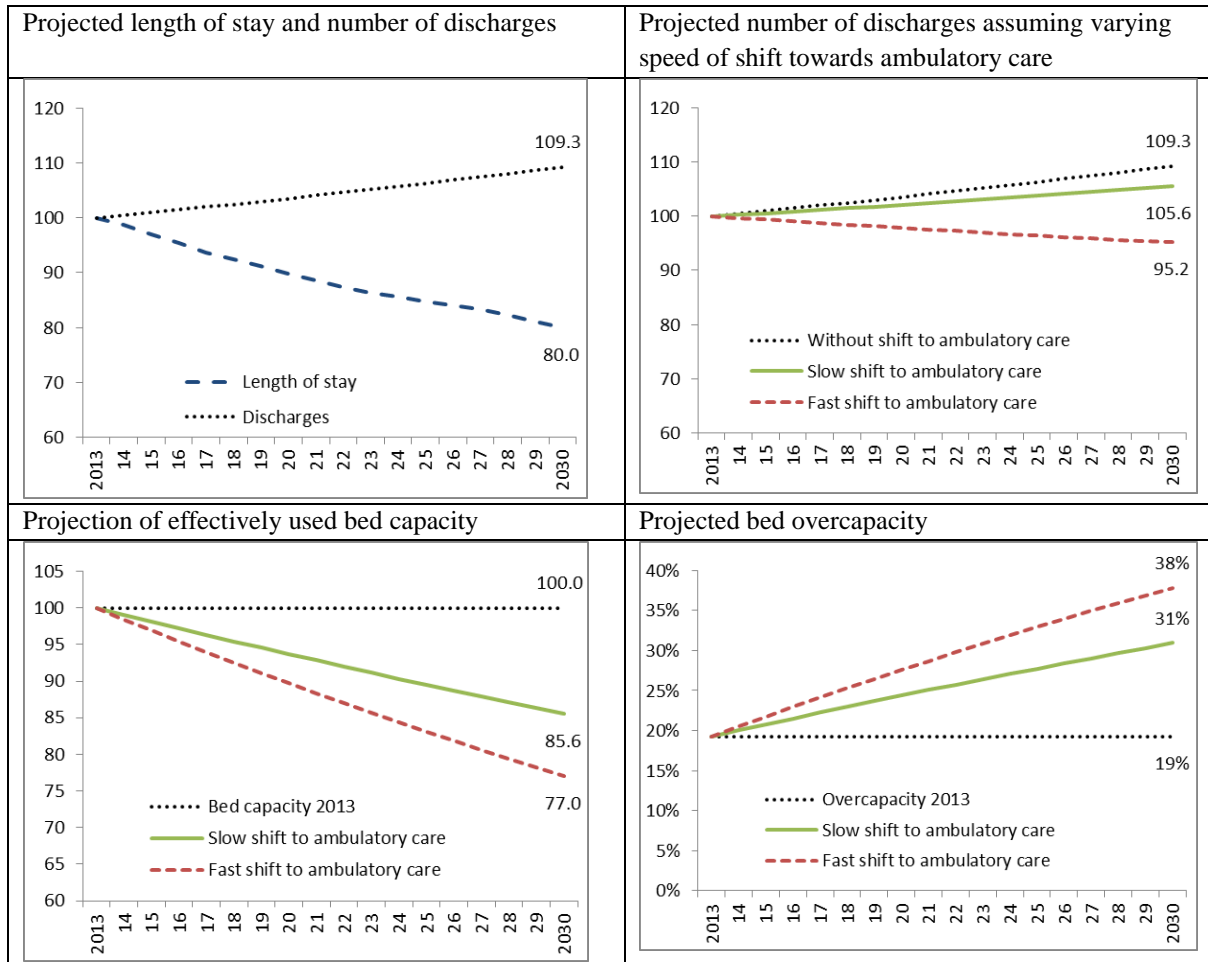
The analysis of trends in length of stay, the number of hospitalisations, bed capacity and the number of preventable hospitalisations allows for projecting these trends into the future in order to obtain an idea of future hospital bed overcapacities. For this purpose, the recent country-specific trends in the length of stay and number of hospitalisations are projected into the future until the year 2030. Based on these trends, for the EU length of stay would decrease annually by 1.2%, such that reduction of the length of stay of around 20% from 2013 to 2030 can be expected (section 2.3). Discharges, growing by 0.1% annually, would increase by 9.3% over the projection period.

In addition to the trends in length of stay and hospitalisations, health systems might be able in future to reduce the number of hospitalisations for ambulatory care sensitive conditions (See section 2.5). To operationalise this, two scenarios are proposed. In the "Slow shift to ambulatory care" scenario, 1% of the country-specific number of ACSC is shifted annually out of inpatient care. In this scenario, 15% of hospitalisations for ACSC would be shifted out of inpatient care until 2030. In the "Fast shift to ambulatory care" scenario, 4% of the country-specific number of ACSC is shifted annually out of inpatient care. In this scenario, 50% of hospitalisations for ACSC would be shifted out of inpatient care until 2030.

Depending on the speed of shift of hospitalisations towards ambulatory care settings, the number of hospitalisations would increase by 9% (no shift), 5% in a slow shift scenario and would decrease by 5% in the fast shift scenario (Graph 21). Accordingly and taking into account the trend in decreasing length of stay, inpatient bed days in the EU would decrease by around 15% to 23% if current trends persist and depending on the success of being able to realise some potential in avoiding preventable hospitalisations. This would reduce the number of beds needed by the same proportion, i.e. 15 to 23% (Graph 21, lower left), or by 200 to 334 thousand hospital beds in the EU. The reduction in the number of beds needed would increase bed overcapacity in the EU from 19% in 2013 to 31-38% in 2030, depending on the scenario.

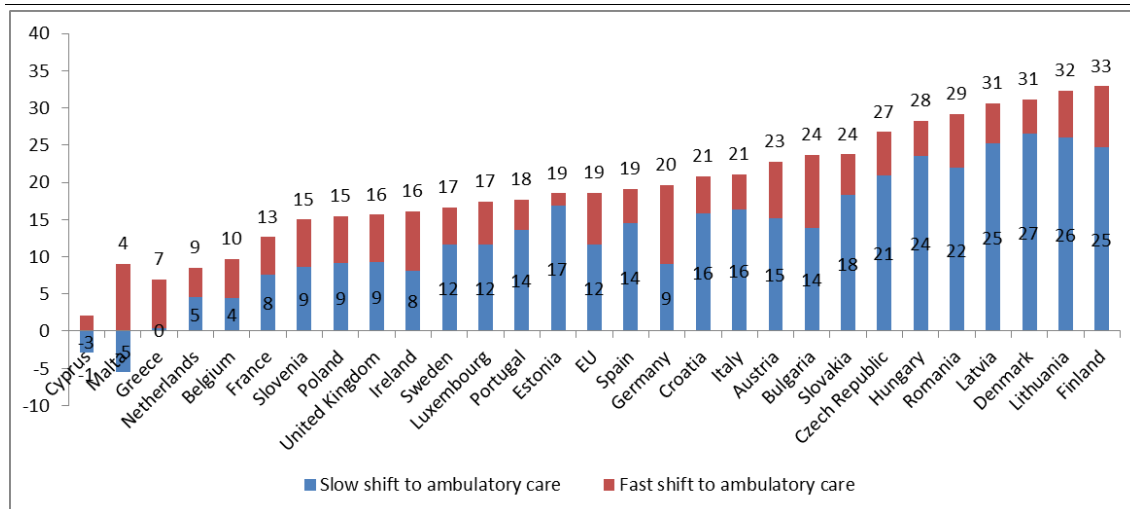
Virtually all countries experience an increase in bed overcapacity based on one of the scenarios, but there are big differences between countries, driven by the different strengths of the underlying drivers. In the Czech Republic, Hungary, Romania, Latvia, Denmark, Lithuania and Finland the projected increase is above 20 pp... In Cyprus, Malta, Greece and the Netherlands the projected increase is below 10pp. , with the rest of the countries falling in between 10 and 20pp. (Graph 22). While the precise overcapacity should be interpreted with caution due to simplicity of the method of projection and the underlying uncertainty to project these trends, it seems quite apparent that overall decreasing length of stay and potentially decreasing numbers of inpatient discharges driven by the trend towards shifting care to ambulatory care setting will foster the need to consolidate existing hospital capacities and should act as a catalyser for structural change in hospital care. At the same time, it is not only the overall level of overcapacity that matters, but the mix of beds that determines the efficiency. Concretely, there might be situations of undercapacity in efficient hospital structures and services, and overcapacity in other ones. The match between resources and resource use is obviously important here.

Graph 21 – Projections of hospital bed overcapacity in curative care in the EU, 2013 to 2030 (2013=100)



Notes: Country-specific past growth rates are capped at the 25th and 75th percentile to account for untypical outliers, which it may not be reasonable to project into the future.

Graph 22 – Projected change in curative care hospital overcapacities in EU countries, 2013 – 2030 in pp.



Sources: ESTAT, Sundmacher, own calculations¹⁰

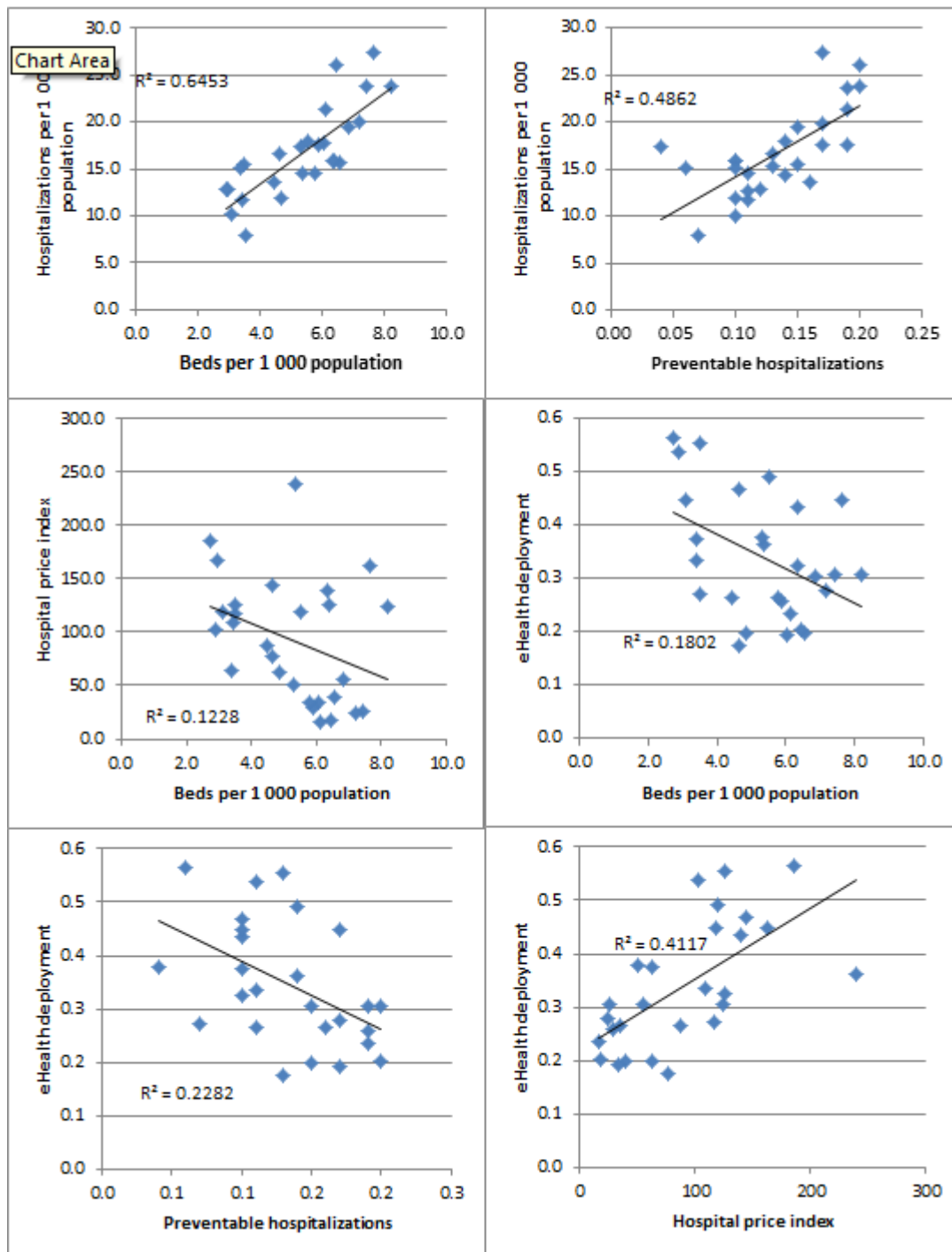
¹⁰ Ambulatory care-sensitive conditions available for this estimation: Malignant neoplasms of skin, Diabetes mellitus, Mental and behavioural disorders due to use of alcohol, Hypertensive diseases, Angina pectoris, Heart failure, Varicose veins of lower extremities, Other acute lower respiratory infections, Other lower respiratory diseases, Other noninfective gastroenteritis and colitis, Alcoholic liver disease, Gonarthrosis [arthrosis of knee], Dorsalgia, Inflammatory diseases of female pelvic organs.

2.8. ASSOCIATIONS BETWEEN BED CAPACITY, PREVENTABLE HOSPITALISATIONS, PRICES AND EHEALTH

Countries with fewer beds per capita tend to have lower shares of preventable hospitalisations and by this measure a better quality of care. Not surprisingly there is a positive link between acute care bed capacity and hospitalisations per capita, indicating that rationalising bed capacity reduces hospitalisation rates (Graph 23, upper panel; correlation significant at 0.01 statistical significance level, see Table 3). This may also be conducive to better quality of care in terms of fewer preventable hospitalisations, as countries with many hospitalisations have higher shares of preventable hospitalisations. This may indicate that reducing bed capacity per capita may increase quality of care in terms of lowering the share of preventable hospitalisations and also inducing the provision of more ambulatory versus stationary care.

Countries with higher bed capacity per capita tend to have on average lower hospital price levels and lower levels of eHealth deployments (Graph 23, middle panel; correlation significant at 0.05 statistical significance level for eHealth and at 0.1 significance level for hospital prices, see Table 3). This seems to reflect that higher income countries, i.e. those with higher hospital price levels have been able to reduce bed capacity than lower income countries due to a variety of factors such as the availability of investment capital and the introduction of modern medical technology, which reduces the need for more beds. It also indicates the difficult situation that some low income EU countries face, in terms of high excess bed capacity and low levels of payment for hospital activities. In this situation, reducing excess bed capacity and freeing cash flow to be able to raise the payment levels and incentivise through this an increase in quality of hospital care seems even more warranted. Devising a strategy for reducing hospital-centricity in these countries seems particularly needed in order to redirect their limited resources towards fewer, but better hospitals. Similarly, countries with less eHealth have higher shares of preventable hospitalisations and lower hospital price levels (Graph 23, lower panel; correlation significant at 0.05 statistical significance level for eHealth and at 0.01 significance level for hospital prices, see Table 3). This again suggests that the reorganisation and rationalisation of hospital care particularly in countries with a high bed density is an important factor towards the effective deployment of eHealth and its potential to increasing quality of care.

Graph 23 –Associations between (preventable) hospitalisations, bed capacity, prices and eHealth



Notes: Own calculations. Based on Tebila's convention, i.e. an outlier being at least 1.25 * inter-quartile range away from the nearer quartile, there are no outliers present in this set of variables.

Table 3 – Correlations coefficients between (preventable) hospitalisations, bed capacity, prices and ehealth

	Bed_ca~y	Hospit~a	Preven~s	Ehealth~t	Hospit~x
Bed_capacity	1.0000				
Hospitaliz~a	0.7823* 0.0000	1.0000			
Preventabl~s	0.6426* 0.0003	0.6972* 0.0001	1.0000		
Ehealth_de~t	-0.4218 0.0284	-0.2259 0.2671	-0.4765 0.0139	1.0000	
Hospital_p~x	-0.3504 0.0675	-0.3318 0.0909	-0.4101 0.0336	0.6365* 0.0004	1.0000

Notes: Own calculations. Bed_ca~y = Bed capacity per 1 000 population; Hospit~a =Hospitalisations per 1 000 population; Preven~s = Preventable hospitalisations; Ehealth~t = eHealth deployment; Hospit~x=Hospital price index. Pearson's correlation coefficients calculated in Stata, specifying the 1% significance level of correlation coefficients with a star.

3. POLICY OPTIONS FOR COST CONTAINMENT

3.1. IMPROVING HOSPITAL FINANCING

An effective instrument for financing hospitals should set incentives for cost control and motivate hospital managers to bring medical services to patients adequately and in high quality (Geissler et al., 2011). Thus, an effective financing system has to take into account multiple objectives, which are not necessarily complementary, and cannot be designed optimally. As a consequence, most EU MS have opted for combining different payment system to accommodate for the specific advantages and disadvantage of each single payment system. The need for a well working financing system in terms of cost containment became apparent during the recent economic crises. Hospitals have been facing numerous (plans) on financing and reimbursement of hospital services, including most frequently budget cuts or freezes, lower planned growth rates of global budgets, introduction or increases of private co-payments for selected hospital services, lowering of tariffs paid to hospitals. This section describes and describes hospital financing methods and their impact on cost control and effective service provision.

The most common payment methods include prospective global budgets and activity- or case-based payments (European Commission, Economic Policy Committee, 2010). In addition, some countries use cost-sharing arrangements, requiring patients to privately pay a share of the service cost. Global budgets define an overall spending limit or target. It is usual for the budget to be prospective and agreed for a defined time period (i.e., the fiscal year). The main advantage of the global budget model is its administrative simplicity and incentives for cost control. Global budgets, however, do not set incentives to provide for adequate medical activity, which may lead to the situation of under- or over-provision of services and inadequate quality of care.

Activity- or case-based payments finance hospital services based for provided medical services. Hospitals are paid a pre-determined fixed rate for each treated hospital case. Typically, the number and type of services are based on a definition of cost-clusters – often the so-called Diagnosis Related Groups (DRGs). This system encourages activity, efficiency and transparency, but does not necessarily induce hospitals to provide higher quality of care, as in for most patient cases, quality is not taken into account as a financing factor. Unintended consequences of DRG based hospital payments include cherry picking, dumping, upcoding, overtreatment, and frequent readmissions.¹¹

Most EU countries have introduced a combination of global budgets with a more or less important activity-based financing component (Table 4). This combination aims at reaping the relative advantages of each financing method, namely the cost control incentive from global budgets with the efficiency incentives from activity based financing.

¹¹ Cherry picking occurs if hospitals exploit payment incentives to select the less costly, more profitable patients and/or to "dump" them, i.e. transfer or avoid the unprofitable patients. Upcoding refers to coding additional diagnoses on patients to achieve higher payment. Hospitals may also re-admit patients for unnecessary services or misplaced services (e.g. those better placed at outpatient settings).

Table 4 –Hospital financing schemes

Austria	Global budget (GB) (national based, >70%), regional adjustments (<30%)
Belgium	Fee-for-service (FFS) (40%), GB (39% - per-diem, FFS point and DRG based)
Bulgaria	case payment (own system), volume thresholds
Cyprus	GB (historic) – Cyprus-DRGs to be introduced in future
Czech Republic	GB (56%), case payment (IR-DRG based, 40%)
Denmark	GB (80%), case payment (DRG based, 20%)
Estonia	case payment (NordDRG based, 39%), FFS (33%), per-diems (28%)
Finland	GB (region specific allocation method, often NordDRG based)
France	case payment (GHM based, MLPC), GB
Germany	case payment (G-DRG based, within GB)
Greece	GB, deficit compensation, per diems, case payments (DRG based), FFS
Hungary	case payment (hospital volume limits)
Ireland	GB (DRG based)
Italy	case payment (DRG based, within regional/hospital budgets)
Latvia	case payment (own system), per diem, FFS
Lithuania	GB (DRG based – own system, volume limit)
Luxembourg	GB
Malta	GB (historic)
Netherlands	case payment (within GB for 67% of cases)
Poland	case payment
Portugal	GB (AP-DRG based 80%)
Romania	case payment (DRG based within GBs)
Slovakia	case payment (own system, depending on health insurance)
Slovenia	case payment (DRG based, within GB)
Spain	GB (region specific allocation methods)
Sweden	case payments (DRG based) with volume ceilings or GBs (region specific allocation methods)
Croatia	DRG-based case payments, GB, additional payments
England	DRG-based case payments, GB, additional payments

Source: Based on Geissler et al. (2011), national sources.

Notes: GB = Global budget; FFS = Fee-for-service

Over time, more countries have applied budget ceilings or targets for expenditure on health and these ceilings have become more and more binding over time (OECD, 2015). For instance, in Austria there are ceilings on health expenditure by the social security system and states. In Denmark, since 2014, all government spending is subject to real expenditure ceilings. There, a change in the ceilings for sub-national governments is compensated by an equivalent change in the budget ceiling for central government expenditure. In Poland and in Romania, the expenditure ceiling for the national insurance fund consists of an overall ceiling and ceilings by categories of health services.

The soft budget syndrome is a widespread phenomenon (Kornai, 2009). It is not uncommon, that hospitals generate substantial deficits, which the governments often cover, such that the hospital does not have to close down. This implies that in reality, hospitals operate often under soft budgets. Soft budgets normally imply less cost control (Eggleston, 2008). Deficits can appear for a variety of

reasons, including unexpected outlays, systematic underfunding, realised revenue being below expected, a surge in admissions of "unprofitable" patients, mismanagement and others.

Deficits are not necessarily bad in the sense that they may be used as a cost control mechanism, if governments systematically underfund the hospital sector with the expectation that this will lead to some cost control. However, systematic underfunding of health institutions may lead to lack of cost control in a culture where overruns are normally accepted as everybody knows that the budget is unrealistically low and in the end the government will cover the deficit. Running a balanced budget may on the other hand imply that important investments are not carried out or patients' are not always receiving the required services. Hospitals may choose to favour quality or continuity of services rather than balancing the books.¹² Also, running a balanced budget does not necessarily imply good management, but may simply reflect that hospital managers deal "in some way" with a global budget, balancing the financial constraint with other goals, but whether they deal with it appropriately cannot be said a priori.

Research on the impact of soft budgets is limited. Brekke, et al. (2015) show that softer budgets may reduce cost efficiency by giving rise to moral hazard by the hospital management in running the hospital efficiently. As such, soft budgets seem to incentivise bad management. Interestingly, the effect on quality provision is ambiguous, as softer budgets may increase the probability of quality investments and thus higher service quality, which is however weakened by worse management under the soft budget constraint.

Soft budget constraints on the level of health systems have partly contributed to the rise of health care spending and harder budgets may effectively reduce spending growth (Crivelli et al., 2010). In countries with more decentralised provision of health care services and weaker subnational borrowing restrictions, soft budgets have increased annual subnational health spending per capita. Overall, budget controls are perceived to have a positive impact on cost containment, particularly in single-payer countries (Docteur and Oxley, 2003; Mossialos and Le Grand, 1999). Ceilings are applied not only globally to health expenditure, but also by sector (OECD, 2105). In some countries, a specific inpatient care budget ceiling is introduced. Crivelli et al. (2010) argues that reforms for cost containment should also aim at tightening budget constraints, including fiscal transfers among levels of governments and subnational borrowing autonomy, but hard empirical evidence is scarce. Also, it is not clear (as not being studied yet) whether harder budgets are welfare enhancing or reducing.

Alongside global budgets, DRGs are the other most important financing tool and used in most EU countries. DRGs encourage activity, efficiency and allow for comparing costs and quantity of care across and within countries. The HealthBasket study found large within countries cost-differences which do not seem to be related to differences in quality of care.¹³ Evidence suggests that intra-country cost-variation may be larger and more significant for many medical services than inter-country variation. This shows a potential for improving performance by containing cost or improving

¹² NHS hospitals regard 'running deficits as normal practice' Sarah Neville, Public Policy Editor December 16, 2015 12:02 am <http://www.ft.com/intl/cms/s/0/7a38205a-a343-11e5-8d70-42b68cfae6e4.html#axzz3wvJC9xW0>

¹³ The Healthbasket project gathered information on the basket of services offered in different Member States, how they are defined, how often they are used for particular patients, what are their costs and what prices are paid for them. <http://www.oecd.org/health/health-systems/38680411.pdf>

quality/outcome.¹⁴ But DRGs also have many weaknesses. The EuroDRG¹⁵ project found e.g. that intentional upcoding and overtreatment are substantial problems, e.g. in France and Germany. In Germany, out of 12% of hospital cases reviewed (about two million cases), about 40% of those contained coding errors or overtreatment, mostly unnecessary admissions or excessive length of stay.¹⁶

Whether DRGs are effective as a cost control tool depends on their usage and combination with other policy tools (Schoenstein et al., 2013). In Germany, the high rates of inpatient hospitalisations are partially driven by a suboptimal hospital funding policy, as in Germany DRGs are used only as a pricing tool, and Germany has weaker controls over the hospital budget than in many other OECD countries. This means that hospitals have more decision power over the volume of patients to be treated, such that it is harder to control the total budget. In other EU countries, DRGs are used as one of many tools to influence hospital budgets. The Netherlands and France, as other countries, use DRG based financing but locate them more clearly within an overall global budget. In the Netherlands, a global budget is set for the hospital sector, and excess spending over a certain percentage point is clawed back from hospitals on the basis of their turnover.

France monitors and regulates hospital prices and volumes together (OECD, 2015). With DRGs being the main source of financing, hospitals are getting supplemental funds for teaching, research and innovation, emergencies, psychiatry, certain rehabilitation services. The Ministry of Health estimates potential expenditure based on volume data and costs, and may use this estimate to change the amount of DRG funding sources to meet budget constraints across all hospitals. Also, a part of funding is held back and only released if actual service volume exceeds expectations. The desired goal of this more flexible and discretionary policy setting is to incentivise targeted efficiencies through structural reorganisation of hospitals rather than aiming at a balanced budget only. This may help identifying the right mix of financing for those hospitals which have a more inefficient production process, and this in turn might help increasing productivity. However, the system may possibly be also more prone to political favouritism, protecting individual hospitals from the need for change, which is more difficult in a financing system which applies horizontal changes in funding with the sole goal of keeping a balanced budget.

Few studies look systematically at the impact of DRG systems on the different health system objectives. As far as efficiency is concerned, the evidence is mixed as to whether and which (Street et al., 2010) DRG-based hospital payment system has contributed to higher efficiency levels in hospitals.

¹⁴ See also special edition: "Diagnosis-Related Groups in Europe (EuroDRG): Do they explain variation in hospital costs and length of stay across patients and hospitals?", in Busse R, Geissler A, Mason A, Or Z, Scheller-Kreinsen D, Street A (2012) Health Economics, Volume 21 (Supplement 2)

¹⁵ EuroDRG was a research project funded by the European Commission's 7th Framework programme. It formed a team of researchers from twelve European countries (Austria, England, Estonia, Finland, France, Germany, Ireland, the Netherlands, Poland, Portugal, Spain and Sweden). They analysed the national DRG-based hospital payment systems by using qualitative and quantitative research methods.

¹⁶ According to the article: "Examples of upcoding included newborns with a secondary diagnosis of "need for assistance with personal care" (ICD-10:Z74.1), patients with an asymptomatic urinary tract infection coded as acute cystitis, and "miscounting" the number of hours for patients with artificial ventilation (leading to substantially higher payments). Some hospitals were found to use procedure codes for "geriatric early rehabilitation," although they did not have geriatric specialists. Others admitted patients without proper justification for procedures that should, in general, be performed on a day case basis; and a large number of hospitals were found to discharge patients later than necessary."

The implementation of DRGs is usually associated with curtailment of overprovision of services and reduced hospital expenditures (OECD, 2015), such as in Italy or Sweden. However, a lack of quality assurance mechanisms within DRG-payment schemes may lead to lower-than-expected quality gains (Forgione et al., 2004). It remains unclear, whether the effects of unintended consequences of DRG-based hospital payment systems, such as overtreatment or increased admissions of patients for unnecessary services reduces efficiency. Evidence on the quality dimensions is not systematically available, but it seems that quality was not adversely affected by the introduction of DRG-based hospital payment in most European countries. So far, very few countries explicitly adjust DRG-based hospital payments on the basis of information regarding quality in hospitals (England, the Netherlands and soon Germany). DRG systems should be designed to facilitate attempts to incorporate quality into DRG-based hospital payment systems.

As far as cost-sharing is concerned, it has contributed to lowering overall public spending on health in the short run, with most evidence available on outpatient pharmaceutical spending (OECD, 2015). Qingyue et al. (2011) report that the introduction of cost-sharing in inpatient care has reduced the amount of hospital visits in almost all countries, be it in Germany or in the USA within the famous Rand Health Insurance Experiment. Conversely, lower cost sharing policy could improve some necessary services utilisation, e.g. in outpatient care, thus helping to shift services from in- to outpatient sector. There is also some evidence that cost-sharing can be an effective for reducing visits to emergency care units (See section 3.12). However, typically cost-sharing tends to reduce medically appropriate and inappropriate care. Also, cost-sharing may impose a barrier in access to care, and thus be detrimental to health outcomes. The need for a careful design of cost-sharing is heightened by the fact that demand for many health care services is relatively price-inelastic (Cutler and Zeckhauser, 2000), thus only significant increases in private financing in general limit the demand for health care services. Means-tested co-payment policies, exempting low income groups and categories of chronic patients including (annual) ceilings for cost-sharing may mitigate some of the negative health effects.

3.2. REDUCING OPERATIONAL COSTS

Operational costs include costs paid for hospital consumables and the wage bill for health professionals. Reducing operational costs can directly contribute to cost containment, as e.g. reductions of prices for (non)-medical inputs and reductions of the wage bill directly translate into lower expenditure for the hospitals and or payers. Reductions of operational costs may also be achieved by trying to improve the performance of hospitals, which is however more a long-term cost containment strategy.

If done properly, targeted reductions of input costs may contribute to short-term cost containment goals without negatively affecting the volume and quality of care. This counts for optimising purchasing strategies of medical and non-medical goods, which are consumed in hospitals. Extending and improving public procurement procedures (see section 3.3) for medicines and other hospital consumables and improving the availability of generic and biosimilars medicines by fostering the right mix of pharmaceutical pricing and reimbursement policies (Carone et al., 2012) are two such policy options. Cost-containment seems important for hospital pharmaceutical expenditure. For

instance, in Spain hospital pharmaceutical expenditure has increased steadily during the crisis while outpatient expenditure was reduced¹⁷ Better public procurement may also help standardising supplies to make the inventory process simpler and cheaper. These policies have gained more ground recently, as an enhanced control of public procurement of medical goods, including pharmaceuticals¹⁸ was fostered in several countries (e.g. Bulgaria, the Czech Republic, the United Kingdom).

Reducing the wage bill was also targeted by many EU countries in recent years (WHO, 2013; Buchan et al., 2014). For most EU countries, doctors and nurses are more likely to be salaried in hospitals, and account for the main component of health spending on labour. Many EU Member States have limited the increase of, frozen or reduced salaries and fees paid to health workers. As noted by Buchan et al. (2014), the recent reforms have brought a discussion on the role and place of wage setting in health care. Before the crisis, there was a trend in some countries towards encouraging more decentralised and autonomous hospitals. This occurred as a consequence of reforms that sought to give hospitals more control over their overall expenditure including the pay bill, which was prevented by wage setting at national level. This trend was reversed as government have realised that more central wage setting schemes give them more leeway to reduce wage expenditure at times of fiscal constraints.

Operational costs may also be reduced by improving the staff mix and increasing staff performance. This may be through training of nurses to be able to replace physicians, where their qualification allows for such replacement for specific interventions. This policy may require a relative wage increase of nurses to physicians' wages in some situations in order to be able to attract more nurses into the job. Other measures that may lead to lower operating expenses over time are related to staff performance. For instance, performance of physicians and nurses could be monitored and evaluated, and compensation could be at least partially performance related. Costs may be reduced by enhancing medical staff's abilities, such as by providing training on electronic health record systems.

Reducing operational costs clearly supports cost containment in the short run, but the long run impact is unclear. A systematic evaluation of the impact of strategies to reduce input costs on cost containment is missing. As far as the wage bill is concerned, historical experience suggests that curbing wage cost growth in the health sector below economic wide trends is not feasible over the medium- long-term, because wage policy in the health sector has to remain competitive to attract (young) professionals. Reducing operational costs can reduce the volume of services provided and increase waiting lists. It can also lead to temporary unavailability of low-cost medicines, as they may get unprofitable for producers and distributors. Buchan et al. (2014) note that in the short run, centralisation can help to reduce the pay bill and as such also to preserve employment and service capacity. In the long term, a continuation of these centralised wage setting measures may run counter to structural reforms in the hospital sector that seek to provide greater autonomy to hospital management.

¹⁷ see slide 8 <http://www.farmaindustria.es/web/indicador/analisis-de-la-evolucion-del-gasto-farmacutico-publico-en-espana-mes-mes-2/>

¹⁸ A total of 89 cost containment measures in pharmaceutical policies were undertaken or planned in 23 EU Member States (Vogler et al., 2011).

3.3. FOSTERING GOOD PROCUREMENT PRACTICES

Procurement plays an important role in balancing the benefits of modern medical goods with budgetary constraints. Hospitals are key consumers of a wide range of services, products and materials — everything from medical devices, pharmaceuticals, surgical instruments, IT-infrastructure, medical equipment and office supplies. Procurement can promote cost containment by lowering prices whilst ensuring better value by purchasing innovative products and services. The section investigates policy options and policy practice of procurement policies which potentially could contribute to further cost containment in the hospital sector and thus indirectly to a more sustainable and innovative health care provision.

As far as medical devices are concerned, there is limited evidence on procurement policies and practice in Europe. Sorenson and Kanavos (2011) provide evidence for five EU countries (England, France, Germany, Italy and Spain), which is summarised in Table 5. Firstly, countries establish (national) lists of medical devices, which can be purchased and used in the health systems. However, these lists are not necessarily complete and compliance is sometimes difficult to monitor due to lack of monitoring capacity and explicitness of the lists. Secondly, France, Italy and Germany use reference pricing to set the maximum level of public payment for a group of interchangeable products. Thirdly, volume caps are employed to manage the amount of the device used and purchased as a cost control tool. The key actors involved differ across countries. In all countries, hospitals, producers and distributors play a major role, but the degree of involvement of government bodies and physicians varies. In France, with the exception of the hospitals of Ile de France (where RESAH acts a central purchasing body) most hospital purchase goods individually, while in England, Italy and Spain hospital consortia or regional bodies pool purchasing power of several health facilities. Physicians play a role in technical specifications and evaluations of tenders, but often on an ad hoc rather than systematic basis.

There is a trend towards joint public procurement¹⁹ and centralisation – be it at national, regional or local level - of procurement procedures for medical devices. This can happen via regional consortia (England, France, Italy and Germany), national purchasing groups (France), and collaborative procurement organisations (England). Public procurement is mostly characterised as the rules governing different types of public tendering processes. Whilst choosing 'lowest price' as the single award criterion, the focus is in most cases focussed on cost containment only. Currently public procurement procedures whereby the winning tender is selected on the basis of award criteria addressing both price/cost elements as well as quality considerations are currently only used in highly complex areas, where quality may also involve the quality of services provided to support product use. Therapeutical benefits and cost-effectiveness are less often considered as an award criterion. The Centre for Evidence-Based Purchasing (CEP), which shall support the English NHS in value based purchasing decisions, is expected to support the value based approach replacing the focus on pure cost containment. This is also the approach that is endorsed by MedTechEurope. It developed an excel tool to facilitate the organisation of a value-based public procurement procedure.

¹⁹ Joint public procurement stands for an occasional cooperation between different contracting authorities. In many cases it is a forerunner of a central purchasing body.

There is little evidence on which procurement practices help containing costs, as it is mostly unknown how prices are ascertained. Countries with higher procurement centralisation experience lower price variations and a reduction in price levels. Other characteristics, such as reference pricing had moderate effects on cost containment in Germany. Procurement lists may benefit lower costs in more centralised health systems due to lower levels of complexity. Other policies, such as coverage and reimbursement decisions, financing of hospitals, organisational and cultural aspects are also likely to impact the effectiveness of procurement to contain costs.

As far as procurement of pharmaceuticals is concerned, the majority of EU countries use at least to some extent public tendering for purchasing pharmaceuticals (Carone et al., 2012). Tendering is mostly used in hospital setting covering up to 25% of all purchased medicines in some countries. Price is the most important criterion for winning a tender, but also the availability of the medicine within the specific time line plays among other criteria a role. Competitive tendering processes have achieved considerable reductions of prices (Kanavos et al. 2009). Cost containment increases with purchasing power of third party payers and competition among interchangeable products. If generics are available, bidding may reduce payments to the level of marginal production costs (OECD 2008, Dylst et al. 2011a).

Tendering has a high potential to generate substantial savings in European health systems. This is evident simply by looking at demonstrated current problems in this area. It is estimated that up to 25% of public procurement spending (including on pharmaceuticals) is lost to corrupt practices and fraud.^{20,21} A European Commission (2013) study concludes that corruption in the health sector occurs in all EU MSs, and is strongly related to wrong public procurement practices. But apart from that, it is generally known and acknowledged that overall (not limited to the health sector) if a public contract is tendered out at EU level, it leads to a price decrease of up to 20%. In 2014, the European Union adopted a new Directive on public procurement (2014/24/EU). It sets the framework for choosing the ‘most economically advantageous tender’, which may be determined by the lowest price, cost or best price-quality ratio of the tender. At the beginning of 2015, 12 of the 28 EU nations – Bulgaria, Czech Republic, Greece, Croatia, Italy, Latvia, Hungary, Malta, Poland, Romania, Slovenia and Slovakia - had not fulfilled public procurement conditions demanded by EU law. The European Court of Auditors has criticised “persistent problems” in the way public authorities across the European Union contract out work.²²

²⁰ WHO, Medicines: corruption and pharmaceuticals, Fact Sheet No 335. December 2009. <http://www.who.int/mediacentre/factsheets/fs335/en/index.html> (visited 22 Augustus, 2012).

²¹ Corruption relates to bribery in medical service delivery, procurement corruption, improper marketing relations, misuse of (high) level positions, undue reimbursement claims and fraud and embezzlement of medicines and medical devices.

²² <http://www.eca.europa.eu/en/Pages/DocItem.aspx?did=32488>

Table 5 – Key procurement mechanisms, actors and processes for medical devices.

	England	France	Germany	Italy	Spain
Principal regulatory/policy mechanisms influencing or guiding procurement	National database/list indicating devices allowed for purchase, coverage, and use Volume caps Hospital funding reforms (i.e., HRG system)	National database/list indicating devices allowed for purchase, coverage, and use Reference pricing Volume caps Hospital funding reforms (i.e., DRG-based system)	Reference pricing Hospital funding reforms (i.e., DRG-based system)	National database/list indicating devices allowed for purchase, coverage, and use Reference pricing for selected categories of devices (i.e., stents) Hospital funding reforms (i.e., DRG-based system)	Regional lists indicating devices allowed for purchase, coverage, and use (no national list) Reference pricing for selected categories (i.e., medical aids) Volume caps
Key procurement actors	Department of Health NHS Purchasing and Supply Agency (NHS PaSA)/NHS Supply Chain NHS Business Services Authority NHS Trusts and PCTs Manufacturers Hospital procurement teams Hospitals/physicians/private clinics/pharmacies/nursing homes Procurement organizations Distributors Sales organizations (private procurement only) Collaborative Procurement Hubs	Ministry of Health Health Regional Authorities Economic Committee on Health Products (CEPS) Hospitals/physicians/pharmacies/nursing homes Hospital procurement teams Sales organizations (public and private procurement) Manufacturers National/regional purchasing groups	Ministry of Health Federal Joint Committee Payers/sickness funds Hospitals/physicians/nursing homes Manufacturers Purchasing groups	Ministry of Health Hospitals/physicians/nursing homes Manufacturers Regional and inter-provider purchasing consortia	Ministry of Health Autonomous Communities Hospitals/physicians/pharmacies Physicians Manufacturers Distributors
Degree of procurement centralization	Increasingly centralized, through the use of 10 Collaborative Procurement Hubs	Primarily decentralized, but some degree of centralization with the establishment of national/regional purchasing groups	Primarily decentralized, but some degree of centralization with the involvement of purchasing groups	Increasingly centralized at inter-provincial/regional level, with growing number of purchasing consortia	Degree of centralization differs across Autonomous Communities
Criteria used to make procurement decisions	Price Volume Quality Sustainable development Impact on small-medium enterprises (SMEs) Innovation Therapeutic benefit (in some cases)	Price Volume Quality	Price Volume Specific product/quality	Price Quality Technical assistance required/ancillary services available (device-specific)	Price Volume Quality Therapeutic benefit (in some cases)

Source: Sorenson and Kanavos (2011).

Another problem related to public procurement seems to be the low number of tenders overall used to purchase medical equipment. Eurostat publishes data on the availability of certain types of medical equipment in the EU Member States, such as Computed Tomography Scanners, Magnetic Resonance Imaging Units and Gamma therapy devices. Based on this data it is possible to roughly estimate (by assuming different depreciation periods for the equipment), how many units would need to be replaced over a certain time span. Based on Eurostat data, and taking the example of Belgium, of the 146 CT scanners available in Belgium in 2009, given an expected lifespan of 10 years, (the equivalent) of 14.6 units would need to be replaced each year, or a total of 58 units would need to be replaced in the four years between 2010 and 2013. This data can be compared to the number of units purchased via the Tenders European Database (TED).²³ According to TED, only 10 CT scanner contract have been awarded in Belgium between 2010 and 2013, which is equivalent to a publication rate of 14%. Similarly low and lower publication rates seem to be the case in many other EU countries, such as in Bulgaria, Romania, Estonia, Ireland and others. This low publication rates most probably that an increase in the value of contracts via standard tendering procedures could bring significant savings for public payers that are not sufficiently exploited currently.

Overall, all evidence shows that public procurement is a successful tool and has considerable potential for cost containment whilst guaranteeing better value in terms of innovative products and services.

²³ <http://ted.europa.eu/TED/main/HomePage.do>

3.4. PLANNING OF HOSPITAL CAPACITY

Maintaining excess hospital capacity is costly, and most EU countries continue to have excessive hospital capacities (Section 2.2). This section reviews existing hospital planning tools used in a sample of EU countries and their potential to contribute to cost containment policies. The section largely draws from Rechel et al. (2010).

The goal of hospital capacity planning is to ensure that adequate resources in hospital care are available matching patient needs now and in foreseeable future. Optimal planning would result in avoiding the risks of building up of excessive capacities as well as under-capacity. There is no overview for all EU countries of how capacity planning is done. However, international practice seems to favour hospital planning based on occupancy rates of bed per capita ratios, such as in Finland, France and Germany, rather than based on hospital activity, with France and England moving towards this kind of planning tool (Rechel et al., 2010).

Planning based on hospital beds has several shortcomings, most importantly ignoring trends of disease prevalence and technological changes, which impact on the resource intensity of hospitals. A better metric would be to use an activity based measure such as diagnoses-related groups, which are now largely the base of financing hospital services (Section 3.1). Ideally, hospital capacity planning should include an assessment of health infrastructure providing pre- and post-hospital care, which could be done by focusing on care pathways, rather than single patient episodes. However, although very promising, this approach has not been widely used yet in Europe, which also reflects that most EU health systems do not sufficiently support integrated care.

Hospital capacity planning is done at a strategic and operational level (Ettelt et al., 2009). Strategic planning sets the basic framework and develops measurable targets within a certain timeframe and is usually done at highest political level. Operational planning translates the (national) plan into regional/local health plans. Plans mostly include the hospital capacity's only, and do not include capacities at ambulatory care level (England and Denmark are an exception here). Plan may include private hospitals also, depending on the importance within the specific health care market. Hospital planning may be more difficult, if ownership and responsibility of hospitals is dispersed between different ministries and or levels of administration. Hospitals may be under the responsibility of the ministries of health, defence, interior or others, such as in Hungary, and be owned by central institutions and local municipalities, such as in Romania.

Many countries have devolved hospital planning to sub-national levels, with local authorities playing also an important role in some cases (Ettelt et al., 2009). This is the case in Denmark, England, Finland, France, Germany and Italy. Smaller countries will naturally plan hospital capacity at national level. In the Netherlands, hospital planning has been largely liberalised, where regional hospital associations take over this task, which is consistent with the predominant feature of regulated market competition over central control in the Dutch health system. Involvement of non-state organisations is also present in countries with strong corporatist tradition, such as France and Germany.

There is overall little systematic evidence on the impact of hospital capacity planning tools on cost containment, as well as on which tools work best. Hospital planning will have undoubtedly been used in many countries as a step in devising a hospital consolidation plan, thus having contributed to cost containment. But hard evidence is not available. Existing plans focus on hospital beds, although there is a trend to plan around patient pathways, which should tackle some inefficiencies of hospital service provision. Many countries plan hospital capacities without a whole system perspective from primary to highly specialised care, which clearly is driven by existing financing arrangements, which focus on care episodes rather than care pathways. The diversity of health systems in Europe implies, that each country will have a good argument to develop its own optimal hospital planning tool, and that there is no ideal tool. However, in view of the need for consolidation excess hospital capacities, there is an urgent need for more research on which planning tools work best.

3.5. IMPROVING INTEGRATED CARE AND THE PERFORMANCE OF PRIMARY CARE SYSTEMS

A considerable share of hospitalisations seems avoidable, in the sense that specific diseases could be treated in ambulatory care setting instead of in hospitals or could be fully prevented (section 2.5).²⁴ To reduce the number of unnecessary hospitalisations, German physicians think that strengthening of continuous care and better access to ambulatory care are most important policies (Sundmacher et al., 2015). The lack of continuous care can lead to problems including harming the patient, e.g. via parallel prescription of contraindicating medication, duplicated treatment and diagnostic testing. The rising share of patients with chronic conditions and multimorbidity increases the inefficiencies related with fragmented care (OECD, 2015; OECD, 2011). The lack of continuous care is not a problem affecting German patients only, as all EU countries still have ways to improve continuous care.²⁵

Numerous countries have taken up initiatives to improve continuous care. In Spain, all regions encourage integrated and continuous care between healthcare providers (García-Goñi et al., 2012; García-Goñi et al., 2016). HOPE (2011) reports numerous initiative of this kind. In Finland, the New Healthcare Act 2011 established the rights of patients to guaranteed continuity of treatment paths and all public primary care providers and hospitals must publish their plans and results. In France, the New Governance obliges citizens to choose a referent doctor and promotes networks of health professionals. In Austria, the Patient Oriented Integrated Care Project fosters cooperation and pooling of resources among stakeholders and includes an electronic information transfer between hospitals. In Malta, the Hospice Movement organisation provides integrated care establishing coordination with primary and secondary care. In Poland, the General Practitioner Cancer Center provides care to cancer

²⁴ Primary care is generally understood as the care provided by physicians - usually general practitioners - and nurses, which are the initial point of consultation for patients in a health care system. Secondary care refers to work by medical specialists (e.g. cardiologists, urologists) and often occurs after a referral from a primary care physician. Primary care is usually provided outside of the hospital system, more so than secondary specialist care which in some Member States is mostly delivered in hospital outpatient departments.

²⁵ An important area of integrated care is long-term care and social care. Many countries struggle to link these domains properly with the acute care sector, which means that acute care facilities are used for long-term care and social care purposes. For strategies, how to deal with this issue, see e.g. OECD (2011), *Help Wanted? Providing and Paying for Long-Term Care*. OECD.

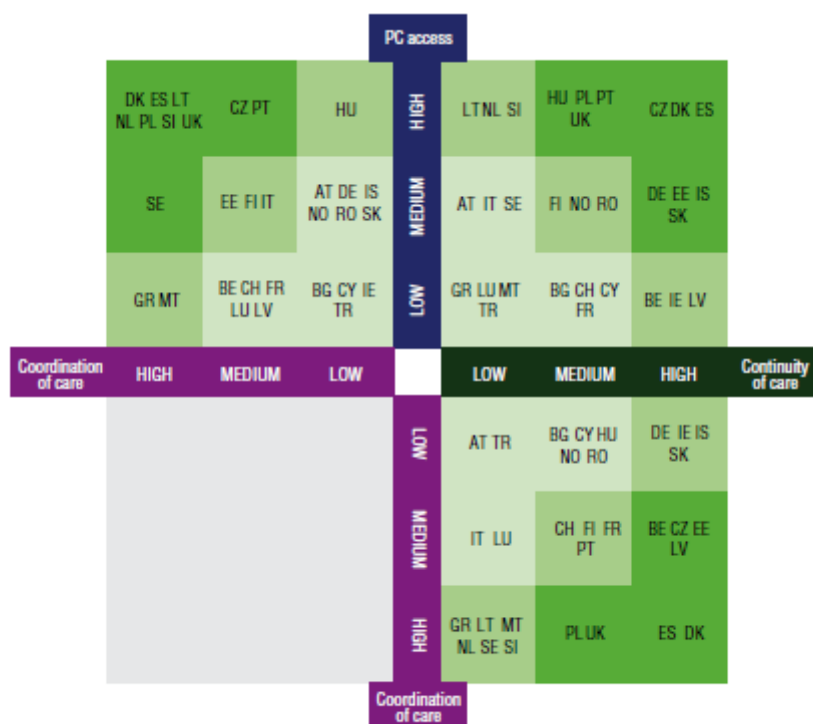
patients from prevention to treatment and palliative care. In Estonia, family doctors send referrals to hospitals and vice versa the hospitals send clinical reports to family doctors. In the Netherlands, the hospital pharmacist shares information with the local pharmacist and delivers information to the patient.

Unnecessary hospital admissions can be reduced by better performing primary care systems.

The access to primary care, its coordination and comprehensiveness are important aspects of primary care that reduce unnecessary hospitalisations (Graph 24). Spain and Denmark have relatively strong primary care systems, ranking well on the dimensions of access, continuity and comprehensiveness of primary care, whereas Austria, Bulgaria, Romania and Cyprus rank low on these dimensions (WHO, 2015). There is some evidence that countries with stronger primary care have a slower growth in health care expenditures (WHO, 2015). Also, population health is better in countries with relatively stronger primary systems.

One often studied aspect in this regard is gatekeeping, which requires primary-care physicians to pre-authorise hospital service use by patients (OECD, 2015). Over time, more countries have introduced gatekeeping. Still, gatekeeping systems are operational in only a quarter of the EU countries, with partial gatekeeping system in place in others (WHO, 2015). The system-wide evidence on the cost containment impacts of gatekeeping is limited. However, within a cross-country analysis in the OECD area a positive association between gatekeeping and cost containment is confirmed (Gerdtham et al., 1998).

Graph 24 – Overall strengths of primary care by country



Notes: Key: AT – Austria; BE – Belgium; BG – Bulgaria; CH – Switzerland; CY – Cyprus; CZ – Czech Rep.; DE – Germany; DK – Denmark; EE – Estonia; ES – Spain; FI – Finland; FR – France; GR – Greece; HU – Hungary; IE – Ireland; IS – Iceland; IT – Italy; LT – Lithuania; LU – Luxembourg; LV – Latvia; MT – Malta; NL – Netherlands; NO – Norway; PL – Poland; PT – Portugal; RO – Romania; SE – Sweden; SI – Slovenia; SK – Slovakia; TR – Turkey; UK – United Kingdom.
Source: WHO, 2015.

3.6. BENCHMARKING HOSPITAL PERFORMANCE

The ability to measure and compare hospital performance is often perceived as a pre-condition for improving their performance, and thus contributing to achieving health system goals. For this purpose, statistical indicators are being used to develop various hospital benchmarking tools, which can be used to compare their rating within and sometimes across countries. This section reviews some of the national and international initiatives in hospital benchmarking tools, and tries to gauge their potential impact in terms of cost containment.

There are countless national and international hospital benchmarking tools available (Table 6). These have different goals and use different tools. Hospital rankings can be used to show how individual hospitals within a country rank based on specific metrics, such as quality of care. Hospitals can also be ranked cross-nationally to compare the performance of individual hospitals or hospitals sectors across countries. Both approached can be informative for policy makers.

The most common benchmarking areas include clinical effectiveness, patient centeredness and patient safety (Groene et al, 2008). The number of indicators for each project ranges from 36 to 300 indicators. Some of the benchmarking tools refer solely to evaluate the hospital sectors, such as the Performance Assessment Tool for Quality Improvement in Hospitals (PATH), while other reports

include hospital indicators as part of a reporting on health system indicators, such as OECD's "Health at a Glance: Europe: 2014". In terms of reporting data, some projects provide results only to hospitals, whereas others also inform the public. Some projects provide international comparisons of hospital sectors, whereas others show compare performance of individual hospitals on a national and also international basis, such as the European Collaboration for Healthcare Optimization (ECHO).

Table 6 – Hospital benchmarking projects

Country or region	Project name	Indicator dimensions
Denmark	International benchmarking of the Danish hospital sector	Health systems and health status, Expenditure, personnel, capacity and activity, The patient and the hospital service, Use of resources and quality of care
Germany	G-BA, Hospital quality reports, 2005; RWI-Essen: Hospital Rating Report	Structural, Clinical effectiveness, financial performance
Spain ²⁶	IASIST Top 20 Hospitals	Quality, Functioning, Clinical practice
France	COMPAQH, , 2003	Clinical effectiveness, staff orientation, patient centeredness
Italy	The National Outcome Evaluation Programme and Regional Performance Evaluation Systems	Quality, efficiency,
Netherlands	Reporting of performance in Dutch hospitals, 2003	Clinical effectiveness, patient-centeredness, safety, efficiency
Sweden	Performance assessment registers (national quality registers) in Sweden	Quality, efficiency
United Kingdom	National Health Services (NHS) Choices Hospital Scorecard; NHS foundation trust rating	Efficiency, Clinical effectiveness, patient Experience; financial performance
European Union	Joint Assessment Framework in the Area of Health; Identifying fiscal sustainability challenges in the areas of pension, health care and long-term care policies	Access, quality, resources
European Union	Health at a Glance: Europe	Quality, access, costs
European Union	Health Consumer Powerhouse	Efficiency, responsive governance, patient centeredness
European Union	ECHO – European Collaboration for Healthcare Optimization	Utilisation, Effectiveness, Quality & Safety, Efficiency (societal), Efficiency (productivity), Equity in access
International	Performance Assessment Tool for Quality Improvement in Hospitals (PATH), 2003	Clinical effectiveness, efficiency, Staff orientation, responsive governance, safety, patient centeredness
Australia	Australian council on healthcare standards (ACHS), Indicator project development commenced Australia, 1989	Clinical effectiveness, safety, efficiency
Scotland	Clinical Indicators support team (CIST), NHS Quality Improvement in Scotland, 2000	Clinical effectiveness

²⁶ For some of the benchmarking tools used in Spain, please see:
<http://pestadistico.inteligenciadegestion.msssi.es/publicoSNS/comun/Cubo.aspx?IdNodo=6393#no-back-button>
<http://icmbd.es/login-success.do>
<http://datos.gob.es/catalogo/principales-variables-indicadores-del-sector-hospitalario-de-ca-de-euskadi>
http://observatorioresultados.sanidadmadrid.org/Descargas/Informe_Observatorio_Resultados_Hospitales.pdf

USA	Joint Commission on Accreditation of Health Care Organisations (JCAHO) (ORYX), 1999	Clinical effectiveness, efficiency, safety, patient centeredness
Canada	Ontario Hospital Association (OHA), (Hospital reports) ,1997	Efficiency, responsive governance, patient centeredness
Switzerland	Verein Outcome, 2000	clinical effectiveness, efficiency, patient centeredness, safety, responsive governance

Source: Based on Groene et al. (2008), Cercone and O'Brien (2010)

Note: The table is not aimed at giving a comprehensive overview of all available benchmarking tools, which would exceed the scope of the study. It aims at providing oversight of the variety of tools available.

Typically, benchmarking occurs in the domains of clinical effectiveness, efficiency, staff orientation and responsive governance. Table 7 below shows a sample of indicators from the PATH tool for hospital benchmarking.²⁷ Indicators are grouped in four different areas. Clinical effectiveness examines a hospital's ranking referring to its ability to produce clinical outcomes in accordance with best medical practice; efficiency addresses the optimal use of resources to achieve maximum output; staff orientation refers to the way in which staff can appropriately carry out their work, and; responsive governance examines the extent to which the hospital relates to actual health needs of its community. Individual hospital performance reports support allow hospital managers to identify where their hospitals over or underperform compared to a peer group of hospitals. This initiative is focusing on providing and helping hospital staff improving internal processes leading to better hospital performance, but is not focused on external reporting.

In recent years, there have been significant improvements in health data collection and comparability at the EU level. Aiming at more fiscally sustainable, effective, accessible and resilient health systems,²⁸ The European Commission is working together with its Member States on tools for health system performance assessment. To this aim an Expert Group on Health Systems Performance Assessment (HSPA) was set up in 2014.²⁹ Currently, the group focuses to develop a set of common indicators in the areas of quality of care and integrated care. In addition, the Commission works on a health system benchmarking tool in the Social Protection Committee (SPC).³⁰ Indicators in the area of hospital care relate to resource use, quality of care and expenditure. These initiatives use EU wide comparable data, mostly from the Joint Questionnaire (Eurostat-OECD-WHO) on health care statistics. Similar initiatives have well advanced data bases, such as the OECD Health Care Quality Indicators Project, and allow for comparing the performance of health care sectors including hospital sectors internationally. In the OECD Health Care Quality Indicators Project a set of indicators focuses, among others, on potential preventable hospital admissions for chronic diseases, excess mortality for patients with schizophrenia or bipolar disorders and a core set of patient experience questions.

²⁷ Another example of a performance assessment tool is ECHO: ECHO employs routinely collected administrative data from Austria, Denmark, England, Portugal, Slovenia and Spain, comparing variation within and across countries. In comparison to PATH, ECHO is not aiming at measuring performance at the individual hospital level, but rather reports on regional variation, being targeted towards informing policy makers, patients and medical community. Unwarranted variation is shown for a variety of comparable performance indicators showing the magnitude of this variation between health-care systems. <http://www.echo-health.eu>

²⁸ In a Communication adopted last April, the Commission laid out an EU agenda for making Europe's health systems fit in face of current challenges. It highlights numerous EU initiatives to help Member States make their health systems more effective, accessible and resilient: http://ec.europa.eu/health/healthcare/docs/com2014_215_final_en.pdf

²⁹ http://ec.europa.eu/health/systems_performance_assessment/policy/expert_group/index_en.htm

³⁰ <http://ec.europa.eu/social/BlobServlet?docId=13723&langId=en>

Table 7 – Indicators used in the PATH hospital benchmarking

<p><i>World Health Organization - Performance Assessment Tool for Quality Improvement in Hospitals (P-ATH)</i></p>	<p><i>Clinical Effectiveness and Safety</i></p>
	<ul style="list-style-type: none"> • Caesarean Section • Prophylactic Antibiotic Use (surgery) • Mortality (Acute myocardial infarction, stroke, community acquired pneumonia, hip fracture, coronary artery bypass graft) • Readmission • Day surgery for 8 tracers • Admission after day surgery (same 8 tracers) • Return to ICU
	<p><i>Efficiency</i></p> <ul style="list-style-type: none"> • Length of stay • Surgical theatre use
	<p><i>Staff Orientation & Safety</i></p> <ul style="list-style-type: none"> • Training expenditure • Absenteeism • Working excessive hours • Needle injuries • Staff smoking prevalence
	<p><i>Responsive Governance</i></p> <ul style="list-style-type: none"> • Breastfeeding at discharge • Health care transitions • <i>Patient Centeredness</i> • Patient expectations

Source: Cercone and O'Brien (2010)

Very few benchmarking tools report on fiscal parameters. An exception to this rule is the Hospital Rating Report³¹ in Germany and the NHS foundation trust rating³², which analyse hospitals' financial performance. Based mainly on hospitals' balance sheets, the Hospital Rating Report examines the financial soundness of the sector, concluding regularly that a significant percentage of hospitals situated in Germany is creating deficits, as well as facing substantial underinvestment. The NHS foundation trust rating is providing policy makers with an assessment of the financial risks of each NHS foundation trust³³. If a specific trust has high financial risks, a government agency may start an investigation and then take regulatory action if needed. Clearly, data about the financial situation of hospitals is highly relevant for policy makers, as many hospitals are publicly owned and financed by public money.

Another strand of literature analyses the technical efficiency of hospitals within and across countries, addressing the relationship between hospital inputs and outputs. While most cross-country studies focus on analysing overall health system efficiency (Medeiros and Schwierz, 2015), other studies look at the hospital sector (Ce´u Mateus, et al. (2015), Gutacker et al. (2015), Varabyova and Schreyögg (2013) and OECD (2008)). All studies provide evidence of potentially high dispersion of hospital efficiency levels between countries. Most importantly, while due to data limitations comparisons of efficiency levels in different countries are complex and bound to interpretation error, it seems that administrative data is often solid enough, in order to be possible to evaluate efficiency levels using variables collected on a regular basis.

³¹ <http://www.rwi-essen.de/presse/mitteilung/198/>

³² <https://www.gov.uk/government/publications/nhs-foundation-trust-directory/nhs-foundation-trust-directory#regulatory-action>

³³ NHS foundation trusts are not-for-profit, public benefit corporations. They are part of the NHS and provide over half of all NHS hospital, mental health and ambulance services. NHS foundation trusts were created to devolve decision making from central government to local organisations and communities. They provide and develop healthcare according to core NHS principles - free care, based on need and not ability to pay. Foundation trusts are not directed by government so have greater freedom to decide, with their governors and members, their own strategy and the way services are run.

There seems to be huge potential in learning from current and past initiatives, particularly in terms of a potential EU wide tool for health system performance. Driven by significant improvements in health data collection and comparability, numerous projects document that benchmarking of hospitals' performance is feasible at national and EU level. These projects reflect that hospitals and policy makers are interested in comparing performance data. While at the EU level current initiatives contribute to this work stream by bringing stakeholders from the EU together, a mapping of potential benchmarking tools specifically for the hospital sector is not yet done, but could be useful.

An impact assessment of benchmarking tools on cost containment could not be identified. Thus, it is not clear, whether and how currently available tools have positively contributed to support policy reforms. This is important information to know how benchmarking tools can contribute best to support health policy reforms.

3.7. ENHANCING HOSPITAL COMPETITION MECHANISMS

Theoretically, hospital competition is associated with the aims of creating fiscal savings and improving quality and efficiency of health services. Competition may improve efficiency e.g. through service consolidation and reallocation, which may lead to the elimination of excess bed capacity and the realisation of cost-savings for providers and potentially the health system overall. However, healthcare markets deviate significantly from the theoretical notion of perfectly competitive markets, due to asymmetric information between providers and payers, heterogeneous hospital services, the difficulty of assessing the quality of services objectively, oligopolistic market structures and entry and exit barriers (OECD, 2012). Thus, a careful design of competition frameworks is required in order to realise competition benefits in light of desired health policy objectives. Despite this challenge, there is a trend towards using competition in the EU.

The effects of competition depend on a broader set of health system variables. These are the degree of insurer competition, health system centralisation, the role of insurers, private involvement in delivery of hospital services, accessible options and information of patients, hospital autonomy, hospital capacity and market concentration (OECD, 2012). Insurer competition plays often a major role in countries, which encourage provider competition. Competing insurers have via the instrument of selective contracting the often role in determining the choice of hospitals and treatments available to individuals, as well premium costs. This concept has been traditionally set up in the United States through managed care organisations. These intend to achieve cost-savings by negotiating service prices and packages from competing hospitals and enrolling patients, who can profit from potentially lower premiums within the specific managed care network of providers. For the United States, there is some evidence that purchaser competition coupled with selective contracting has contained expenditure growth (Zwanziger et al., 1994, 2000).

Competition depends on the extent of private involvement in delivery of hospital services. In the EU, publicly owned hospitals are the predominant ownership form, but private hospitals play an important role in several EU countries (Section 3.9). To allow for fair competition between publicly and privately owned hospitals, several pre-conditions need to be met, such as the separation of the purchaser and provider functions on the health system level (i.e. having independent public/private insurers), equal remuneration and equal treatment in dealing with deficits (EXPH, 2015). The adoption

of case-based remuneration systems supports fair competition, but needs careful calibration and constant recalibration, in order to discourage "cream-skimming" of patients and profitable services. In addition, the existence of sophisticated risk-adjustment systems is needed to disincentivise insurers to enrol low-risk people and deter high-risk people from enrolling (risk selection). In addition, a certain degree of hospital autonomy is needed in a competitive environment, such that hospital boards can take (politically) difficult decisions, such as laying off hospital staff or restructuring the hospital. Hospital market concentration needs to be well monitored by competition authorities to deter the abuse of a dominant position and to prevent collusion, e.g. in insurance premiums.

For competition to be meaningful, patients need to have some choice in selecting hospitals. This is challenging, as patients typically favour hospital nearness as one of the most important characteristics for selecting a hospital. Policies encouraging competition may thus include increasing the geographical area in which patients can access hospitals, to facilitate access to other hospitals if there is little local capacity left, to provide room for private practice within public hospitals, or to create financial incentives for hospitals to attract patients from more distant regions (OECD, 2012; EXPH, 2015). Also, patients need to be interested and capable of choosing among the best hospital services. There is an increasing amount of databases available to patients, physicians and insurers on the performance of hospitals (See section 3.6), but information is often complex and for patients difficult to draw conclusions on.

There is some evidence that hospital competition enhanced by insurer competition may have positive effects on cost containment. In the Netherlands, the government has set up managed competition between insurers. Insurers negotiate with providers and are fully financially accountable for hospital services (Schut and van de Ven, 2011). For the Netherlands, price competition between insurers seems to have contributed to lower price inflation, but there is no hard evidence that overall growth of health expenditure has been lowered, probably because the competition based model has matured only recently, and more time is needed to evaluate its effects. **In Germany**, insurer competition with a limited option for selective contracting was enforced at the beginning of the century (Shmueli et al., 2015). But selective contracting is used rarely on a large scale, due to few financial incentives making this option unattractive for insurers, who do not want to restrict patients' choice of hospitals, which is seen in Germany as unpopular. Competition of providers, however, has gained some momentum in recent years, driven by a wave of mergers and acquisitions, and the need to restore the financial soundness of the hospital sector. **Increased competition among hospitals has been linked to cost containment, higher efficiency and quality of care in the United Kingdom** (OECD, 2015). One channel of improvement was via encouraging service reconfiguration (consolidation and reallocation) across hospital sites, which has contributed to eliminating excess bed capacity and creating savings. Overall, competition effects may take a long time to materialise and need sophisticated monitoring and constant reform efforts, in order for the benefits from competition to materialise.

Overall, the pre-conditions for competition of hospitals to be beneficial at the societal level are not optimal. They are better e.g. in the off-patent pharmaceutical sector, where product information about quality, product homogeneity, the existence of competitors is greater than in the hospital sector (EXPH, 2015). This set of conditions to allow for meaningful competition between hospitals is difficult to meet. Thus, any policy reforms changing the competition framework between hospitals need to be carefully assessed against the desired health policy goals, including cost containment.

3.8. INCREASING HOSPITAL AUTONOMY

Institutional autonomy is believed to be a contributing factor to achieving health system objectives (Bloom et al., 2010). Hospitals in the EU have varying degrees of autonomy within the public sector and can make to different degree autonomous strategic, financial and operations decisions. This section summarises, largely based on Duran, A. and R. Saltman (2015), which are the options in the governance of public hospitals in Europe and the potential implications for cost containment.

Hospital governance is embedded in the health system in a decision framework that can be described on a macro, meso and micro level. The macro level includes the basic health system framework defined by government policies, such as e.g. to maintain universal coverage in a publicly operated system with tax funded hospitals. The meso level focuses on decision-making at the level of the hospitals. The micro level refers to operational management issues, such as personnel management, quality assurance and others.

Public hospitals can at most be semi-autonomous, as their operational decision-making field is bounded within defined boundaries of health related, employment related, financial, environmental and social policy objectives (Duran and Saltman, 2015) (Table 8). This also applies to private for-profit oriented hospitals, which enjoy a considerable amount of operational freedom, but are also embedded in the macro level government policy framework. Semi-autonomy is intended to help public hospitals to employ meso-level institutional autonomy to increase performance e.g. at the clinical and financial level.

In seven out of eight countries, which are analysed in Duran's and Saltman's (2015) study, the degree of semi-autonomy was increased throughout time. This was the case in the Czech Republic, England, Israel, Norway, Portugal and Spain. Only the Netherlands did not follow this trend, as the level of autonomy was already relatively elevated traditionally. The examples of semi-autonomous reform strategies include the introduction of incentive based systems for enhancing clinical and financial performance; the hiring of professional managers; the establishment of more independent supervisory boards; hiring by contract under private law; the usage of operating surpluses and raising of private capital.

There is high variation in the degree of autonomy in institutional/legal terms between and within countries. Hospitals can take the form of state enterprises, trusts, foundations and even joint-stock companies. In Spain there is a relatively large spectrum of autonomy choices (Table 9). The choice determines, which leverage hospital managers have in deciding upon structural parameters (service configuration, number of beds), financing arrangements (ability to retain profits, deciding upon capital investment, and the accountability arrangements (supervisory board, reporting obligations). Based on these different autonomy dimensions, a simplified picture of hospital autonomy in Europe can be obtained (Graph 25). This places countries in decreasing importance of direct political decision making and increasing order of market-based decision making.

Table 8 – Public hospital governance framework

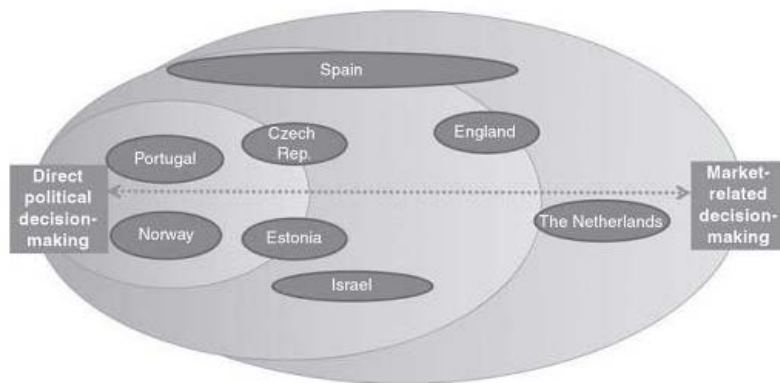
Dimensions	Characteristics
Institutional arrangements	Legal form (legal, political) Room for decisions (clinical services, incentives/sanctions) Relations with stakeholders (professional organisations, unions)
Financial arrangements	Capital investment (conditions, sources) Adjusting capital and operational expenses Ability to retain surpluses and incur debt Implicit bail-out guarantee
Accountability arrangements	Supervisory board Citizen and patient involvement Reporting obligations
Decision-making capacity versus responsibility	Room to adjust to unexpected trends/freedom from interference Power sharing (clinical trials, hiring/firing) Flexibility in internal monitoring and evaluation

Source: Adapted from Duran, A. and R. Saltman (2015).

Table 9 – Spectrum of hospital autonomy choices in Spain

Type of legal entity	Characteristics
Public Healthcare Company	<ul style="list-style-type: none"> - Public sector entity but resource use and management under private law - Governing body includes regional health department and appoints the CEO - Health care staff under private law with performance related salary scheme - Public authorities control the finances - Hospital budget approved by regional parliament within the overall regional budget - Prohibition to make or reinvest (new technology and facility improvement) profits - new postings to be approved by the Regional Finance Department and the Department of Justice
Public Healthcare Foundation	<ul style="list-style-type: none"> - Legal entity created by public or not-for-profit persons with own assets ascribed to "general interest" goals - Health care staff under public law - Otherwise as Public Healthcare Company
Foundation	<ul style="list-style-type: none"> - Legal entity created by public or not-for-profit persons with own assets ascribed to "general interest" goals under private law - Health care staff under private law with performance related salary scheme - Hospital activity based on annual contract with regional health authority - Some autonomy wrt. to health basket provided and private patients may be served - Profits must be reinvested, but autonomy on how to invest exists - Individual contracting of providers - Governing body includes regional health department and appoints the CEO
Consortium	<ul style="list-style-type: none"> - Legal entity with own assets created by several public administrations and/or not-for-profit private entities - Health care staff under private law with performance related salary scheme - Annual contract with regional authority - Payment based on capitation and activity - Autonomy on the basket of services - Profits must be reinvested, but some autonomy on how to invest exists - Governing body includes regional health authority - Some autonomy to reorganise posts and functions
Administrative Concession	<ul style="list-style-type: none"> - Facility run by concession (by private agents) including primary and specialised care - Governing body based on concessionary companies - Some staff under private and some staff under public law - Public funding by capitation for a defined population - Regulations to limit competition to public entities in place - Autonomy towards new postings, investment decisions, sources of funds, basket of services - Profit rate capped at 7.5% - Rigid accountability and controls to preclude patient selection

Source: Based on Duran, A. and R. Saltman (2015).



Source: Duran, A. and R. Saltman (2015).

There is no hard scientific evidence on the impact of increased hospital autonomy on cost containment. Relations between hospital autonomy and performance including cost containment are not well studied yet and are being developed (Smith and Papanicolas, 2012). The relative lack of evidence may be related to the fact that hospital autonomy, as described in this section is multidimensional, and its effects depend on other system features, such as global budgets, the extent of hospital competition etc.

It is logical to believe that increases of hospital autonomy make sense foremost in a system that is built on elements of hospital competition as a major incentive to increase hospital efficiency. Insofar as hospital competition is associated overall cost containment and increased hospital performance, one may conclude that managerial autonomy is as a key ingredient of hospital autonomy also contributing to this effect. Another difficulty to evaluate the effect of hospital autonomy on cost containment is that increases in hospital autonomy coincide with limitations in autonomy in other areas, such as though the introduction of global budgets. For instance, in France, the 1984 hospital reform had the aim to decrease costs, which was to be achieved by global budgets and a managerial reform.

Increasing hospital autonomy may conflict with integrated care, such that hospitals are well placed within the communities and the spectrum of healthcare services offered at primary care and post-hospital level. It may also render short-term cost containment policies more difficult, such as if wage setting schemes are decided de-centrally. This may also explain why there seems to be no general trend towards more autonomy, which may reflect some of the fears related to increasing hospital autonomy.

One may presume that the recent trend to recentralise certain health system functions may be balanced by increased operational management autonomy of hospitals. This may permit to strengthen cost control on the macro level, while incentivising hospital to increase operational performance (OECD, 2015). The big variety of governing models makes possible cross-learning among countries. Granting more autonomy may also reduce the need to privatise public hospitals, which many patients perceive as problematic (Saltman, 2015). With the variety of hospital autonomy models available in Europe, there is an apparent potential to study the effects of these different organisational models further.

3.9. PRIVATISING HOSPITALS

The ownership form of a firm is perceived in the economic literature as an important determinant of performance. There are some reasons to believe that private ownership is associated with more efficiency, better financial performance and quality. The key arguments are derived from theories of property rights and bureaucracy theory (Eisinger 1993). However, for hospital ownership the results are not straightforward.

There are three broad forms of hospital ownership. Publicly owned hospitals are typically owned by the State or local authorities, such as in Finland, Sweden, Ireland, France, Germany and typically do not aim at maximising profits. Private for-profit hospitals, such as in France, Germany, Denmark are at least in economic theory profit maximising entities, while private not-for-profit hospitals belong to legal persons such as associations or foundations, and are not perceived as profit maximisers, such as in the Netherlands, Germany, England and Sweden.

In the EU, publicly owned hospitals are the predominant ownership form. In 20 out of 22 EU countries, for which data is available more than 50% of all hospital beds are publicly owned (Graph 26). Over 80% of hospital beds are publicly owned in 12 EU countries. Countries with relatively low shares of publicly owned beds are the Netherlands (close to 0%), Germany (40%) and Cyprus (52%). For-profit hospitals have high shares in Cyprus (48%), Germany, France, Italy, Greece and Poland (25-30%). As a unique case private not-for-profit hospitals are account for almost of hospital beds in the Netherlands.

Overall, there is a slow trend towards privatisation of the hospital sector. However, for most countries (except for Bulgaria), private hospitals gain market shares only very slowly. In the past decade, private hospitals have increased their market shares in terms of beds by 1 to 4 percentage points in a couple of EU countries. Thus, privatisation seems to have played a limited role in recent years. This may be surprising in view of the financial challenges that hospitals have been facing particularly in recent years. Selling hospitals relieves the public owner of a substantial cost factor and may contribute to improving public finances. However, privatising hospitals is often unpopular with the local community, who fear that access to care and quality of care may be lower with a privately owned hospital operating under for-profit seeking management. Also, local politicians might be against serious restructuring of their hospitals because they fear job losses in their community.

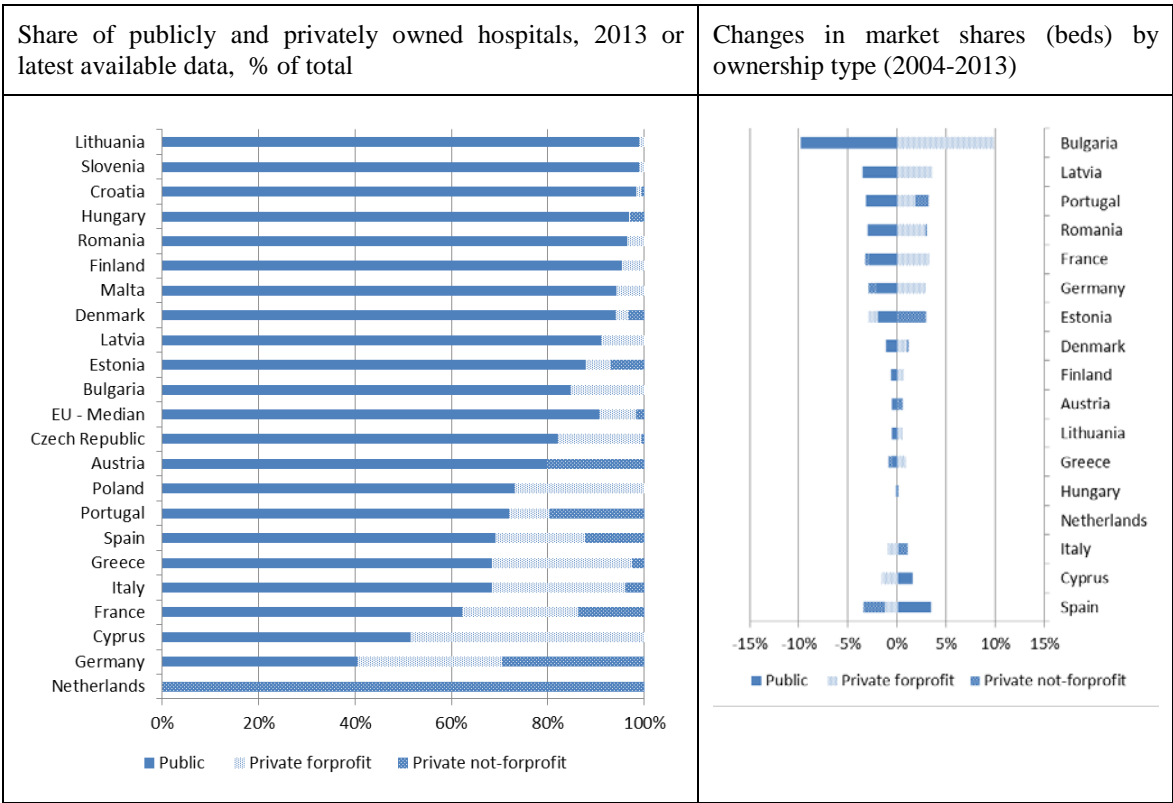
According to empirical research, there seems to be no hospital ownership form that excels above the others. In Germany, private ownership is associated with better financial outcomes than public ownership (Schwierz et al., 2011). However, in the setting of a cross-country meta-analysis, Shen et al. (2007) found only a modest difference in revenue and profitability in favour of for-profit hospitals, although no systematic differences are visible in terms of costs and efficiency. In terms of efficiency and quality of care, results are equally mixed, and there are few studies based on EU data. In one study using German data Schreyögg (2009) shows that for-profits are less efficient than public hospitals. This receives some confirmation using Greek hospital data, where public hospitals seem to fair better in terms of cost-efficiency than for-profit hospitals. Establishing a clear link between quality of care and ownership seems equally challenging. Overall, there is little evidence, that private hospital forego quality of care to increase profit, as there is no conclusion whether public hospitals are less quality

oriented, e.g. because of fewer resources to take up modern and costly technology or because of a lack of organisational or financial incentives to do so (Eggleston et al. 2008).

While ownership form per se does not seem to be the determining factor in hospitals' performance, hospital privatisations can be efficiency increasing. There is some evidence based on US data, that privatisation has relieved debt-ridden public hospitals, increased the cost-efficiency of the sector and to some extent the quality of medical care in the United States (Gaynor and Haas-Wilson, 1999; Cutler and Horwitz, 2005). Moreover, it seems that the adaptability of private hospitals to changing market environment can be superior to public ones (Schwierz et al, 2012; Deily et al., 2000).

Therefore, privatising of hospitals might be, in some cases, an alternative to hospital closures or the continuation of hospital activity under public ownership. Alternative, the creation of hospital networks (section 3.10) or increases in the hospital autonomy (section 3.8) in the public sphere may lead to similar results, without having to resort to the tool of privatisation, which may make cost containment policies also more difficult. Whether privatisation is improving social welfare, one needs to look on the long-term welfare implications of changes in the ownership-structure and market consolidation, which have not been sufficiently explored until now.

Graph 26 – Distribution of hospital ownership forms



Source: Eurostat, own calculation.
 Notes: No complete data available for Belgium, Ireland, Luxembourg, Slovakia, the United Kingdom and Sweden.

3.10. FOSTERING HOSPITAL MERGERS AND HOSPITAL NETWORKS

There are good reasons to believe that bigger hospitals are better. Larger hospitals have a good chance of lowering their unit costs, building up better quality of care through larger volumes and having more potential to apply new medical technologies, if bigger size goes along with better financial performance. Due to high market entry barriers and significant entry costs, entering the hospital market is inhibited to a large extent. Hospitals may avoid these barriers as they enter the market via acquisitions of other sometimes financially stricken hospitals (Schwierz, 2011). Alternatively, building up hospital networks may help exploiting similar size benefits. This section looks shortly at some empirical pros and cons of hospital mergers and hospital networks as a viable cost containment strategy.

Because of the operation of economies of scales, bigger hospitals can have lower unit costs. From a management perspective mergers can be used to reorganise structures within hospitals by relaxing institutional and organisational constraints (Pilny, 2014). Hospital companies use mergers to reconfigure the product-mix after the merger towards more profitable services, consolidation efforts, cost reductions and reputational enhancements and the optimisation of internal benchmarking. Mergers can also provide better and cheaper access to equity capital.

There has been a trend towards the formation of hospital groups and multihospital networks in these three countries, with over 60 per cent of hospitals now part of some form of partnership (Nolte et al., 2014). Motives for this trend are financial pressures and attempts to improve quality and safety in a competitive market that is characterised by an oversupply of hospital capacity. In England, until early 2000s, the number of NHS hospitals was considerably reduced via mergers. These mergers were targeted at hospitals with financial or quality deficits. In Germany, Similarly, in Germany, most mergers were targets at financially troubled public hospitals, which could not continue operating on their own anymore (Schwierz, 2011).

Economies of scale contribute to lowering unit costs of hospital care production, but this mechanism has limits. Economies of scale are exhausted relatively early at a hospital bed size of 100 to 200 beds, with constant returns or diseconomies of scale kicking in afterwards (Posnett, 2002). Diseconomies of scale may be driven by rising organisational complexity which may be more prone to inefficiency in management. In Denmark, mergers did not result in increased technical efficiency (Kristensen et al., 2010). Based on an international comparison, there is limited evidence suggesting that hospital consolidation may improve quality as the scope for quality gains depends on the context (Nolte et al., 2014). Overall, the association between size and efficiency seems not clear-cut.

Overall, there is little empirical evidence of mergers and hospital networks on cost containment. This may be also explained the fact that most hospital markets are geographically small and those hospital mergers may have anticompetitive effects (Ashenfelter et al., 2011; Condeixa, I. S., 2012) due to the abuse of a dominant position. These effects may counter the theoretically positive effects on cost containment. What is most probably of key importance here is the mix of hospitals, in the sense the smaller hospitals providing a limited number of services are working within a network with a bigger hospital that provides more specialised services.

3.11. EXPLORING PUBLIC-PRIVATE PARTNERSHIPS

Public-Private Partnership (PPP) is a form of cooperation between public authorities and the private companies, aiming at ensuring the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service. Typically, PPP is a long duration relationship, spanning sometimes over several decades. PPPs are used in many EU MS and have aimed at accelerating investments in health infrastructure and reducing costs. This section summarises the evidence of PPPs relating to cost containment in hospital care based on the overview studies done by EAHC (2013) and the EXPH (2014).

The novelty of PPPs is not in the private provision of publicly funded health care, which is present in most EU Member States (see section 3.9), but in the concession model. This model, designed to build infrastructures with long-term contracts, implies of periodic payments from the public payer to the private provider over a long period of time. This model is more structural than the traditional forms of private partnership in a health care delivery system, which can be stopped. PPP are used sometimes to obtain private financing to accelerate the construction of new hospitals or residences. However, during times of economic recession, when public bodies limit any investment activities and when also private financing is reduced, PPPs typically come to a halt. Therefore, they are not used typically by public bodies as an alternative to traditional public investment in a recession.

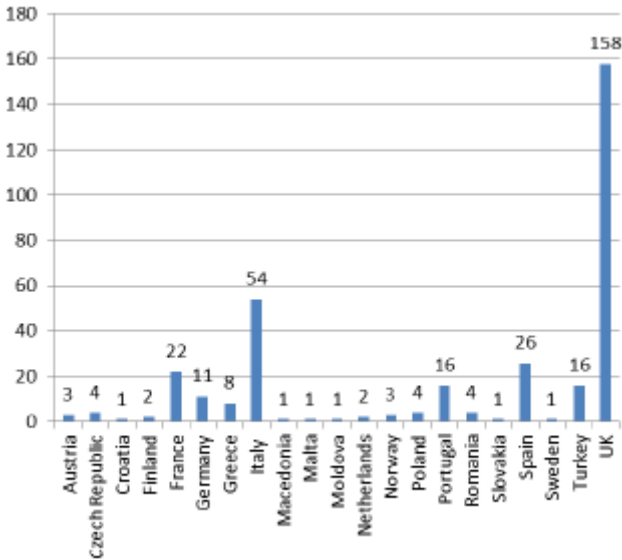
There are various types of health PPP, which reflect in part the heterogeneity of European health systems. In the UK, the contracts are typically limited to the provision of the physical facilities by the private partner, while clinical services are provided by NHS. More comprehensive PPPs are undertaken in Spain, Portugal and Germany, where the private partner builds and manages the facility and includes the provision of clinical services. In Spain, some PPS are integrated with primary and outpatient health care, resulting in a higher bundling of services and integration of care. The UK accounts for around half of all European PPP projects by number or value (Graph 27), whereby it concentrates on infrastructure based models, and where PPPs represented almost 40% of total investment in health in the period 2005-07. They are far less significant in macroeconomic terms in other EU countries.

While experience with PPPs in the EU is diverse, many projects seem to have not fulfilled expectations. According to the EXPH (2014), the following general experiences could be drawn from the different countries regarding PPPs. In Portugal, the hospital PPS models have led to disappointing financial results, and seem unsustainable. In Portugal, the government suspended the assessment of all new PPPs after 2010. In Germany, private sector provision of health services is relatively large, and the industry is well positioned to invest effectively in health. In this regard, privatisation of public hospital sectors is quite important in Germany. As regards, PPPs, however, they appear less resource-efficient than purely public hospital provision, but seem to offer higher quality of care. In Italy, PPPs do not always seem to fit public needs as publicly-developed project schemes, though operationally they indicate positive value for money assessment as well as high patient satisfaction. In Spain, the collaboration of private with public providers has a long tradition, and there is large and very diverse experience of collaboration. However, there some reports on PPPs in Spain point to some foregone savings opportunities compared to a tradition public provision, increased financial costs and inadequacies in the processing of tenders and contracts.

Governments should undertake a financial review of a government’s PPP obligations, including all contingent liabilities (EAHC, 2013). Also, spending and long term liabilities for PPP contracts should be included in the planned budgeting for health care spending. Also, each health care project should be thoroughly evaluated for its value-for-money taking into account clinical, economic, environmental and social aspects before deciding which financing tool (such as PPP) to choose.

According to the evidence gathered and evaluated by EAHC (2013) and the EXPH (2014), there is no scientific evidence that PPPs are cost-effective compared with traditional forms of publicly financed and managed provision of health care. Importantly, PPPs do not ease the public budget's fiscal constraint. On the contrary, there is some evidence that taking into account all costs associated with PPPs these are higher than in a purely public provision of hospital care. This is supported by reports from the UK and Spain (Court of Auditors). Also, according to the EXPH (2014) there no significant evidence that public and PPP hospitals differ in the countries studied, such as Germany, France, Italy and the UK.

Graph 27 – Number of Public-Private Partnerships launched between 2002 and 2011



Source: EAHC (2013).

3.12. IMPROVING EMERGENCY CARE

Emergency care units (ECU) play a central and critical role for payers and patients. ECUs are a frequent point of entry into hospital care, are very resource intensive and thus costly and critical for health care quality. Based on Berchet, C. (2015), this section summarises evidence on the use, determinants of emergency care units, concluding on which policy options are available for cost containment.

Emergency care unit visits make up a considerable proportion of all hospital admissions, and there is a large variation in emergency care unit visits per capita. In 2011, the number of ECU visits in some EU countries varied between over 70 visits per 100 population in Portugal to 7 visits per 100 population in the Czech Republic. The number of visits to ECU is also relatively high in Spain and Greece with more than 40 visits per 100 population, and relatively low in Germany, the Netherlands and

Poland with fewer than 20 visits per 100 population, relatively little compared with the OECD average. ECU visits make up a considerable proportion of all hospital admissions. For Germany, in a sample of 72 hospitals roughly 25% of all admissions were emergency admissions (Schwierz et al, 2009).

A considerable proportion of visits to ECU are considered “non-urgent” or “inappropriate”, i.e. they should in a effectively functioning health care system be dealt with in alterative settings such as primary or community care. Around 12% in England to 56% in Belgium of ECU visits are considered inappropriate in this way. This requires policy attention, as the inappropriate use of ECUs is adding to costs, and potentially reduces the quality of healthcare for those patients which are true emergency cases, as resources are directed to patients, which should be treated outside of the ECUs.

On the demand side, there is some evidence that for patients convenience and accessibility factors drive demand for ECU services upwards, especially for patients with lower socio-economic status. This is the case for France in particular, where 60% of patients visited an ECU due to its accessibility and its technical capacity. Other demand side factors relate to the ageing population and the growing burden of the growing use of chronic conditions, which require intensive medical evaluations particularly among the elderly. On the supply side, there are a number of interesting factors that contribute to lower ECU use. First, the better availability of ambulatory surgery and day-case interventions are responsible for a decrease in emergency admissions. Second, high accessibility to primary care services, including after-hours options for care and short waiting list for appointments, have lower volume of ECU visits.

Some countries have successfully implemented policies to reduce the demand for emergency care services and divert inappropriate visits away from ECU. A key policy in this regard is extending access to primary and community care services. The development of after-hours options for primary care services and of community care centres substitutes for emergency care services. Fast-track systems, as in the United Kingdom and France can also redirect non-urgent patients to more appropriate outpatient settings. Finally, financial incentives for providers (such as in England) might also improve the efficiency of ECU. In Malta, the shared care programme ‘fast tracks’ urgent cases to the vascular surgeon and avoids unnecessary referrals to hospital of cases which can be effectively managed at primary care level.

The introduction of cost-sharing for (inappropriate) emergency care use (as in Belgium, Cyprus, Finland, Italy, Ireland, Portugal) or reducing/eliminating payments for primary care visits (as in Denmark, Italy, Poland, Spain, the United Kingdom and Germany) are additional policy options, , although their effectiveness in reducing ECU visits is not always clear. In Cyprus, Panagiotis (2015) demonstrates that overuse of the ECU after the introduction of cost-sharing was reduced, while vulnerable patient age cohorts proved inelastic to this measure, concluding that the introduction of co-payment has proven its efficacy in Cyprus’ primary ECU department. The use of telemedicine (England) is another option that has successfully reduced ECU visits by improving self-management for chronic disease.

Several policy options have been proven to improve the efficient use of resource-intensive emergency care units, but no hard scientific evidence exists that this contributes to cost containment on the macro level. These policies include improving primary care accessibility,

encouraging use of tele-medicine and introducing fast-track systems to redirect patients to appropriate care settings. Involving a primary care physician in the ECU to reduce the number of inappropriate ECU visits and introducing of cost-sharing for are additional options, although their effectiveness is not clear (Berchet , 2015).³⁴

3.13. IMPROVING ACCESS TO eHEALTH

EHealth plays a growingly important role for timely sharing of information, and may increase quality of service and creates savings of resources in hospital care as well as in health systems overall. This section summarises some examples of eHealth and its impact on cost containment as well as quality of care.

There are many good examples of eHealth deployment in EU countries. In Estonia hospitals and primary care have uniform electronic prescriptions and the E-health system links all healthcare services providers. In Finland, more than 90% of public health organisations have e-patient records. In the United Kingdom chronically ill patients use tools of telehealth to monitor their conditions. In Spain, the Multi-channel Health Service Centre (MHSC) uses all the available channels of interaction, such as the internet and mobile phones, between the patient and the health system in order to facilitate care. In Denmark, Sundhek.DK is the official Danish eHealth portal, and provides timely information accessible to patients and professionals.

The extent of deployment of eHealth varies according to the function and there is potential to increase the deployment of eHealth in acute care hospitals (Section 2.6). The highest deployment rates are in eHealth infrastructure, whereas electronic information flows and exchange lag behind. The gaps in electronic exchange of information are a constraint to integrated health care services. The fact that 2/3rd of hospitals do not use this eHealth function implies that the deployment of eHealth in hospitals is still largely focussed on intramural needs. Strengthening the exchange of eHealth information is an important component in order to move health care systems toward integrated care models. The low levels of eHealth deployment in lower income countries call for solution deal with the significant fixed costs associated with setting up eHealth system and possibly financial support targeting this group of countries. In addition, for eHealth systems to work in the sense of contributing to quality and cost reductions, policy makers should align incentives with health system priorities. This could be done e.g. for improved management of chronic diseases which are associated with preventable hospitalisations (OECD, 2010).

The evidence on the impact of eHealth on cost-effectiveness and cost containment is still limited, but is pointing toward the positive direction. EHealth seems to contribute more to service quality, but may also reduce operating costs of clinical services and reducing administrative costs (OECD, 2010). For the US, substantial savings via adoption of eHealth were estimated, basically through the channels of avoiding medication errors, the potential for improvements in short-term preventive care, improvements in chronic disease prevention and disease management (Congressional Budget Office, 2008).

³⁴ McCullough et al. (2014) exemplify how ensuring patients were redirected to the nearest appropriate hospital rather than the nearest hospital saved lives, but, although it would seem likely, no evidence on whether it actually saved money. <http://bj.oxfordjournals.org/content/113/2/202.full>

4. TOOLS USED BY THE EU TO INFLUENCE HOSPITAL CARE

The EU uses a wide range of tools to influence hospital care, basically mirroring and supporting national efforts to health policy reform. The Commission has recognised in the staff working document, “Investing in health”, that besides being a value in itself, health is also a precondition for economic prosperity (European Commission, 2013d). The Commission communication, “On effective, accessible and resilient health systems”, sets the agenda for various Commission actions, which strengthen the effectiveness of health systems, increase the accessibility of healthcare, and improve the resilience of health systems (European Commission, 2015a). The cross-border directive on patient care³⁵ influences hospital care via its non-discrimination requirement, which says that price discrimination between EU-residents is not allowed. Also, the reimbursement entitlement, which requires that outgoing residents shall be covered up to the full cost of corresponding health at home implies that hospitals need to cost their services, which is not a given in all hospitals. Further, the Commission contributes to improved monitoring ability via the economic governance framework of the Stability and Growth Pact, better data availability and the setting up of benchmarking tools, the creation of evidence and exchange of best-practices on health system and hospital reform, support for targeted investments and finally fostering of reforms via the financial assistance programmes.

The economic governance framework of the Stability and Growth Pact aims at a balance between structural reforms, investment, and fiscal responsibility, and is at least indirectly also impacting on hospital care. Public debt has soared in the last 5 years, and many EU countries struggle with debts larger than the 60% of GDP limit set out in the Maastricht Treaty. In this context, structural-fiscal policies, including health policies, should support progress towards achieving the objective of fiscal sustainability. This is also because health and long-term care spending, in particular, pose a major fiscal challenge (European Commission, 2015). While fiscal responsibility is seen by the EU as one cornerstone of the SGP, the SGP also makes room for member states to invest in health. Practically, the Commission takes into account the positive fiscal impact of structural reforms on growth and the long-term sustainability of public finances in the so-called “structural reform clause”. Also, public investments under the Pact are now easier than before, and under certain conditions, member states can deviate from their fiscal objectives in order to accommodate investment, e.g. on health-related projects co-funded by the EU under the Structural and Cohesion Policy. This could provide a tool to support future health sector reforms, with a more flexible approach allowing for meaningful investments in healthcare by member states.

Hospital investments by use of EU funds are also supported within the EU Cohesion Policy framework. The aim of the EU Cohesion Policy³⁶ is to reduce economic and social disparities between regions in Europe – mainly through the European Structural and Investment Funds (ESIF). The ESIF funds health infrastructure and equipment, e-health, research and support to SMEs, as well as activities linked to active and healthy ageing, health promotion and addressing health inequalities, support to the health workforce and strengthening public administration capacities. A recent EU mapping report³⁷ shows the use of the ESIF providing an overview of actions that Member States

³⁵ Directive 2011/24/EU on patients’ rights in cross-border healthcare: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:088:0045:0065:EN:PDF>

³⁶ http://ec.europa.eu/regional_policy/index_en.htm

³⁷ http://www.esifforhealth.eu/Mapping_report.htm

envisage for support from ESIF in the health sector in the programming period 2014-2020. The use of ESIF for health-related investments has been foreseen in all EU Member States with roughly 4 billion to be spent on health infrastructure 1 billion on the use of Information and Communications Technology (ICT) in health and 4 billion on access to healthcare and Active and Healthy Ageing.

The EU does not focus on reductions of expenditure in hospital care, but invites Member States to increase the sustainability of the sector via efficiency increasing reforms. The 2015 Annual Growth Survey, which kicks off the European Semester of European economic governance, acknowledges the importance of the healthcare sector in tackling the social consequences of the economic crisis, stressing significant job opportunities in the health sector in the years to come. As part of the European Semester process, which sets out country-specific recommendations for policy reforms in EU member states, in 2016 13 member states have received a recommendation for reforming their health systems (Table 10). Most of these recommendations focus on the cost-effectiveness of health systems, calling for reforms in the hospital sector, outpatient care, and primary care, with some explicitly calling for maintenance of or improvement in the access to and quality of healthcare. The country-specific recommendations ultimately aim to improve the value-for-money for public and private payers of healthcare services, knowing that in all EU countries there are possible shortcomings and potential areas for improvement, notably in terms of lower costs (savings) and improved cost-effectiveness (better health with same costs) in the health sector.

The EU's influence on hospital care is also visible throughout the financial assistance programmes of the European Commission, the European Central Bank and the International Monetary Fund. These programmes include(d) specific requirements for health system reform in Cyprus, Greece, Ireland, Portugal and Romania. In Cyprus, reforms aim at introducing a comprehensive reform of public hospital autonomy and management practices to reduce existing inefficiencies and to prepare public hospital for competition with private hospitals under a future national health system (European Commission, 2013c). In Greece, reforms aim at controlling public expenditure, improving hospital management, modernising the IT systems and introducing DRGs (European Commission, 2012a). In Ireland, the authorities committed to the introduction of a prospective case-based payment system for public hospitals (European Commission, 2013b). In Portugal, reforms aimed at clearing arrears, improving selection criteria for a more transparent selection of the chairs and members of hospital boards, setting up of a system for comparing hospital performance, ensuring full interoperability of IT systems in hospital and continuing the reorganisation and rationalisation of the hospital network (European Commission, 2012b). In Romania, reforms targeted clearing arrears and establishing budget control mechanisms, improving of hospital management, redesigning of payment systems, improving procurement practices, rationalising and reorganising the hospital sector, auditing and monitoring of hospital performance (European Commission, 2015b).

The EU supports the building up of evidence to inform and improve comparability of the performance of hospital sectors in its member states. Important reports include "Health at a Glance" (OECD, 2014) and the "Joint Report on Health Systems" (European Commission, 2010). The Commission set up the Expert Panel on Effective Ways of Investing in Health in July 2013. The panel develops recommendations regarding the performance assessment of health systems, and diverse subjects related to health system performance, such as competition, access to care, the evaluation of health system reforms, public private partnerships, commissioning from private providers etc.. The

Commission collaborates with member states and key international health organisations on setting up benchmarking tools for EU wide comparison of health system performance (Section 3.6).

Table 10 – EU's country-specific recommendations for health sector reform, 2015-2016

Country	2015	2016
BG	CSR 1: Improve the cost-effectiveness of the health care system, in particular, by reviewing the pricing of health care and strengthening outpatient and primary care.	CSR3: Improve the efficiency of the health system by improving access and funding, and health outcomes.
CZ	CSR 1: Further improve the cost-effectiveness and governance of the healthcare sector.	CSR1: Take measures to ensure the long-term sustainability of public finances, in light of future risks in the area of healthcare.
IE	CSR 2: Take measures to increase cost-effectiveness of the healthcare, including by reducing spending on patented medicines and gradually mandating the adequate prescribing practices. Roll out activity-based funding throughout the health system.	CSR1: Enhance the quality of expenditure, particularly by increasing cost-effectiveness of healthcare
ES	CSR 1: Improve the cost-effectiveness of the healthcare sector, and rationalise hospital pharmaceutical spending. [...]	
HR	CSR 2: [...]Tackle the fiscal risks in healthcare..	
IT		CSR5: Take further action to increase competition in regulated professions, the transport, health and retail sectors and the system of concessions.
LV	CSR 2: [...]Take action to improve accessibility, cost-effectiveness and quality of the healthcare system and link hospital financing to performance mechanisms.	CSR2: Improve the accessibility, quality and cost-effectiveness of the healthcare system.
LT	CSR 2: Address the challenge of a shrinking working-age population by improving the labour-market relevance of education, increasing attainment in basic skills, and improving the performance of the healthcare system;	CSR2. Improve the performance of the healthcare system by strengthening outpatient care, disease prevention and health promotion.
MT		CSR1: Step up measures to ensure the long-term sustainability of public finances.
AT		CSR1: Ensure the sustainability of the healthcare system; (...)
PT		CSR1:Ensure the long-term sustainability of the health sector, without compromising access to primary healthcare.
RO	CSR 3: Pursue the national health strategy 2014-2020 to remedy issues of poor accessibility, low funding and inefficient resources.	CSR3: Curb informal payments in the healthcare system and increase the availability of outpatient care.
SI	CSR 1: [...]By end of 2015 adopt a healthcare and long-term care reform.	CSR1: Complete and implement the reform of the long-term care and healthcare systems, making them more cost-efficient to ensure long-term sustainability of accessible and quality care. By the end of 2017, adopt the reform of the pension system.
SK	CSR 1: Improve the cost-effectiveness of the healthcare sector, including by improving the management of hospital care and strengthening primary healthcare.	CSR1: Improve the cost-effectiveness of the healthcare system.
FI	CSR2: ...Ensure effective design and implementation of the administrative reforms concerning municipal structure and social and healthcare services, with a view to increasing the cost-effectiveness in the provision of public services, while ensuring their quality.	CSR1: Ensure timely adoption and implementation of the administrative reform with a view to better cost-effectiveness of social and healthcare services.

5. CONCLUSIONS

Health systems in most EU countries are centred on hospital care. Hospital over-capacity in many EU countries and the associated costs create continuous calls for reform. The need for reform is accentuated by governments' efforts to reduce currently high levels of public debt and the perceived future fiscal challenges of hospital systems driven by population ageing, multimorbidity and the growing medical costs for treating patients with non-communicable diseases, such as cancer patients and patients with cardiovascular diseases.

Hospitals in the EU face common trends, but also differ substantially. Acute care bed capacity has been reduced in all EU countries in the past decade. This consolidation will need to continue to avoid building up further over-capacities, driven by lower length of stay of patients and an increase in the number of patients discharged on a daily basis. Some countries, such as Bulgaria, Germany, Lithuania, Hungary, Austria and Romania produce systematically and significantly more discharges per capita than other EU countries. Apart from being a cost factor, this impacts negatively on quality of care, as countries with more hospitalisations per capita tend also to have higher shares of preventable hospitalisations. In the EU, more than 6 million or 7-8% of all curative care hospitalisations may be preventable, and close to 20% of all hospitalisations seem preventable in Lithuania, Bulgaria, Germany, Latvia and Romania.

Results from the paper suggest that the reorganisation and rationalisation of hospital care particularly in countries with a high bed density are important factors towards increases in quality of care, and potentially also cost containment. Countries with higher bed capacity per capita are mostly, but not exclusively, low income countries. These have relatively scarce resources, which are reflected in the low hospital price levels and lower levels of eHealth deployments. Consolidating the sector, reducing over-capacities and restructuring care provision may improve care quality, the financing of individual hospital services, and finally also contribute to cost containment.

While policy analysts and policy makers are on the search for successful tools for hospital reform, hard scientific evidence on the impact of policy tools is often not well documented, and historical evidence serves as a guide in many cases to gauge their likely impact on cost containment. Nevertheless, there are well tested options for cost containment at least in the short-term. Among these, the application of hard global budgets is certainly the most important one. In combination with activity-based payments some of the negative effects of global budgets on access to care and quality of care can be mitigated. Reducing operational costs, such as increasing productivity of staff, reducing the wage bill and input costs of (non)-medical inputs, e.g. via better public procurement practices, have also been widely applied and proven to contribute to cost control in the short term. However, their long-term impact is more difficult to establish.

The impact of the many tools aiming at improving hospital performance via structural changes of the hospital and health care sector is more difficult to gauge. It depends among others on the role of the policy reform within the specific health system, whether it was applied at the same time with other health policy reforms and the time needed to see its effects. This applies to virtually all tools reviewed in this paper.

Still, it seems possible to learn from some positive trends and related documented policy effects. More continuity of care and better performing primary care systems are associated with a lower share of avoidable hospitalisations in some EU countries. The increased ability to measure hospital performance has improved the comparability of hospital performance on many health system objectives, and may also be used to monitor hospitals' financial performance. The future application of benchmarking tools on quality of care and financial parameters may be an important tool for cost containment, which respects the ultimate goal of providing high quality care to all patients.

There is some evidence that reforms relying on the work of positive market forces to increase productivity and reduce costs do work, but the effects depend on many factors and are hard to predict, and may even conflict with the goal of cost containment. Within specific contexts hospital competition enhanced by insurer competition may have positive effects on cost containment. But the preconditions for functioning competition are not optimal in health care markets and require a good deal of regulation and market oversight. Positive effects of competition may be enhanced by higher hospital autonomy, including private hospitals in which hospital managers have more leeway to push for organisational change, boosting productivity and lowering costs. In addition, economies of scale exploited by bigger hospitals and made possible through hospital mergers or closer cooperation of hospitals in networks are further market oriented policy tools, promising the same effects. However, increased hospital autonomy may conflict with government-level efforts for cost containment, such as if wage setting schemes are decided de-centrally. It may also conflict with the effort to building up coherent and integrated care systems. Overall, the experience with increasing hospital autonomy, hospital privatisations, hospital mergers and networks, is varied, and may or may not contain costs depending on the actual context. Better cost-effectiveness is also the often stated reason for public-private partnership as a specific long-term contract between public authorities and the private companies, aiming at ensuring the funding, infrastructure or the provision of a service. But evidence shows that these contracts are not better than traditional forms of publicly financed and managed provision of health care.

Streamlining patient flows seems important from the point of view of quality of care, and also cost containment. Improving primary care accessibility, and introducing systems to redirect patients to appropriate care settings, such as via gatekeeping, seem key in this regard. Improving the deployment of eHealth is another tool, contributing more to service quality, but also to reduced operating costs that may be better exploited in all EU countries, potentially containing costs.

Efforts for defining and implementing the appropriate country-specific policy mix of regulatory policies, including stringent budget constraints and elements of market-based competition in order to contain costs in hospital care need to continue. The EU can play a supportive and active role in this process by using its tools of economic governance, policy advice, evidence building and exchange of best practices and providing funding for investments in the sector. The monitoring, documentation and evaluation of national policy reforms at the EU level could and probably should play a bigger role in future. Together with better, more comparable and comprehensive data on health system performance across EU countries, this should increase the potential for countries to learn from each other and to apply policies, which are conducive to high-quality care at a price that societies can also afford to pay in future.

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