The 'Pilot on eHealth Indicators' study

This report presents the outcomes of the "Pilot on eHealth Indicators" study, carried out by empirica in association with IPSOS on behalf of the European Commission, Information Society and Media Directorate-General. The data used for this report were collected by means of a survey of primary care physicians and their use of ICT for eHealth purposes. The survey was carried out in all 27 Member States of the European Union and in Norway and Iceland in 2007.

Overview

A rapid development in eHealth

A rapid development has taken place in the eHealth area in Europe over the past five years, and General Practitioners have been able to profit from it. A basic ICT infrastructure consisting of computers and Internet connections is today available in most of the General Practitioner practices in Europe. The electronic storage of administrative and medical patient data, the use of a computer during consultation with patients and other uses of ICT in the health area are becoming more and more a daily experience in the practices. At the same time, there is still room for improvement when it comes to electronic networks connecting their IT systems with other health actors, the electronic exchange of patient data and electronic interactions with patients.

ICT infrastructure is increasingly less of an issue…

Today, almost all General Practitioner (GP) practices (87%) in the European Union use a computer. There is a tendency towards larger practices being better equipped — 93% using computers — than smaller ones — 84%. There remain 13% of practices that are currently without any computers and are therefore cut off from the benefits eHealth has to offer. In some countries, the share of practices using a computer is as low as 65% (Malta, Romania) or 57% (Latvia).

69% of the EU27 GP practices have an Internet connection. Its use varies according to the size of the practice, with use rates ranging from 61% among single GP practices to 81% among practices of four or more GPs. While there are Member States where Internet use has reached saturation level — such as in Estonia, Finland, Denmark, Sweden and Iceland — there are also several Member States where less than 50% use the Internet (Bulgaria, Hungary, Romania and Slovakia).

Broadband connections have clearly arrived on the scene and are used by nearly half of the EU27 GP practices (48%). There are considerable differences between the countries, with broadband penetration ranging from 93% in Finland to 5% in Romania.

…while eHealth use still varies across the EU countries and presents a patchwork pattern.

The use of ICT for Health purposes by General Practitioners in Europe varies considerably. While eHealth usage based on the availability of a computer rather than an Internet connection (e.g. electronic storage of patient data) is relatively widespread, more advanced applications are less common.

The result is a patchwork pattern of eHealth use related to the complexity of the eHealth application in question. On the one hand, the more complex the application gets — in terms of the necessary infrastructure, skills needed by the user, the number of actors and the complexity of the processes involved etc. — the more substantial are the differences between the countries. On the other hand, the overall use rates decrease with growing complexity so that the most complex ones — i.e. those involving the electronic transfer of medical patient data over a network — are used to a larger degree only in a couple of countries.

From the data collected for this study, Denmark, the Netherlands, Finland, Sweden and the UK emerge as the European frontrunners in eHealth use by General Practitioners. On the other side there is a group of countries where either the use of eHealth at large or the use of advanced applications still

leaves considerable room for improvement. This group consists of Greece, Latvia, Lithuania, Poland and Romania. In between lies the large group of average performers, consisting of the remaining 15 Member States.

A gap between readiness for and use of eHealth remains.

Comparing eHealth readiness with eHealth use — i.e. the availability of ICT infrastructure in a practice with the actual use of eHealth applications — shows varying degrees of untapped potential for higher eHealth use rates if the available infrastructure were fully used. The 'Readiness-Use Gap' for patient data storage ranges from 8% to 29%, depending on the type of data to be stored. Gap values for the storage of medical patient data are slightly higher than for administrative patient data storage. The average gap between availability and use of a computer in consultation is at 12%, ranging from 0% in Finland — where all GP practices have a computer in the consultation room and also use it — to 54% in Slovenia. The gap between availability of an Internet connection and the electronic exchange of patient data ranges from 29% to 59% on EU27 average, largely mirroring the fact that this kind of data exchange is currently used to a larger extend only in some countries.

eHealth use in detail

Patient data are stored electronically in many European GP practices.

Administrative patient data are stored electronically in 80% of the EU27 GP practices. In some countries, usage rates are at and below the 50% level, going down as far as 26%. Practice size plays a certain role in this regard, with an average difference of 11 percentage points between the smallest and the largest size class. The highest use rates can be found in Denmark (97%), Estonia (98%), Hungary (100%), the Netherlands (97%), Finland (100%), Sweden (96%), the United Kingdom (95%), Iceland (99%) and Norway (98%). Storage of administrative patient data is practised least frequently in Greece (49%), Latvia (26%), Lithuania (39%) and Romania (47%).

When it comes to different types of patient data stored for medical purposes, data on diagnoses and medications are stored by the highest share of GP practices (92% of practices storing also administrative patient data), followed by basic medical parameters such as allergies etc. (85%), laboratory results (81%), a patient's symptoms or the reasons for his/her visit (79%), the medical history of a patient, ordered examinations and their results (77% each), results of vital sign measurement (76%) and — with some margin — storage of radiological images (35%).

76% of all practices store individual patient data in a structured manner, which facilitates the automatic processing of the data in other electronic systems.

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Computers are available in most GP consultation rooms, but they are not always used.

A computer can nowadays be found in the consultation room of 78% of the European GP practices. It is (nearly) ubiquitous in practices in Finland (100%), Denmark, Norway (98% each), Estonia, the Netherlands, the UK and Iceland (97% each). It is available in less than half of the consultation rooms of practices in Malta (48%), Poland (41%) and Lithuania (29%).

These computers are however not always used during consultation with a patient: 66% of the practitioners do so, while in 12% of the practices the computer is not used while a patient is present. In the seven countries with availability rates of 97% and more, the computer is also used by most GPs. In Malta, the computers are used by 27% of all GPs, compared to 11% in Poland and 8% in Lithuania. Low usage rates can also be found in Greece (20%), Romania (21%) and Slovenia (18%).

A Decision Support System (DSS) is available in 62% of the EU27 practices. DSS supporting diagnoses are met more frequently than those supporting prescribing (59% compared to 32% on EU27 average).

In addition, most DSS systems tend to offer general advice rather than patient

specific advice (42% compared to 19%).

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Electronic connections to other health actors are on the advance, but use rates are still fairly low…

The Internet as well as other dedicated types of electronic networks allow GP practices to establish connections to other health actors' electronic systems. These include laboratories, other GP practices, secondary health actors such as specialists and hospitals, health authorities, insurance companies, pharmacies, patients' homes and care homes.

Use rates for these types of connections are moderate to low on European average. About 21% of European GP practices connect to other primary care actors, i.e. other GPs. Between the two types of connections to secondary health actors — hospitals and specialist practices — there is a noticeable gap. While about one fifth of GP practices connect to hospitals only somewhat more than one tenth (12%) do the same with specialist practices. A similar situation can be observed in relation to connections to health administration actors. 17% of the practices have a connection to health authorities, compared to only 3% connecting to insurance companies. Connections having to do with social care purposes — in this case to patients' homes and care homes — are virtually non-existent with shares between about 2% and 3% respectively. A notable exception is found in the case of connections to laboratories: with about 40% of the European GP practices, this is the most frequent connection type. Connection to pharmacies are considerably less frequent (used by about 7% of the practices), a finding that is also confirmed by the low use rates for ePrescribing (see below).

Electronic networks are also used for other professional purposes: 26% of the practices search for medication information, while 15% order their practice supplies online, 12% make appointments with other care providers and e-mail exchange with patients is done by about 4%. Both telemonitoring and the transmission of vital data from patients' homes are virtually non-existent as a professional purpose for network use (use rates below 1%).

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…as are use rates in the area of electronic transfer of patient data.

Further to connections to other health actors, the Internet and other, dedicated networks can also be used to electronically transfer patient-identifiable data. Use rates are again moderate to low and show considerable variations.

While the transmission of analytic results from a laboratory to the GP occurs with a comparatively high frequency (40%), other types of data are transferred electronically less often: administrative data are transferred to reimbursers by 15% and to other care providers by 10%. Medical data are transmitted to care providers or other professionals by 10%. ePrescribing is practiced by 6% of the EU27 GP practices. It can today be regarded a reality in three Member States: Denmark (97%), the Netherlands (71%) and Sweden (81%). Medical data exchange across national borders does not occur to any notable extent (0.7% on average).

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GPs' perception of facilitators, barriers and impacts

European GPs are positive about the role of ICT in health care.

Quite remarkably, European GPs are positive about the question whether ICT improves the quality of healthcare services.

On a five-point scale ranging from strong disagreement (-2) to strong agreement (+2), the EU27 average score is 1.3 — i.e. somewhere between

partial and strong agreement. In none of the 29 countries under observation, a negative attitude is prevalent. A positive attitude seems to have nothing to do with whether a country is more of an eHealth laggard or a frontrunner. Those countries displaying the least positive attitude (Germany, France and Austria) are all solid average eHealth users. At the same time, GPs in countries that can be considered eHealth laggards (e.g. in Greece, Cyprus and Romania) show an attitude that is considerably more positive than the EU27 average.

They have a clear idea of what would facilitate a wider spread of eHealth use.

Among factors that could facilitate the diffusion of eHealth, most European GPs would prefer if the issue were included in the curricula of medical education. The second most important facilitating factor is an increase in IT training provision to the GPs themselves. Thirdly, a better networking of all health actors in order to share clinical information is also regarded as beneficial by a majority of GPs. When it comes to telemonitoring — which is currently used quite rarely among the GPs — the practitioners on average are moderately positive that it will facilitate their treatment of patient with chronic conditions. In relation to these facilitators, there is not much difference between the countries.

While eHealth users do not perceive any major barriers, non-users are considerably more critical.

While European GPs on average regard neither a lack of IT support nor cost as serious barriers to eHealth use, the perception of practitioners from countries with low eHealth use levels — Greece, Poland, Romania, Lithuania and Latvia — is quite different.
Mostly, GPs in those countries perceive more and stronger barriers than their colleagues in the rest of the EU. A lack of IT training for GPs is probably the strongest hindering factor. A majority of GPs from the laggard countries strongly agrees to the statement that more IT training would help them to make more and better use of eHealth applications. Accordingly, there seems to be a lack of this kind of training, hindering wider uptake. In a similar manner, a lack of IT support as well as costs for the procurement and maintenance of an ICT infrastructure and eHealth applications are seen as barriers by many of the GPs in the laggard countries. The former result is well in line with other data indicating that only a minority of GPs in Greece (38%), Latvia (29%), Poland (30%) and Romania (10%) receives IT support from professional service providers — compared to 74% on EU27 average.

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Impacts are largely perceived as being either positive or neutral.

Overall, European GPs tend to see either positive impacts or no impacts emanating from the use of eHealth applications and services. Explicitly negative impacts are the exception — occurring to a noticeable degree only in two areas: the doctor-patient relationship and the workload of the practice support staff.
GPs are largely positive about impacts on working processes, both personal ones and the processes of the practice staff. They are more ambivalent in relation to patient-related and medical impacts. For every GP being positive about those impacts, there is at least one other GP not perceiving any. This is true for quality of diagnosis and treatment, the scope of the services offered by the practices, the average number of patients treated per day and the number of patients coming to the practice.

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eHealth use in Europe 2002 — 2007

ICT infrastructure and many eHealth

In the past five years, the share of GPs active in eHealth in the former EU15 Member States has increased remarkably. As regards ICT infrastructure, the

usage figures have increased considerably over the past five years.

share of practices that use a computer has gone up from 81% in 2002 to 90% in 2007. The Internet — or dedicated GP networks — are nowadays used by 72% of the EU15 GPs, as compared to 63% in 2002.
Continuous education and the search for prescribing information were and are the most frequent use cases for an Internet connection. The latter was done by 35% in 2002 and has nearly doubled to 62% today.
Electronic patient data transfer is becoming ever more prevalent, even if actual use rates among the EU15 countries still leave some room for improvement, depending on the application under observation. The share of GPs engaging in patient data transfer went up considerably from 17% to 63% in the past five years. Transfer of laboratory results such as blood sample or ECG data occurs much more often today (54%) than it did five years ago (11%). Transfer of administrative patient data to reimbursing organisations and to other health care providers each went up to 22% from 6% and 5% respectively in 2002. In relation to transfer of medical patient data there has been an increase from 8% to 28%. ePrescribing was done by about 3% of the EU15 GPs in 2002 and is done today by about 11%.
A comparison with the 2007 results for all 27 EU Member States shows that the enlargement of the Union did not have much impact — neither positive nor negative — on the developments in the past five years. The 2007 figures for the EU15 are in most cases nearly identical to the EU27 figures. Deviations of 5 percentage points and more can be found in relation to the search for prescribing information and the general transfer of patient data.

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The role of eHealth policy strategies

National eHealth policy strategies seem to have a positive impact on spread of ICT infrastructure and eHealth use.

An eHealth policy strategy can today be found in all EU Member States, either as a dedicated approach or as part of larger initiatives, e.g. targeting the health system as a whole or the eGovernment domain. These strategies seem to play an important role in increasing eHealth deployment and take-up among General Practitioners.
Based on data about eHealth strategies collated in the framework of the eHealth ERA project (http://www.ehealth-era.org) this study found varying degrees of sophistication. The maturity of the strategies ranges from one year to more than ten years. While some countries turned to a dedicated eHealth strategy only recently — sometimes developed from earlier and wider Information Society or health system action plans — in others second or third generation strategies can be found. The scope of the activities carried out either directly under the auspices of a strategy or in parallel varies. In some Member States the particular focus is still very much on the deployment of suitable eHealth infrastructures, while others are deeply involved in setting up their own Electronic Health Record systems, in some cases building on precursor projects of limited scope. But even in countries with relatively new strategies the aim is often high — i.e. for the implementation of EHRs and fully networked health information systems.
All in all, the current eHealth strategy sophistication level matches well with the actual eHealth deployment and use among General Practitioners found by this study. In some countries, such as Denmark or France, there is a longstanding eHealth policy tradition while at the same time eHealth use is either high (DK) or average (FR). In other countries, such as Latvia, eHealth has arrived on the agenda only recently and use is therefore not yet very widespread. A third example is Estonia, where there is a high use of certain eHealth applications — mainly for data storage and consultation support — which can be explained by a rather mature legislation obliging primary carers to use computers, while attention has been given to electronic transfer of

medical patient data only recently and usage rates are therefore still rather low.

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