



# Benchmarking ICT use among General Practitioners in Europe 2007

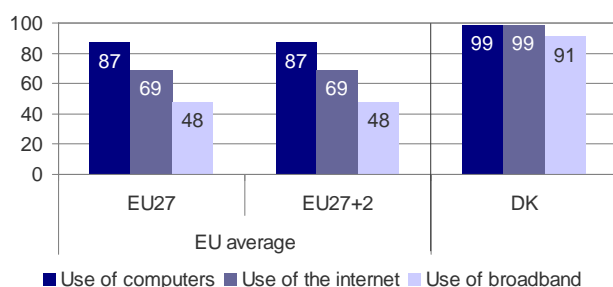
## Country Profile: Denmark

### Key findings: eHealth among GPs in Denmark<sup>1</sup>

Denmark is one of the frontrunners — mostly the top performer — of ICT use among General Practitioners in the European Union. This concerns both the availability of ICT infrastructure (computer, Internet) and the use of ICT for different eHealth-related purposes.

In terms of infrastructure, 99% of the Danish GP practices use a computer. The same share of practices disposes of an Internet connection. In Denmark, broadband represents the usual form of access to the Internet with 91% of GP practices resorting to broadband connections.

#### ICT Infrastructure in Danish GP practices



**Base:** All GPs. **Indicators:** R4, C1, C2 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

In contrast to most other European countries, Denmark scores well with regard to all aspects of eHealth use covered by the survey. This relates to the local use of a computer for consultations and data storage as well as to the networked transmission of patient data. With regard to the availability of a computer in the consultation room as compared to the actual use of the PC in consultations with the patients, there is nearly no gap as both availability and use are nearly universal (98% of practices and 92% of practices respectively).

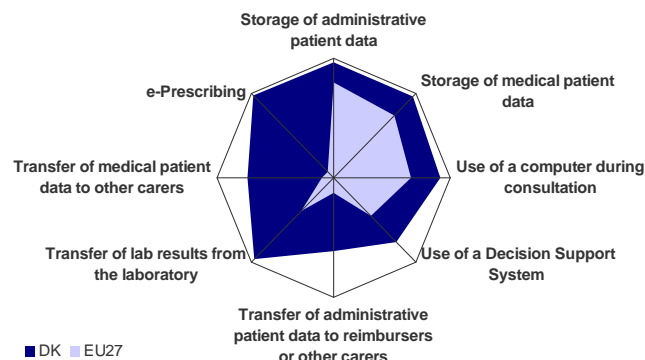
<sup>1</sup> **Disclaimer:** Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the following information. The views expressed are those of the authors and do not necessarily reflect those of the European Commission. Nothing in this document implies or expresses a warranty of any kind. Results should be used only as guidelines as part of an overall strategy.

Local Electronic Health Records are common practice in Denmark. Medical patient data is stored in digital form in more than 90% of GP practices. This means that Denmark shows results that are well above the EU27 averages with respect to the storage of all types of patient data. Especially remarkable is the high share of stored radiological data which in Denmark is the reality in 98% of the GP practices. This stands in stark contrast to the average storage rate of radiological data, which is at 34% in the EU27.

In Denmark the use of electronic networks for the transmission of medical patient data is well established and widespread. 96% of GP practices receive analytic results from labs and 74% exchange data with other health care providers. In both cases Denmark holds the top position vastly above the EU27 average exchange rates for medical data. As far as ePrescribing is concerned, Denmark is one of only three EU member states where ePrescriptions are extensively used. Also with regard to this point, Denmark holds top a position as 97% of GP practices reported the regular utilisation of ePrescribing.

One reason for the frontrunner position currently held by Denmark in the eHealth domain may be the Danish history of dedicated eHealth strategies that ranges back to 1996. The development of Electronic Patient Records (EHR) in particular has been launched already in 1996. The most recent eHealth strategy that was conceived in 2003 provides for the comprehensive implementation and the further upgrading of EHRs. Plans are made for the extension of the ePrescribing system to arrive at a personal medication profile stored on a national prescription server and 29 individual initiatives in the eHealth domain have been agreed on.

#### eHealth Use by GPs in Denmark



**Indicators:** Compound indicators of eHealth use (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## ICT Infrastructure in GP Practices

An appropriate ICT infrastructure in the GP practice lays the ground for different eHealth uses and applications (such as storage of patient data, its exchange etc.). It is therefore the baseline from which a European GP can start his or her professional activities in the eHealth domain.

ICT infrastructure as understood here entails

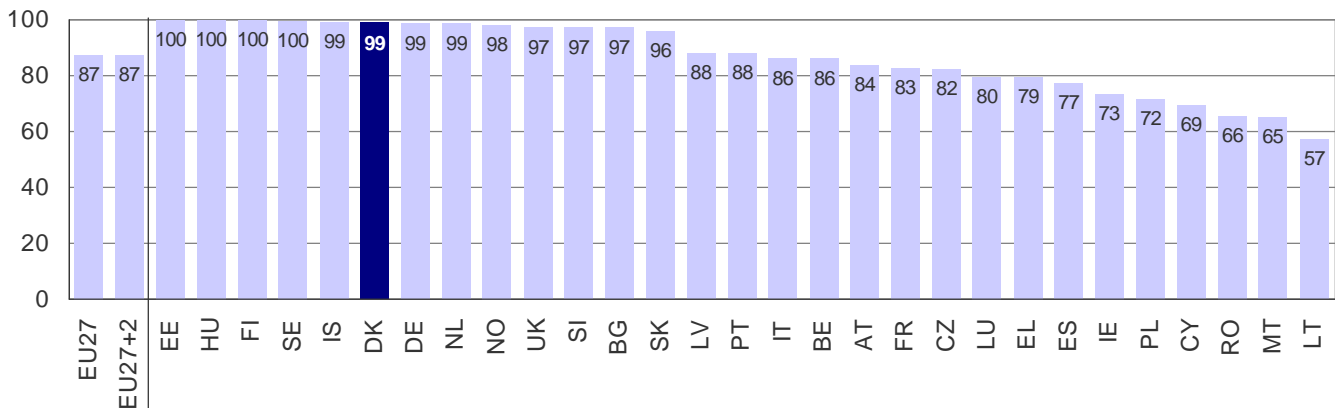
- the availability of one or more computers in the practice;
- a connection with the Internet; and
- the availability of a broadband connection.

## Use of computers

With regard to the use of computers in GP practices, Denmark is among the top performers as 99% of GP practices are equipped with one or more PCs. This result puts Denmark on a par with 13 other EU countries where a computer penetration rate of nearly 100% is reached. All in all 24 countries show an availability rate of more than 75%, a fact that clearly indicates that computers have arrived in EU GP practices. They are becoming more and more an essential and unquestioned part of practice fixtures.

Denmark clearly fulfills the infrastructural prerequisite for the successful implementation of eHealth applications.

### Use of Computers in GP Practices in Denmark



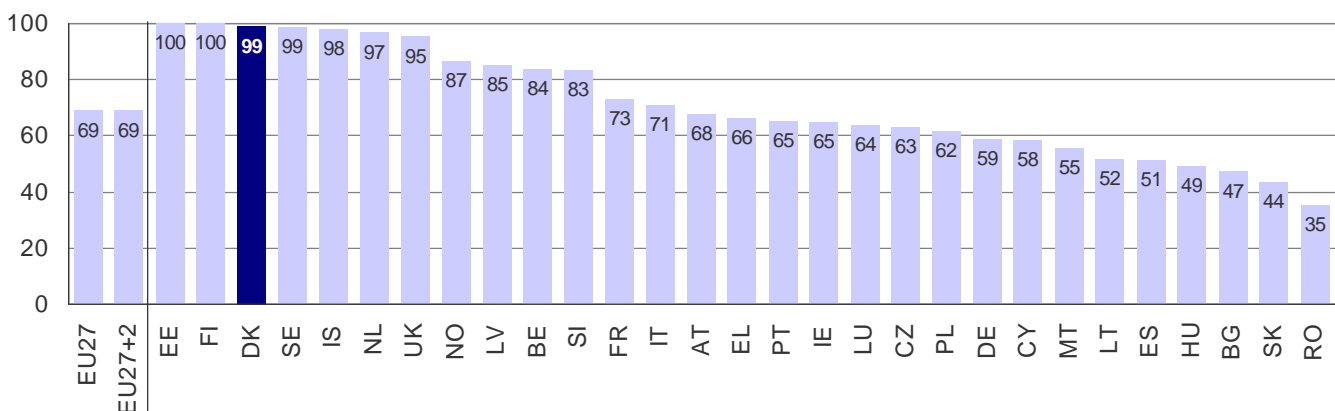
**Base:** All GPs. **Indicator:** R4 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

A connection to the Internet or any other dedicated network is a prerequisite for eHealth applications that entail data transmissions and information retrieval. In this case Denmark again scores extremely well. 99% of Danish GP practices are connected to the Internet. As a result Denmark is again part of the frontrunner group together with Estonia, Finland, Sweden, the Netherlands and the United Kingdom.

On average about 70% of the EU GP practices have an Internet connection. However, large differences between member states persist and there are still a number of countries with less than 75% practices having Internet access.

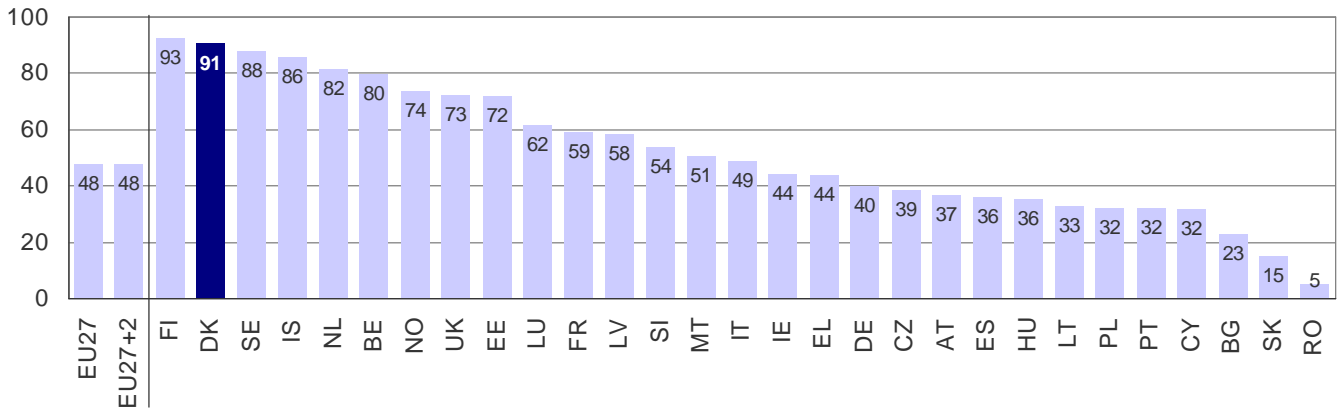
In Denmark, 91% of the practices use a broadband connection. As regards broadband, Denmark is outnumbered only by Finland, where 93% of practices make use of the advantages that broadband connections can offer. Denmark thus positions itself clearly above the EU average of 48% of broadband connections. The differences regarding bandwidth across the EU27 member states remain high and there are still several countries where less than 50% of GP practices have broadband connections.

### Use of the Internet in GP Practices in Denmark



**Base:** All GPs. **Indicator:** C1 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## Danish GP Practices Using a Broadband Connection



**Base:** All GPs. **Indicator:** C2 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## Use of eHealth Applications

With about 87% of European GP practices having a computer and about 69% being connected to the Internet, the question as to if and how this ICT infrastructure is used. The following sections deal with the use of ICT for different purposes in a GP practice's day-to-day business.

### Electronic patient data storage

Electronic patient data storage is very usual in Denmark as 99% of GP practices store at least one type of individual patient data. Medicamentations and lab result are stored in 99% of all GP practices.

Nearly all practices that use local EHRs also store radiological images (98%), information on symptoms and medical history (97%), data on treatment outcomes, basic medical parameters (96%) and examination results (95%). Only slightly less used are the possibilities for the storage of diagnoses (93%) and data on vital signs measurements (92%).

Denmark sets the trend for the wider use of local EHRs. It scores above the EU27 average use rates not only for some, but for all types of data under observation. Even the storage of treatment outcomes and radiological images, which is a lot less common on average (65% and 34% respectively), is made use of in just about all GP practices in Denmark. The only other EU27 member state showing a similar usage pattern is Finland.

## Electronic Patient Data Storage in Denmark:

### Storage of Different Types of Individual Patient Data by GPs storing electronic medical patient data

	EU27	EU27+2	BE	BG	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	IS	NO
Diagnoses	90	91	93	97	89	93	99	94	74	89	89	79	85	93	58	65	88	99	80	96	88	73	77	69	89	94	81	97	94	100	100
Medications	90	90	93	93	88	99	93	86	71	94	91	95	95	90	50	8	95	99	80	97	84	55	85	36	43	85	96	95	98	100	99
Basic medical parameters	83	83	91	80	82	96	80	58	65	88	93	85	85	86	42	14	90	96	73	94	80	35	63	49	31	71	90	82	98	90	84
Lab results	79	80	96	83	58	99	78	58	64	81	77	82	75	76	42	17	52	91	66	95	79	53	59	63	20	26	98	97	96	93	98
Symptoms/reasons for encounters	77	77	89	94	70	97	67	59	68	82	92	80	64	86	42	28	88	96	70	96	82	46	73	32	33	60	96	95	92	98	95
Medical history	75	75	89	93	74	97	52	55	73	86	89	84	70	83	50	13	90	93	75	95	69	46	63	34	18	48	98	90	95	100	97
Examinations and results	75	75	87	86	62	95	56	51	64	81	81	68	82	67	42	20	60	93	66	95	76	55	67	58	15	35	98	76	88	92	98
Vital signs measurements	74	74	88	93	67	92	59	51	62	80	88	73	69	88	42	12	76	93	64	92	63	34	70	52	15	51	93	73	92	79	85
Treatment outcomes	65	66	81	78	68	96	52	46	62	76	66	53	58	71	50	26	62	92	58	94	77	49	52	25	14	47	88	78	77	76	91
Radiological images	34	35	53	50	20	98	15	47	42	55	65	23	5	29	42	2	43	70	34	43	49	40	29	12	8	10	95	34	30	87	54

**Base:** GPs storing electronic medical patient data **Indicator:** A2 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## Electronic exchange of patient data via the Internet or other dedicated networks

Denmark is the outstanding European frontrunner with regard to the exchange of medical data with other carers and also when it comes to receiving analytic results from laboratories. 74% of the practices exchange medical data with other care providers or professionals, compared to 10% on average. Comparable use rates are reached in no other country. Finland takes second place with 55% of practices exchanging data with other care providers.

96% of GP practices in Denmark receive laboratory results in digital form via the Internet based Danish Healthcare Data Network. The advantages to be gained from networking with regard to the transfer of lab results appear to be sufficiently substantial to result in a relatively high uptake of this mode of communication across Europe. On average 40% of the GP practices in the EU receive analytic results from labs via different networks.

Telemonitoring has not yet arrived on the scene neither in Denmark nor in the EU as a whole. In Denmark less than 1% of the practices use it. The highest share is realised in Sweden, where 9% of GPs report making use of telemonitoring. The only other countries with a mentionable usage rate of

telemonitoring are the Netherlands and Iceland, scoring 3% each.

A similar pattern can be discovered with regard to the exchange of medical patient data across borders. In this case the Netherlands shows the highest usage level with 5% of practices taking part in cross-border transmissions of medical data. Denmark, Cyprus, Malta, France and Greece come in second with scores between 2% and 3%.

The low level of trans-border data sharing may be explained by the fact that the health care jurisdiction is explicitly under the jurisdiction of the individual Member States. Due to the differing health care systems in EU member states, it is unsurprising that, with only very few exceptions, planned treatment is provided principally in the country of residence. In Denmark however, it can be assumed that the low level of cross-border data transmissions will be raised in the upcoming years. Currently Denmark is participating in the Baltic eHealth project. The basic infrastructure having been established, Denmark, Norway, Sweden, Lithuania and Estonia plan to consolidate their cross-border network and to increase and enhance the services available through it.

**Electronic Exchange of Different Types of Medical Patient Data in Denmark**

	EU27	EU27+2	BE	BG	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	IS	NO
Medical data with carers	10	11	13	3	6	74	4	1	4	13	5	2	7	3	0	3	0	2	7	26	12	2	8	2	0	1	55	13	26	17	35
Analytic results from labs	40	40	73	5	25	96	63	39	3	30	33	40	8	10	1	8	27	12	11	84	37	10	1	4	10	5	90	82	85	52	88
Telemonitoring	1	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	0	0	0	3	1	0	1	0	0	0	1	9	2	3	0
Medical data across borders	1	1	1	1	1	2	0	0	2	1	2	0	0	3	0	0	0	0	3	5	1	0	0	0	0	0	0	1	0	0	0

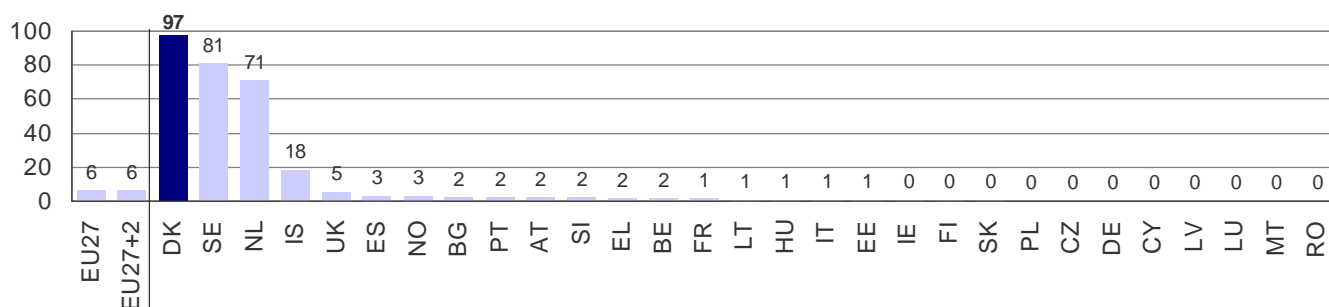
**Base:** All GPs. **Indicator:** D1 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## ePrescribing

Denmark is one of three EU countries where ePrescribing is a reality. In this domain the country again takes first place with 97% of the practices using ePrescribing. Apart from the other EU frontrunners Sweden and the Netherlands, and Iceland outside the EU27, none of the countries shows adoption levels that rise above 5%.

Markedly, even in Denmark the more complex features of ePrescribing systems, such as medication mix intolerance and adverse reaction alerts, are not yet implemented in routine practice. There are plans though, to register all purchases of prescribed drugs in an electronic Personal Medicine Profile. Aimed at the improvement of drug therapies, the profile will be accessible to physicians, pharmacies and patients via the National Health Portal.

**Use of ePrescribing by GPs in Denmark**



**Base:** All GPs. **Indicator:** D1 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## Coded data entry

Denmark is on a par with the EU average when it comes to the use of data coding for the storage of electronic patient data. 19% of the practices store data only in a coded format, 31% use only un-coded data while nearly half of the practices (49%) store both coded and uncoded data. For the latter, a clear estimation of the coded/uncoded share is not possible.

Coded data entry in this context refers to the use of coding systems such as the ICD (the WHO's International Classification of Diseases) that allows to store a disease or diagnoses as a code rather than as a textual description. Only in a handful of countries the share of practices using solely coded data is above one third. Rather, most practices use a combination of coded and uncoded data.

**Use of data coding for the storage of electronic medical patient data by Danish GPs**

	EU27	EU27+2	BE	BG	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	IS	NO
Coded data only	21	21	29	22	6	19	19	35	20	35	6	10	22	10	25	68	2	6	14	37	11	30	18	24	25	36	2	10	24	41	14
Un-coded data only	30	30	36	27	56	31	33	5	58	26	66	50	26	64	25	8	60	5	39	13	55	25	23	26	34	24	26	29	5	5	18
Both coded and un-coded data	45	46	33	50	33	49	48	59	16	36	19	34	50	14	50	13	24	88	25	49	31	19	49	43	33	36	72	54	70	52	64

**Base:** GPs storing patient data. **Indicator:** A4 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## Exchange of administrative patient data

Data transfer via networks concerns not only medical data, but can also be used for administrative purposes, i.e. for data exchanges between the GP practice and reimbursers or other care providers.

Again, Denmark takes an outstanding position in both areas, the exchange of administrative data with other carers being implemented by 74 % of practices and 48% of practices making use of the possibility to share administrative data ex-

change with reimbursers. As far as the data exchange with reimbursers is concerned, only the Netherlands and the United Kingdom show nearly equally high usage rates reaching 45% and 43% respectively. On average the transfer of administrative data with other care professionals amounts to no more than 10%. Data exchange with reimbursers is slightly more frequent with 15% of GP practices in the EU27 making use of this solution.

**Exchange of Administrative Patient Data in Denmark**

	EU27	EU27+2	BE	BG	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	IS	NO
Admin data with other carers	10	10	13	6	6	74	3	1	4	6	4	4	3	3	0	10	0	1	7	28	7	6	6	6	3	2	21	16	32	12	25
Admin data with reimbursers	15	15	3	10	13	48	4	5	3	2	26	15	1	3	0	21	0	5	3	45	19	23	5	2	14	4	8	8	43	1	19

**Base:** All GPs. **Indicator:** D1 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

## Data exchange and security

Data security is an important issue when sensitive, identifiable patient data is stored and transmitted electronically. There are a number of different techniques to make the handling of patient data secure, including password protection of the computer system and of transmitted files, encryption of transmitted files and e-mails as well as the use of e-signatures.

Danish GPs show very high use rates for all of the security measures under observation. The use of e-signatures in particular is quite remarkable: 93% of the Danish GP practices use e-signatures. This is not only clearly above the EU average of 19% but — with some margin — the highest use rate of all countries under observation. The second rank is taken by Belgium with 68%.

A similar situation can be observed in relation to the other security features. 68% of Danish GP practices use encryption software to protect transmitted files and e-mails. This is the

highest rate reached in the survey, with the EU27 situated at a considerably lower rate of only 42%. With regard to this indicator however, Denmark ranks only second next to the Estonia, where 85% of practices use encryption methods. Password protection of transmitted files, which amounts to a less complex security measure, is used by 71% of Danish practices. All in all in the EU27 only slightly more than half of all practices use password protection for transmitted files.

When it comes to password protected access, the most readily available form of data protection, Denmark - where 97% of practices use password protection - is only in a middle position, scoring slightly above the EU27 average of 94%.

## GPs Use of Security Features in Denmark

	EU27	EU27+2	BE	BG	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	IS	NO
Password (PW) protected access	94	94	97	92	97	97	95	100	59	93	88	97	100	72	100	92	96	100	94	95	94	86	97	80	92	94	100	98	98	100	100
PW protection of transmitted files	57	57	60	77	65	71	63	76	40	56	39	59	70	41	100	45	54	57	47	62	60	63	62	62	64	69	56	27	58	83	59
Encryption of transmitted files	42	42	64	49	31	68	53	85	22	35	36	30	45	19	50	32	42	31	21	36	46	40	26	44	32	28	14	20	42	37	58
Use of e-signatures	19	19	22	68	49	93	7	58	15	24	16	11	40	13	0	12	12	7	9	28	12	11	5	12	20	19	16	41	10	43	48

**Base:** All GPs. **Indicator:** D4 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

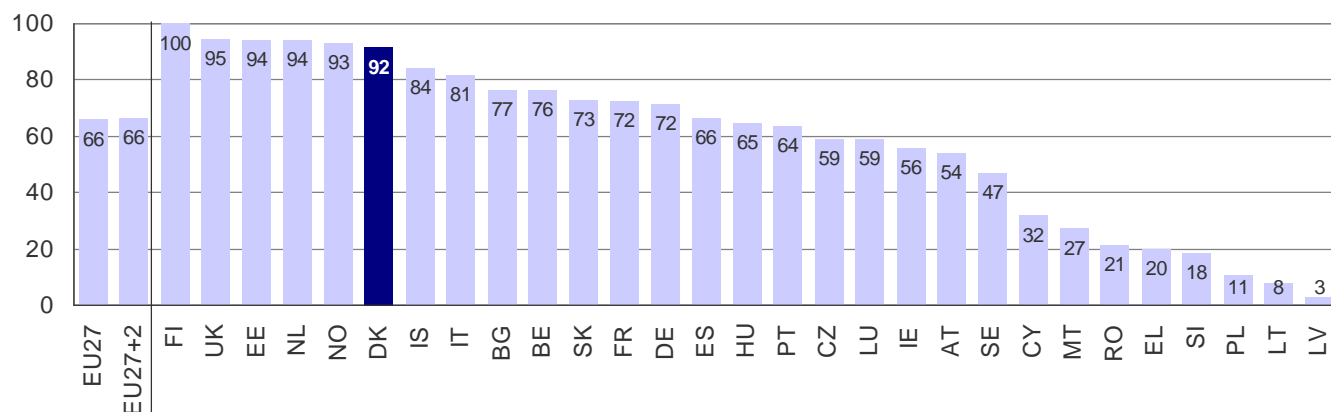
## Computer use in consultation

Apart from the storage and exchange of patient data, a computer can also be used in direct interaction with the patient, i.e. during the consultation in the practice. It can be used to display a patient's file to the practitioner, to provide supporting information when making treatment or medication decisions, but also for the explanation of medical issues to the patient, e.g. by means of a graph, photo or animation.

92% of the GPs in Denmark use a computer in patient consultation. Higher utilisation rates inside the EU can only be

found in the Netherlands, Estonia, the United Kingdom and Finland (here, 100% of the GPs use a computer in consultation). With regard to computer use in consultations with the patients, Denmark scores clearly above the EU27 average of 66%. This indicator shows a considerable gap between front-runners with more than 90% of computer use and the countries following or lagging behind. In seven countries computers are used for consultation with the patients in less than 30% of the GP practices.

## Computer Use in Consultation with the Patient in Denmark



**Base:** All GPs. **Indicator:** B2 (cf. annex for more information), % values. **Source:** empirica, Pilot on eHealth Indicators, 2007.

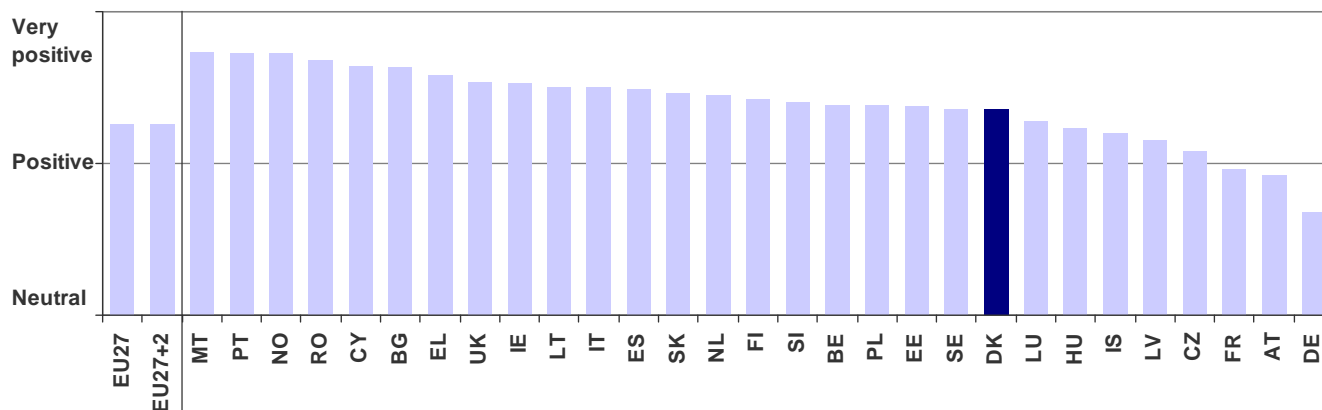
## Attitudes and Impacts

What role do ICTs play in the day-to-day work of a European General Practitioner? What is a GPs general attitude towards ICT and what facilitators and barriers towards a wider uptake of eHealth do they perceive? What are the impacts of eHealth?

GPs in Denmark are quite positive when it comes to the question whether ICT really and tangibly improves the quality of health care services, as are basically all GPs in Europe. On a scale ranging from a very negative to a very positive attitude, Danish GPs can be found somewhere between positive and very positive. When looking at the other countries it is interesting to see that in none of the 29 countries under observation a negative attitude is prevalent.

This positive attitude seems to have nothing to do with whether a country is more of an eHealth laggard or a frontrunner. Those countries displaying an only moderately positive attitude (such as Germany, France and Austria) are all average eHealth performers. At the same time, GPs using eHealth and practising in countries that can be considered eHealth laggards (e.g. Greece, Cyprus or Romania) show an attitude that is more positive than the EU average. Since differences between the countries in relation to the perception of facilitators and barriers as well as eHealth impacts are only small, the following analysis focuses on the EU average results, reporting national deviations where they occur.

## GPs General Attitude Towards ICT Use in Health Care in Denmark



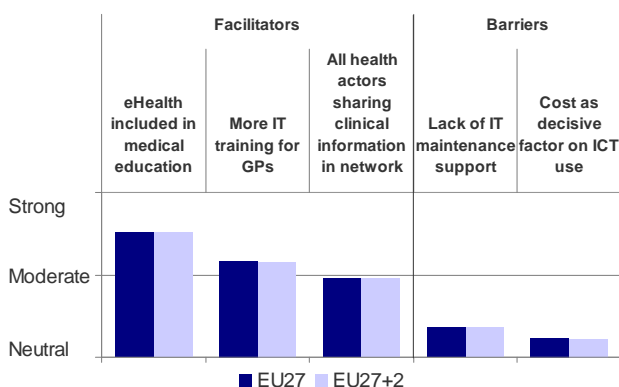
**Base:** GPs using computers **Indicator:** F1 (cf. annex for more information), attitude scores. **Source:** empirica, Pilot on eHealth Indicators, 2007.

### Perception of facilitators and barriers

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 related to IT training provided 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.

As regards the electronic exchange of clinical information, GPs in Germany, Poland, Iceland and Norway are less positive about this than the European average, but still mostly agree to a certain extent. On the other hand, Greek, Lithuanian and Romanian GPs are considerably more positive on this issue than their European peers. In relation to IT training for GPs, practitioners in Denmark, Germany, Hungary and the Netherlands see this as a less important issue.

### GPs Perception of Facilitators and Barriers in the EU27



**Base:** GPs using computers. **Indicator:** F1b (cf. annex for more information), agreement scores. **Source:** empirica, Pilot on eHealth Indicators, 2007.

When it comes to potential eHealth barriers, most practitioners seem — on average — to consider neither a lack of IT maintenance support nor cost as a factor that seriously hampers their use of ICT. In some of the Eastern European Member States, GPs are however considerably more critical about both issues. A lack of IT maintenance support is seen as a barrier to eHealth — at least to a certain extent — by a majority. In these countries cost are perceived as a barrier to

eHealth by a noticeably larger number of GPs than in the EU average.

Noticeable deviations from these patterns can also be found in Greece, Spain and Ireland, here a majority of GPs somewhat agrees to the statement that a lack of IT support has a negative impact on eHealth use.

### Perception of impacts

In Denmark the perception of eHealth impacts resembles the general pattern found in the EU27. Danish GPs are — in relation to all impact indicators — among those reporting the most positive effects. This is especially remarkable as they also represent one of the groups with the most extensive experience in this domain. The general impact perceptions show quite a clear pattern: the GPs are most positive about the administrative impacts of ICT use in health care, namely impacts in relation to their personal or practice staff working processes.

When it comes to patient-related or medical impacts a more ambivalent picture emerges. For every GP being positive about those impacts, there is at least one other GP not perceiving any benefit. This is for instance the case in relation to impact on the quality of diagnosis and treatment decisions: here about half of the GPs see positive impacts as compared to the other half seeing no impacts. In case of doctor-patient relationship and the workload of the support staff — including nurses etc. — between 16% and 25% say that the impacts are actually negative, i.e. that the relationship to the patient has deteriorated or that the workload of the support staff has gone up. The latter could indicate that the brunt of additional effort created by ICT use is not borne by the GP but by the other workers in the practice. This is also not contradicted by the perceived improvement of working processes. For the practitioner this may be due to the fact that they are not burdened with additional work generated by ICT and for the rest of the practice staff improved working processes might mean that an overall increased workload is simply handled more efficiently. As far as Denmark is concerned, a slightly different picture emerges: one in two GPs considers the introduction of IT to have decreased the workload on their staff (EU27 average being one in four) and only 20 % perceive a negative impact. This result might be indicative of a relatively well established eHealth system where tasks that require extra work input during the introductory phase of new IT solutions have already become part of daily routines. About one-third of the practitio-

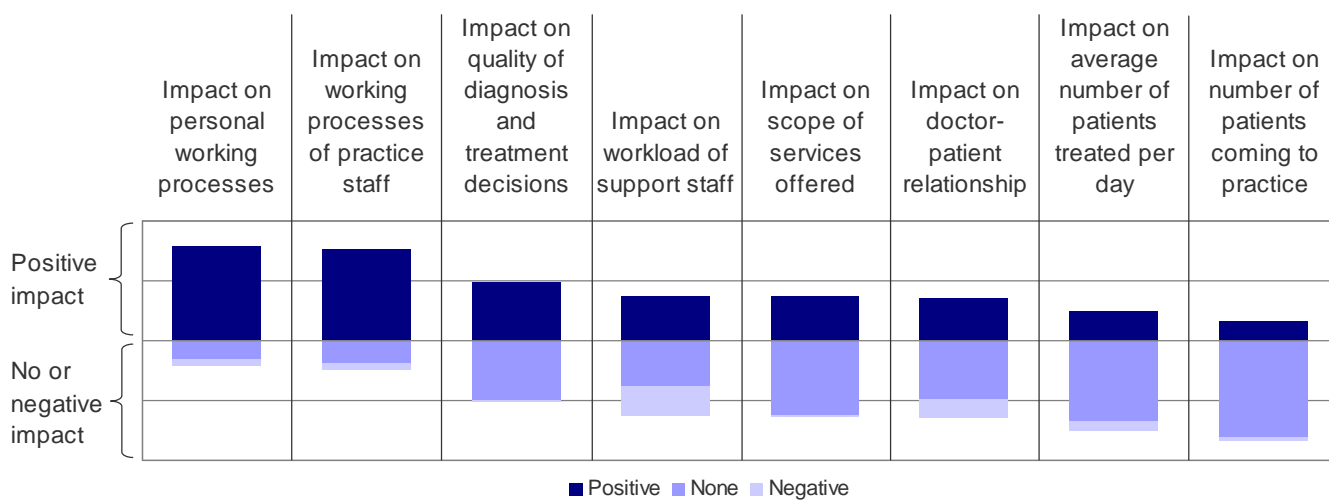
ners state that the scope of services offered by the practice actually increased due to the use of IT systems and software. In Denmark this hold true for over 50% of the practitioners. It can be assumed that for these GPs IT is not just a tool to make existing — e.g. administrative — processes more efficient but to broaden the range of their activities.

The last two areas under observation here are the impact on the number of patients treated as well as on the number of patients coming to the practice. Although across Europe most GPs do not perceive any impact in relation to both areas, in Denmark a remarkable percentage of GPs noticed a positive impact of IT. 46% of GPs reported an increase in patients treated per day, clearly above the EU27 average of 25%. Positive impacts on the number of patients coming to the practice, in Denmark 30% of GPs attributed a positive impact to the

introduction of eHealth solution application, two times more than the EU27 average. This might be due to the improved working processes internal to the practice allowing for a larger number of patients to be received per day. These improvements in working processes were experienced by 92% of the Danish GPs.

GPs from eHealth frontrunner countries tend to be somewhat more positive about impacts on personal and staff working processes and also about impacts on the quality of diagnosis and treatment decisions. They perceive a higher increase in the scope of services offered by their practice compared to their colleagues in the other countries. At the same time, negative impacts on the workload of the practice staff are deemed to be stronger.

**GPs Perception of eHealth Impacts in the EU27**



**Base:** Users of electronic records, or access to health networks, or electronic patient data exchange **Indicator:** F1 (cf. annex for more information), attitude scores. **Source:** empirica, Pilot on eHealth Indicators, 2007.

**Making Sense of eHealth Use Patterns in the Member States**

Denmark can be regarded as the European frontrunner in eHealth use among General Practitioners. In all areas under observation (use of local and networked EHRs, exchange of administrative patient data, and computer use in consultation), usage rates are among the highest found in the EU27, Iceland and Norway. As regards patient data transfer, Denmark is the top performer including in the area of ePrescribing which otherwise is done to a larger extent only in Sweden and the Netherlands.

**Danish policy strategies with eHealth relevance**

National Strategy for Information Technology in the Healthcare System (2003 - 2007)

National Strategy for Information Technology in Hospitals (1999)

Strategy for the development of Electronic Patient Records (1996)

Denmark has a history of dedicated eHealth strategies (cf. below) ranging back to 1996, when a strategy for the development of Electronic Patient Records (EPRs) was launched. The third and most recent generation came about in 2003 and comprises 29 initiatives jointly borne by a number of different actors (including the Ministry for Interior and Health (since

November 2007 Ministry of Health and Prevention), the National Board of Health, the Association of County Councils and the Copenhagen Hospital Corporation, MedCom and the Danish Standards Association).

A core element of the strategy is the development and ultimate implementation of Electronic Health Records. Future plans encompass the extension of the existing e-Prescription scheme to arrive at a personal medication profile stored on a national prescription server, the making available of patient data across county boundaries on a look-up basis and the expansion of cross-border networks. In the latter area, Denmark is already active in the Baltic eHealth project for telemedicine across national borders in the Baltic Sea Region.

Other factors having a bearing on eHealth use include a fiscal agreement between the government and the county hospital owners requiring the use of Electronic Health Records in all Danish hospitals since 2005, the existence of a Danish Healthcare Data Network (VPN via Internet) based on a precursor county/local authority intranet, as well as the National Health Portal Sundhed.dk providing a single access point to Danish healthcare services for citizens and professionals.

## ANNEXES

### The Pilot on eHealth Indicators Study

The “Pilot on eHealth Indicators” study was carried out by empirica in association with IPSOS on behalf of the European Commission, Information Society and Media Directorate-General. The purpose of the present study was to measure the availability and use of ICT by primary care physicians in the EU27 and EEA countries, achieved by means of a survey of primary care physicians on their use of ICT for communicating with patients and between primary and secondary care and other eHealth agencies. Through this survey up-to-date information and data on eHealth developments was obtained. In addition 29 Country Briefs for each of the Member States, Norway and Iceland were developed.

### The Final Report

The Final Report of the study puts together all the results from the General Practitioner survey, including many indicators not used for this Country Profile. It also contains an extensive analysis of data, drawing a coherent picture of ICT use among General Practitioners in Europe.

#### Indicators used

The Final Report contains an indicator annex listing all statistical indicators covered by the survey, including those used for this Country Profile. The indicator codes used in the footnotes of the graphs and tables (e.g. B2, C1 etc.) can be used to identify the corresponding indicator in the list.

### Methodology Report

#### The survey

Data used for this Country Profile were collected by means of a survey of primary care physicians and their use of ICT with patients and between primary and secondary care and other health agencies.

The survey was carried out in all 27 Member States of the European Union and in Norway and Iceland. The fieldwork took place in the third quarter of 2007. It was coordinated by the German Ipsos branch Ipsos GmbH, Mölln and was conducted in cooperation with local partner institutes.

The survey was carried out in form of Computer-Aided Telephone Interviewing (C.A.T.I.). Exception is Malta where face-to-face interviews using P.A.P.I. methodology (Paper-and-Pencil Interviews) were conducted. In Sweden CATI interviews were used, until the sample was exhausted due to the specificities of the Swedish health system. The remaining interviews were accomplished through Computer-Aided Web-Interviews.

#### Universe/ Target Person and Sampling

The universe consisted of all General Practitioners in the respective countries. From the universe a random sample of practices / institutions with a quota on region and - where possible - private practice / institution was drawn. The target respondent within the practice / institution was selected via a random procedure if more than one GP were present. In total, 6,789 interviews were achieved. The sampling was done in a decentralised way and by each of the partner institutes.

## Number of Interviews Conducted

	Country	Interviews
BE	Belgium	318
BG	Bulgaria	206
CZ	Czech Republic	304
DK	France	261
DE	Germany	253
EE	Estonia	150
EL	Greece	315
ES	Spain	325
FR	France	302
IE	Ireland	206
IT	Italy	290
CY	Cyprus	72
LV	Latvia	177
LT	Lithuania	263
LU	Luxembourg	63
HU	Hungary	251
MT	Malta	92
NL	Netherlands	258
AT	Austria	299
PL	Poland	351
PT	Portugal	284
RO	Romania	304
SI	Slovenia	103
SK	Slovakia	261
FI	Finland	250
SE	Sweden	267
UK	United Kingdom	257
IS	Iceland	103
NO	Norway	204
	<b>Total</b>	<b>6.789</b>

#### Weighting schemes

After the fieldwork, weighting coefficients were computed giving each country a weight according to its population size in the respective group of countries: EU27+2 (for all 29 countries surveyed), EU27 (all EU Member States).

### More information

If you wish to be provided with more details, or to receive news and updates, please contact us at: [indeh \[at\] empirica \[dot\] com](mailto:indeh[at]empirica[dot]com) or get in touch with us.



empirica Gesellschaft für Kommunikations- und Technologieforschung mbH

**(Project Co-ordinator)**

Oxfordstr. 2, 53111 Bonn, Germany, Tel.: +49 228 985 30 0, [www.empirica.com](http://www.empirica.com)