



Benchmarking ICT use among General Practitioners in Europe 2007

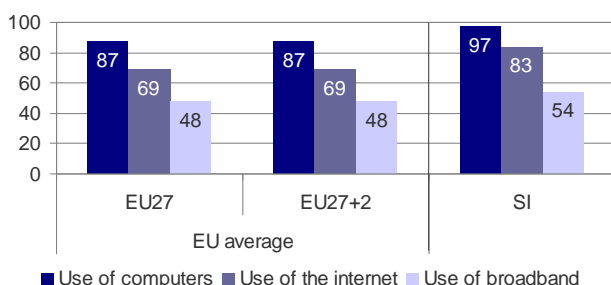
Country Profile: Slovenia

Key findings: eHealth among GPs in Slovenia¹

Slovenia shows a somehow unusual pattern of eHealth infrastructure and use rates. While in terms ICT infrastructure Slovenia can be considered a solid average performer, it scores well below average for the use of eHealth applications – an exception made for the electronic storage of administrative patient data, which is comparatively well established.

In terms of infrastructure, 97% of the Slovenian GP practices use a computer. 82% of practices dispose of an Internet connection. In Slovenia, broadband connections are quite common; they represent the usual form of Internet access in 54% of the GP practices. When compared to the other European countries, Slovenia scores at or above average for all three types of ICT infrastructure that represent the baseline for a successful uptake of eHealth solutions.

ICT Infrastructure in Slovenian GP practices



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

When it comes to the use of eHealth applications, Slovenia shows a very particular pattern. 86% of Slovenian GP practices store electronic administrative patient data. In comparison to the other EU Member States this share translates to an upper mid-field position. 83% of Slovenian GP practices store

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at least one type of medical patient data as well. However, as can be seen from the chart below, the cumulated use rate of all types of medical patient data remains far below the EU27 average. The use rates for all other eHealth applications stay substantially below European averages as well.

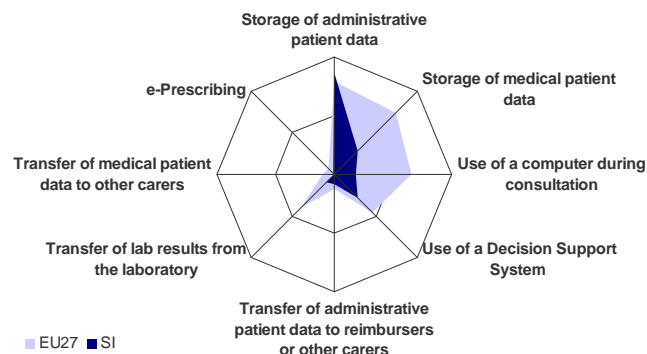
In Slovenia, computers are used in consultation with the patients only to a very limited extent (18% of the GP practices). This percentage lags far behind the EU27 average of 66%. The use of Decision Support Systems is fairly well established as 40% of Slovenian GPs use decision support systems either for diagnosis of prescribing purposes. This percentage however still corresponds to one of the lowest usage rate with regard to this indicator in the EU27.

The electronic transfer of individual patient data via Internet or other network connections has as yet not very much arrived on the agenda of Slovenian GPs. Only 10% receive laboratory results and not a single GP practice exchanges medical patient data with other carers. Neither is the exchange of administrative data via networked connections more common: only 3% of the GP practices participating in the survey reported having exchanged administrative data with other care providers while 14% exchanged administrative data with reimburses.

ePrescribing is still not a reality in most European Member States. This holds true for Slovenia as well where none of GPs having participated in the survey reported using ePrescribing.

The rather low level of eHealth use can be attributed to the fact that this policy field is relatively new in Slovenia.

eHealth Use by GPs in Slovenia



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 use cases (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

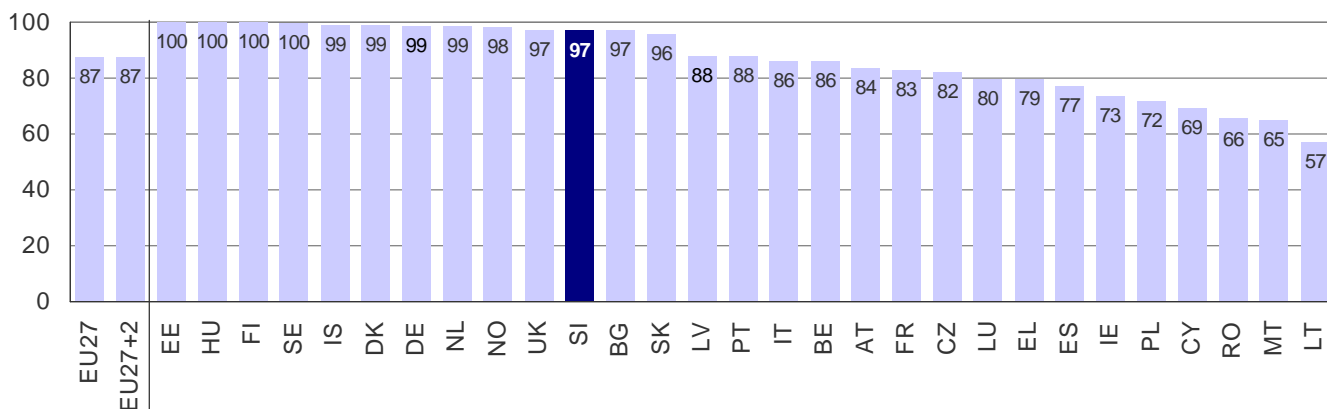
- the availability of one or more computers in the practice;
- a connection with the Internet; and
- the availability of a broadband connection.

Use of computers

Just about all GP practices in Slovenia are equipped with a computer (97%). This result positions Slovenia in the rather large group of front-runner countries where computer availability in GP practices is nearly universal. All in all, 24 of the countries covered by the survey show a penetration 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.

In Slovenia, just about all GP practices fulfil the first basic infrastructural prerequisite for the successful implementation of eHealth applications.

Use of Computers in GP Practices in Slovenia



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

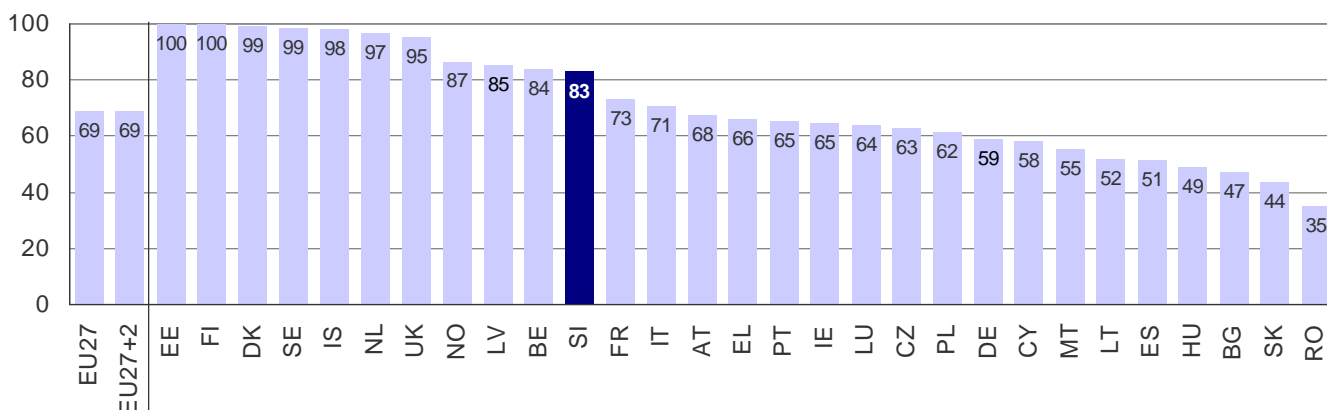
Use of the Internet and broadband

A connection to the Internet or any other dedicated network is prerequisite for all those eHealth applications that entail data transmissions and information retrieval. In this regard Slovenia attains an upper middle field position. 83% of Slovenian GP practices are connected to the Internet, a rate substantially above the EU27 average of 69%. When it comes to Internet connections, large differences between Member States persist. Front positions are held by Estonia, Finland, Denmark, Sweden, Iceland, the Netherlands and the UK, where virtually all GP practices are connected to the Internet. At the other end of the scale there are countries like Hungary, Bulgaria, Slovakia

and Romania where less than 50% of the practices dispose of an Internet connection.

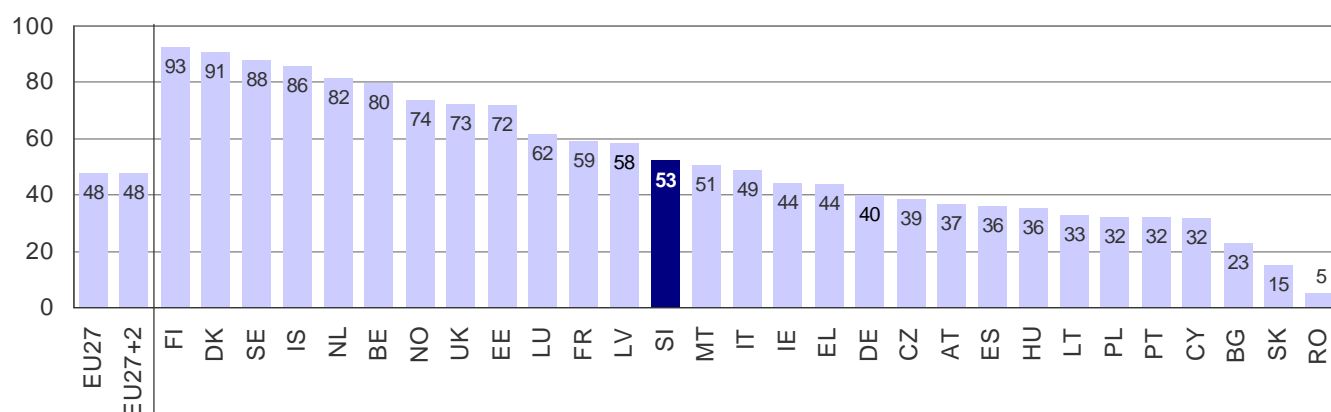
About one out of two Slovenian GP practices uses a broadband connection to the Internet. This result corresponds to the average broadband use rate in Europe. The differences regarding bandwidth remain high across the EU27 Member States. Usage rates of broadband connections span from only 5% up to 93% of GP practices. Slovenia is holding a very average midfield position, on a par with Italy and Malta. Estonia is the only Eastern European country that displays better results than Slovenia with regard to all three infrastructure indicators.

Use of the Internet in GP Practices in Slovenia



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

Slovenian 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

The storage of electronic patient data is already quite common in Slovenia, although mostly restricted to the registration of diagnoses. Of those 80% GP practices in Slovenia that do store electronic patient data, 89% store diagnosis information. Otherwise only medicamentations (43%) Symptoms (33%) and basic medical parameters (31%) are stored in more than one-third of those Slovenian GP practices that do

store electronic medical patient data. All other data types are stored to a much lesser degree. Medical history, examination results, viral sign measurements and treatment outcomes are integrated in less than 20% of local EHRs, radiological images are even stored in only 8% of the local EHRs that are in use in Slovenia.

Although the storage rates for the different data types are much lower in Slovenia than in the European Union on average, the ranking of the data types by order of their frequency for Slovenia resembles the pattern found in most European countries with diagnoses and medications stored most often and treatments outcomes and radiological images stored least often.

Electronic Patient Data Storage in Slovenia:

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

The electronic exchange of patient data via the Internet or other dedicated networks is not yet common practice; neither

in Slovenia, nor in Europe as whole. Only 10% of Slovenian GPs use network connections for the reception of analytical results from laboratories and none of the GP practices exchange medical patient data with other care providers. These figures - that compare to 40% and 10% on average in the

EU27 - place Slovenia at the tail end of the European countries. Although Slovenia, Latvia and Luxembourg are the only countries where actually none of the GP practices covered by the survey engaged in data exchange with other carers, there are 11 other countries, in which use rates for this indicator do not exceed 5%.

Telemonitoring has not yet arrived on the scene, neither in Slovenia, nor in the EU as a whole. In Slovenia not even one of the practices uses it. This compares to the highest usage rate which is realised in Sweden. Even here, not more than 9% of the GP practices offer telemonitoring services. 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. None of the Slovenian GP practices transfer any medical data across national borders. In this case the Netherlands shows the highest

usage level with however only 5% of practices taking part in cross-border transmissions of medical data. France, Cyprus, Malta, Denmark 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.

The exchange of individual patient data between the different Slovenian Health actors might intensify in the future. A first step is the development of a national health portal that is to provide for the safe and reliable exchange of medical data. The portal will be developed to connect to similar systems all over Europe.

Electronic Exchange of Different Types of Medical Patient Data in Slovenia

| | 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 | | |
| 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 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 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 | 0 | 3 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

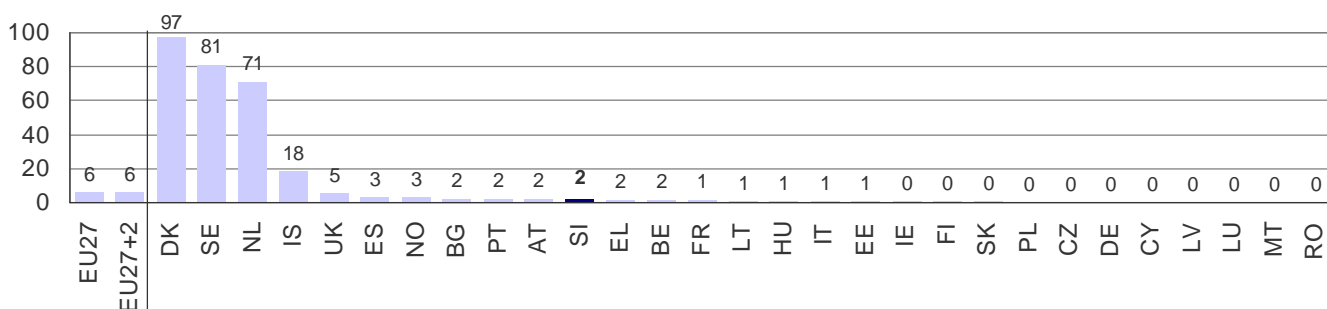
Base: All GPs. Indicator: D1 (cf. annex for more information), % values. Source: empirica, Pilot on eHealth Indicators, 2007.

ePrescribing

The only three EU Member States where ePrescribing is a reality are Denmark, Sweden and the Netherlands. Apart from this frontrunner group, only Iceland as non-EU Member States shows an adoption level that rises above 5%.

In Slovenia only 2% of the GP practices covered by the survey make use of ePrescribing.

Use of ePrescribing by GPs in Slovenia



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

Coded data entry

A quarter of the Slovenian GP practices use coded data only for the storage of electronic patient data. Around one third of GP practices report resorting to un-coded data only. Another third of Slovenian GP practices use a mix of both coded and uncoded. 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 patient data by Slovenian 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 | 49 | 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 | 44 | 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.

In Slovenia only 3% of the GP practices transfer administrative patient information to other carers. This figure stays even below the rather limited European average of 10%. As far as the networked exchange of administrative data with reimbursers is concerned, Slovenia scores somewhat better: Net-

works are used for this purpose by 14% of GP practices, a figure that corresponds to the EU27 average of 15%.

It should be noted however, that when it comes to the exchange of administrative patient data in the EU27 Member States, huge variations come into view: as regarding the exchange of administrative data with other care providers, shares differ between 0% (Latvia and Luxembourg) and 74% (Denmark). Rates for the exchange of administrative data with reimbursers also differ widely: from 0% (Latvia and Luxembourg) to 48% (Denmark).

Exchange of Administrative Patient Data in Slovenia

| | 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.

In relation to the use of security features Slovenian GP practices follow the general pattern found in the EU27. They display average results for all security issues under consideration.

Password protected access is the most readily available form of data protection and therefore unsurprisingly the method the most widely used. 94% of GP practices in the EU27 protect their computer by means of a password.

GPs Use of Security Features in Slovenia

| | 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.

In Slovenia 92% of the GP practices resort to this security technique. Password protection for transmitted files is less common: it is resorted to by 64 % of Slovenian GPs and 57% of the European GPs on average.

Other than in the case of password protection, which is technically available in many operating systems and standard office software programs, both encryption and the use of electronic signatures require a dedicated infrastructure and extra efforts by the users. This explains that on average both security techniques are less established than the use of passwords.

On average roughly 40% of the GP practices in the EU27 use encryption software for the transfer of electronic patient data. In Slovenia this percentage goes down to around 30% of the GP practices. The use of e-signatures varies widely across Europe. In Slovenia one out of five GP practices use this security feature. This use rate corresponds to the EU27 average.

Computer use in consultation

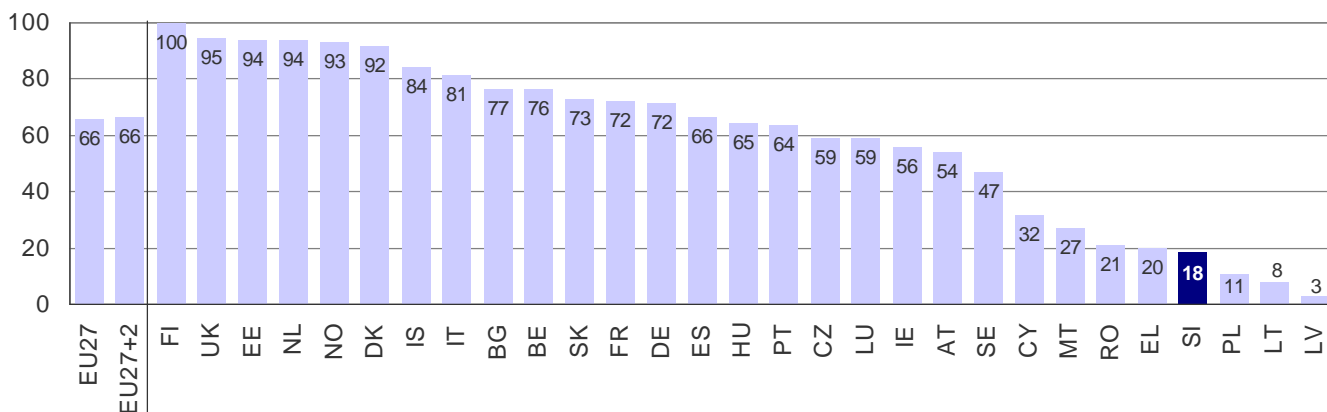
Apart from the storage and exchange of patient data, a computer can also be used in direct interaction with the pa-

tient, 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.

Slovenia belongs to the seven countries, where computers are used for consultation with the patients in less than 30% of the GP practices. As only 18% of Slovenian GP practices use a computer for consultation purposes, the country ranks well below the EU27 average of 66% and comes in fourth before last. In Slovenia, the availability versus use gap is quite considerable: while up to 72% of Slovenian GP practices are equipped with a computer in the consultation room, only 18% of the GPs - that is less than a third of those GPs that have a PC at their disposition - actually use their computer for consultation purposes when the patients are present.

When it comes to the use of a computer in consultation with the patients, a huge gap can be observed between frontrunners countries with more than 90% of computer use (Finland, United Kingdom, Estonia, the Netherlands and Denmark) and the countries following or lagging behind.

Computer Use in Consultation with the Patient in Slovenia



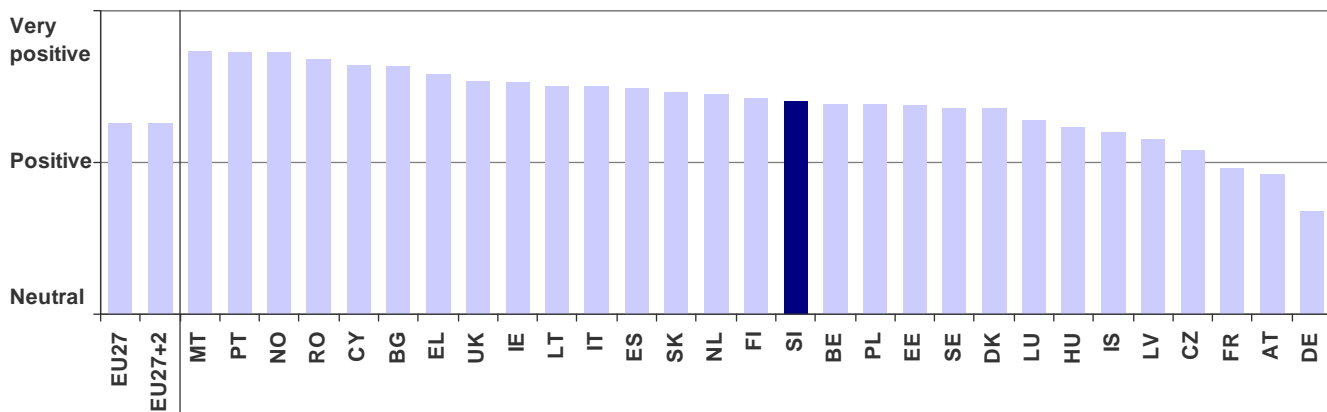
Base: All GPs. Indicator: B2 (cf. annex for more information), % values. Source: empirica, Pilot on eHealth Indicators, 2007.

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 General Attitude Towards ICT Use in Health Care in Slovenia



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

GPs in Slovenia are moderately positive when it comes to the question whether ICT really and tangibly improves the quality of health care services. 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.

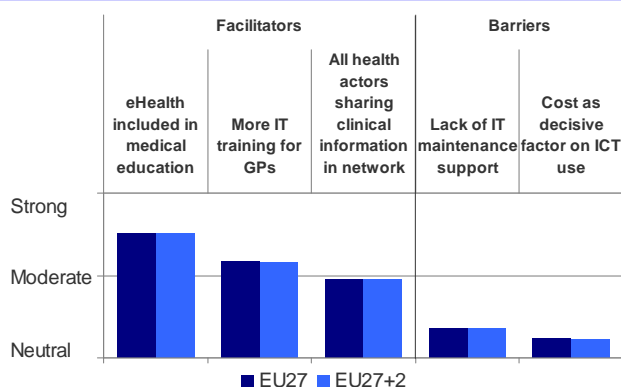
This positive attitude seems to have nothing to do with whether a country is more of an eHealth laggard or a frontrunner. Those countries displaying an only moderately positive attitude (such as Germany, France and Austria) are all average eHealth performers. At the same time, GPs using eHealth and practising 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 difference 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.

Perception of facilitators and barriers

Among the 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. A majority of Slovenian GPs on the contrary agrees that more IT training would be useful in order to enhance the use of eHealth applications. They would also favour more IT related subjects to be included in medical education.

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 major-

ity. In these countries cost are perceived as a barrier to eHealth by a noticeably larger number of GPs than in the EU on average. This holds true for Slovenia as well.

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 Slovenia the perception of eHealth impacts resembles more or less the general pattern found in the EU27.

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 Slovenia the share of GPs that are somewhat more sceptical and do not see any positive influence on the quality of treatment and diagnosis goes up as high as 70%. 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.

A substantial number of Slovenian GPs (44%) were convinced that the use of IT solutions in their practice increased the workload of their support staff. At the same time however, 72% of the GPs saw a positive influence on the working processes of their staff as well.

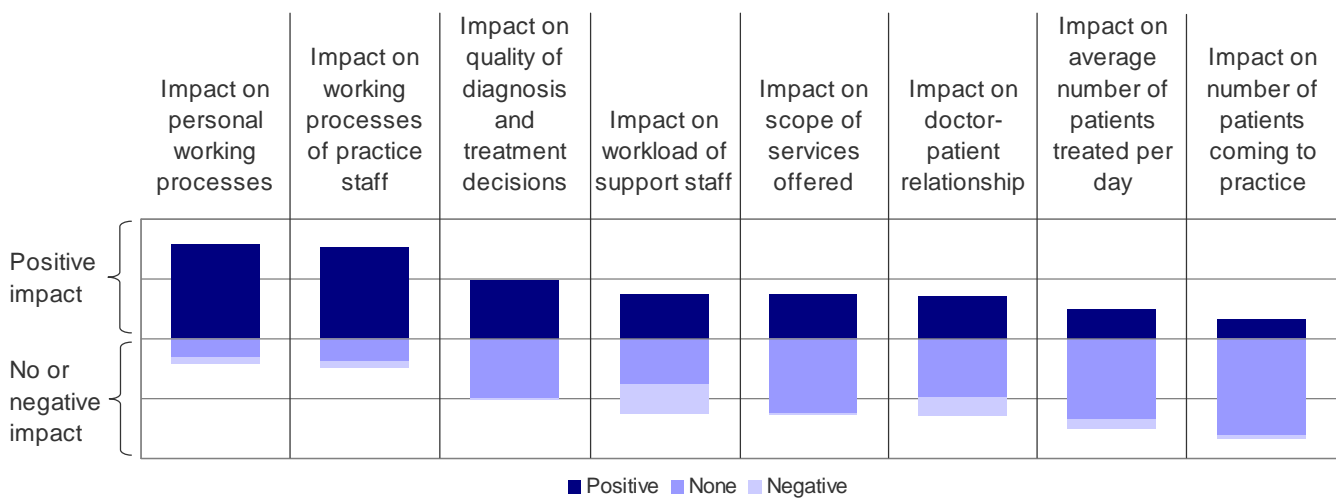
About one-third of the practitioners in Europe state that the scope of services offered by the practice actually increased due to the use of IT systems and software. It can be assumed that for those GPs IT is not just a tool to make existing — e.g. administrative — processes more efficient but to broaden the range of their activities. In Slovenia, only around one fifth of the practitioners attribute an increase in the scope of services to the deployment of ICT. This low percentage of agreement indicates one of the least positive judgements in the EU27 with regard to this particular area of influence.

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. A majority of Slovenian GPs did not experience any changes in the number of patients coming to the practice, nor did they consider the deployment of IT solutions to have increased the scope of patients that can be treated in their practice per day. This goes in line with the general impression by European GPs, most of whom did not report any changes in the number of patients coming to the practice or being treated per day.

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

In terms of infrastructure, Slovenia shows a rather well developed level of equipment as 97% of GP practices own a computer, 83% are connected to the Internet and 54% have access to a broadband Internet connection. These shares are all at or above EU averages. When compared to the other East European countries, Slovenia is outnumbered only by Estonia.

Slovenia shows its best eHealth performance in the area of patient data storage (especially as far as administrative data is concerned), and the use of decision support systems for diagnosis or treatment purposes. However - with the exception of the storage of administrative patient data - all usage rates lie below the EU27 average. Computers are used for consultation purposes only to an extremely low extent, especially when compared to their comparatively high availability. Decision support systems are quite well established: they are used in 40% of Slovenian GP practices. The transfer and exchange of electronic patient data however has not yet arrived on the agenda of Slovenian GPs.

The Slovenian eHealth strategy is relatively new. The eHealth objectives are derived from the "Action plan for a European eHealth Area". In December 2005 the government published the "eHealth 2010 – Strategic plan for the Slovenian health sector informatisation". The main aim of the strategy is to exploit the use of efficient, flexible informatics to support the national healthcare system.

Slovenian policy strategies with eHealth relevance

"eHealth2010 – Strategic plan for the Slovenian health sector informatisation" 2005

safe and reliable exchange of medical data. The portal will be developed to connect to similar systems all over Europe. A basic infrastructure for a future national electronic health record is going to be established. The implementation of the EHR in Slovenia will be done in two phases and is planned to be accomplished by 2010.

A National Health Informatics Council was established in 2006 with the aim to promote ICT use in the health system in general and in particular to foster the establishment of appropriate standards. Several projects are completed today and many activities supporting eHealth are currently underway e.g. the National Insurance Card System which aims to improve quality of services and communication between physicians and healthcare institutions. The Slovenian eHealth strategy will probably also have an impact on the ICT use of General Practitioners, which — apart from electronic storage of administrative data — is not very widespread today.

One step towards nationwide eHealth interoperability is seen in the development of the national health portal, providing

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 |
| | Total | 6.789 |

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.



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