

Chapter G Health and ICT

Electronic healthcare, or eHealth, is a dynamically developing area of ICT. The main purpose of eHealth is the complete computerization of processes related to the provision of healthcare. For instance, the electronic healthcare concept includes safely stored electronic health records, with the possibility of sharing between physicians, as well as electronic communication between physicians and patients. eHealth also includes telemedicine (personal portable and mobile communication systems for patient monitoring and support), or expert systems used by healthcare providers (in order to make diagnoses and prescribe drugs). The use of these tools should improve the prevention, diagnostics, treatment, monitoring, and controlling of health and lifestyle.

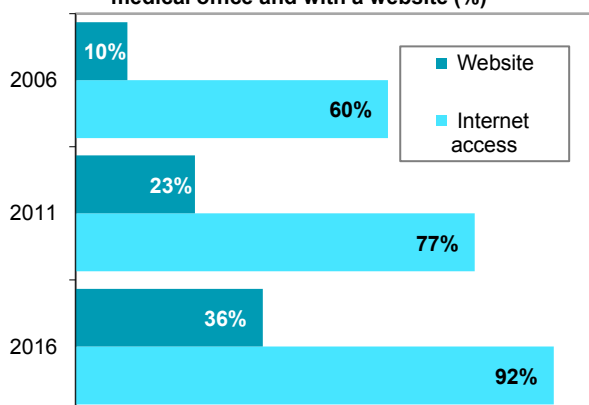
Information technology usage in healthcare is broad enough on its own, therefore, this chapter is dedicated solely to selected indicators, focused on the usage of computers and the internet, by independent physicians, in the Czech Republic, and the usage of information technologies by individuals, with respect to their health.

G.1 Practices of physicians with access to selected ICTs

Nowadays, ICTs belong to standard equipment of the majority of healthcare facilities, in the Czech Republic, and computer usage by physicians is an indispensable part of their everyday work routine. Only an insignificant percentage of physicians does not use a computer in their practices – this is due to the fact, that physicians need computers in order to fulfil their obligations arising out of specific legal regulations. These include, for instance, reporting to the Register of Healthcare Providers and to the Register of Healthcare Professionals. By means of the internet, however, physicians are also provided with other information relevant to the operation of their practice. Therefore, the blanket usage of computers will be inevitable.

- In 2016, 96% of **independent physician's practices** in the Czech Republic were equipped with a **desktop computer**. More than 92% of them had **internet** access, and more than a third (36%) of practices had a **website**. Opposed to this, in 2006, only six out of ten physicians had internet access in their practices, and only every tenth practice had its own website.
- The percentage of medical facilities, with their own website, is significantly lower in comparison with other entities (enterprises or authorities), since in 2016, the aforementioned 36% of independent physician's practices had a website, as opposed to more than 80% of enterprises, or 100% of public administration organisations, including the individual municipal authorities.
- In regard to the individual **types of practices**, we find a significant difference in the occurrence of websites: for instance, in 2016, a website was already owned by 56% of gynaecological practices, 51% of paediatric practices, but only 34% of general practitioner's surgeries or 23% of dentists.

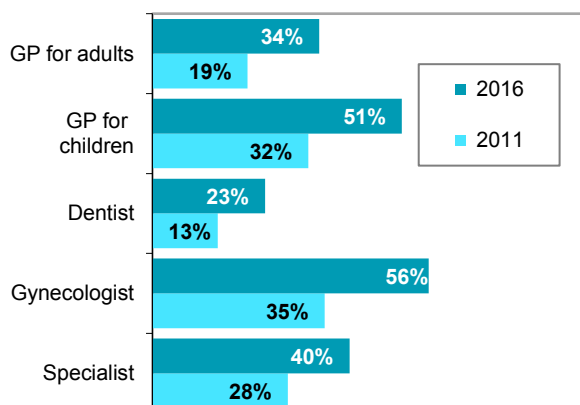
Figure G1 Independent physicians in the Czech Republic with access to the internet in their medical office and with a website (%)*



* as a percentage of all independent physicians

Source: Institute of Health Information and Statistics. 2018

Figure G2 Independent physicians in the Czech Republic with a website by type of practice (%)*



* as a percentage of all independent physicians of a given practice

Source: Institute of Health Information and Statistics. 2018



- Despite the fact that a third of physician's practices has a website, compared to pharmacies, the percentage is still very low. 62% of pharmacies have their own website, however, this may be due to the fact, that they often belong to one of the commercial pharmacy networks.

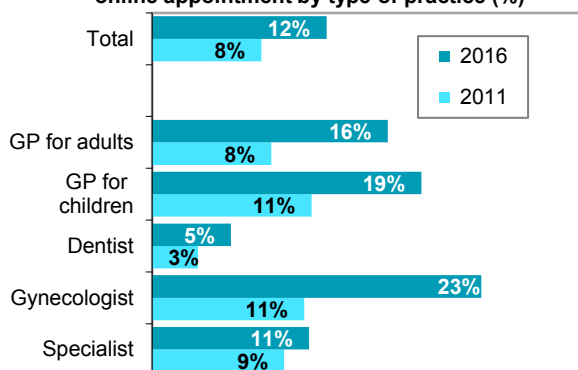
G.2 Online services offered by independent physicians on their website

Apparently, the most commonly used means of medical facilities presentation is their own website. Besides basic contact details and opening hours, physicians also present the types of services provided, publish the price list for individual procedures, news, and in some cases the websites provides other online services for patients, such as online consultations or appointment-booking¹. Within the scope of the Selective Survey on ICT usage in households (VŠIT), the Czech Statistical Office ascertains the usage of such services by the individual.

- Whereas in 2006, patients could **make an appointment through an online form** merely in 3% of practices, in 2016, this option was offered by 12% of independent physician's practices. The online appointment form is sent directly from the given practice website or via an electronic appointment system. In 2016, online appointment system was used by 8% of Czech citizens, out of which the number of women was twice as high (11%), compared to the number of men (5%). In 2016, online appointment-booking, with a physician, was more frequently offered to gynaecological patients (23%) or to paediatric patients (19%). Online appointment-booking was the least frequently offered by dentists (4%).
- As the percentage of practices enabling online appointment-booking has grown, there is also an increase in the percentage of practices offering **consultations via online forms**, i.e. from 3.5% in 2006, to 12% of practices in 2016. Despite this fact, the number of individuals, using this consultation option, is still low. In 2016, this service was solely used by 4% of Czech citizens; as well as in the case of online appointment-booking, it was used by women (5%) more frequently than by men (3%). Online consultation services were the most frequently provided by gynaecologists (29%) and paediatricians (21%).
- In 2016, the option to **write a prescription** based, on a request via the practice's website, was offered by 9% of physician's practices in the Czech Republic; the most frequently by gynaecologists (22%), and the least frequently by dentists (1%). Dentists are the ones, who disagree with the obligation to prescribe drugs electronically, as they solely write several tens of prescriptions, the majority of which concerns antibiotics. With respect to the low number of prescribed drugs, the purchase of this system would not pay off.

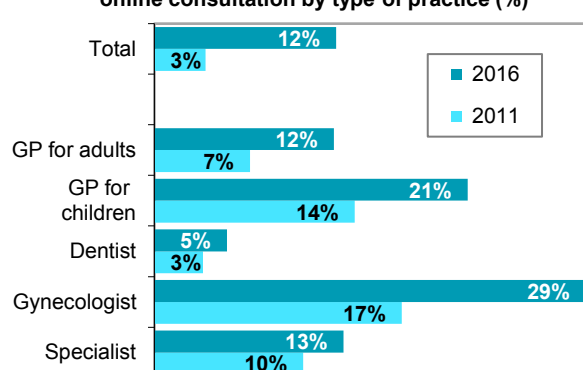
¹ Online consultation with a physician via website is one of the alternatives provided in order to seek freely available information on the internet. Individuals may ask questions via the physician's or the medical facility's website with respect to their health, followed by the physician's email response or in certain case by publishing the response on his or her website. Besides the possibility of online consultations, some physicians also provide the possibility to make appointments to examinations or medical procedures through an online form. Certain practices offer to their patients the possibility to ask for a repeated prescription issuance via the internet, in which case the patient receives an electronic prescription by email or by means of an SMS code that will provide the identification to the pharmacist.

Figure G3 Independent physicians in the Czech Republic with a website application for making online appointment by type of practice (%)*



Source: Institute of Health Information and Statistics, 2018

Figure G4 Independent physicians in the Czech Republic with a website application for making online consultation by type of practice (%)*



Source: Institute of Health Information and Statistics, 2018

* as a percentage of all independent physicians of a given practice

G.3 Keeping electronic health records

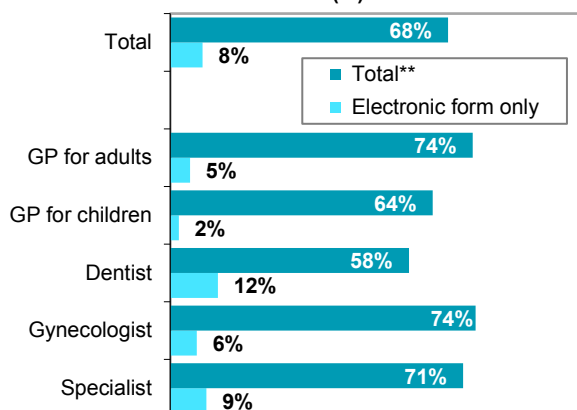
In the Czech Republic, a part of physicians keeps their records electronically in their computers and a part of them still keeps them in paper form written by hand or on a typewriter. Even if physicians keep their medical documentation electronically, they often receive results and reports from other physicians in paper form. Both methods of recording documents are most likely to be operating in parallel with each other, as the rewriting of existing paper records into the electronic version is not a desired task for many physicians².

- In 2016, health records were, at least partially, kept **electronically** on computers by 68% of independent physician's practices in the Czech Republic. These included the most frequently gynaecologists (74%), general practitioners (74%), and medical specialists (71%).
- A large part of practices, however, still keeps the documentation at least partially **in paper form** (91%), 31% of them uses this form exclusively. The situation is paradoxical with respect to dentists, who on one hand keep their documentation in paper form the most frequently out of all physicians (41%), but who on the other hand also keep their documentation exclusively electronically (12%). The paper form is the least frequently used by gynaecologists (25%).

² Health records form an important clinical document, they are used as information support created by teams of healthcare professionals, and serve for the transfer of information on patients and their medication between various team members who treat patients at various places or various times. However, health records serve not only as a work tool for treatment, but also as evidence of potential forensic investigation of a physician's treatment procedure. Health records may be kept in paper or electronic version, or alternatively physicians may combine the two means as required. Electronic health records are obtained, processed, stored, and mediated digitally by means of information technologies.



Figure G5 Independent physicians in the Czech Republic keeping health records electronically; 2016 (%)*

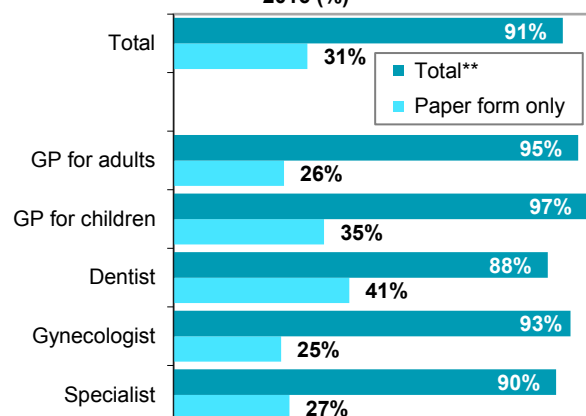


* as a percentage of all independent physicians of a given practice

** Includes independent physicians keeping at least part of health records (medical patient data) in electronic form on their computers or the internet

Source: Institute of Health Information and Statistics, 2018

Figure G6 Independent physicians in the Czech Republic keeping health records in paper form; 2016 (%)*



* as a percentage of all independent physicians of a given practice

** Includes independent physicians keeping at least part of health records (medical patient data) in paper form.

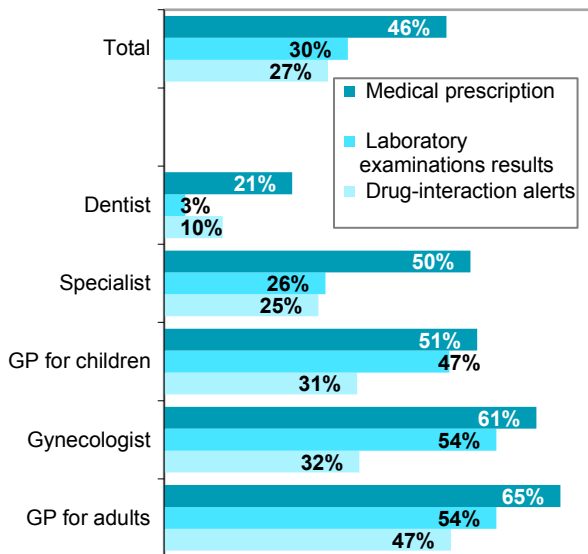
Source: Institute of Health Information and Statistics, 2018

G.4 Electronic information healthcare systems

In many aspects, electronic information healthcare systems may make the work of physicians much easier. Physicians may easily access laboratory test results, health records, medical images, or drug-related information. For instance, the electronic information healthcare system may inform the physician, by means of drug interaction alerts, whether or not the drugs, the physician is about to prescribe to the patient, interact with each other. Physicians may also get a statement of electronic records of all patients, within a monitored healthcare facility, monitoring a specific criterion.

- Physicians may use their information healthcare systems electronically (so called **e-systems**) for various activities. In 2016, nearly a half of all physicians in the Czech Republic (46%) used the systems to **prescribe drugs**; less than a third of physicians (30%) viewed the **laboratory examination** results in the e-systems. This was mainly done by gynaecologists and general practitioners (54%), as opposed to 3% of dentists. Nevertheless, this is a predictable result; similarly, to the case of prescriptions, dentists do not send their patients to as many laboratory examinations as other medical professionals.
- More than a quarter of physicians (27%) used the **drug interaction** alerts, by means of these systems, where the electronic system informed them, that the drug they were about to prescribe to the patient, may have negative interaction with other drugs, already being taken by the given patient. In practice, this function is the most frequently found with general practitioners (47%) and gynaecologists (32%), and the least frequently by dentists (solely 10%).

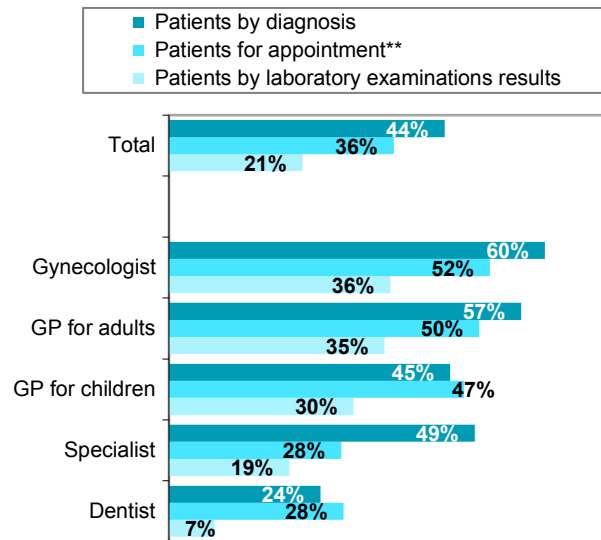
Figure G7 Independent physicians in the Czech Republic using selected functions of their electronic health systems; 2016 (%)*



* as a percentage of all independent physicians of a given practice

Source: Institute of Health Information and Statistics, 2018

Figure G8 Independent physicians in the Czech Republic with electronic health system enabling to generate selected patient records; 2016 (%)*



* as a percentage of all independent physicians of a given practice

** List of patients for general medical examination, tests etc.

Source: Institute of Health Information and Statistics, 2018

- Furthermore, within the healthcare e-systems, physicians are provided with **selected medical statements concerning their patients**. Nearly a half of all practices are provided with medical statements concerning the patients according to their diagnoses. By means of the e-systems, a third of practices may generate a list of patients, who might need to have a check-up, and a fifth of Czech practices may obtain a list of patients based on laboratory results. These selected medical statements are mostly available for gynaecologists and general practitioners. Paediatricians use the notification for which patients are expected to have a check-up, more frequently than other physicians.



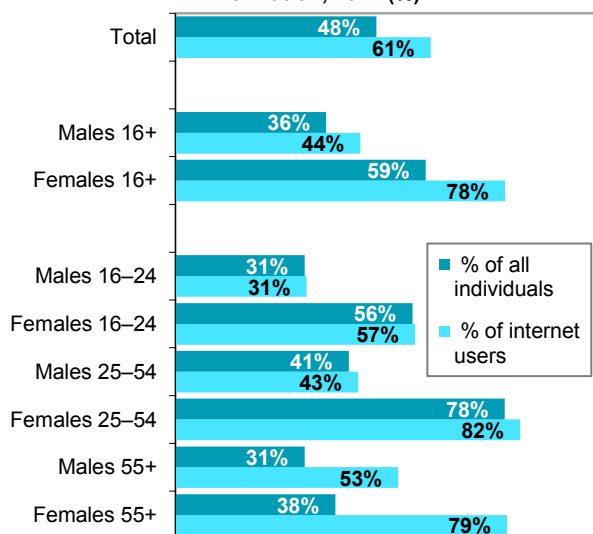
G.5 Internet usage by individuals with respect to health³

The internet has become a place, where people tend to seek help, when they are not feeling well. As the internet becomes more and more available, patients may quickly and easily access health-related information and consultations; individuals use the internet for information seeking with respect to diseases, treatment, diagnostics, prevention, health food, etc.

Health-related information seeking

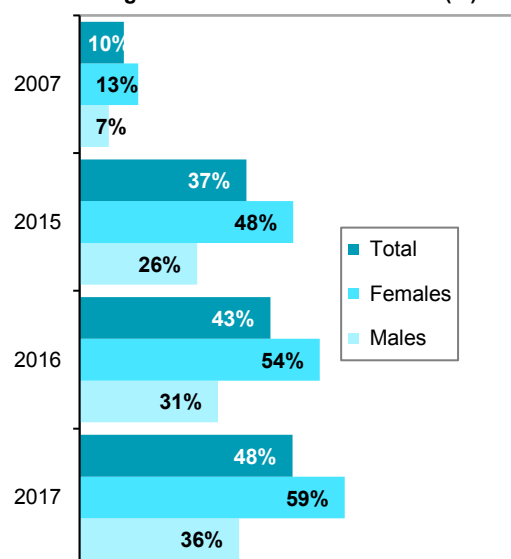
- In 2017, nearly a half (48%) of individuals aged 16+ (61% of internet users) used the internet, in order to **seek health-related information**. In comparison, in 2007, only a tenth (10%) of all individuals used the internet for these purposes.

Figure G9 Individuals in the Czech Republic using the internet for seeking health-related information; 2017 (%)



Source: Czech Statistical Office, ICT use survey in households, 2018

Figure G10 Individuals in the Czech Republic looking for health related information (%)

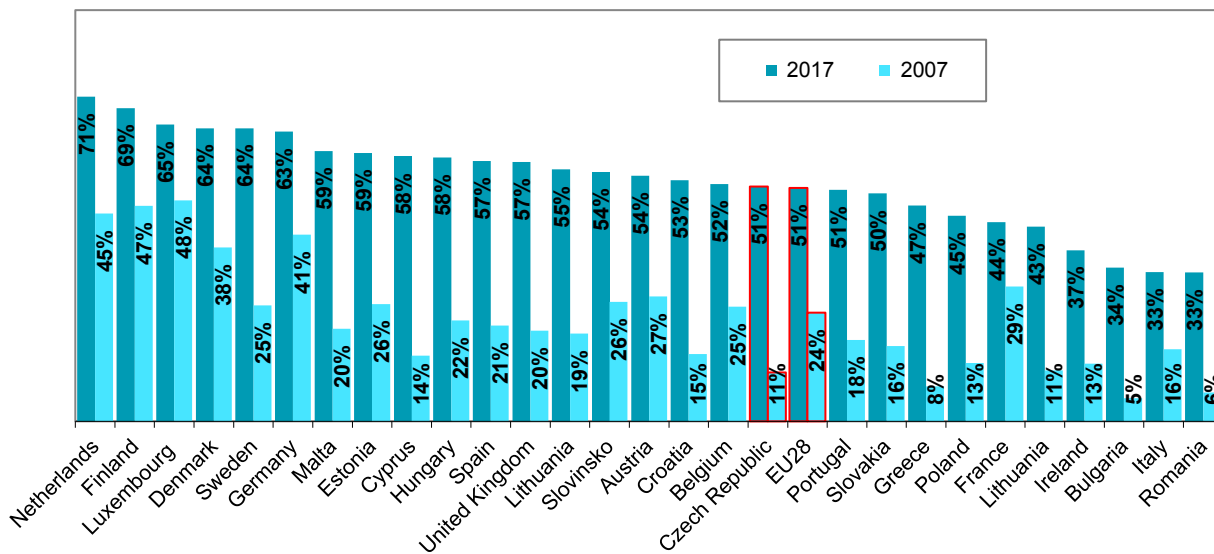


Source: Czech Statistical Office, ICT use survey in households, 2018

- Women** seek out this kind of information significantly more than **men**. In 2017, nearly 60% of Czech women consulted their medical condition on the internet; the number of men was much lower, the internet was used solely by 36% of them for this purpose. Within the group of internet users, it is, in fact, 78% of women, but solely 44% of men.
- Health-related questions are most frequently asked by individuals aged 35–44 (62%). In contrast, the representatives of the two highest age groups – **aged 65–74 and over the age of 75** – rarely tend to seek online advice (31% and solely 10%). Should we, however, focus solely on pensioners, who also belong among internet users, they are the most active ones (70% and 66%) out of all age groups, with respect to health-related information seeking.

³ Data concerning the internet usage with respect to health by individuals is obtained from the Selective Survey on ICT usage in households (VŠIT). The survey is carried out by means of personal interviews with a survey sample of approx. 10 thousand individuals. The ascertained data is available to a wide range of demographic and social characteristics of persons living in the monitored households, such as sex, age, highest attained education, etc. Since 2006, the survey is carried out yearly in the 2nd quarter of the monitored year in all EU countries as a mandatory survey stipulated by the Regulation (EC) No. 808/2004 of the European Parliament and of the Council concerning Community statistics on the information society. For more details see Chapter C.

Figure G11 Individuals in EU countries looking for health related information via the internet (%)*

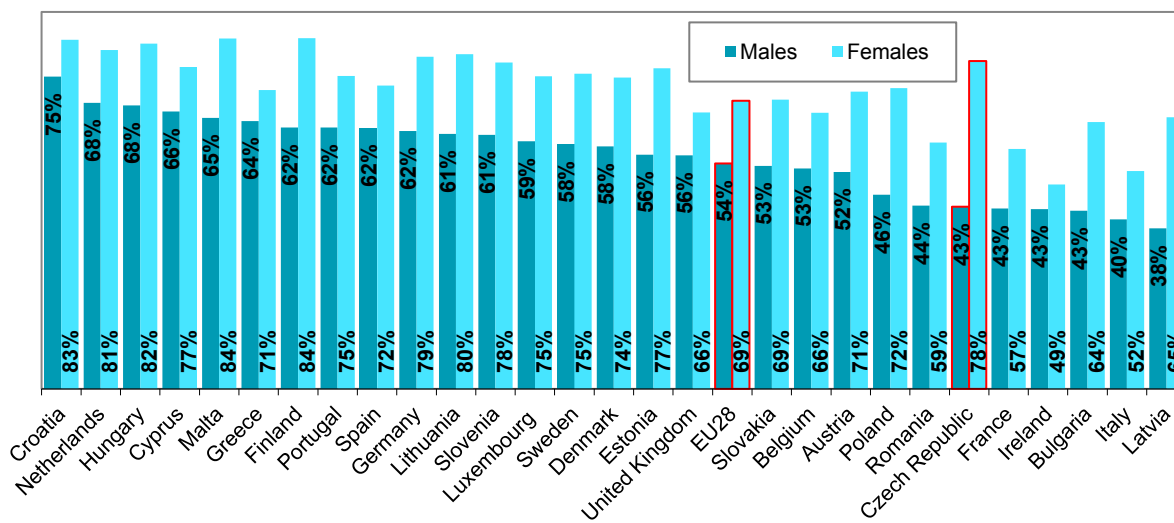


* as a percentage of all individuals aged 16 to 74 in a given country

Source: Eurostat 2018

- The seeking of health-related information, treatment, diagnostics, prevention, health food, etc. via the internet is not only common in the Czech Republic, but also abroad. In 2017, Czech citizens did not differ much from the rest of Europe, as the number of them was equal to the EU average, which formed 51% of inhabitants aged 16–74. In general, health-related information was mainly sought after by the inhabitants of the Netherlands, Luxembourg, Germany, and Scandinavia. Opposed to this, the lowest number was found in Bulgaria, Romania, and, surprisingly, Italy – in all of these cases, it was approximately a third of individuals.
- Among the internet users of all countries, health-related information seeking is dominated by women. Czech women seek health-related information over the internet even more frequently than the **EU average**. In this respect, Czech men stand below the European average. Seeking health-related information in the Czech Republic is very common with women on parental leave, and also by internet users aged 55–74, on the other hand, the age group 16–29 is below the EU average.

Figure G12 Internet users in EU countries using the internet for seeking health-related information by sex; 2017 (%)*



* as a percentage of all female and male internet users aged 16 to 74 in a given country

Source: Eurostat 2018

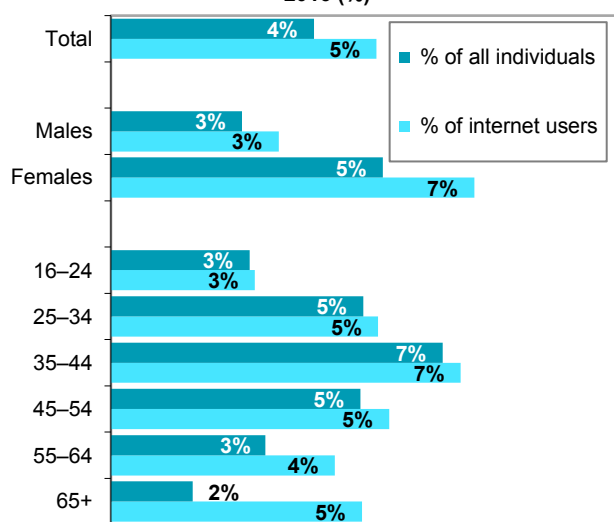


Using online consultation and appointment system with a physician

Not everyone trusts information freely available on the internet. A safer alternative to using information from the internet may be an online consultation with a physician or with a healthcare facility, through their websites. Using electronic services in healthcare could be as comfortable for individuals as it is, for instance, for online banking or e-shops.

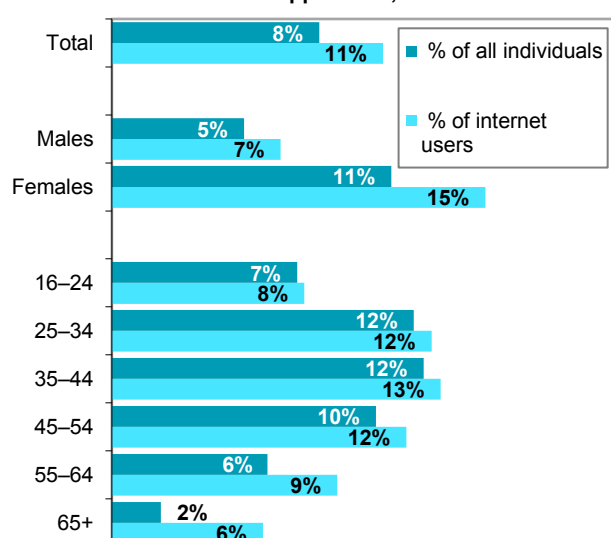
- In 2016, an **online consultation with a physician** was realised solely by 4% of adults in the Czech Republic. Similarly, to seeking health-related information on the internet, the possibility to make an online consultation was also used more frequently by women than men (5.3% of women and 2.6% of men within the population; 7.1% and 3.3% among internet users).
- With respect to the age group division, the leading one is the age group 35–44 (6.5% or 6.9% among internet users) followed by the 45–54 age group). Opposed to this, the possibility to make an online consultation was the least used by individuals over the age of 65 (solely 1.6%), and those under the age of 24 (2.7%), where the percentage is the lowest, even if we solely consider internet users (2.8%). When comparing graphs G9 and G13, it is evident, that older people, who are also internet users, may be actively seeking freely available information, however, they rarely use the possibility of a formal consultation with a professional.

Figure G13 Individuals in the Czech Republic, who consulted a practitioner online via the website application; 2016 (%)



Source: Czech Statistical Office, ICT use survey in households, 2018

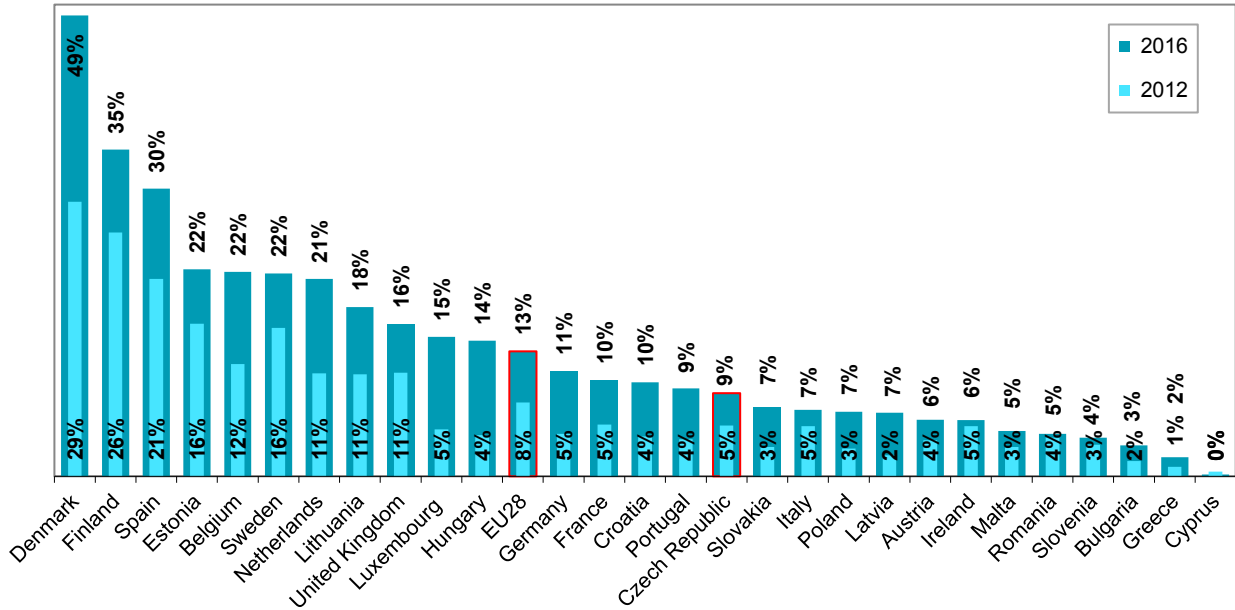
Figure G14 Individuals in the Czech Republic, who made an online appointment with a practitioner via the website application; 2016



Source: Czech Statistical Office, ICT use survey in households, 2018

- The possibility to make an **online appointment with a physician via website** from the comfort of one's home may present a pleasant benefit. In 2016, this option was used by 8% of individuals over the age of 16 in the Czech Republic. The results of individual socio-demographic groups are similar to the ones concerning online consultations. They are realised by women more frequently, especially the ones on parental leave.

Figure G15 Individuals in EU countries, who made an online appointment with a practitioner via the website application (%)*



* as a percentage of all individuals aged 16 to 74 in a given country

Source: Eurostat 2018

- With respect to making online appointments with a physician, the Czech Republic stands below the **EU28** average, which is 13%. The most active ones, in this respect, were the citizens of Denmark (49%); a little less active were the citizens of Finland (35%) and Spain (30%). Opposed to this, Cyprus (0.2%), Greece (2%), and Bulgaria (3%) belong among the countries recording the lowest percentage of internet usage for making online appointments with a physician. Also, in these countries, the percentage of individuals making online appointments has not grown much, in comparison with the year 2012; opposed to this, the usage in Denmark has increased by 20%.

