

# The Development of Telemedicine and its Application Possibilities in Hungary\*

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**ABSTRACT** The aim of this study is to present the emergence and spread of telemedicine in Hungary. How did we move from landline telephones to the use of ICT devices and applications, what legal developments were needed to make this possible. We will look at the major turning points in this story, in particular the impact of COVID and the entry into force of GDPR, because both led to paradigm shifts in different but significant ways. The focus of the study is on the development of the Hungarian legal environment and how it defines certain concepts of telemedicine.

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## 1. The development of the concept of telemedicine<sup>1</sup> in the international space

For a long time, the concept of telemedicine did not correspond to any single, well-defined concept. This is clearly demonstrated by the fact that no fewer than 107 different definitions in the literature are included in a 2007 WHO study.<sup>2</sup> It is also

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<sup>1</sup> Although the creation of the term telemedicine can be linked to the name of the American Thomas Bird in the 1970s, its roots actually go back much longer, and the theoretical foundations of its implementation were made possible by the rapid development of telecommunication networks and devices at the end of the 19th century and the beginning of the 20th century. In April 1924, Radio News Magazine was published with a cover called “The Radio Doctor-Maybe”, in which the possibility of real-time, online image communication and its medical use appeared for the first time, and in 1925, it presented the “prediction” of telemedicine to the Science and Invention magazine, because this issue featured writer and inventor Hugo Gernsback’s device called “Teledactyl”, which seemed quite futuristic in the conditions of the time, and which, according to the ideas, would have worked in such a way that while the doctor was moving his robotic fingers in his office, they were moving on the patient in the same way. This device can also be seen as a prototype of telemedicine, which implements remote examination of the patient ([http://eta.bibl.u-szeged.hu/2188/3/2\\_a\\_telemedicina\\_rvid\\_trneti\\_ttekintse.html](http://eta.bibl.u-szeged.hu/2188/3/2_a_telemedicina_rvid_trneti_ttekintse.html), 12.12.2023).

<sup>2</sup> A WHO report (Telemedicine, Opportunities and developments in Member States Report on the second global survey on eHealth, in Global Observatory for eHealth series, 2010, vol. 2, [www.who.int/goe/publications/goe\\_telemedicine\\_2010.pdf](http://www.who.int/goe/publications/goe_telemedicine_2010.pdf)), cites S.P. Sood *et al.*, *Differences in public and private sector*

clear from this that, in such situations, it is difficult for the legislator to promulgate a systematic codification where no consensus can be found even on the main rules.

With regard to international practices, the following four main sub-fields of telemedicine can be defined and delimited based on the functionality of the telemedicine devices: during the remote consultation, not only the patient’s treating doctor(s), but also a remote doctor or other specialist staff are involved in the diagnosis through communication tools (e.g. the doctor and the pharmacist consult on the phone); remote manipulation occurs when a remotely-controlled examination or intervention is carried out; during teleradiology, the person performing the examination that forms the basis of the diagnosis and the person making the diagnosis (e.g. the person who prepares the findings) are spatially separated, but they are in an interactive relationship; in the case of remote monitoring or telemonitoring, the data about the patient for the medical personnel are replaced by signal receivers and signal transmitters.<sup>3</sup>

An example of the earliest practical application of telemedicine can be seen in the

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*adoption of telemedicine: Indian case study for sectoral adoption*, in *Studies in Health Technology and Informatics*, 2007, 130, évf. 257–268.

<sup>3</sup> Telemedicine practice (note). <http://biofiz.semmelweis.hu/index.php?p=oktatas&mid=2&a=tantargy&id=252>.

1920s in Norway, when the Haukeland hospital organized a medical service via radio for the crew of ships at sea. In the United States of America, the use of telemedicine was primarily brought about by the need to overcome long distances, and it was a significant solution for the medical care of relatively-isolated communities, islanders, and workers in polar and desert regions, as for example in the case of the Nebraska Psychiatric Institute, where since 1955 a closed-chain audio-visual link was established with the Norfolk State Hospital, approximately 200 km away, using a television system. The other direction of the initial development was the help provided to space research and military activities primarily through the activities of NASA, as a result of which by 1975 there were already 15 telemedicine programs in the United States, the best known of which was the STARPAHC program. Within the framework of this program, between 1972 and 1976, health care was provided to the residents of a remote Indian reservation in the state of Arizona and to the astronauts in outer space at the time, which was realized by placing medical equipment (including EKG and X-ray machines) in a truck, connected via microwave and sound transmission to a hospitals outside the district, provided with the necessary technical background by NASA. Also, with the help of NASA, using its ATS-1 satellite, it was possible to connect 26 villages in Alaska via 4 ground transmitting stations and receiving station located in the Native Medical Centre in Anchorage. With the involvement of the ATS-6 satellite, NASA provided assistance after the earthquake in Mexico City in September 1985, and in 1989, after the earthquake in Armenia, a connection for the transmission of voice and documents was provided between the medical centre in Yerevan and 4 American medical centres.<sup>4</sup>

## 2. The emergence of telemedicine in Hungary

As everywhere in the world and in Central Europe and especially in Hungary, in the 1990s the development of telemedicine was given new impetus by the spread and rapid development of computer networks and mobile phones. The advantages of using telemedicine for the health-care system and

the patients appear both directly and indirectly, in a 2010 Hungarian study we can find the following:<sup>5</sup> a) one of the direct benefits is that specialist medical care becomes more accessible to those that were previously challenged by space and time constraints; the length of stay in health-care facilities is reduced; fairly long waiting lists can be shortened; it becomes possible to obtain secondary or even third-party expert opinions; the use of resources can be better optimized; health institutions providing teleconsultation can operate with fewer staff, but at the same time earn more income; material savings can also be expected, and patients and medical professionals can also save significantly on travel costs and time; b) it appears as an indirect benefit that, with the help of telemedicine, high-level health services can reach even remote and sparsely-populated areas; where such professions would otherwise not be available, thereby providing more effective, even life-saving consultations and fostering increasing self-sufficiency of the elderly population, since home monitoring of the condition of the elderly provides security and, if necessary, even enables immediate intervention.

A summary<sup>6</sup> published in 2013 presents the ethical, legal and financing issues arising in connection with the practical application of telemedicine in Hungary in a more differentiated way, as well as the emerging problems awaiting regulation, which point to the conditions that make it difficult for telemedicine to be effective in our country despite its obvious advantages.

The root of these problems mostly stems from lack of information and a high degree of distrust towards the new method (which does not even arise in North America or Scandinavia, for example), and on the other hand, the still-unresolved issues related to its application.

From an ethical point of view, the strengths of communicating via telemedicine are: avoiding long waiting times for the patient; leaving messages which allows even off-line

<sup>5</sup> A. Ficzer, *Interdisciplinary Hungarian Healthcare, in Informatics And Management In Healthcare* 1588-6387 1789-9974 9, vol. 1, 2010, 48-50. [www.imeonline.hu/article.php?article=2010\\_IX./1/telemedicina](http://www.imeonline.hu/article.php?article=2010_IX./1/telemedicina).

<sup>6</sup> L. Daragó, Z. Jung, F. Ispán, R. Bendes and E. Dinya, *Advantages and disadvantages of telemedicine*, Summary notice, 1167. <https://repo.lib.semmelweis.hu/bitstream/handle/123456789/5178/2388209.pdf?sequence=1>.

<sup>4</sup> G. Harsányi, *Telemedicine*.

contact; providing patients' continuous monitoring; setting automatic alarms; and allowing for the possibility of statistical analysis of the data.

On the other hand, telemedicine also has weaknesses, namely: the doctor-patient relationship becomes rare, thereby narrowing the classic and traditional relationship between the all-knowing doctor and patient; and generally impersonality fosters distrust.

During the implementation of telemedicine, with medical participation, it is possible to use telemedicine community fora as well as teleconsilium, which can also provide access to family members.

From an ethical point of view, telemedicine may contain the danger that patients would accept misleading or downright harmful suggestions in the online space, on social media sites, or they start self-medicating without any professional supervision on the basis of information found on the Internet.

From an ethical point of view, unauthorized access to data can be an additional source of danger, which already raises data-protection and data-management concerns.

When examining the legal aspects of telemedicine, the summary statement highlights the decennial lack of professional regulation and court practice, as well as the lack of domestic case-studies and the fact that foreigners cannot adapt to the domestic legal environment. Despite the proposals formulated ten years ago, the legislator has not yet succeeded in implementing any systematic legal regulation regarding telemedicine, but some of its directions give reason for confidence.

### 3. The Hungarian legal regulations

In Hungary, Act CLIV of 1997 on Health Care (Eütv.) contains only a few provisions regarding telemedicine, including electronic records of infectious patients<sup>7</sup> and telemedicine services based on facial identification.<sup>8</sup> Surprisingly, neither this legislation, nor Act XLVII of 1997 on the management and protection of health and related data (Eüak.) do specifically describe the concept of telemedicine.

The definition is found in 28/2010. (V.12.)

EüM decree,<sup>9</sup> according to which telemedicine is: "a healthcare service in which the person receiving the care and the person providing the care do not meet directly, the connection is established through some remote data transmission system".

The 9/2012. (II. 28.) NEFMI decree<sup>10</sup> contains the legal provisions that determine how health-care providers can account for the financing due to the health care services provided.

It should be emphasized that if the health-care provider offers health-care services via telemedicine, the settlement is not conditional on the patient's personal appearance before the health care provider.

Annex 6 of the decree contains the procedures and services that patients can use even without a personal presence, these are as follows:

- Control examination, consultation outside the clinic or within the framework of telemedicine (OENO code:<sup>11</sup> 11302)
- with EEG telemetry (OENO code: 12074)
- with ECG telemetry (OENO code: 12604)
- Application of transtelephonic ECG in acute cardiac pathologies (OENO code: 12607)
- Application of transtelephonic ECG in postoperative cardiac pathologies (OENO code: 12608)
- Transtelephonic ECG in elective cases (OENO code: 12609)
- Use of transtelephonic ECG in acute cardiac pathologies during rescue tasks (OENO code: 12611)
- Preparation and sending of a sample sent by telepathology during colonoscopy (OENO code: 29004)
- Evaluation of the sample sent by telepathology during colon screening (OENO code: 29005)
- Additional score in case of issuing a second expert opinion in the context of

<sup>9</sup> 8/2010. (V. 12.) EüM decree on the system of professional criteria and professional policy priorities to be applied during the procedure related to the inclusion of health technologies used in curative-preventive procedures into health insurance financing, as well as the administrative service fees to be paid for certain procedures related to their inclusion.

<sup>10</sup> 9/2012. (II. 28.) NEFMI decree on the definition of outpatient specialist care activities that can be financed at the expense of the Health Insurance Fund, the accountability conditions and rules applicable during use, and the accounting of performances.

<sup>11</sup> International Classification of Medical Procedures.

<sup>7</sup> Eütv. (1) of § 61.

<sup>8</sup> Eütv. 106/A. § - 106/C. §.

- colon screening (OENO code: 29006)
- Teleradiographia dentalis (OENO code: 31060)
- Pain monitoring and computer evaluation/case (OENO code: 89614)
- Documented psychiatric consultation by phone (OENO code: 96003)

Therefore, based on the decree, the accounting rules for all these procedures and interventions that can be reported in the “T” care category, i.e. health services provided via telemedicine, if they are not defined separately, are the same as the accounting rules for the care and interventions reported in care based on personal presence.

60/2003. ESzCsM decree,<sup>12</sup> among other things, fixes the parts and minimum conditions of teleradiology and teleconsultation. According to the decree, “teleradiology is a type of telemedicine activity, when the recordings of imaging diagnostic examinations are transmitted electronically from one location to another for the purpose of examination or consultation”.

The part of teleradiology is

- telediagnosics (remote diagnostics): meaning an image evaluation carried out after the end of the examination, far from the place of imaging, which can be a first or second finding. In the case of tests where an evaluation by two doctors is required, it may trigger an evaluation by one or both doctors.
- teleconsultation: image evaluation at the same time as imaging or shortly after, the result of which affects the course of the examination, or re-evaluation of a previous, already-evaluated examination according to new aspects.<sup>13</sup>

Based on the telemedicine provisions of the decree, healthcare providers must comply with several regulations in order to be able to provide healthcare services within the framework of telemedicine.

It is the duty of healthcare providers to provide the appropriate info-communication device, the medical equipment required for the given care, the procedure for telemedicine care and the patient information sheet.<sup>14</sup>

<sup>12</sup> 60/2003. (X. 20.) ESzCsM decree on the professional minimum conditions necessary for the provision of health services.

<sup>13</sup> Annex 2 to 60/2003. (X. 20.) ESzCsM decree: The minimum conditions necessary to carry out the activities.

<sup>14</sup> Section 3 (1) point g) of ESzCsM decree.

Pursuant to the decree, general practitioner and pediatric surgeries must have a telephone, mobile phone or computer with a broadband internet connection suitable for remote consultation. In the latter case, in addition to stable data transmission, an additional condition is data security, for which the use of the appropriate security protocol is mandatory, VPN and https protocols are recommended.

If legislation requires the use of a video connection for the performance of a specific medical procedure, then the devices for creating a video connection must also be considered info-communication devices. The healthcare provider must also ensure clear identification of the patient.<sup>15</sup>

The decree not only establishes minimum objective conditions, but also the competences of the specialist doctor, healthcare worker and clinical psychologist, who must possess a higher level of specialist qualification in their given field of expertise.

In accordance with the provisions of the Act on the Management and Protection of Health and Related Personal Data, one can perform the following activities within the framework of telemedicine:

- make a diagnosis and therapeutic proposal
- provide advice and consultation
- provide patient management
- give a referral
- provide care
- perform therapy and rehabilitation activities
- prescribe medicine
- prescribe medical aids that can be ordered via electronic prescription.<sup>16</sup>

Among the provisions in force regarding telemedicine, EÜak should be mentioned. 35/M.§ and 39/2016. (XII. 21.) EMMI Decree 20/A. § and 20/B. §, which describe access by the user and transmission between users of the recording or other digital-image information made by the imaging-diagnostic procedure of the affected person through the Electronic Health Service Area (EESZT), as well as the rules of the electronic consultation conducted in the system of the EESZT.

In order to transmit digital images, the operator of the EESZT keeps a register, which requires the TAJ number or other identifier of the person concerned. From the point of view of data management, it should be mentioned

<sup>15</sup> ESzCsM decree 3.§ 2) point b).

<sup>16</sup> Section 9(7) points a)-h) of ESzCsM decree.



that the data concerning the data subject in the register are deleted by the operator ten years after the death of the data subject.<sup>17</sup>

In the case of an electronic-remote consultation, we can distinguish between a doctor who initiates a consultation (that is, requests a consultation) and one who gives a consultation (who accepts the request).

Only the doctor who has registered separately for the service is entitled to initiate the electronic consultation and accept the request.

In relation to the electronic consultation, both aforementioned decrees stipulate that operators ensure their conduct through the EESZT in the event that the doctor invited to the consultation ensures the conduct of the electronic consultation, the consultation accepts the request and is entitled to know the data concerning the person concerned.<sup>18</sup>

When initiating an electronic remote consultation, the attending physician requesting the consultation compiles a list of all medical documents (including recordings of imaging diagnostic procedures) that someone wishes to share with the attending physician during the remote consultation. If the treating doctor who gave the consultation accepts the request, the EESZT will grant access to the documents on the list if it does not conflict with the declaration made in the self-determination register of the concerned person. The treating physician giving the consultation transmits his/her medical opinion given in the framework of the electronic remote consultation to the treating physician requesting the consultation via the EESZT system.<sup>19</sup>

Although telemedicine was already part of Hungarian healthcare before 2020, the upswing in its practical application is still due to the COVID-19 period, because the pandemic urged the legislator to provide solutions for the healthcare personnel as soon as possible.

The 157/2020 (IV.29.) Government decree<sup>20</sup> entered into force during the state of emergency of the epidemic period. According

to it and to 9. § (7) of 60/2003 (X.20) ESZCsM decree on the professional minimum conditions necessary for the provision of health services, patients' physical presence is not a condition for the provision of health-care services and financial accounting.<sup>21</sup>

Pursuant to the decree, telemedicine is considered to be an activity the purpose of which, in the patient's absence, the following services are provided:

- professional assessment of the patient's state of health,
- detection of diseases and their risks,
- definition of the specific disease(s),
- ordering additional tests necessary for a more accurate assessment of the patient's condition, starting medical treatment,
- determination of the effectiveness of the treatments listed above (remote consultation), and
- monitoring the patient's condition and establishing a diagnosis based on information available through remote-monitoring devices and other information-communication technologies.

At the same time, in the decree, the legislator not only regulated the concept, principles and purpose of telemedicine, but also the health services that can be provided within the framework of telemedicine, in particular:

- patient management in the form of teleconsultation, which forms the basis of specialist teleconsultation,
- receiving statements regarding the patient's information, consent, and handling of their data
- pre-screening in the form of remote consultation, the purpose of which is to assess the need for care based on a personal meeting and the severity of the health condition,
- preliminary contact and data collection, which makes the care based on a personal meeting following the teleconsultation faster and more efficient,
- diagnosis and therapeutic proposal in the framework of remote consultation, as well as remote monitoring and remote diagnostic tools,
- order medication,
- control and follow-up care following previous care based on a personal meeting,
- organization of teleconference,

<sup>21</sup> Government Decree § 1.

<sup>17</sup> Eüak. 35/M. § (1).

<sup>18</sup> Eüak. 35/M. § (2).

<sup>19</sup> EMMI decree 20/B. § (2).

<sup>20</sup> 157/2020. (IV.29.) Government Decree on certain health measures ordered during the state of emergency, (hereinafter: Government Decree) repealed. Based on Article 53 (4) of the Basic Law of Hungary. Invalid: as of the end of the state of emergency, June 2020. from 18.

- issuing a referral,
- psychotherapy, crisis intervention, parent consultation, counselling, supportive psychotherapy,
- physiotherapy with teleconsultation tool,
- breastfeeding counselling
- nursing care and
- telephone, online or other forms of advice and consultation.<sup>22</sup>

The decree stipulates that the health-care provider certifies the above-mentioned services in the manner specified in the legislation on the management of health documentation, and develops its institutional protocol for the provision of these services.

The health-care provider must also ensure that an event-catalogue entry documenting the fact and participants of the examination is created in its own IT system, and thus in the Electronic Health Service Area, as well as a document certifying the examination from a professional point of view.<sup>23</sup>

Art. 7. § of the Government Decree lays down an additional obligation for health-care providers, as they must offer services that do not require the patient's personal presence and make them available via their website.

#### 4. Development possibilities of telemedicine and challenges related to data management

In addition to telemedicine, concepts such as e-Health, telehealth, mhealth, which have different meanings, have appeared in recent decades. E-Health includes all services related to IT, telecommunications and health, an example of which is the Electronic Health Services Square (EESZT) operating in Hungary. Within the concept of ehealth, we can distinguish four major categories: ehealth devices, ehealth applications (applications), online pharmacies, and online medical advice.

EHealth devices are biosensors that collect information about users' health parameters, such as blood pressure and body weight.

Ehealth applications refer to different applications, including smart watches that measure physical activity, as well as the use of applications that support weight loss or even those related to contraception and fertility.

Online pharmacy means the purchase of medicines that are available without a medical prescription, sales are carried out exclusively

electronically, online.

Online teleconsultations represent the largest part of the telemedicine segment, which means counselling between patients and doctors created exclusively through online channels.<sup>24</sup>

Telehealth is a broader concept than telemedicine, which also means information networks and health services that ensure public's health awareness. It includes telecare, which is primarily provided to the elderly or disabled, but also includes health information and professional education.<sup>25</sup>

The concept of mhealth (mobile health) includes all health solutions that are implemented with a mobile device, which can be not only a smartphone, but also any other wireless technology, for example mobile monitor systems or even wearable sensors.<sup>26</sup>

Regardless of the specific form of telemedicine, it can generally be said that it involves the handling of sensitive personal data, the legality of which is legal if and only if at least one of the following is met, based on Article 6 of the General Data Protection Regulation<sup>27</sup> (GDPR):

- a) consent is given to the processing of personal data for one or more specific purposes
- b) data processing is necessary for the performance of a contract in which the data subject is one of the parties, or it is necessary for taking steps at the request of the data subject prior to the conclusion of the contract;
- c) data management is necessary to fulfil the legal obligation of the data controller;
- d) data processing is necessary to protect the vital interests of the data subject or another natural person;
- e) data processing is in the public interest or is necessary for the execution of a task performed in the context of the exercise of public authority delegated to the data controller;
- f) data management is necessary to enforce the legitimate interests of the data

<sup>24</sup> R. Árpád, *Business and social trends and vision of eHealth*, [www.ludovika.hu/blogok/itkiblog/2023/02/03/az-ehealth-uzleti-tarsadalmi-trendjei-es-jovokepe/](http://www.ludovika.hu/blogok/itkiblog/2023/02/03/az-ehealth-uzleti-tarsadalmi-trendjei-es-jovokepe/).

<sup>25</sup> G. Berki, *What does telemedicine grow on? - the concept and development of telemedicine*, in *Acta Universitatis Szegediensis: forum: acta juridica et politica*, 2021, vol. 11, 3, 39-46.

<sup>26</sup> [http://eta.bibl.u-szeged.hu/2188/3/1\\_bevezets.html](http://eta.bibl.u-szeged.hu/2188/3/1_bevezets.html).

<sup>27</sup> Regulation 2016/679 of the European Parliament and of the Council.

<sup>22</sup> Government Decree § 2 (2) points a)-n).

<sup>23</sup> Government Decree § 4 (1)-(2).

controller or a third party, unless the interests or fundamental rights and freedoms of the data subject take precedence over these interests, which require the protection of personal data, especially if the data subject is a minor.

In practice, private healthcare providers refer to several legal bases during their data management.

On the one hand, patients can also manage their data based on their voluntary consent, which is considered to be given by their behavior (i.e. simply by providing the data) during the voluntary use of health services.<sup>28</sup>

On the other hand, legislation may also require the processing of data as a requirement, cases of which may include the following in particular: official notification of work accidents, occupational diseases, infectious diseases or suspicions thereof, official communication of the results of certain screening tests, data management required for certain suitability tests, reporting of acute poisonings, fulfilment of official inquiries; interest in the treatment of a fetus or minor. In the case of certain, typically sexually-transmitted diseases, the names of the contact persons can be requested, and in the case of tuberculosis (TBC), health care-providers must forward data to the competent lung-care service.<sup>29</sup>

Data management is mandatory in the event that the patient is not fully capable of acting, in which cases the patient cannot refuse health care, as well as the associated data management.<sup>30</sup>

Data management is also mandatory if the patient is in immediate danger,<sup>31</sup> if his/her condition or lack of care endangers others,<sup>32</sup> or if he/she needs emergency or mandatory psychiatric treatment.<sup>33</sup>

In exceptional cases, data management may be based on the legitimate interests of

other health-care providers or other persons, in which case data management is allowed upon consideration of several interests.<sup>34</sup>

The legal basis for data management can also be a contract between the healthcare provider and the patient (e.g. care and treatment contract).<sup>35</sup>

The basis of data management can also be cases where its realization is necessary due to the protection of the vital interests of the person affected by the data management or of another person, but the person in question is unable to consent to it due to physical or legal incapacity.<sup>36</sup>

In contrast to the above (that is, with regard to the legal grounds cited by private healthcare providers), domestic case law<sup>37</sup> takes the position that consent is not the legal basis for data processing related to the use of healthcare services, but can only be the legal basis for data processing in the case of subscriptions to electronic newsletters.

There can be no doubt that telemedicine is the future of the field of medicine. However, the legislator also has a serious task in order to clarify the detailed rules.

### 5. Conclusion and a look to the future

In conclusion, telemedicine in Hungary has come a long way from the 1990s to the present. The development has not been uninterrupted, the initial mistrust on the part of the parties (both health actors and patients) has been slowly dissolved, but finally the constraints, especially the restrictions introduced during the COVID epidemic, have broken through this wall. Unfortunately, the growing shortage of doctors in Europe is also pushing the healthcare system in Hungary towards telemedicine, especially in the case of primary care GPs. We do not want to give the impression that only coercion has led to the spread of telemedicine, and the last thing we want is for it to be a kind of forced solution.

We believe that it is possible to provide effective health care in the right conditions and in the right framework. If we take into account the development of technology,

<sup>28</sup> Regulation 2016/679 of the European Parliament and of the Council Article 6 (1) a), Article 9 (2) a), h); XLVII of 1997 Act § 12.

<sup>29</sup> Regulation 2016/679 of the European Parliament and of the Council (1) c), d), Article 9 (2) b), g), h), i); Act XLVII of 1997 § 13, 15/A.; 18/1998. (VI. 3.) NM Decree § 21.

<sup>30</sup> Regulation 2016/679 of the European Parliament and of the Council (1) c), d), Article 9 (2) c), h); Act CLIV of 1997 Section 20 (1).

<sup>31</sup> Act CLIV of 1997 17.§ (2) b).

<sup>32</sup> Act CLIV of 1997 17.§ (2) a).

<sup>33</sup> Act CLIV of 1997 199-200. §§; Regulation 2016/679 of the European Parliament and of the Council (1) c), d), Article 9 (2) c), g), h).

<sup>34</sup> Regulation 2016/679 of the European Parliament and of the Council Article 6 (1) f).

<sup>35</sup> Regulation 2016/679 of the European Parliament and of the Council Article 6 (1) b), Article 9 (2) f).

<sup>36</sup> Regulation 2016/679 of the European Parliament and of the Council Article 6 (1) d), Article 9 (2) c).

<sup>37</sup> BDT2021. 4391 Szegedi Ítéltábla Gf.30.241/2020/12.

remarkable new paths are emerging. In Hungary, in the Electronic Health Services Area (EESZT) system, almost the entire patient journey and patient history is now available electronically (and all new events must be recorded, whether in public or private health services), providing doctors with a rare database available on a global scale. Combining this database with the latest technologies, in particular the data processing and prognostic capabilities of artificial intelligence, and the continuous monitoring capabilities of ICT tools (see mHealth), opens the way to the development of an alert system that can even automatically contact the doctor when necessary, based on the current state of the patient. Research into the development and application of this system is currently underway in several Hungarian research centres. The technology and the legislative environment are given, and in the case of data protection issues, there are still open questions due to the use of artificial intelligence, but the legislator will be forced to respond to this within the foreseeable future, so this direction of development seems promising for the future.