



EUROPEAN REGION

**World Confederation
for Physical Therapy**

eHealth to Improve Patients Care and Physiotherapy Services Briefing Paper

ADOPTED

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EHEALTH TO IMPROVE PATIENT CARE AND PHYSIOTHERAPY SERVICES BRIEFING PAPER

European Region of the WCPT

| | | |
|------------|---|-----------|
| 1. | Introduction | 3 |
| 2. | Definition of eHealth | 3 |
| 3. | Laws and regulation in regards to Electronic Health Records | 4 |
| 4. | Opportunities and advantages of integration of quality of care and eHealth in physiotherapy services | 6 |
| 5. | Robotic Rehab | 10 |
| 6. | Barriers in the use of eHealth in physiotherapy practice | 11 |
| 7. | Final recommendations for eHealth in physiotherapy | 13 |
| 8. | Concluding remarks | 15 |
| 9. | Information | 16 |
| 10. | References | 17 |

EU Matters Working Group Recommendation

“To investigate and disseminate good practices in the use of e-health to improve patients care in physiotherapy services.”

1. Introduction

eHealth is a relatively new and rapidly evolving field and so many of the concepts, terms and applications are still in a state of rapid change. eHealth is an emerging field of medical informatics, referring to the organisation and delivery of health services and information using the Internet and related technologies supporting service delivery. This term characterises not only a technical development, but also a new way of working, an attitude, and a commitment for networked, global thinking, to improve healthcare nationally, at European level and internationally by using information and communication technology.

The briefing paper provides a structural overview on the general purpose of eHealth, the possibilities of working with eHealth and makes recommendations for the use of eHealth in physiotherapy. The report from the discussion group on eHealth during the General Meeting (GM) in Limassol, Cyprus 2016 identified nine items that were considered to be barriers for the use of eHealth in physiotherapy practices. This briefing document will focus on the obliged legal issues together with the opportunities and advantages for the profession in regards to the barriers stated and the use of robotics in physiotherapy.

2. Definition of eHealth

European Commission describes eHealth as:

- The tools and services using **information and communication technologies (ICTs)** that can improve prevention, diagnosis, treatment, monitoring and management.
- The **improvement to access care and quality of care** and by making the health sector more efficient.
- The inclusion of information and data sharing between patients and health service providers, hospitals, health professionals and health information networks; electronic health records (EHRs); telemedicine services; portable patient-monitoring devices, operating room scheduling software, robotized surgery and blue-sky research on the virtual physiological human.

The European Union (EU) Commission outlines the eHealth goals as follows:

- **Improve citizens' health;**
- **Increase healthcare quality and access; and**
- **Make eHealth tools more effective, user-friendly and widely accepted.**

The EU matters Working Group has reached a consensus to present these four domains recognised within eHealth in physiotherapy, which are:

- Wellness and disease management;
- Management and Administration logistics and supply of health related goods and services;
- Medical evaluation and research collaboration; and
- ELearning and eSkills.

These domains include the examples presented by the Member Organisations (MOs) of the European Region of the World Confederation for Physical Therapy (ER-WCPT) during General Meetings, discussion groups and surveys.

3. Laws and regulation in regards to Electronic Health Records

To generate one single document including all legal aspects on eHealth for all EU member states will at this moment not prove to be clear and readable. Links to detailed information within this document should direct the reader to the correct (and detailed, when available) information.

Working as a physiotherapist within the canvas of eHealth obliges the use of the correct procedures in patient health data collection, data storage and data sharing.

The final report and recommendations (contract 2013 63 02) from 24 July 2014 gives an overview on national laws on **electronic health record** (EHR) in the EU member states and their interaction with the provision with cross-border eHealth services.

http://ec.europa.eu/health/ehealth/docs/laws_report_recommendations_en.pdf

It should be clearly noted that although some EU member states do not have specific national laws on informing patients on EHRs, the duty to inform the patient is then based on the general European and national **data protection legislation**. There is no country where EHRs can be created without informing the patient.

For each EU member state (including Norway as an observer state) there is a specific report available, containing the legal requirements applying to EHRs. Besides the current state of affairs, the potential future legislation is taken into account.

http://ec.europa.eu/health/ehealth/projects/nationallaws_electronichealthrecords_en.htm

Generally cross-border access to EHRs is not yet operational. The following 8 countries have at this stage set up or included in their legislation a legal framework for cross-border health data access.

In **Estonia** a patient who wishes to receive cross-border healthcare must be provided with the option to have remote access to his or her treatment documents or to have copies of the documents so that they can provide the documents to the cross-border healthcare provider.

In **Italy** the Decreto-lei / decree-law (D.L.) 179/2012 does not state any specific provision in this regard. Article 12(5) of D.L. 179/2012 requires the patient's consent for accessing EHR data, without making a distinction between internal and cross-border situations. Therefore, patient consent should be equally required in both internal and cross-border situations.

In **Lithuania** cross-border issues are not specifically regulated by the current legal framework. The data would be freely transferable within the EU under the general regulation of free movement of data.

In **Malta** there are no specific rules. However, the situation seems to be covered by general rules: transfers of personal data to third countries are regulated by Articles 27 and 28 of the Data Protection Act, and by the Third Country (Data Protection) Regulations.

In **Norway** in the case of transfer of personal data, there are the general rules in the Personal Data Act, chapter V. In effect, section 29, first paragraph of the Personal Data Act provides that personal data may only be transferred to countries that ensure an adequate level of protection of the data. Countries which have implemented Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data meet the requirement as regards an adequate level of protection.

In **Portugal** one of the options available in the Patient's Portal concerns the authorization for the sharing of data from the Resumo Clínico Único do Utente / Patient summary (RCU2) with "foreigner professionals (adherent to the European patient smart open services (epSOS) project)".

In **Spain** the provisions on implicit consent are currently applied. Article 10(5) of Royal Decree-law (RD) 1720/2007 states that an individual's consent to the disclosure of personal health data will not be necessary is also applicable to cross-border situation. Furthermore, Art 33 and 34 are further implemented by RD 1720/2007 whose Art 66 stipulates that there is no need for patient consent for the transfer of data between Member States when it is necessary for prevention, medical diagnosis, the provision of medical care or treatment or the management of health services.

In **Sweden** there are no legal barriers to hinder a cross-border exchange as long as the purpose of the exchange is within the requirements of the personal data act (implementation of the directive 95/46/EG) and the patient data act and other acts

which may be applicable to the specified situation. A cross-border exchange needs also to be based on patients expressed consent.

The Patient Data Act (2008:355), Chapter 2 section 3 also states that EHR, which is not allowed by the Act, may be allowed if the patient has given his/hers expressed consent.

Most of the countries are advancing in the setup of a national or in some cases a regional legal framework for the use of EHRs (including cross-border health care). Due to the vast differences between the member states a common interoperable platform is not yet possible. The legal issues concerning healthcare data are, in most countries, not yet fully incorporated into national laws and regulations. Therefore, cross-border healthcare data regulations will in the future follow national implementation procedures and timeframes.

4. Opportunities and advantages of integration of quality of care and eHealth in physiotherapy

The effective implementation and use of eHealth applications is a cross-cutting area that impacts quality of care within physiotherapy services. Integration of quality of care and eHealth sectors demonstrates in different ways that technology has the potential to improve the efficiency of many facets of healthcare delivery through, for example:

- helping physiotherapists to readily access comprehensive information on their patients / clients;
- monitoring of health status of patients / clients;
- reducing inappropriate variability in healthcare delivery;
- proactively identifying and altering the threats on patients / clients safety;
- easy access to learning tools and remote teaching facilities.

This topic was addressed during the Liverpool discussion session and the symposium in November 2016. Eight main opportunities were mentioned.

| Opportunity | Examples mentioned |
|--|--------------------------------|
| delivering services in remote areas | telemedicine sessions |
| supporting teaching | webinars, online courses |
| shortening of waiting times | virtual fracture clinic, ... |
| easier monitoring of training and patients state | FitBit, iWatch, ... |
| managing patients motivation | virtual reality training tools |

| | |
|--|--|
| directing patients PT-related actions | eExercise |
| lowering costs | |
| better solutions for prevention of different health states | bloggs, social media campaigns, PT-led (or PT included) new developments |

Placing them in order of relevance to patient - physiotherapist collaboration, they are included below.

Via **e-referral** the relevant information including patients case history and relevant diagnostic tests is electronically transferred. **e-Assessment** is used to assess the patient / client on a computer based (remote) system for formative, diagnostic or summative purpose. An **e-diagnosis** is an established digital information pathway of storage and communication of pathology information. Physiotherapists are able to monitor their patients constantly or during specific chosen periods with the possibility of direct and quick feedback and altering of changes tracked with **e-monitoring** tools. (Remote) **data management** systems ensure quality control and assist business administration purposes. **e-Discharge** summaries contain relevant and necessary information about a patient's episodes of care. This provides any practitioner with quick accessible information required to determine the patient's on-going care needs.

Opportunities

This provides physiotherapists with the following opportunities. The use of these eHealth tools and services should enhance content, quality and clarity, together with readability and therefore allowing the quality of care to be more efficient and effective. It reduces administrative load on the management system and is therefore less expensive. It also avoids misplacement of documents. Immediate feedback and standardizing time consuming and repeating questioning before physiotherapy assessment are made possible. Guaranteed electronically linking of test results to the right patient and healthcare worker files improves quality of care by reducing mismatching. The use of a standardized vocabulary enhances interoperability within various systems that communicate with each other. Physiotherapists are able to simultaneously monitor patients or different aspects of a patient. Interlinking systems provide easy to use data for quick and direct interaction with the patient in order to alter conditions aligned with the treatment.

Challenges

There are also challenges. Interoperability and the use of exact terms and references are the keystones in order for a system like this to work. Common agreement on 'language' is usually the most difficult part of the implementation and maintenance of an electronic service. The more and more complex data collection could prove to be

more time consuming and expensive than ‘classic’ pen and paper work. Therefore, it is very important for the physiotherapist to be able to use standardized interoperable systems with legible outcomes that are able to evaluate complex data. It is very important that the data systems are standardised through regulation, which leads to interoperability within these various information systems. Implementing regulation in a fast changing segment tends, in general, to be behind.

In the near and distant future more and more systems are going to be interoperable and more physiotherapists, and other healthcare professionals, will be obliged to use this. The integration and implementation of e-referrals in physiotherapy services will become standard. Good collaboration between the implementers and the users (physiotherapists) is important in regards to the ‘common language’ used. A standardization of vocabulary will allow healthcare professionals to adequately communicate and collect relevant data whilst providing healthcare services to their clients/patients.

eHealth is used in medical evaluation and for research collaboration. In the past decades there was a shift in physiotherapy practices whereby new technologies have supported and improved the quality of the physiotherapy care. **Gaming technology** – “**exergaming**” – is a novel tool to facilitate exercise, improve motor functions, and encourage rehabilitation training. Exergaming systems, used in rehabilitation, are often off-the-shelf platforms. This was mainly because of the relative affordability (availability, and ease of use of commercial off-the-shelf computer game consoles, which can be located in, and/or a person’s home making “training” more convenient and enjoyable.

There are hands-free robotic mobility devices for rehabilitation designed for people with mobility impairments. Companies are working with physiotherapists to develop the practice of [Robot-Assisted Physiotherapy \(RAP\)](#). In a session of RAP patients are lifted from a sitting position into a robot-supported standing position, allowing them to take part in a set of supported walking and stretching exercises, designed by specialist physiotherapists.

Another important aspect is that the use of these innovative technologies fit perfectly with the need to move toward e-Health as an adjunctive and useful aspect for physiotherapy care. As an example; using these technologies it may also be feasible to track rehabilitation at home (for specifically designed gaming programmes) via the internet so that physiotherapists can see if the patient is performing exercises correctly and alter the duration/intensity of training as well as monitor changes in motor performance.

eLearning encapsulates any form of eTool that facilitates Continuous Professional Development for physiotherapists and access to physiotherapy education programs to students and physiotherapists. Examples of eLearning are:

- Discussion forums to exchange ideas and experiences and ask peers for advice.
- Accessing the resources available via ePortfolio CPD resources workspace.
- Participation in webinars.
- Online Masters Courses for physiotherapists.
- Integrated eLearning programmes that provide courses or modules.
- Physiopedia which is an online encyclopaedia for physiotherapists offering a variety of eLearning opportunities such as online courses, an online research database which is also categorized according to physiotherapy topics, presentations and an online magazine.

There are various online courses that focus on eSkills. These online courses focus on the improvement of the practical skills of the physiotherapists, which use the following eTools:

- video-clips of patient-therapist sessions
- supportive text describing the aim, rationale, equipment, key points, common errors and methods of progression of treatment
- downloadable PDF documents incorporating the online text information and a still image of the video-clip for each practical skill.

Working with eHealth should result in a more efficient (qualitative) use of available time. After a training period the use of a tool or service must prove to be uplifting to aspects in the management of the patient /client care.

5. Robotic rehab

“A robot is a re-programmable, multi-functional, manipulator designed to move material, parts, or specialized devices through variable programmed motions for the performance of a task” Robotics Industry Association.

Robotics which are suitable for rehabilitation needs are usually mechatronic systems or devices with highly flexible mechanic structures that compensate impaired strength and/or motor control functions and provide opportunities for constant data collection and, therefore, continuous feedback about performance.

Robots functions in rehabilitation context can be divided into three categories: (1) provision of passive movements, (2) assisting active movements while lessening the impact of gravitational forces, (3) constraining specific active movements. Widely described robots can be either exoskeletons – robotic manipulators that follow the human skeleton, worn by the subject – and operational-type machines which provide patient/machine interactions at the end-effector level.

Opportunities

Robotic devices usually have the following main components: (1) mechanical structures with the degrees of freedom consistent with the task(s) to be executed, (2) joint-controlling actuators, (3) designed ambient (space that can be covered with the robot), (4) computerized sequences of tasks, (5) a computer. Rehabilitation robots have sensors which record movement-related data, i.e. velocity, position, force/torque of joints. Therefore, the rehabilitation robots can provide movement controllability, measurement reliability, and compensations for patients' physical capabilities. Hence monitoring of movement quality and progress are easier compared to the traditional approaches. Furthermore, especially in the context of neurorehabilitation, the robots can provide the opportunities for increased duration of training as well as benefits for variability, quality and repetition. Robotics are tireless compared to physiotherapists regarding physical capacities, but cannot function without specialists input and set-up according to a particular patient's needs.

Challenges

The robots available at the moment are usually targeted at rather narrow and specific applications, i.e. upper-extremity functions, gait training, ankle rehabilitation etc, and are significantly more expensive than other physiotherapy equipment. The restricted possibilities for flexible personalization – either physical or programming – and high costs for acquiring and/or maintenance are the two major challenges affecting the practical use of robotics. Even more so, the personalization-cost ratio is beyond reasonable which makes the robotics most suitable for highly specialized rehabilitation/physiotherapy programmes.

In clinical practice the users' comfort and quickest applications matter most, because time-related issues often dictate decision under financially constrained circumstances such as health care. The suitability for as many different needs as possible is another factor. Variable possibilities for adaptation certainly increase interest in using the benefits.

Future

Further research about more variable applications and device developments that are targeted at easier reconfigurations that would lead to easier clinical (or personal) usage are definitely needed. Development and research projects need to have physiotherapists alongside engineers and other specialists in order to target clinical needs.

Additional financing opportunities – charity projects, research funds etc. – would assist the introduction of robotic devices in physiotherapy practice.

6. Barriers in the use of eHealth in Physiotherapy practice

In opposition to all the (future) benefits that eHealth tools and skills can add to the quality of care in physiotherapy are a number of barriers, much like the challenges summed up in the previous points. What follows is an overview of the most urgent obstacles to overcome in the smooth implementation of eHealth as a package into physiotherapy services.

There are numerous legal aspects when working with or implementing eHealth into physiotherapy services. eHealth is a vast area, so this barrier is mostly a legal issue where physiotherapists can have little to no influence on a national level.

New evolution, wider and more frequent use will inevitably lead to a change in the way people can and need to be working within eHealth. Interoperability of systems and services at a national and international level will naturally evolve.

There is a need for a change in thinking by both the patient and the physiotherapist in regards to privacy and eHealth services. On a regional, national and European level, legislation is being developed to ensure patient privacy in the use of health data collection, storage and sharing. Changing the mentality of both the patient and the physiotherapist will take a certain period of time. Advocacy on this matter should be in the form of information through media and social media. Patients will eventually be obliged to take part in this evolution in order to get the necessary treatment.

Whereas in the past, physiotherapy was predominantly a hands-on profession, now it has evolved into a mix of high tech assessment and treatment in combination with manual interventions. This has resulted in a change of the therapeutic relationship between the physiotherapist and the patient. Using eTools and eServices should be to the advantage of both the patient and the physiotherapist in regards to effectiveness and safety.

Furthermore, regional, national and European legislation should stipulate the framework and consolidate all levels of legal canvases.

Legal frameworks on all concerning levels should secure the minimal standards of good practice for physiotherapy treatment within eHealth. The use of eTools and eServices can never be a goal but must, when in use, always be a means to more efficient reach of the rehabilitation objective. National bodies and the European organization must safeguard this objective.

Purchasing a device or service, learning how to use it properly and thereafter continue to effectively use it is time consuming.

The relevance of time is mostly off-set against earnings of the individual or the service. When does a new feature become relevant within physiotherapy services? When patient safety is secured and the eTool or eService proves to be time efficient after the training period this aid will become relevant for the physiotherapist. The investment of time, mostly in the learning process of a new feature, must be balanced against the benefits in the long run. For example, learning to use digital data storage on a cloud-based service (accessible wherever and whenever you choose) will prove to save time during, for instance, evaluations (on site, in patients' homes...). The need to go into the filing cabinet, retrieving the necessary documents and physically bringing them to and from the meeting implies that at the same time no other physiotherapist can add information to the health data file.

Physiotherapists operating on a management level could be encouraged to organize working conditions in a way that they are supportive to innovative solutions. This could be of great influence on how the time barrier is addressed.

In an ever faster changing environment updates are time consuming and can be troublesome.

When does “the new” become “the used-to-be”? Updates of eTools and eServices should always be relevant. Updates to ICT services and programs should be happening in the background with the least as possible intervention to daily necessary activity of the physiotherapy practice. The use of these programs should be chosen in relation to possibilities of ‘silent’ and continuous updates without changing the interface for the physiotherapy or patient user.

Which “authority” assures that the eTools on the market provide safe and relevant patient care? There must be a regulation and standardization of the tools to assure quality of care.

National physiotherapy bodies (professional organisations, quality institutes) must take a consulting role in setting out standards for eTools and eServices taking into account the issues of patient safety, standardized use of language and terms, relevance to scope of practice and continuous possibility of use.

Finally, the lack of common and specific physiotherapy terms in programmes / services proves to be challenging in the use of e-tools.

7. Final recommendations for eHealth in Physiotherapy

Evidence shows that eHealth systems can have a beneficial impact on the process of clinical care (World Health Organization, 2012). eHealth strategy implementation has to be supported by interoperable eHealth systems that should be regulated.

It is evident that national eHealth regulatory strategies lack the inclusion of the physiotherapy practices within their legal structures. As described above, physiotherapy practices within eHealth are widely used and therefore regulation of eHealth systems should include this physiotherapeutic dimension within it.

Keeping in mind that the need to develop eHealth systems did arise from the need to protect patients seeking cross-border healthcare, and that most of the time physiotherapy care is sought in the national health system, once the client/patient is back in his/her domestic health system; the ER-WCPT strongly recommends that eHealth national and European strategies have to include the physiotherapeutic aspect of care.

The wide scope of eHealth practices within physiotherapy is evident. This varies from research, to education and management, with physiotherapists being a major contributor to eHealth practices within the public health sector. Physiotherapists assist their clients/patients through innovative public health technologies, such as monitoring of physical activity levels; they enhance empowerment and education of clients/patients via eHealth measures which also lead the same clients/patients to self-manage their health and wellbeing.

According to the EU commission eHealth should focus:

“On improving health” - physiotherapists have a leading role in well-being and preventative programmes, by assisting the monitoring of health through mobile devices, tablet devices and through physical activity programs that are monitored via digital technology.

“On improving access to care” whereby eHealth is putting health service users in a more efficient and effective health system whereby quality of care is enhanced and it is also opening wider opportunities for countries who do not offer highly specialised care. Via its cross-sectional approach eHealth has to encapsulated in it the physiotherapeutic aspect of care and also standardise it within its national and European frameworks.

“Make eHealth tools more effective, user-friendly and widely accepted” this action established by the EU commission has to include in it the eHealth practices of the physiotherapy profession and therefore regulation and standardisation measures should be extended beyond the medical and nursing profession.

The ER-WCPT is also identifying various themes that require eHealth solutions in the coming years, which are:

- Efficient and effective organization of healthcare for people with chronic diseases.
- Allowing patients to have (more) control of their own care process, also known as patient empowerment.
- Offering increased transparency on quality and efficiency of care, by making the quality of healthcare measurable.
- Guaranteeing patient safety. Despite great efforts to provide patients with good care, incidents do occur in healthcare, due to incorrect, incomplete or unclear information. This can result in unintended harm to patients.

8. Concluding remarks

Although the use of eTools and eServices and working within a certain canvas of eHealth is widespread, the interpretation of what eHealth includes differs. Most of the EU countries are gradually, but in different pace, working towards legal frameworks for eHealth based physiotherapy services.

eHealth physiotherapy practices in the EU are at the same time very resourceful to complete the patient healthcare package and they are rapidly growing at micro, macro, national and European levels. The ER-WCPT strongly recommends that further actions should be taken at EU level to be able to monitor further development of the physiotherapy practice pertinent to eHealth measures that are mostly focusing in enhancing the quality of physiotherapy services.

Within the world of such a great variability and different opportunities, challenges and environments, the main recommendation in this area is to share the knowledge and practices as effectively as possible and the ER-WCPT could offer support for this.

The ER-WCPT should advocate to its Member Organisations to keep track of the changing and developing physiotherapy education and strongly emphasise the introduction of CPD-courses in order to broaden the mind of physiotherapists in the field of e-health.

9. Information – Important terms in the briefing paper

Briefing paper

A document prepared by the ER-WCPT that informs ER-WCPT Member Organisations and others about key issues that affect the physical therapy profession. It provides a clear and concise description and analysis of the situation or issue, any policy dimensions and implications, and may include suggested options or recommendations for action.

Data protection legislation

Legislation that has been or is being introduced to protect personal data handled by digital means.

eHealth

Healthcare practice supported by electronic processes and communication.

Electronic Health Record

The systemised collection of patient and population electronically-stored health information in a digital format.

eService

Short for electronic service representing an application or utilizing the use of information and communication technologies (ICT's) in different areas.

eTool

Short for electronic tool representing a computer or web based application intended to make a task easier.

Patient consent

A process of getting permission before conducting any healthcare intervention on a person.

Physiotherapist

Autonomous health professional who is responsible for developing, maintaining or restoring motor function and movement throughout the lifespan using evidence-based practice. He / she relieves pain and treats or prevents physical conditions associated with injury, disease or other impairments. A physiotherapist empowers patients and their carers to manage the condition outside clinical settings. He/she works within the scope of practice and their professional code of conduct.

Robotics

The interdisciplinary branch of engineering and science that includes mechanical engineering, electrical engineering, computer science and others. Robotics deals with the design, construction, operation and use of robots.

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