



EUROPE REGION

World Confederation
for Physical Therapy

Briefing Paper on eHealth to Improve Patients Care and Physiotherapy Services

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BRIEFING PAPER ON EHEALTH TO IMPROVE PATIENT CARE AND PHYSIOTHERAPY SERVICES

European Region of the World Confederation for Physical Therapy (ER-WCPT) EU Matters WG

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European Region of the World Confederation for Physical Therapy (ER-WCPT)

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 characterizes 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.

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 to 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; telemedicine services; portable patient-monitoring devices, operating room scheduling software, robotized surgery and blue-sky research on the virtual physiological human.

The EU Commission outlines the eHealth goals as follows:

- **improve citizens' health**
- **increase healthcare quality and access**

- **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:

1. Wellness and disease management.
2. Management and Administration logistics and supply of health related goods and services.
3. Medical evaluation and research collaboration.
4. 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. Integration of quality of care and eHealth in physiotherapy practices

The effective implementation and use of eHealth applications is a cross-cutting area that impacts quality of care within the 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:

1. Helping physiotherapists to readily access comprehensive information on their patients/clients.
 2. Monitoring of health status of patients/clients.
 3. Reducing inappropriate variability in healthcare delivery.
 4. Proactively identifying and altering to threats on patients/clients safety.
- **Activ8rlives: Eyksos** - sputum test and vital signs analyser. It predicts flare-ups in chest infections in those with long-term respiratory conditions with the hope of reducing hospital admissions and improving healthcare. The bacterial test is read by the EyKos unit to predict likely flare-ups.
 - **Babylon** - application has two core concepts: access and personalisation.
 - **AliveCor Module ECG** - Using your smartphone or tablet, this device instantly detects changes or abnormalities in heart rhythms.
 - **Elvie: 'Your most personal trainer'** - pelvic floor trainer was designed and developed with help from women's health

physiotherapists, corrects and visualises your Kegel exercises in 'real time'.

- **Quanttus** – provides continuous blood pressure monitoring.
- **Google: 'Smart' lens** - blood glucose level monitoring for people with diabetes. Taking one reading a second, the lens measures the level of glucose in the wearer's tears, and uploads the data to a smartphone or tablet.
- **Firstbeat – Bodyguard 2** - Firstbeat provides both a wearable device in the 'Bodyguard' and an analytics platform for users. Adapting developments from elite sport, Firstbeat created a platform that brings together physiological data and behaviour, which is used to influence health, wellbeing and performance.
- **FitBit Charge HR** – highly advanced technology that counts the activity data such as steps and distance, and provides continuous heart rate monitoring, sleep monitoring, flights of stairs climbed, and workout analysis. It will also profile your optimum heart rate training zones to make the most of your workout.
- **Lumo Lift** - The Lumo Lift, by LumoBodyTech, is marketed as the only activity tracker which tracks posture, steps, distance and calories.
- **STARFISH mobile application** - A mobile phone based application, using evidence based behaviour change techniques. It aims to increase the physical activity of stroke survivors.

4. eHealth in management and administration logistics and supply of health related goods and services

There are various data management systems that enhance quality of care within the physiotherapy practices such as:

- **eReferrals** – allows referral to be sent electronically along with the relevant information including patients' case history and relevant diagnostic tests. This eTool enhances content, quality and clarity of the referrals which can effectively impact the quality of care by making it more efficient, effective, more clear (no need to decipher hand-written information) less expensive and reduces the administrative load on the management systems. It also avoids misplacement of referrals.
- **eDiagnostics** – established digital information pathways of storage and communication of pathology information. This improves quality of care by guaranteeing that the results are linked to the right patients and healthcare provider, it saves time in matching of diagnostics, reduces the chances of mismatching, it saves administrative time mostly in the case of manual data inputting, it is

accessible to all healthcare professionals so it avoids discussion on diagnostics not stored in the same information system.

- eDischarge Summaries – contain information about patient's episodes of care, including their diagnosis and medication while in hospital, to provide the practitioner with the information required to determine the patients ongoing care needs. This enhances the quality of care by improving the discharge process and therefore the continuity of care, ensures that the discharge summaries are clear miscommunication due to illegible handwriting, it allows a wider care of services to be involved in the patients care pathway, creates efficient information system through direct download of discharge summaries on desktops.

Data management systems also ensure quality control and assist business administration purposes. It is very important that the data system are standardised through regulation, which leads to interoperability within these various information systems. Interoperability means that these systems all speak the same language through a standardisation of vocabulary. This standardisation of vocabulary will allow healthcare professionals whilst providing healthcare services to their clients/patients.

Examples of management and administration eHealth models:

- Building joint knowledge and exchanging experience with numerous parties through the Patient and eHealth platform.
- National single record of healthcare information within hospitals, to enhance the workflow of healthcare professionals.
- Integration of datasets to standardised SNOMED CT. SNOMED CT is international, medical terminology system, which includes a collection of terms with their synonyms and interrelationships to assist that the implementation of a uniform vocabulary in eHealth.

5. eHealth in medical evaluation and 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 such as Nintendo Wii (Wii) and Xbox Kinect (Kinect). 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.

REX: Exoskeleton is a hands-free robotic mobility device for rehabilitation is designed for people with mobility impairments. Rex Bionics is working with physios to develop the practice of Robot-Assisted Physiotherapy (RAP). In a session of RAP, REX lifts patients 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. A memorandum of understanding has recently been agreed with Birmingham NHS Trust to explore the potential use of the REX robot in the critical care setting, building upon REX's concept of RAP.

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

6. eLearning and eSkills

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

- Discussion forums to exchange ideas and experiences and ask peers for advice.
- Accessed the resources available via ePortfolio CPD resources workspace.
- Participation on 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 categorised 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.

7. Final Recommendations for eHealth in physiotherapy

Evidence shows that e-health systems can have a beneficial impact on the process of clinical care (World Health Organisation, 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 here 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 also keeping in mind that most of the times physiotherapy care is sought in the national health system, once the client/patient is back in his domestic health system, the ER-WCPT is highly recommending that eHealth national and European strategies have to include the physiotherapeutic aspect of care.

The wide scope of eHealth practices within physiotherapy is evident and varies from research, to education and management, with physiotherapists being also 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 well being.

According the EU commission eHealth should focus:

1. “*On improving health*” and physiotherapists have a leading role in this, surely in well-being and preventative programmes by assisting the monitoring of health through mobile devices, tablet devices and through physical activity programmes that are monitored via digital technology by the physiotherapist.
2. “*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.

3. *“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 measure should be extend farther than 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 organisation 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

eHealth physiotherapy practices in the EU are very resourceful to complete the patient healthcare package and they are rapidly growing at micro, macro, national and European levels. The EU matters working group members of the ER-WCPT are of the strong opinion 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.

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