

eHealth Stakeholder Group Report

eSkills and Health Workforce

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Issue Leader: Paul De Raeve, EFN

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1. Executive Summary

The objective of this report is to provide a better understanding of the various issues that impact eSkills development and needs in the eHealth field across the entire EU health workforce, by providing on the one hand an overview of the current challenges faced within the healthcare systems in the EU and on the other hand the existing innovative models of healthcare delivery through the use of ICT and the related eSkills gap of health professionals required for delivering and deploying eHealth services effectively. The eSkills of the health workforce have to reflect the needs of the health professionals and in particular the needs expressed by patients and individuals.

In order to achieve this outcome in the coming years, while health systems are reforming continuously, it is necessary to take up the possibility to strengthen education curricula (Directive 2013/55/EU¹) when appropriate and make full use of continuous professional development (CPD) programmes to link health workforce skills requirements to eHealth services. Healthcare professionals and patients should have the opportunity to influence the development of relevant curricula.

Finally, recommendations regarding concrete and feasible actions to be taken at national and European level to meet the above objectives are outlined in this report. Although clinical practice is the main scope for change, political recommendations are needed to focus on using existing EU legal frameworks and help Member States to upscale the existing health workforce and paving the way for advanced and innovative roles in the domain of eHealth services.

The comprehensive eHealth Stakeholder Group (eHSG) input to the European Commission provided by this report will contribute to accelerating scalable implementation of eHealth services in the EU Member States at regional, national and European level.

2. Recommendations

The eHSG agreed on the following recommendations on eSkills for the healthcare workforce:

- There is an urgent need to embrace the entire health workforce, and upgrading the eSkills of all healthcare professionals, managing and/or delivering cure and care to patients and citizens, while following technological developments in a timely manner.
- eSkills of healthcare professionals need to be up-scaled and effectively integrated into their education and training at both undergraduate and postgraduate level as well as through Continuous Professional Development (CPD).

¹ Directive 2013/55/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (EU) No 1024/2012 on administrative cooperation through the Internal Market Information System ('the IMI Regulation'). Official Journal of the European Union.

- Member States will need to transpose EU Directive 2005/36/EC, amended by Directive 2013/55/EU on time into their national systems with special attention to the updated education and training requirements for the health sectoral professions.
- CPD for all professionals working in health care should be widened to include both eHealth, including mHealth, and e-health services.
- A coherent development of eSkills at EU level necessitates the collaboration with all relevant stakeholders to map common eSkills for the appropriate use of eHealth services.
- Sharing practices can help learning from different approaches and using what has proven to be effective in terms of advancing eSkills of the health workforce.
- To enable the use of a Thematic Network and Social Cohesion Funds to implement change.
- Forecasting skills becomes an important criteria for health workforce planning in order to identify lacks of eHealth skills for the deployment of eHealth services.
- Patient-centred eHealth services require increasing the eHealth literacy of patients, citizens and health professionals.
- Healthcare professionals should be involved in the scaling up of the evidence needed on the delivery of eHealth and mHealth solutions before these are made available to patients and other users.
- The healthcare workforce needs to accommodate changes in the delivery of care with the use of eHealth and mHealth solutions which must be counterbalanced with cost-effective approaches to care.

3. Introduction

The eHSG, established in 2012 with the objective of providing comprehensive stakeholder input to the European Commission and the eHealth Governance Initiative, plays a crucial role in accelerating scalable implementation of eSkills for all health professionals.

It has been frequently emphasised that ICT can effectively support well-designed care service delivery processes, but that it cannot substitute for them². Telehealth and telecare services should be seen as complementary to the face-to-face consultations and not as a replacement³. The decision support and the possibility for remote are valuable tools in improving quality of care, but they cannot replace evidence-based clinical examination and proper diagnosis by a highly educated, skilled and full competent health professional.

² Lindberg et al. (2013). Using Information and Communication Technology in Home Care for Communication between Patients, Family Members, and Healthcare Professionals: A Systematic Review. *Int J Telemed Appl.* 2013; 2013: 461829.

³ Chain of Trust (2012) Project's Report: Main Findings & Final Recommendations. [online]: <http://www.eu-patient.eu/Documents/Projects/ChainOfTrust/EPF-report-web.pdf>

There is broad consensus among politicians about the crucial importance of eSkills for the EU and Europe: eSkills shortages, gaps and the digital divide will negatively affect growth, competitiveness, innovation, employment and social cohesion. Not surprisingly, a highly educated workforce for health stays high on the political agenda of the European institutions, as the ambition of each national health system in the EU should be to deliver safe, high quality and continuity of care in the most efficient and effective way⁴.

According to the EU study Chain of Trust, which analysed the results of 6.704 patients and health professionals about their perceptions in the use of eHealth, the issue of confidence and skills was very much present. The study concluded addressing the need to include eHealth related knowledge and skills in health professionals' curricula and CPD programmes, according to the different professionals' needs⁵. Additionally, the benefits of eHealth for the quality of care delivered to the patients as well as for the relationship between the health professionals was emphasised. eHealth has the potential to daily support patients in maintaining and improving the relationship with the healthcare professionals, especially for those patients living in remote areas. eHealth can also contribute to the promotion of self care as well as enhance the efforts and the choice of patients to effectively manage their health. As patient empowerment and improved digital health literacy are essential for a successful eHealth deployment⁶, the eSkills of the health professionals need to be up-scaled accordingly and effectively integrated in their education and training at undergraduate and postgraduate level and in CPD.

The adoption of new technology facilitating health services delivery must be accompanied by a health workforce able to undertake its professional duties more efficiently. As highlighted by the Chain of Trust project⁷, the health workforce absolutely needs to be involved in the design and development of eHealth solutions tailored to its ever-changing needs. It also must be able to understand what benefits it can derive from using such solutions and why working practices need to change. Without these prerequisites, technologies will not be fully integrated into existing healthcare pathways.

The importance of focusing on the digital skills of the health workforce relates to the changing nature of healthcare systems, the need for innovative ways to provide high quality healthcare in the context of ongoing liberalisation of the EU-US market, for example the TTIP agreement currently under negotiation between transatlantic partners, which could seriously impact quality and safety in the service delivery.

Although eHealth increasingly requires sophisticated eSkills, which involve continuous updating, health professionals are used to adaptation and change in a complex environment. In this context and due to the numerous stakeholders that are involved in the deployment and the delivery of eHealth services, concrete steps should be taken towards ensuring that the eSkills of health professionals support the design and the developments

⁴ De Raeve P (2011). Technology and Health. [online] <http://www.efnweb.be/wp-content/uploads/2012/05/Technology-Health-European-Voice-Sept.-2011.pdf>

⁵ Chain of Trust (2012) Project's Report: Main Findings & Final Recommendations. [online]: <http://www.eu-patient.eu/Documents/Projects/ChainOfTrust/EPF-report-web.pdf>

⁶ Bickmore, T. et al. (2009) Taking the Time to Care: Empowering Low Health Literacy Hospital Patients with Virtual Nurse Agents. Accessed online May 2013: <http://www.bu.edu/fammed/projectred/publications/BickmoreVirtualNurse.pdf>

⁷ Chain of Trust (2012) Project's Report: Main Findings & Final Recommendations. [online]: <http://www.eu-patient.eu/Documents/Projects/ChainOfTrust/EPF-report-web.pdf>

in line with the needs of citizens and patients. Therefore, the health professionals represented in the eHSG are ideally placed to advance the eSkills agenda for the entire health workforce.

4. The European Union approach

Improving the availability of eSkills necessitates concrete actions at EU and national level primarily in education, CPD and research, to strengthen the design of new labour and health policies.

Based on the Commission's Communication on "*eSkills for the 21st Century: Fostering Competitiveness, Growth and Jobs presenting a long term eSkills agenda and including five major action lines at EU level (2008-2010)*", adopted in September 2007, the Council of Ministers subsequently adopted Conclusions on a long term eSkills strategy in November 2007.

The EU long-term eSkills strategy has made good progress with several visible achievements, in particular acknowledging the need to identify future skills in the workforce (as presented by the Joint Action on EU Health Workforce⁸) and the creation of new job advancements, opportunities and profiles regarding clinical practitioners. Foresight scenarios on supply and demand (2015-2020), an analysis of the impact of global sourcing and a European eSkills Framework are now available as well as many multi-stakeholder partnerships. The Grand Coalition for Digital Jobs was launched by former European Commission President José Manuel Barroso at the conference "eSkills and Education for Digital Jobs" on 4 March 2013 in Brussels. In addition, the Employment Package adopted in 2012, the Digital Agenda for Europe⁹ and other flagship initiatives related to innovation, employment, education and industrial policy include references to the EU eSkills strategy.

Finally, the eHealth Action Plan 2012–2020, launched by the European Commission, emphasises the operational importance of enhancing the skills and digital health literacy of an eHealth-empowered health workforce and healthcare end-users to advance the digital agenda in the EU and Europe.

eHealth is 'the use of ICT in health products, services and processes combined with organisational change in healthcare systems and new skills, in order to improve health of citizens, efficiency and productivity in healthcare delivery, and the economic and social value of health. eHealth covers the interaction between patients and health-service providers, institution-to-institution transmission of data, or peer-to-peer communication between patients and/or health professionals'¹⁰.

In addition, the European Commission is financing an important number of projects throughout the EU (i.e. SmartCare, ENS4Care, Renewing Health, etc.), with the

⁸ Joint Action on Health Workforce Planning and Forecasting, 2013

⁹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (2010) A Digital Agenda for Europe. Brussels.

¹⁰ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (2012) eHealth Action Plan 2012-2020 - Innovative healthcare for the 21st century. Brussels.

overarching objective of providing concrete tools and evidence to pave the way for innovative solutions to tackle the current societal challenges of the healthcare systems.

Increasing the use of eHealth services is becoming a key priority in the healthcare systems as new technology can bring unique solutions to the societal challenges that lie ahead such as an increasing ageing population and the management of chronic diseases.

Moreover, following prior developments on CPD, the EU mapping study¹¹ provides certain recommendations with a view to facilitating a discussion to share and exchange information and best practices on CPD. eHealth is an acknowledged topic for CPD activities, as well as related topics such as patients' and citizens' empowerment, communication, etc. Importantly, the European Commission (DG Employment) is running an initiative named ESCO that describes the most relevant skills, competences, qualifications and occupations with the increasing relevance of the eHealth skills as transversal and cross-cutting skills¹².

5. Objectives

The main objectives of this report are to:

- Provide an overview of the current societal challenges in EU health systems;
- Highlight some of the challenges in the EU health systems requiring the use innovative models and the potential benefits of a eSkilled health workforce;
- Provide examples of actions at EU and international level that are working on the development of skills for health professionals;
- Present the different health professional perspectives and related activities as regards eSkills development; and,
- Provide recommendations that must be addressed at EU and national level for further development of eSkills within the health workforce.

6. Methodology

A qualitative methodology following an ethnographic approach was opted for designing evidence based recommendations as very limited and local quantitative data exists in published scientific journals relating to eSkills for health professionals for the use of eHealth services in the EU. The recommendations will serve as a basis for the further development of EU strategies encouraging the 'fitness to practice' of healthcare professionals from an eHealth perspective.

In order to deepen the work on eSkills by the health workforce, qualitative methods as the horizon scanning interviews approach¹³ may help to further identify challenges and gaps of eHealth skills of a variety of health professionals. This will support regional and national competent authorities to design health policies taking into account what is needed to move towards integrated care with the support of ICT, including a health workforce with adequate knowledge and skills enabling the development of patient centred cure and care.

¹¹ CPD Mapping Study, DG SANCO, 2014.

¹² European Skills, Competences, Qualifications and Occupations (ESCO), DG Employment, European Commission

¹³ Examples done by the Centre of Workforce Intelligence. See at <http://www.cfwl.org.uk/>

7. The challenges of the healthcare systems

To support strong and sustainable national healthcare systems, policy-makers and stakeholders need to develop and implement high-quality eHealth services¹⁴. Europe is facing a rapidly ageing population accompanied by an increase of people living with long-term conditions, disabilities, non-communicable diseases (NCD), chronic diseases and multi-morbidity¹⁵. This is matched with a decreasing percentage of the active population in the healthcare labour force to manage the delivery of patient-centric care^{16,17}. It is socially and economically unsustainable to maintain the traditional vision of healthcare delivery, focused only a curative approach, and is therefore necessary to move towards preventive care, helping citizens to have the best chance of remaining free from disease and at the same time to improve the curative care, making it more effective¹⁸.

When appropriately supported by ICT based solutions, the delivery of innovative healthcare may become more sustainable and effective¹⁹. Concrete benefits derived from ICT have been reported in areas of prevention and self-management of non-communicable diseases (NCD) facilitating the delivery of healthcare in communities and at home²⁰. Furthermore, there is a prominent role for ICT in supporting the reorganisation of health services towards integrated care^{21,22}. That said, ICT should not aim to replace services that require face-to-face contact between health professionals and patients, but it should complement and contribute to better service delivery in areas where it can play a genuine role.

With this regards, it is important not to undermine the importance of highly competent healthcare professionals. The possible increase in effectiveness and quality of care by ICT tools requires not only eSkills, but also changes in workflow and working methods. As mentioned above, ICT will rather be a tool, not the solution itself. Healthcare managers should be vigilant and ensure that the increased incorporation of eHealth/ICT does not alter workflow or methods in a way that is detrimental to the healthcare service. This may happen if the focus shifts too much towards costs and efficiency, rather than quality.

¹⁴ Sheikh A, McLean S, Cresswell K (2011). The Impact of eHealth on the Quality and Safety of Healthcare. An updated systematic overview & synthesis of the literature. Final report for the NHS Connecting for Health Evaluation Programme (NHS CFHEP 001). London: Imperial College London

¹⁵ EuroStat (2012). Population structure and ageing.

[online] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_structure_and_ageing

¹⁶ Kelly, D. (2005). Touching People's Lives with Technology. Presentation at the Silver Economy in Europe Conference in Bonn,

¹⁷ World Health Organisation (2010). How can telehealth help in the provision of integrated care. European Observatory for Health systems and Policies Policy Brief 13

¹⁸ Council of the European Union (2010) Council conclusions on investing in Europe's health workforce of tomorrow: Scope for innovation and collaboration. [online]: http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/lsa/118280.pdf

¹⁹ Lupari MT (2011). An investigation of the effectiveness and cost-effectiveness of a case management approach for older people with multiple chronic conditions within a community healthcare setting.

[online] http://www.rcn.org.uk/___data/assets/pdf_file/0003/484275/MarinaLupariFullthesis2011.pdf

²⁰ EPPOSI (2012). White Paper on Building a Workable Model for the Holistic Management of Chronic Conditions in Europe. [online] <http://www.epposi.org/index.php/aip-ccm/110-epposi-white-paper-pushes-the-boundaries-of-the-integrated-care-model-at-crucial-point-in-the-chronic-care-review-process-in-the-eu?format=pdf>

²¹ European Commission (2011). Proposal for a regulation of the European Parliament and of the Council on establishing a Health for Growth Programme, the third multi-annual programme of EU action in the field of health for the period 2014-2020. Brussels

²² Communication from the Commission to the European Parliament and the Council (2012) Taking forward the Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing. Brussels.

8. The need for a eSkilled health workforce

One of the fundamental pillars for maintaining sustainable healthcare systems and promoting high quality of care is the existence of a highly educated, dedicated and skilled workforce. Therefore, the identification of eHealth skills, together with exchanges of good, innovative, implemented and cost-effective solutions and approaches, is increasingly needed. In this context, the policy initiatives set out in the Digital Agenda can ensure that the health professional organisations, closely cooperating with European Commission, Member States and different stakeholders, are a joint driving force towards the uptake of eHealth services in the EU.

In the “Agenda for new skills and jobs”²³ it is recognised how significant the role of health and social care sector is in expanding employment opportunities, and in being the key drivers for providing new and attractive jobs in the years to come. Moreover, the emergence of new healthcare patterns to tackle multiple chronic conditions and the growing use of ICT tools also requires appropriate skills.

Although the entire health workforce needs to be eSkilled, the development and promotion of advanced roles, e.g. providing individuals with the ability to manage and utilise ICT tools for enabling integrated care, has the potential to boost the quality, safety and cost-effectiveness of healthcare²⁴. Advanced roles have made an enormous difference to the governance and management of healthcare, and seek to improve efficiency, enhance patient care, and improve health outcomes, thus ultimately contributing to the sustainability of healthcare systems^{25,26}.

The health workforce and patients in the EU are more mobile than previously. On the one hand, the Directive on the Mutual Recognition of Professional Qualifications (Directive 2005/36/EC, amended by Directive 2013/55/EU) sets the basic education requirements for the five sectoral health professionals (doctors, dentists, pharmacists, nurses and midwives) to allow them to work in other EU countries based on their qualifications. In light of this mobility, it is demanded that all national education and training curricula include e-knowledge, where appropriate, in order to ensure a minimum level of eSkills and eHealth competence.

On the other hand, the Directive on Patients’ Rights in Cross Border Healthcare (Directive 2011/24/EU) supports the free movement of patients in the EU while ensuring the same level of quality in healthcare provision throughout Member States. In this context of increased mobility, the eHealth component gains importance for delivering healthcare services at distance, maintaining a high level of care quality.

Nevertheless, traditional curricula do not always equip health professionals with the required knowledge and skills to use eHealth efficiently. Competences such as managing

²³ European Commission (2010). *New Skills and Jobs in Europe: pathways towards full employment*. Brussels

²⁴ Delamaire M, Lafortune G (2010). *Nurses in Advanced Roles. A description and evaluation of experiences in 12 developed countries*. OECD Health Working papers. France

²⁵ Royal College of Nursing (2012). *Advanced Nurse practitioners. A RCN guide to advance nursing practice, advance nurse practitioners and programme accreditation*. London, 2012.

²⁶ Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients’ rights in cross-border healthcare. Official Journal of the European Union.

health information and electronic health records in a safe way, awareness about confidential information, delivering care remotely, promoting the use of technology, empowering patients and citizens using a suitable language and communication, staying up to date with eHealth related issues relevant to deliver future services, etc. represent only a small part of the equation. Moreover, it is necessary to reinforce and adapt the CPD programmes, including activities foreseen to foster and deepen the competences of the health workforce during their working life.

Finally, the use of technology has shown the potential to support the health care systems in delivering cost-effective and high quality of care, it is now essential to get an understanding of the eSkills gap of health professionals required for delivering and deploying eHealth services effectively.

The following **main challenges** as regards the development of an eSkilled Health Workforce have been identified by the group:

1. The lack of knowledge and skills needed to use eHealth solutions remains one of the biggest barriers. This competence and confidence issue applies to both patients and health professionals, and represents a key variable influencing acceptance of an eHealth-enabled service.
2. There is not enough clarity as to what minimum eSkills health professionals and patients need for an appropriate use of an eHealth enabled service. There are already some projects that have been looking into identifying a set of eSkills needed but nothing has been done at EU level to cover the health workforce. Stakeholder engagement is key to facilitate such efforts.
3. eHealth services require different communication approaches and different ways of collaboration among patients and health professionals. Although there is evidence of the benefits of eHealth services, its success is challenged by the lack of literacy for their deployment.
4. Current educational activities to foster the acquisition of eSkills are patchy. Indications and recommendations to include a set of eSkills at the different stages of education of the health workforce, undergraduate, postgraduate and during their continuous professional development are missing.
5. The complexity of multi-national health activities (such as research, cross-border patients' and health professional mobility) leads to increasing challenges of the eHealth capability, capacity and roll-out.
6. Consideration must be given to the role that front-line professionals are usually excluded from the process of designing employment, educational and health policies at local, regional, national, European and international level. As a result professionals might not readily accept the adoption of new technologies which have substantial implications for their working practices.
7. There is risk of extra costs because of the implementations of eSkills taken from the delivery of health care. Quality of care and efficient health service should remain the

main task and objective of health professionals' education. Cost may be covered from a different budget than healthcare service.

8. There is potential for conflict between balancing improving outcomes through innovative technology on the one hand, and quality and safety, coupled with minimal bureaucracy, on the other.

In order to have a common understanding of what an eSkilled health workforce is, the eHSG agreed on the following points:

- A workforce representing all professions involved in healthcare that is familiar in using ICT in a healthcare delivery context while being aware of privacy risks for the patient
- A workforce that understand how ICT can help providing better and/or more efficient care while maintaining the patient in the centre and is culturally ready to innovate with ICT
- A workforce that can provide champions in designing and deploying new ICT-based healthcare pathways.

Furthermore, the eHSG members agreed that the **potential benefits** that an "eSkilled" health workforce²⁷ would bring into the health systems are:

1. Effective use of decision support services, such as clinical pathways and evidenced based decision systems, which will reduce obstacles hindering effective care;
2. Address current challenges with producing an effective healthcare inventory, which would identify experiences that have worked positively and that are contributing to make the system more efficient;
3. Enhanced and improved communication among health professionals, patient-centered care, team-work and centralised information;
4. Enhanced quality of care delivered to patients by maintaining continuity in the therapeutic relationship between healthcare professionals and patients;
5. Boost the potential of health promotion and disease prevention by addressing a wider population and improving the accessibility to health information;
6. Empower patients and families in the self-management of chronic conditions and long-term care providing better and quicker accessibility to advice, support, treatment and care;
7. Realise the full integration of care, relying on a health workforce able to make the best use of the technology and enhance integration, collaboration and cooperation

²⁷ Urbauer P, Herzog J, Pohn B, Forjan M, Sauermann S. Certification Programs for eHealth - Status Quo. Stud Health Technol Inform. 2014; 198:164-71

among health professionals and between health and social sectors, and primary and specialised care.

8. Patient education by providing health literature and information about their health situation.

• **9. The EU-US experience**

The potential of comprehensive eHealth skills development throughout the health workforce is also reinforced by an ongoing collaborative initiative between the US and the EU which was initiated by the Memorandum of Understanding on Cooperation surrounding health-related communications and technologies (December 2010) and a subsequent Transatlantic eHealth Cooperation Roadmap (February 2013). The latter addresses two themes, firstly it is looking at interoperability of electronic records systems and secondly, directly relevant to this report, the roadmap is looking at workforce issues and related skills (see Annex 1). More specifically, it aims at the identification of approaches for achieving a robust supply of highly proficient eHealth professionals and assuring health care professional have the eSkills needed to make optimum use of their available ICT tools.

The success of this transatlantic initiative relies on the engagement of a wide range of stakeholders including health professionals, patients' organisations, health systems, standards development organizations and the general public.

10. Experiences from profession-specific perspectives

a. Physicians

The Standing Committee of European Doctors (CPME), representing 33 National Medical Associations across Europe, aims to promote the highest standards of medical training and medical practice in order to achieve the highest quality of health care for all patients in Europe. In the field of eHealth, CPME believes eHealth should be a strong tool in modernising the health care sector and welcomes the use of eHealth solutions where they produce real benefits for patients and physicians.

EHealth tools and services clearly can be enablers to facilitate access to health services in remote or under serviced areas, as well as to reduce waiting times for medical procedures. It can also help improve the quality of the health service delivery and patient safety, e.g. for patients with chronic or rare conditions. eHealth can also contribute to better empowerment of patients. For professionals, CPME believes that eHealth tools and services can enable better working conditions, i.e. the facilitation of physicians' work or greater mobility of physicians in a cross-border context. If implemented and used appropriately, eHealth solutions might finally also help increase efficiency, e.g. by reducing duplication of tests and procedures and improving cooperation between professionals.

Considering these potential benefits for patients and physicians, CPME believes it is crucial that the design of eHealth solutions is led by the users themselves, and notably by physicians. In order to ensure eHealth solutions are adapted to the needs of physicians, it is crucial that the medical profession is included in these developments from the very beginning, in design and testing and on a continuous basis. Furthermore, evaluation of the applications when purchased and of their usability in the daily practice is key.

By way of a concrete example, CPME advocates certification mechanisms of mHealth applications to be led by healthcare professionals. In order to ensure sufficient reliability and safety of applications, an approval process in the form of a certification mechanism should be envisaged. mHealth applications should undergo a strict scientific review process based on generally accepted evaluation criteria and led by healthcare professionals. Introducing this type of certification process would ensure these applications can be trusted and are of real added value to end-users. In the Netherlands for instance, the “Aarts en Apps” project has been set up by which applications are reviewed and evaluated²⁸. The HON label for online health information managed from Switzerland is another good example²⁹.

In addition to including the medical profession in the design, implementation and evaluation of eHealth solutions, it is essential that physicians are empowered to use the devices. CPME has continuously advocated for eHealth to be included first in university curricula and second in CPD. It is crucial that physicians possess strong eHealth skills that are framed and adapted to their specialty.

Regular tailored training for physicians at the workplace are therefore needed. This would help guarantee the acceptance of these new technologies by physicians. Education, training and support should address the use of technology. The leverage of structural funds for the deployment of innovative tools and services at EU level as foreseen in the Commission’s eHealth Action Plan, should also be used for pilot projects setting up training activities for health professionals, including physicians.

b. Nurses

The European Federation of Nurses Associations (EFN), representing 3 million nurses in Europe, has put eHealth high on its political agenda and acknowledges that nurses must remain a part of this initiative as emerging healthcare challenges such as the ageing population, staff shortages, increasing healthcare expectations and rising healthcare costs are driving the demands for a more efficient, accessible, high-quality and affordable healthcare. The introduction of eHealth services needs to be accompanied by proper investments at national level on health professionals’ education, otherwise the risk of jeopardising the benefits of eHealth becomes too high.

Modernising Directive 2005/36/EC into Directive 2013/55/EU has been essential for enhancing the mobility of health professionals, primarily nurses who are becoming the most mobile and largest occupational profession in the healthcare sector. This mobility

²⁸ <http://www.artsennet.nl/Kennisbank/Medische-apps.htm>

²⁹ <http://www.hon.ch/home1.html>

provides opportunities for each nurse with an emphasis on the importance of guaranteeing safe and high quality of care. The modernised Directive, especially the Article 31, incorporates eight competencies which should be transposed into national legislation and as such into each nursing curricula. The process of compliance is guided by the development of an EU framework with more detailed nursing competencies, learning outcomes and topics taught (Annexe V). All competencies listed in Article 31 are e-skills sensitive which will lead to incorporating health literacy and specific e-skills into the nursing curricula.

The nursing workforce being the largest occupational group of health professionals, it is crucial to allocate sufficient resources to identify and have a good understanding of the generic eHealth skills needed and to integrate them into all levels of education, including CPD programmes. The nursing care continuum workforce, consisting of healthcare assistants, registered nurses, specialist nurses and advanced nurse practitioners, needs to rapidly accommodate changes in the delivery of care including the shifts to community based healthcare provision, use of eHealth & mHealth technologies, higher consumer expectations (quality and safety), new health threats and rising costs, which must be counter balanced with cost-effective approaches to care. Directive 2013/55/EU sets the requirements for registered nurses in the EU and emphasises the need for polyvalence.

The EFN, being part of the ESCO initiative (European Skills/Competences, Qualifications and Occupations³⁰), is working on the identification and definition of eHealth skills for the four categories of the nursing continuum of care. Although these skills are transversal and cross-cutting, the competences required will differ according to the levels. For example, the advanced nurse practitioner will need to be highly eSkilled in order to manage the tasks to be undertaken, i.e. ePrescribing, discharging patients and monitoring them at distance, etc. In several EU Member States, nurse ePrescribing is already a reality and evidence has showed its benefits. Therefore, the national governments have allocated resources to invest in the nursing education and to update the skills and eSkills required.

In this context, the opportunities for any regulated profession is to have eSkills being included in their curriculum, as a topic or competency or even as a learning outcome. To go a step further, EU developments (see ESCO) could allocate eSkills knowledge and skills cross cutting to make sure all health professions master eSkills to treat, care and communicate with each other.

Nurses are located in many different environments, including home care and nursing homes, hospitals and primary care settings, therefore it is necessary to streamline the skills needed to face different realities³¹. In addition, nurses must be able to influence the development of technology reflecting both usability and user-friendliness, to deliver “fit for

³⁰ European Skills/Competences, qualifications and Occupations (ESCO), <http://ec.europa.eu/social/main.jsp?catId=1042&langId=en>

³¹ Deloitte (2012). Primary Care: Working Differently - telecare and telehealth: a game changer for health and social care. Accessed online Mar 2013: www.deloitte.com/assets/Dcom-Angola/Local%20Assets/Documents/uk-ls-telehealth-telecare.pdf

practice” innovative solutions to empower patients, make health systems sustainable and more accessible³².

Finally, more than 90% of nurses in the EU are women and therefore the gender issue needs to be considered when designing eHealth services and ICT tools that need to be gender-friendly³³.

As an example from the US, the Division of Nursing within HRSA (Health Resources and Services Administration) has several programs underway focused on advancing the health IT skills of the nursing workforce, recognizing these skills as essential building blocks to improving access to affordable high quality health care. There have been funding opportunities (through the Advanced Nursing Education funding) for projects that incorporate health technology into advanced nursing education and engage inter-professional students in these curricular activities. The aim of these initiatives is to integrate health technology into nursing curriculum, nursing students will develop enhanced skills and experience in ICTs and will be prepared to use these technologies to their fullest potential-for communication and health care delivery across the entire health care team. Improved quality, enhanced safety, and effective/efficient care are the result of team-focused, ICT-based care.

These experiences could be used transferred into the European context and into the other health professions, and learn from them what approaches (political, educational, workforce-related, managerial, etc.) could be deployed at EU level to enhance the eSkills of the European health workforce.

c. Dentists

The Council of European Dentists (CED) is a European not-for-profit association which represents over 340,000 dental practitioners across Europe through 32 national dental associations and chambers in 30 European countries. The CED key objectives are to promote high standards of oral healthcare and dentistry and effective patient-safety centred and evidence-based professional practice across Europe. It is therefore committed to continually reviewing and updating its strategic plan in order to ensure that the profession meets oral healthcare needs in Europe both at present and in the future.

A guiding vision of CED regarding the future of dentistry is that every European citizen has access to quality oral healthcare provided by well-educated, skilled and fully competent dental practitioners, in a comfortable and cost-effective manner, using the most appropriate technology.

In May 2011, the CED established a Working Group on eHealth and has since then actively followed the EU political and legislative developments on eHealth which can have an impact on the dental profession.

³² European Federation of Nurses Associations (2012). EFN Position Statement on Skill Needs, Skill Mix and Task Shifting in Nursing [online] <http://www.efnweb.be/wp-content/uploads/2011/09/EFN-Position-Statement-on-Skill-Needs-Skill-Mix-and-Task-Shifting-in-Nursing-2008-Rev-Oct.-2012.pdf>

³³ Flynn-Dapaah (2010), Gender Digital Equality in ICT Interventions in Health: Evidence from IDRC Supported Projects in Developing Countries, *The Journal of Community Informatics*, Vol. 5, No 3 (2009) & Vol. 6, No 1 (2010): Special Double Issue: Gender in Community Informatics.

eHealth solutions could be a supportive tool to the delivery of healthcare by empowering patients, facilitating contacts between dentist and patient, encouraging adherence to a healthy lifestyle and by improving knowledge of their own health. They could also contribute to prevention initiatives and to improving quality of life and serve as a tool for health education of patients. However, eHealth solutions must not be intended to replace healthcare professionals as they remain central to providing healthcare.

Furthermore, the benefits of eHealth solutions should in no way compromise patient safety and patients' fundamental right to privacy and confidentiality of their health information. To guarantee this, healthcare professionals should be involved in a strict scientific review process of eHealth solutions before these are made available to patients and other users. Given the rapid developments in the area of eHealth, healthcare professionals should be equipped with relevant skills for eHealth through appropriate training programmes and initiatives in order to use new technologies in a comfortable and safe way.

d. Pharmacists

Community pharmacists

The Pharmaceutical Group of the European Union (PGEU) represents over 400,000 community pharmacists across 34 European countries. We have been active in the development of eHealth solutions, in particular with reference to ensuring healthcare professionals (including community pharmacists) are consulted during the development of, and especially during the use of eHealth solutions. The PGEU has been actively involved in the eHealth Governance Initiative (eHGI)³⁴ and has more recently begun collaboration with the International Society for Telemedicine & eHealth (ISfTeH) who organise their annual "Med-e-Tel"³⁵ event where eHealth stakeholders exhibit their most recent initiatives. The following main points are critical from the pharmacists' perspective.

Public confidence in the protection of data from eHealth activities is key to its successful deployment. Practitioners dealing with health data should receive training on the safe keeping of such data, as required, by the introduction of new technologies. Pharmacists have significant experience in handling sensitive health data and are set to continue to do so with the introduction of initiatives such as the French "Dossier Pharmaceutique" and patient summary care record access³⁶.

As pharmacists' practice in Europe is developing into a broader portfolio including outcome focused, private and state financed patient services, a number of eHealth and mHealth solutions are being developed by community pharmacists. These include for example, almost 100% participation in either full-scale development or pilot-scale initiatives in eDispensing services amongst surveyed PGEU members. These developments obviously have implications for training and education requirements for the professionals who are expected to use them and one of the key factors to consider is that pharmacists are provided the appropriate support for learning and training on these initiatives.

With the adoption of Directive 2011/62/EU on Falsified Medicines, there are significant ICT changes planned for all stakeholders in the medicines supply chain, including community

³⁴ <http://www.ehgi.eu/default.aspx>

³⁵ <http://www.medetel.eu/index.php>

³⁶ L'Ordre national des pharmaciens de France, 2014, (<http://www.ordre.pharmacien.fr/>) (personal communication)

pharmacists. As such, one of the most pressing issues in the coming years for community pharmacists will be their ability to engage with the new systems and software.³⁷ Access to appropriate training programmes and CPD related to eSkills for eHealth and mHealth initiatives should form part of the repertoire of voluntary or mandatory CPD activities pharmacists can engage in. This is particularly relevant with respect to the previous points made above.

Hospital pharmacists

The European Association of Hospital Pharmacists (EAHP) is an association of national organisations representing hospital pharmacists at European and international levels. 34 National Associations with more than 22000 hospital pharmacists are currently representing in the EAHP. Membership within EAHP is open to countries members of the Council of Europe. On the 1st of August 2011, the EAHP officially became an International Not-for-Profit Organization, and adjusted its policy to better face modern challenges.

EAHP represents and develops the hospital pharmacy profession within Europe in order to ensure the continuous improvement of care and outcomes for patients in the hospital setting. This is achieved through science, research, education, practice, as well as sharing best-practice and responsibility with other healthcare professionals. EAHP is funded by membership dues, revenues generated by the yearly congress, advertising revenue related to the annual congress and educational grants. EAHP provides hands on educational events available to its members via the EAHP Congress, the EAHP Academy, Academy Summit and Academy Seminar events. The aim of the EAHP Academy is to foster research and educational activities to allow hospital pharmacists of every European country to develop their activities in a general setting of public health in Europe or in their country.

EAHP participates with representatives in the eHealth Stakeholder group of the European Commission and is strongly involved in the IHE Europe initiative (Integrating the Healthcare Enterprise) and in the IHE Pharmacy from the beginning, working together with users and developers of information technology for healthcare to achieve interoperability of systems through the precise definition of healthcare tasks, the specification of standards-based communication between systems required to support those tasks and the testing of systems to determine that they conform to the specifications. The work is managed by IHE Committees and supported by various national and international bodies and among them EAHP.

In the hospital environment the hospital pharmacists are strongly committed to the eHealth teams of the hospitals and they implement in their everyday life the use of ePrescription, the patient health records, and they collaborate with the hospital employees, staff and management in the development of the Hospital Information Systems.

EAHP takes a pro-active and engaged view when it comes to the challenges of future technology in the hospital pharmacy environment in eHealth as well as in mHealth in order to improve information exchange between healthcare providers and organizations that

depend on pharmacy-related workflows and processes, and develop ways to automate collaborative workflow between the healthcare professional teams.

e. eHealth/Health Informatics specialists

eHealth has been defined by reference to the EC eHealth Action Plan 2012-2020 on page 6 of this document³⁸. In a day to day context professionals may be involved in both specialist eHealth (eH) functions and broader health informatics (HI) activity. The field is populated by many types of professional; end users, those delivering solutions and those developing the people who use and provide such solutions. The competences of this diverse community are eclectic. Growth of eH/HI in different areas across Europe has been various, but nowhere remains a green field site. Therefore it is necessary to look to the use of standards NOT standardisation to enable professionalism to be recognised.

Trans-national, cross-sectoral initiatives, a widening market, multi-disciplinary project teams, multi-functional roles, differing capacities and capability add complexity within the eHealth/health informatics specialist workforce which is always developing and subject to external pressures. Individuals work in operational health organisations, academia and commercial service provider organisations, and the objective is to establish standards that can be applied to all areas. It is currently difficult to confirm with any consistency, competency levels across Europe.

There are some significant international initiatives that contribute to facilitating cross-border mobility for such specialists. The ongoing EU:US Memorandum of Understanding / Roadmap on eHealth cooperative initiative³⁹ stated (Dublin, May 2013) that '*Strategies for development of a skilled health IT workforce and of eHealth / Health IT proficiencies in the health professional workforce such that clinicians can fully utilize the technology's potential to enhance their professional expertise and performance*'. In addition, the IMI EHR4CR project (www.ehr4cr.eu) is developing standards of competence and a Code of Conduct and Ethics for clinical research informatics as delivered by organisations carrying out research under the aegis of the EHR4CR Institute internationally. The Health Informatics Society of Ireland is contributing to a development of the European eCompetency Framework (www.ecompetences.eu), addressing IT requirements for the health domain. The UK has, through the UK Council for Health Informatics Professions (www.ukchip.org) and in future through the participating professional bodies of the Federation of Informatics Professionals, developed standards of competence for personal certification of health informaticians. These standards are utilised for both eHealth/health informatics specialists and to describe the embedded eHealth/health informatics competences demonstrated by other health professionals alongside their clinical or management discipline' requirements. All these initiatives are being cross-mapped to ensure synergy and enable more effective workforce mobility.

IT professions collectively have few consistent formal qualifications per se, albeit some individuals are highly qualified and/or voluntarily professionally regulated. In the specialised eHealth/health informatics scenario, technologies and applications are always in development and so any formal competence requirement in that area requires continual review and international collaboration to remain comprehensive and contemporary.

³⁸ http://ec.europa.eu/health/human-use/falsified_medicines/index_en.htm

³⁹ www.healthit.gov/sites/default/files/HHS_EC_MOU_CooperationHealthInfo_and_ComTechSigned.pdf

- **11. Conclusions**

The eHSG considers that there is a need to focus on education of healthcare professionals in the area of eSkills. Upgrading eSkills of the sectoral professionals is a good starting point as the modernized legal framework (EU Directive 2005/36/EC, amended by Directive 2013/55/EU) provides significant opportunities.

Delivering cure and care to patients and citizens, while following technological developments in a timely manner, with the appropriate skills can enable the further design of integrated care in a more cost-effective way while safeguarding quality and safety.

In order to have a coherent development of eSkills at EU level it is necessary to continue the collaboration with all relevant stakeholders to map common eSkills⁴⁰ on which an appropriate use of eHealth services is built, next to an appropriate planning and forecasting (future skills needs) of the health workforce to identify lacking eHealth skills to deploy eHealth services for integrated care. The healthcare workforce needs to accommodate changes in the delivery of care, including the use of eHealth and mHealth technologies, higher consumer expectations (quality and safety), new health threats and rising costs, which must be counterbalanced with cost-effective approaches to care. The use of Social Cohesion Funds is therefore key to make that change front-line possible.

40 For example through ESCO, European Skills, Competences, Qualifications and Occupations, DG Employment.

Annex 1: Brief description of EU projects covering eHealth workforce and digital skills (add web addressed for more details)

1) CAMEI Project

CAMEI will contribute towards innovation in eHealth in Europe by providing the ground for IT-Skilled healthcare workforce through the following actions⁴¹:

- Identify common challenges and opportunities on providing IT skills for healthcare workforce
- Assess the cooperation potential among the EU and USA
- Benchmark in detail policy priorities of USA on IT skills for Healthcare workforce and research sub-areas with those of EU (i2010, FP7-ICT strategic priorities, Horizon 2020)
- Identify the means and the guidelines of sharing, re-using, and repurposing technologies of new educational material and programs for IT-skilled workforce in healthcare applied in the different context, different languages and cultures in the EU and USA.
- Locate a prominent base of cooperation where mutual benefits can be generated for both regions

2) ENS4Care Project

ENS4Care is a project coordinated by the EFN which will build a sustainable network of key stakeholders – nurses and social care workers, patients, industry, public authorities and research excellence centers – focusing on developing guidelines for the deployment of eHealth services, mainly telehealth and telecare services, anchored on proven successful, implemented and cost-effective telehealth and telecare practices in the field of prevention, clinical practice, integrated care and skills development for advanced roles and nurse e-Prescribing⁴². Consensus building within the network and beyond on existing evidence based clinical guidelines with the fieldworkers is key for implementing innovation at a time healthcare system within the European Union are reformed due to austerity. In order to achieve change, ENS4Care will (i) share good nursing and social work practices in telehealth and telecare and identify the key components for their successful implementation throughout the EU, (ii) identify the eSkills needed in nursing and social care workforce to take up the evidence based guidelines, (iii) promote a culture of patient empowerment and cost-effectiveness of any innovative telehealth and telecare service, (iv) boost innovation and research in nursing, social and health care to support policy-makers and politicians when designing health and social policies within the EU; and (v) establish a sustainable research excellence network – the European Nursing Research Foundation – to build research and policy capacity to respond to Horizon 2020. The expected impact is in terms of boosting deployment of telehealth and telecare services across the EU and even beyond by providing evidence based clinical guidelines for a highly skilled nursing and social care workforce to innovate the continuity of care process, by fostering

⁴¹ <http://www.camei-project.eu/>

⁴² <http://www.ens4care.eu/>

empowerment of patients and by designing cost-effective integrated care pathways supported by ICT solutions.

3) US:EU Memorandum of Understanding (MoU) on Cooperation surrounding health-related communications and technologies (December 2010)

Given the increasing awareness of the relevance of the use of ICT tools within the healthcare system, the European Union and the United States decided to start a process of collaboration to strengthen the use of eHealth services, promoting individual and community health while fostering innovation and economic growth.

A Memorandum of Understanding (MoU) was signed in December 2010 at the meeting of the Transatlantic Economic Council (TEC) to reinforce the relationship between EU and US in this field⁴³.

In 2012 the former DG INFSO (current DG CONNECT) and the US Department of Health and Human Services (DHHS) elaborated a common roadmap with the main challenges and steps to be undertaken, that was presented the same year in occasion of the eHealth week in May. Two milestones were identified: EHR Interoperability and IT Workforce Skills. Within the second objective, the purpose is to work together on ensuring that healthcare, public health, and professional workforces have the eSkills needed to make optimum use of eHealth services. At the same time, any competency and knowledge deficiencies among all staff in healthcare delivery, management, administration and support to ensure universal application of ICT solutions in health services' is addressed. The project is currently looking at the scope, scale and characteristics of the healthcare workforce in the US and EU in terms of current and future eHealth capabilities. It is building a role-based competency matrix linked to job titles for all the healthcare workforce, and will identify commonalities and differences in roles, responsibilities and modes of working. Thereafter it will assess healthcare settings and curricula for chosen scenarios in the US and EU.

Analyses of competencies required by the diverse care workforce will cover:

- professionals in the field;
- academic track for new professionals (pre-service) and those transitioning from other health disciplines and from mainstream ICT into the health sector;
- all staff in healthcare delivery, management, administration and support.
- allied healthcare teams; and
- health IT professionals.

The project is currently defining and seeking agreement of common standards of professionalism that identify "fitness to practice" to support certification / accreditation of the competence of any health professions in effective eHealth activities.

⁴³ http://ec.europa.eu/information_society/newsroom/cf/newsletter-item-detail.cfm?item_id=8146

Annex 2: Abbreviations

CED	Council of European Dentists
CPD	Continuous Professional Development
CPME	Standing Committee of European Doctors
EAHP	European Association of Hospital Pharmacists
EFN	European Federation of Nurses Associations
eHSG	eHealth Stakeholder Group
ESCO	European Skills, Competences and Occupations taxonomy
EU	European Union
ICT	Information and Communication Technologies
ISfTeH	International Society for Telemedicine & eHealth
MoU	Memorandum of Understanding
NCD	Non-communicable diseases
PGEU	Pharmaceutical Group of the European Union
TEC	Transatlantic Economic Council
TTIP	Transatlantic Trade and Investment Partnership
US	United States