Mobile Health consultation response

EuroHealthNet response to the European Commission's public consultation on the Green paper on mobile Health (mHealth)

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1. Introduction of the organisation

EuroHealthNet is a not-for-profit partnership of organisations, agencies and statutory bodies working to contribute to a healthier Europe by promoting health and health equity between and within European countries. EuroHealthNet achieves this through its partnership framework by supporting members' work in EU and associated states through policy and project development, networking and communications.

EuroHealthNet seeks to address the factors that shape health and social inequalities, building the evidence base for public health and health-related policies and health promotion interventions to level up the social gradient in health. Enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being. EuroHealthNet therefore stimulates and supports the implementation of integrated approaches addressing the social determinants of health by operating at all levels and across the political spectrum in relevant health, social and employment fields.

Our vision builds on the 'Health for all policies' approach, which systematically considers the health implications of decisions and fosters synergies to improve health, wellbeing and health equity. We consider that the current socio-economic challenges that the EU is facing (demographic changes including ageing, growing regional imbalances and social inequalities, high youth unemployment rates, etc.) represent public health emergencies, jeopardises EU citizens' long-term health prospects and are likely to widen health inequalities.

2. Mobile Health relevance to EuroHealthNet

Mobile Health (mHealth) is a relevant topic for EuroHealthNet as it bears great potential for novel means of health promotion, disease prevention and healthcare. The use of mobile and wireless technologies can support achievement of various health objectives.[1] If designed and applied properly, mHealth can help promote health, prevent disease and reduce health inequalities by empowering people, helping them monitor their own health, taking more responsibility and control over their health decisions and allowing them to take a more informed and active role as active patients in the health care system.[2] [3] mHealth brings possibilities for greater personalisation and more citizen-focused health and medical care.[4] It allows more targeted public health and medical interventions, remote diagnosis and monitoring, and better communication between patients and health care professionals.[5] mHealth offers a huge set of tools and opportunities for improving health, wellbeing and people's quality of life.

However, there are various aspects that have to be taken into consideration when designing and implementing mHealth solutions. One is that there are different levels of knowledge, skills and capabilities within the social groups, which play an important role in understanding new technologies and the messages it delivers. If they are ignored then mHealth promotion activities and mHealth treatment and monitoring will widen inequalities and create an even bigger health gap between advantaged and disadvantaged groups in society.[6]

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[1] mHealth. New horizons for health through mobile technologies. Global Observatory for eHealth series – Volume 3. WHO. 2011
[2] http://www.weforum.org/issues/mhealth
[3] mHealth to prevent disease and reduce healthcare expenditure. http://cor.europa.eu/en/news/Pages/mhealth.aspx
[4] http://www.mobilehealthglobal.com/media/upload/pdf/mobile-health--mirage-or-growth--opportunity_editora_39_7_1.pdf
[5] Socio-economic impact of mHealth. An assessment report for the European Union. PWC. June 2013
[6] T.Otte-Trojel. eHealth promotion and equity in the EU. Nov 2011

It is therefore crucial to ensure that the design and application of mHealth is tailored accordingly to the needs and skills of different (social) groups, and that the merits of health technology benefit the whole society.

EuroHealthNet responds to the consultation by focusing and commenting particularly on the questions that are most relevant to health promotion and disease prevention from the social and health equity perspective.

3. Responses to questions

3.1 Equal access and accessibility

What policy action could be appropriate at EU, as well as at national level, to support equal access and accessibility to healthcare via mHealth?

Mobile health has the potential to reduce inequalities by improving access to health information services for disadvantaged and hard-to-reach groups. [7]mHealth also has great potential to reach the more vulnerable groups who might be uncomfortable in traditional hierarchical settings.[8] The benefits of mHealth can be made available when technological devices and applications are designed and applied carefully, by taking into account the various levels of skills of different population groups, their motivation, confidence levels and capacities to make the most of mHealth applications. If it is, on the other hand, applied without adequate tailoring to different target groups and without taking into account the varying levels of knowledge and skills of different populations (such as older people, people with lower education levels, people with mental illness or other disabilities) as well as their differing levels of digital/eHealth literacy then it can hamper health promotion

[7] eHealth initiative. A study and report on the use of eHealth tools for chronic disease care among socially disadvantaged populations. California healthcare foundation. 2012
[8] S. Marschang Health inequalities and eHealth. Report of the eHealth stakeholder group. Feb 2014

and even cause harm.[9] Therefore it is crucial to understand the various levels of literacy within the population and take these aspects into account when designing and implementing mHealth solutions.

Health literacy is a highly important skill for managing one's own health. Health literacy is defined as the ability to obtain, understand, process and to apply health information properly.[10] According to the WHO, "Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgments and take decisions in everyday life concerning health care, disease prevention and health promotion to maintain or improve quality of life during the life course."[11] [12]
High levels of health literacy enable people to follow medication and treatment instructions and understand and interpreting health information. Health literacy affects health outcomes and contributes to health or ill health. The levels of health literacy within populations vary and are often linked to the socio-economic status.[13] Health literacy is therefore a very important aspect to consider when developing any health interventions. EuroHealthNet is involved in the IROHLA project ("Intervention Research on Health Literacy among Ageing population"), which focuses on improving health literacy for older people in Europe and looks into various best practices from different sectors to enhance health literacy in the ageing population.[14]

[9] T.Otte-Trojel. eHealth promotion and equity in the EU. Nov 2011
[10] http://www.irohla.eu/about/health-literacy/
[11] http://www.euro.who.int/__data/assets/pdf_file/0008/190655/e96854.pdf, http://www.irohla.eu/about/health-literacy/
[12] http://eurohealthnet.eu/sites/eurohealthnet.eu/files/publications/pu_8.pdf
[13] T. Otte-Trojel. eHealth promotion and equity in the EU. Nov 2011
[14] http://www.irohla.eu/home/

Digital health literacy or eHealth literacy is another important skill that is needed for successful mHealth interventions. *Digital heath literacy or eHealth literacy* is defined as "a set of skills and knowledge that are essential for productive interactions with technology-based health tools".[15] Ehealth literacy is a prerequisite for creating positive health outcomes. It is described as "the ability to seek, find, understand and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem".[16] Digital literacy is not just the ability to use technology but also the ability to use technology in a skilful and effective way to one's advantage, which places a high demand on the individual's skills and abilities.

Individual levels of digital health literacy vary and are also linked to one's socio-economic status, which means they are largely shaped by social and environmental factors.[17] Many Europeans, especially vulnerable groups, such as the lower socio-economic groups and the elderly, lack basic online skills, which creates obstacles to engage with mHealth in an appropriate way. Insufficient knowledge, skills and communication barriers create a digital divide within society.[18] Improving health and eHealth literacy levels is crucial as it is one of the main contributors to the full potential of mHealth and its benefits.

As stated in the EU digital agenda scoreboard, the most prominent reasons for not using the internet are lack of skills and costs. Altogether 47% Europeans have insufficient internet skills and 23% have no skills at all[19]. For the disadvantaged groups the situation is even worse, the rate for people with "no skills" within these groups increases to 38%. [20] This means that in the current situation most people would not be able to benefit from the full potential of mHealth solutions. The goal of

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[15] Chan, Connie, Kaufmann, David. A framework for characterizing eHealth literacy demands and barriers" Journal of medical internet research. Vol 13, No 4

[16] Norman & Skinner. "eHealth Literacy: essential skills for consumer health in a networked world." Journal of medical internet research. Vol 8, No 2

[17] T. Otte-Trojel. eHealth promotion and equity in the EU. Nov 2011

[18] S. Marschang. Health inequalities and eHealth. Report of the eHealth stakeholder group. Feb 2014

[19] http://ec.europa.eu/digital-agenda/en/news/scoreboard-2014-digital-inclusion-and-skills-eu-2014

[20] Measuring digital skills across the EU: EU wide indicators of digital competence. EC report. May 2014

the EU digital agenda to increase digital literacy, skills and inclusion should be therefore pursued more seriously.[21]

The access and affordability of new technology should be also not ignored. Costs involved in buying and maintaining required devices as well as willingness to pay play an important role for many people. There are existing inequities in smartphone ownership and access to the internet. Cost and the willingness and ability to pay for new technology remain the most important reasons for the existence of the digital divide.[22]

Another important aspect when applying mHealth solutions is the aspect of familiarity and *confidence* to use mHealth tools*. Vulnerable groups* such as older people, in particular, show little familiarity with new technologies and this affects their confidence levels and interest to engage with mHealth devices.[23] When designing mHealth tools and interventions this needs to be taken into account and user friendliness as well as appropriateness should be ensured.

Factors, such as health and digital literacy, confidence and familiarity with new technologies and cost and willingness to pay, mostly affect vulnerable groups in the society. Ethnic minorities, older people, people with lower socio-economic status are the ones who are affected most. These are the same groups who suffer the most chronic conditions and ill health[24] and it is therefore crucial importance to ensure that these groups are taken into account when designing mHealth solutions. Older people in particular have to deal with multiple limitations at the same time. While there are high levels of poverty amongst older people, their levels of digital literacy are usually quite low and they are affected by personal constraints related to ageing (such as physical impairment, cognitive and intellectual problems and the loss of

[21] http://ec.europa.eu/digital-agenda/en/our-goals/pillar-vi-enhancing-digital-literacy-skills-and-inclusion
[22] ICT for ageing well. Home sweet home. 2014
[23] ICT for ageing well. Home sweet home. 2014
[24] T. Otte-Tojel. eHealth promotion and equity in the EU. Nov 2011

sensory abilities), as well as chronic conditions.[25] mHealth solutions for these groups should be particularly sensitive to older people's abilities and needs.

In order to avoid further widening the gap between the advantaged and the disadvantaged groups in the society it is important to focus on equity issues when designing mHealth interventions, by making them user friendly and offering *education and training* to target groups. As access and regular practice improve eHealth literacy, both should be made available and encouraged, especially for the vulnerable user groups.

Education and training to improve health and digital literacy levels should be commonplace as well as raising awareness of mHealth and the opportunities it can bring. *Financial subsidies* should be offered to those who need them so that equality in mHealth solutions is ensured. Those who are difficult to reach should be offered special targeted training.

Measures should be taken to ensure that new information and health technologies do not create even more inequalities within societies but reduce them and help create a more balanced health system. Through appropriate framework, guidelines and regulations for design and application of mHealth.

Actions that should be considered from the provider side are the following:

- Ensuring user-friendliness, simple language and instructions.
- People with lower digital literacy and people with physical and mental impairments should be taken into account when designing tools and interventions.
- Providing financial subsidies for people who cannot or are not willing to bear the cost.
- Offering digital health literacy training to patients and healthcare professionals as well as user education tailored to different user skills.

[25] M. Mackert et al. eHealth and Health Literacy: A research Methodology Review. Journal of computer-mediated communication. 2014

The implementation of new technologies needs to be combined with supportive social services, ongoing training, and long-term technical support for people. Patient empowerment and high levels of digital health literacy are crucial for the success and sustainability of mHealth deployment.

3.2. Efficacy

Which policy action should be taken, if any, to ensure/verify the efficacy of mHealth solutions?

According to various estimations, mHealth has a big market potential and the expectations of mHealth solutions are high.[26] It is predicted that mHealth solutions can lower the cost while increase the quality of care at the same time, it can reduce hospitalisations by administering care remotely (treatment and monitoring) and therefore help reduce the cost for both patients and healthcare providers.[27] [28] The use of mHealth applications for well-being, prevention, monitoring and treatment can support individuals in behavioural changes and lead to improved lifestyles and better health outcomes.[29]

But when considering efficacy of mHealth solutions, the focus should not only be on technological innovation and on lowering healthcare costs but also on creating social value. Economic over social benefits should not be favoured, but both aspects should be weighted equally. Improvement of health and wellbeing itself and other aspects such as user satisfaction should be taken into consideration. mHealth

[26] http://mobihealthnews.com/34446/2018-global-remote-patient-monitoring-revenues-expected-to-hit-26-4b/#more-34446
[27] Der mobile Health Markt : Trends und Entwicklungen. http://www.mobile-zeitgeist.com/2012/02/27/der-mobile-health-markt-trends-und-entwicklungen/
[28] Mobile Health, who pays? http://www.atkearney.de/documents/10192/178350/mobile_health.pdf
[29] ICTs and the Health sector- Towards smarter Health and wellness models. OECD. 2013

solutions should focus on individuals and how to best ensure their motivation and trust in the new technological applications. When designing mHealth solutions people's different needs should be taken into consideration and different groups should be involved and consulted during the process and design of tools and interventions. The goal should be to empower and motivate people to take responsibility for their health by using mHealth and eventually to improve their lives. Consumer's satisfaction user friendliness and accessibility should be at the heart of innovation. Personal experience should also not be neglected when assessing efficacy the social component. New technologies and mHealth solutions should not be imposed on individuals without alternatives. Mobile health should not replace personal contact and care, but complement and enhance the current health care system.

To ensure efficacy the right policies and incentives should be put in place make it easier for the industry, healthcare providers and the users to apply and use mobile technology. There should be reimbursement policies in place with clear guidelines for example.[30] [31] More research should be undertaken to understand the needs and the motivation of users. These issues are addressed in the following question.

3.3 Research and Innovation

Could you provide specific topics for EU level research & innovation and deployment priorities for mHealth?

mHealth and users, patients and healthcare professionals:

Research and innovation within mHealth should look more closely at aspects of digital literacy, tailored tools, treatments and education, and how to support users in making the change towards a more responsible and empowered behaviour within

[30] Mobile Health : Schon vielerorts Realität, jedoch nicht für Kassenpatienten. http://www.aerzteblatt.de/nachrichten/54649/Mobile-Health-Schon-vielerorts-Realitaet-jedoch-nicht-fuer-Kassenpatienten,

[31] Mobile Health, Who pays? http://www.atkearney.de/documents/10192/178350/mobile_health.pdf

the healthcare system. There should be more research within the field of inequalities, and solutions for best reaching vulnerable groups and including them in the use of new technologies sought out.
Solutions should be developed and evaluated on the basis of how to increase motivation and satisfaction with mHealth on both the patients and the healthcare professionals.

- What are the best ways to improve ehealth/digital literacy within the population, and especially in vulnerable groups?
- How can users (patients, healthcare professionals) be empowered and motivated to use new technologies and manage their own health issues with mobile devices?
- How can vulnerable groups be targeted and included in mHealth soultions?
- How can mHealth best improve outcomes for low-health literate patients/users?
- How to use mHealth to reduce health inequalities and the digital divide between different social groups?

More evidence is needed on how mobile health impacts end users and what works best in which settings for what groups and how different interventions affect different social groups.

Health System: mHealth solutions change the relationships between patient and healthcare professionals, and within the healthcare professions themselves. Mobile health interventions affect thus the healthcare systems. Not only should patients become more empowered in systems but also the roles of healthcare professionals, such as nurses and doctors will need to adapt. In order to achieve the predicted

outcomes (savings, revenue, patient empowerment etc.) healthcare systems have to adapt (care pathways, information flow). [32]

More research is needed on how to best adapt the system in order to integrate mHealth solutions and reach the desired outcomes. If we just add mHealth without further changes we might not achieve the financial and social benefits, which are predicted and hoped for.

4. Conclusion

Mobile health has a big potential to change and possibly improve the way health promotion and healthcare are delivered. It holds promise to lower costs, improve healthcare quality, support disease prevention and health promotion interventions and help citizens to enjoy healthy lives. The new way of interacting with healthcare needs to be supported by adequate frameworks and policies to enable the change and lead it into the right direction. Incentives have to be provided for users to accept mHealth and to motivate them to actively participate in the management and monitoring of their own health. Incentives also have to be provided for health professionals to collaborate more efficiently with each other and with their patients. If applied in the right way mHealth can bring real benefits to healthcare systems and to society as a whole. It is important to design new technologies with vulnerable groups in mind, and to involve them in testing. This may involve provision of appropriate training or support. In this way mHealth interventions have the potential to be more engaging than traditional patient information sources and such interactivity can enhance learning. Mobile health interventions should be designed and tailored to different needs and skills, especially to people with low levels of health/ehealth literacy.

[32] mHealth innovations as health system strengthening tools: 12 common applications and a visual framework. Global health: science and practice.
http://www.ghspjournal.org/content/early/2013/08/06/GHSP-D-13-00031.full.pdf#page=3&zoom=auto,-129,727

Mobile Health can bring benefits to the whole healthcare system but it needs to be ensured that the new technological solutions are as accessible, affordable, user centred and user friendly as possible and the real needs of consumers are addressed. More research should be done into different mHealth solutions and how they affect the users and also more collaboration and exchange on evidence for mHealth and evaluation.

As great as the potential of mHealth might be, we should keep in mind that it will not solve the underlying problems of health inequalities, the social determinants that affect people's lifestyles, abilities and choices as well as peoples possibilities to interact within the social and health (care) system. However, as laid out here, steps can be taken, to ensure that the health benefits of mHealth are spread equally across society, and do not risk exacerbating the persistent inequalities in health that the World Health Organization, the European Commission, and national and regional governments have been trying to tackle over the past few decades.

EuroHealthNet will continue investigating the use and effect of mHealth on Health promotion, disease prevention and the overall (public) health outcomes within the society.