

# Digital Health Literacy

## – An Intersectoral Approach

### Lisbon, Portugal



## Contents

1. Summary .....	2
2. Introduction.....	3
3. Key Messages .....	5
4. Programme.....	6
5. Health Literacy – The Role of Digital as an Intersectoral Approach.....	7
The impact of digitisation on health literacy .....	7
The implementation of digital health literacy in national public health policies.....	8
The EU instruments to support work on improving digital health literacy among vulnerable groups .....	10
6. Intersectoral approaches for enhancing digital health literacy .....	12
7. Recommendations for policy, education and practice .....	17
8. Conclusions.....	19
9. Annex .....	21

---

*“The growth of digital health risks widening health inequalities. Specific strategies are needed to address digital health literacy and Portugal is keen to help design and implement evidence based practice”.*

*Graça Freitas, Directorate-General of Health in Portugal.*

*“Improving digital health literacy must be central to all European efforts on enabling the digital transformation of health care, as well as to health promotion efforts to achieve the 2030 Agenda for Sustainable Development”.*

*Caroline Costongs, EuroHealthNet Director.*

---

The workshop and report has received financial support from the European Union Programme for Employment and Social Innovation ‘EaSI’ (2014-2020). For further information please consult [ec.europa.eu/social/easi](http://ec.europa.eu/social/easi). The information contained in this publication does not necessarily reflect the official position of the European Commission.



EuroHealthNet is supported by the European Commission, through the Programme for Employment and Social Innovation (EaSI 2014-2020)

# 1 Summary

EuroHealthNet and the Portuguese Directorate-General of Health held an expert workshop on digital health literacy on 28 February 2019. The aim of the workshop was to explore intersectoral approaches and identify a range of strategies and good practices that ensures that the development of digital health benefits the most vulnerable in society. The workshop brought together national and international specialists to discuss the challenges national governments and national public health bodies face in meeting the challenges and advantages of digital health.

An intersectoral approach to digital health literacy emphasised the requirement of attending to the needs of vulnerable groups to reduce health inequalities and improve health equity. In opening the workshop, EuroHealthNet director Caroline Costongs emphasised the need for a multi-disciplinary approach to ensure that no-one is left behind in society due to the rapid developments of digital health.

The workshop included participants from the Directorate of Health Norway, Pharos (Dutch Centre of Expertise on Health Disparities), DoRS (Piedmont Regional Health Promotion Documentation Centre, Italy), The Health and Europe Centre (NHS Kent and Midway, England), BZgA (Federal Centre for Health Education, Germany), Luxembourg Institute of Health, The National Health Institute Doutor Ricardo Jorge (INSA, Portugal), and Evaluation Unit, Directorate of the Canary Islands Health Service (Tenerife, Spain).

The workshop experts were introduced to a broad range of initiatives and programmes that included; the Portuguese SNS24 health platform that offers a single platform available on mobile, tablet, and laptop through which citizens can access medical advice and information including reserving inoculations, DIGI-UNG a Norwegian online platform that offers integrated services including health for young people age 13-20 that allows users to access their medical records, and the Dutch '4 steps to eHealth4All' model from Pharos which not only helps to develop comprehensible and easy to use digital tools but also enables local partners in prevention and care to implement them within local infrastructures.

The workshop participants concluded with an agreed statement that included a series of recommendations for national and regional policymakers to adopt in order to meet the challenges of health promotion in the future and improve the lives of all citizens in Europe. The message was clear. The future is happening now! Policy makers must recognise the sense of urgency to advance digital health literacy to improve health for all.

# 2 Introduction

Digital health literacy is 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<sup>1</sup>. It is a set of skills, knowledge, and attitudes that a person needs in order to develop functionally in the Information Society. Digital Health literacy has been described as “a set of skills and knowledge that are essential for productive interactions with technology-based health tools” and more closely defined 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<sup>2</sup>”. People who are digitally health literate are able to have a more active role in their health management. This will result in improved prevention, observance of healthier lifestyle behaviours, and overall improved health outcomes.

Digital health literacy is cross-sectoral. It is part of healthcare, digital innovation, education of citizens, and training of professionals, and social inclusion. The significant problems for digital health literacy which affects vulnerable groups -- low socio-economic groups and older people – concern access and how to comprehend information as well as dealing with issues of privacy and personal data protection<sup>3</sup>. The complexity involved further complicates the already very challenging field of health literacy. Being digitally health literate is suggestive of requiring skills developed in a wider literacy environment that encompasses basic literacy (as an essential prerequisite to successfully enter, capture and read information), health literacy (in terms of being able to locate, understand, contextualise and interpret health information) and digital literacy (the precondition for using computers and mobile devices in a skilful and effective way).

As for other sectors, this new concept of information exchange and management disrupts some conventional models of healthcare, meaning that both professionals and citizens need to gain new (digital) skills to benefit from such improvements. Many digital health tools neglect the different demands they exert on individuals’ skills and knowledge. In many cases, the dominant assumption is that users are a rather homogenous group with similar needs, comparable means and equivalent competences. In reality, people’s level of digital health literacy is shaped by many environmental and societal factors, such as differential access to eHealth tools determined by socio-economic status and education .

---

<sup>1</sup> [https://www.who.int/global-coordination-mechanism/working-groups/digital\\_hl.pdf](https://www.who.int/global-coordination-mechanism/working-groups/digital_hl.pdf)

<sup>2</sup> [https://www.who.int/global-coordination-mechanism/working-groups/digital\\_hl.pdf](https://www.who.int/global-coordination-mechanism/working-groups/digital_hl.pdf)

<sup>3</sup> <https://rjh.goingeast.ca/2016/12/07/critical-digital-health-literacy/>

Overall, the European Union acknowledges that the improvement of digital health literacy crucial for the “deployment” of digital innovation in healthcare, to foster well-being and social inclusion and boost employability. On the other hand, EU actions are scattered across different policy frameworks and sometimes too vague to raise awareness on the issue. There is a clear gap that will benefit from close collaboration between a range of different actors working at regional, national, and international levels.

In response to these many and varied challenges, EuroHealthNet and the Directorate General of Health Portugal organised an expert workshop in Lisbon on 28 February 2019. In the workshop national and international specialists discussed intersectoral approaches and identified a range of strategies and good practices for national public health bodies to take up concerning the promotion of digital health literacy. The aim was to discuss how digital health literacy can be advanced in EU from an inter-sectoral approach and to formulate policy recommendations on how to promote the implementation of digital health literacy on the European health agenda.

# 3 Key Messages

The participating experts encourage leadership to implement the following recommendations:

1. The future is happening now! Recognise the sense of urgency to advance digital health literacy to improve health for all.
2. Increase awareness about digital health literacy; advance capacity building and training of health professionals in this area;
3. Include co-creation with citizens from different backgrounds as part of guidelines for the design, implementation and evaluation of digital health solutions;
4. Provide an approach to enable inclusive digital health solutions to be taken up widely across Europe, develop an EU Joint Action on Digital Health Literacy, a knowledge hub to share results and facilitate networking and learning;
5. Create a framework and guidelines for health equity impact assessment and cost effectiveness of digital health services. Design a repository for easy to use, effective and reliable eHealth tools;
6. Develop EU regulation on search engines; monitor the commercial determinants of health on the internet and select the appropriate type of regulations;
7. Promote technological citizenship and advance critical digital health literacy during the life course (on eHealth, resilience towards digital marketing, understanding pros and cons of big data in schools and wider education);

# 4 Programme

The workshop was opened by Caroline Costongs, Director of EuropeHealthNet and the participants were welcomed by José Maria Albuquerque from the National Institute of Health and the Vice-director of the Health Directorate, Catarina de Senna Fernandes Sena. The first part of the workshop introduced a diverse range of practices, programmes, and initiatives that sought to develop the role of digital health literacy with an intersectoral approach.

	<b>Moderator:</b> Caroline Costongs, EuroHealthNet
09:30 – 10:00	Welcome to participants <i>José Maria Albuquerque, National Health Institute Doutor Ricardo Jorge (INSA)</i> <i>Catarina Sena, Vice-Director, Directorate-General of Health</i>
10:00 – 11:00	The impact of digitisation on health literacy <i>Christopher Le, Health Directorate, Norway</i> <i>Lilisbeth Perez, University of La Laguna, Italy</i> <i>Kristine Sørensen, Global Health Literacy Academy, Denmark</i>
11:00 – 11:15	Coffee Break
11:15 – 12:00	How can the implementation of digital health literacy be addressed in National public health policies? <i>Maria Lopatina, Ministry of Health of the Russian Federation, Russia</i> <i>Rabia Khan, OECD, France</i> <i>Robbert Van Bokhoven, Pharo, the Netherlands</i>
12:00 – 12:45	EU tools and instruments to support work on improving digital health literacy among vulnerable groups <i>Maria Cortes, Shared Services from the Ministries of Health, Portugal</i> <i>Andrew Barnfield, EuroHealthNet</i>
12:45 – 14:00	Lunch
14:00 – 15:30	<b>Facilitator:</b> Kristine Sørensen, Global Health Literacy Academy Working group 1 – Good Practices/Best buys that adopt an “intersectoral approach” to digital health literacy
15:30 – 15:45	Coffee Break
15:45 – 16:45	Working group 2 - Future Action for Advancing Digital Health Literacy
16:45 – 17:00	Conclusions <i>Caroline Costongs, EuroHealthNet</i> <i>Miguel Arriaga, Directorate-General for Health</i>

# 5 Health Literacy – The Role of Digital as an Intersectoral Approach

## The impact of digitisation on health literacy

*Christopher Le, Directorate of Health, Norway;*

Norway has supportive policies that promote participation from all citizens across age, gender, ethnic background, social economic status and levels of health literacy. Currently, digitization in Norway has reached new heights, and the universal design of information and communication technology is a legal requirement for both public and private sectors. However, all websites do not comply with this requirement due to technical challenges. Evidence from Health Norway (helsenorge.no) suggests that some of the users of Health Norway could have low digital health literacy, although their health literacy regarding "finding contact information" may be adequate. A baseline survey of the population's digital health literacy is important to gain insights into the magnitude of inadequate health literacy and its impact on the accessibility and utilization of digital services and information. Results from such a survey can be used for further development and evaluation of the available digital services and information, at all policy levels.

*Lilisbeth Perez, Evaluation Unit of the Canary Islands Health Service, Tenerife, Spain;*

Digital health literacy (DHL) is an essential element for successful eHealth deployment. However, citizens often do not have the necessary skills to find, understand and assess online health information and apply their knowledge for shared decision making (SDM). Digitally health literate citizens are empowered to play a more active role in their health self-management, resulting in improved prevention, adherence to a healthier lifestyle and better health outcomes. The aim of this paper will be to present the objectives, activities and results so far achieved by the IC-Health project, which was funded by the European Commission (H2020) and whose objective was to increase EU citizens' competences related to DHL. 35 MOOCs were developed in 8 different languages. Evaluation of the quality and design of the MOOCs was carried out with new participants, results of this testing will be published soon. The usefulness of digital resources for the shared creation of contents has been demonstrated. These first results also suggest that DHL can be an effective facilitator of SDM processes.

*Kristine Sørensen, Global Health Literacy Academy, Denmark;*

Health literacy is linked to literacy and encompasses the knowledge, motivation and competencies to access, understand, appraise and apply information to form judgement and make decisions in everyday life



concerning healthcare, disease prevention and health promotion to maintain and promote quality of life during the life course. In turn, citizens' digital health literacy is an essential element for successful eHealth deployment. E-health literacy or digital health literacy refer to 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. When designing digital health literacy solutions, it is worth remembering that professionals and people and patients may have different expectations on what is important in life. We can improve the skills of people to deal with the complexity of systems and we can increase the ability of systems to deal with the complexity of people by deploying digital solutions in a wide range of sectors. Improving digital health literacy for the public good is a way to achieve the sustainable development goals. It will require people, professionals and politicians involved in all sectors to drive the change towards digital health literate societies.

### The implementation of digital health literacy in national public health policies

*Maria Lopatina, National Medical Research Centre for Preventive Medicine, Ministry of Health of the Russian Federation;*

Digital health literacy is an essential component to non-communicable diseases prevention and control. It features in global, national, and regional programs and strategies. The analysis of this paper includes declarations and global action plans, national and regional strategies and action plans for health literacy improvement and reductions in the burden of NCDs and in the WHO database, as well as review articles and scientific reports. This paper represents the experience of the WHO Member States in elaborating and introducing the health literacy strategies. It concerns two specific questions: 1) Is there a national health literacy strategy in the country under study? 2) Is there a national NCD prevention strategy that includes a digital health literacy dimension? The analysis revealed that among the 194 WHO Member States, 10 countries (Australia, Canada, China, Germany, Ireland, Singapore, Switzerland, Thailand, United Kingdom of Great Britain and Northern Ireland, and United States of America) have a separate national health literacy strategy (program/action plan) and 9 countries (Australia, Austria, Bhutan, China, France, Ghana, Myanmar, Nepal, Switzerland) have incorporated the theme of health literacy into the national NCD prevention and control strategy.

*Rabia Khan, OECD, France;*

In the 2017 OECD Health Ministerial Statement, ministers agreed on the importance of addressing health literacy barriers to help health systems become more people centred. This paper sheds light on where OECD countries stand on that front. In the 21st century care, the old paradigm "because the doctor said so" no longer holds. Individuals are now seeking ways to understand their health options and take more control over their health decisions. But this is not an easy task. Professionals continue to use medical jargon, drug instructions are not always clear, and health information in clinical settings continue to be complex and challenging to navigate. Widespread access to digital technologies offset some of these barriers by democratising access to health information, providing new ways to improve health knowledge and support self care. Nonetheless, when health information is misused or misinterpreted, it can wrongly influence

individuals' preferences and behaviour, jeopardise their health, or put unreasonable demands on health systems.

This presentation argues that digital health literacy can help steer individuals' behaviour in the right direction. Health education and empowerment help people become partners in the coproduction of health by enhancing communication and decisions in clinical settings, as well as increasing self care. This may contribute to better health outcomes. Ignoring health literacy can come at a high cost. In 18 OECD countries, at least one third of the population shows poor health literacy levels. In 12 of those countries, that proportion rises beyond 50% of the population. Current data suggests European individuals find particularly difficult to evaluate health information from media or judge pros and cons of different treatment options. Vulnerable populations, such as the elderly and lower educated, may be at more risk of low health literacy. This can't be ignored: low health skills are associated with increased hospitalisation, greater use of emergency care and lower adoption of preventive measures. A study in the United States shows additional costs of low health literacy range between 3 to 5% of the total health care cost per year.

Countries recognise that addressing digital health literacy barriers goes beyond promoting literacy skills and health education in schools, or implementing community counselling and training courses. Digital health literacy is also facilitated in interaction with health systems, such as through clear and easy communication with professionals, but also accessible and evidence based information in websites, media campaigns, and patient portals. While countries are moving in the right direction, more efforts are needed to regularly update knowledge and skills of individuals. First, countries could improve the role of health systems in promoting digital health literacy and place greater emphasis in multi-stakeholder action. Second, develop more robust research on what are effective interventions. Third, strengthen international development in sharing best practices and develop innovative solutions. Fourth, improve data infrastructure by enhancing digital health literacy measurement surveys

*Robbert Van Bokhoven, Pharos, the Netherlands;*

In 2020 all Dutch citizens should have online access to their medical data. eHealth is very promising due to its responsive nature and potential to deliver personalized care. It's therefore of utmost importance that digital tools are easy to use by all people. If not chances are health inequalities will further increase. Criteria are being discussed to ensure accessibility of eHealth tools for everyone. Guiding principles in the development and implementation will be co-creation, inclusive design and blended care. The 2018 Taskforce report 'The right care in the right place' illustrates the urge for smart organized digital supported health care. Pharos developed a '4 steps to eHealth4All' working model which not only helps to develop comprehensible and easy to use digital tools but also enables local partners in prevention and care to implement digital tools within local infrastructures.

## The EU instruments to support work on improving digital health literacy among vulnerable groups

*Andrew Barnfield, EuroHealthNet, Belgium.*

The objective of the ESIF for health project was to assess how the European structural and investment funds (ESI) during the 2014-2020 programming period can contribute to implementing EU health policy goals. The project mapped over 7,400 projects addressing health issues, with EUR 9 billion spent on the health projects identified. This does indicate a significant amount of funding. However, the total budget of the ESI Funds is over €645 billion. This implies an average project budget of approximately EUR 1.2 million. For over half of the projects (57%) the main funding source is the ESF. This suggests that much more can be invested in health improving projects. In the specific case of E-health, just over EUR 600 million is spent (including both co-financing from Member States and the ESI Funds), with an average project budget of EUR 2.7 million. E-health projects typically target several major issues: (1) development of electronic health records, for use by healthcare professionals and to be accessed by patients; (2) exchange of health information, improving interoperability of health systems; (3) telehealth and (4) mobile health (m-health) services aiming to improve access to healthcare, efficiency and cost-effectiveness of interventions. Many of the projects with the largest budgets are related to the provision of e-services and the digitalisation of the national health system, in which electronic health records play an integral part. These large-scale projects have a role in reforming the way in which the health system functions.

*Maria Cortes, Shared Services from the Ministries of Health, Portugal*

The Ministry of Health in Portugal has developed a new strategy focused on citizen-centred communications. The initiative aims to transform the way information about health services and resources is shared with citizens, promoting knowledge of healthcare indicators and access to services through websites and mobile apps. The SNS Portal (Portal da Saúde) forms the core of several projects developed by Portugal's national health service, the Serviço Nacional de Saúde (SNS). Launched in 2016, the portal integrates information about public healthcare services with real-time data, and includes projects focused on doctors, nurses and other health professionals, as well as citizens.

The project is supported by the Simplex program, implemented by the Administrative Modernization Ministry. The SNS Portal is a key element in the government's strategy to modernise and simplify public administration, integrated into the "Administração aberta + Simples + Próxima" initiative. Among other things, the portal allows users to schedule an appointment with a doctor, renew a prescription, and work out whether they are entitled to exemption from healthcare fees. One of the most-used areas shows waiting times for emergency appointments in nearby hospitals and healthcare units. Transforming the national health service is one of the Portuguese government's biggest projects, covering processes that include modernising services and setting up new platforms to communicate with citizens. Access to healthcare is a significant problem in Portugal, dividing the population between those who can pay for private hospitals and those who can only use the public system. People in the latter group may face long waiting times for surgical procedures and consultants' appointments.

The SNS Portal provides services that already existed through other websites, but adds new ways to manage citizens' interactions with the national healthcare services. Some of these are among the best practices used in private health systems, changing the current model of Portuguese healthcare and allowing everyone to access best-in-class services. Digital platforms are now being used as an alternative to telephone and in-person booking, saving time and resources. There is also a transparency objective, allowing every citizen to check information online through the Transparency area.

The SNS Portal was designed by professionals to give citizens a number of new features accessed through online tools that are simpler, clearer and more user-friendly than those previously available. Every person with access to the Portuguese healthcare system (which means everyone living in Portugal) can register with the website. This gives them a personal area through which they can monitor their healthcare information and communicate with medical professionals conveniently, safely and securely. The service evolved from a previous system known as the Patient Portal (Portal do Utente), which was launched in 2013. In particular, the SNS Portal adds extra functionality in the Citizen's Area; it also allows the sharing of information between users, health professionals and health service providers. The number of registrations with the SNS Portal has been growing fast. Its 1,350,000 users represent approximately 13% of the Portuguese population, and about 25% of active health service users. Every day, citizens use the portal to book more than 15,000 appointments with their general practitioners. In the personal area of the portal citizens can check their complete personal health records, provide emergency contacts, and register medication and allergies. They can also view timelines of medical episodes, and a medical summary that has been validated by a doctor.

One of the integrated projects is the Transparency Portal that represents a paradigm shift in how health information is shared with citizens. With its innovative and integrated approach, this portal brings together up-to-date, relevant and cross-cutting data from the different health entities. Following the principles of Open Data, it is intended to reinforce commitment to ensuring the rigour and transparency of information, and to disseminate data on access, quality and efficiency within the health service. Users will be able to take advantage of this openness simply and quickly. Data held by the system is classified into four areas: access, efficiency, quality, and health in Portugal. Performance is summarised in the form of key indicators that are constantly updated. Examples are "operations performed in hospitals in 2016", "current drug costs" , "prescriptions electronically prescribed in 2016", and "mammograms performed in 2016". There are more than 50 datasets available in the data catalog of the Transparency Portal, aggregating data from different SNS entities across several domains. Searching, sorting and filtering tools allow users to query datasets based on theme, keyword, entity, view type, or modification date.

# 6 Intersectoral approaches for enhancing digital health literacy

The second part of the workshop was facilitated by Kristine Sørensen, Global Health Literacy Academy. It aimed to generate a list of cases with good practices regarding the implementation of digital health literacy in the EU and a list of policy recommendations to advocate for digital health literacy on the EU health agenda.

In the first session of the second part of the workshop the participants were divided into groups of three people. Each person got a role as either storyteller, listener, or rapporteur. The storyteller shares an example of a practice from which others can learn. The listener listened to the explanation and experience and asked questions to ensure that all aspects were enlightened. The case was noted in the case card by the rapporteur. Figure 1 shows the case cards that were used by the workshop working groups. The case card was applied to systematize the information and lessons learned from the cases generated during the session. The case cards were shared with the workshop groups as a whole and the suggestions were recorded by the workshop scribe/note taker.

Figure 1: Case cards to collect cases through group work

<b>Title of example:</b>		
<hr/>		
<b>Working questions (check all that apply)</b>		
<input type="checkbox"/> ...how is digital health literacy implemented in your organization/sector?		
<input type="checkbox"/> ...which stakeholders are involved in the agenda setting and implementation of digital health literacy?		
<input type="checkbox"/> ...which achievements and milestones can be shared? and which barriers were encountered in the process?		
<input type="checkbox"/> ...which processes/ policies can be recommended for implementation of intersectoral digital health strategies?		
<hr/>		
<b>Context:</b>	<b>Key individuals:</b>	<b>Other important details:</b>
<hr/>		
<b>Storyteller (name, country, email)</b>	<b>Key Message (s)</b>	

The case discussions generated a wide range of examples from which the participants could learn. More details are provided in the case cards listed in the Annex and three good examples in the box 1, 2, and 3 on pages 12-14. The examples that were discussed during the peer group work during the workshop were:

- Digi-UNG. A platform to inform young people on health matters.
- VA Selfcare. A project which develops people's health literacy and enables ongoing management of long-term conditions.
- PyDeSalud.Com. An electronic tool to support participation and informed decision-making.
- Lone Life – website and social media channel. Targeted to the general population, especially men that have sex with other men regarding HIV.
- NUTRIMENTO Blog on Healthy Eating. It provides reliable information and allows people to comment and ask questions regarding nutrition.
- NAS24 /SNS24. A single portal for accessing and integrating health information to enhance proximity and engagement.
- The Digital Library. Integration of health information close to home.
- Quit Smoking. A programme that builds on co-creation based on a community approach for vulnerable groups recognizing underlying problems.
- Future 2040 Scenarios. A programme that allows to make changes now by build awareness of where we are going in the future. It makes positive use of social media to prepare a better future.
- Eurolinkcat. A programme that aims to transmit health information to stakeholders in the most comprehensive way. It is especially developed for parents with rare diseases.
- Pedipedia. First digital encyclopaedia of paediatric health that can provide digital health information available for all.
- The importance of influencers in the provision of health messages. It is important to use mainstream influencers and micro influencers to convey health messages.
- E-learning programme for hospitals. Important to engage leadership.
- 4 steps to eHealth4All. An example of creating awareness and build capability among young people.

In summary, the cases highlighted the importance of leadership, capacity building, knowledge sharing, plain language, involvement of relevant stakeholders, co-production of health, shared technology solutions, single platforms to make it easily accessible, and timely programmes for specific target groups. Three examples are presented below to showcase individual examples and the use of the case card method to think through how intersectoral approaches can be evidenced and scaled-up.

*Box 1: DIGI – UNG*

<b>Working Questions</b>		
<b>Context</b>	<b>Key Individuals</b>	<b>Other Important Details</b>
<ul style="list-style-type: none"> <li>• <b>Web platform for young people (13 - 20) – coordinated services; cross sectorial (child protection, lesson...).</b></li> <li>• <b>3 levels:</b> <ul style="list-style-type: none"> <li>○ <b>Info and guidance;</b></li> <li>○ <b>Dialogue and advice (real person);</b></li> <li>○ <b>Individual help (appointments...).</b></li> </ul> </li> </ul> <p><b>Confidential layer.</b></p>	<ul style="list-style-type: none"> <li>• Directorate eHealth / health/ children/ youth/ families.</li> <li>• Agency for public management and eGovernance.</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated in national programs.</li> <li>• Broad promotion through various channels (school, GPs...).</li> <li>• Real/live persons behind the platform.</li> <li>• Intersectoral cooperation takes time – communication; right stakeholders around the table – keep everybody in the loop.</li> <li>• Breaking silos between the stakeholders.</li> <li>• Shared technology and application programming interface.</li> <li>• Looking forward on technology.</li> <li>• Be open to testing and failing though incremental processes.</li> </ul>
<b>Storyteller (Name, Country, email)</b>	<b>Key Message(s)</b>	
<b>Christopher Le, Norway</b>	<ul style="list-style-type: none"> <li>• Cooperation – breaking intersectoral silos. Early user involvement.</li> <li>• Shared technology/looking forward on technology.</li> <li>• Live persons behind platforms.</li> </ul>	

*Box 2: Pedipedia – First digital encyclopaedia of paediatric health*

**Working Questions**

**How is digital health literacy implemented in your organization/sector?** Access of information to clinical community distant from central and specialized services and scientific and reliable information for parents.

**Which stakeholders are involved in the agenda setting and implementation of digital health literacy?**

Clinical community; children and parents.

**Which achievements and milestones can be shared? and which barriers were encountered in the process?** Child healthcare available for all

Which processes/policies can be recommended for implementation of intersectoral digital health strategies? Involving children to disseminate the platform to parents and include focus groups to understand how useful it is for parents.

Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>Platform where there is reliable information available to all.</b> <ul style="list-style-type: none"> <li>○ <b>Scientific information:</b> <ul style="list-style-type: none"> <li>▪ <b>Articles;</b></li> <li>▪ <b>Translated information.</b></li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Target groups:               <ul style="list-style-type: none"> <li>- General practitioners for rural;</li> <li>- Children and parents.</li> </ul> </li> <li>• Doctor from all medicine fields (all information is written by doctors).</li> </ul>	<ul style="list-style-type: none"> <li>• Children as boosters (show and involve the children in this digital tool – how it can be used. They tell their parents about it).</li> </ul>

Storyteller (Name, Country, email)	Key Message(s)
<p><b>Mafalda Lourenço, Portugal</b>  <b>mafaldalourenço@fnsbs.pt</b></p>	<ul style="list-style-type: none"> <li>• Reliable digital health information available for all.</li> </ul>



*Box 3: NHS24 / SNS24*

<b>Working Questions</b>		
<b>Context</b>	<b>Key Individuals</b>	<b>Other Important Details</b>
<ul style="list-style-type: none"> <li>• <b>The need to work in digital transformation.</b></li> <li>• <b>Aim, now communication paradigm, with a single contact point with the citizen.</b></li> <li>• <b>One central point to all.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Omni-channel approach, through multiple entities:               <ul style="list-style-type: none"> <li>○ Apps;</li> <li>○ Telephone;</li> <li>○ Website;</li> <li>○ Stakeholders.</li> </ul> </li> <li>• National Campaign, multimedia approach (to the citizen).</li> <li>• Ambassadors promoting the SNS24</li> <li>• Health professionals involved.</li> </ul>	<ul style="list-style-type: none"> <li>• Interoperable systems to allow communication between different levels of care.</li> <li>• Intersectoral approach / health in all policies.               <ul style="list-style-type: none"> <li>○ Public administration ICT 2020.</li> </ul> </li> <li>• Complexity and time to develop as a barrier.</li> <li>• Policy dialogues (e.g. citizens).</li> </ul>
<b>Storyteller (Name, Country, email)</b>	<b>Key Message(s)</b>	
<p><b>NHS24, Portugal</b> <b>www.sns24.gov.pt</b></p>	<ul style="list-style-type: none"> <li>• Integration;</li> <li>• Proximity;</li> <li>• Universal coverage.</li> </ul>	

# 7 Recommendations for policy, education and practice

Based on the discussions throughout the day, the generation of cases and the participants' experience recommendations on how to advance and implement digital health literacy in Europe were formulated. Smaller groups were formed to discuss priorities and conclusions and final recommendations were shared in plenary and finalized by the full group.

The recommendations on the implementation of digital health literacy in Europe that were discussed during the workshop are listed below. In order to recognise the sense of urgency to advance Digital Health Literacy to improve Health for All the participants encourage policy makers and key decision makers to implement the following recommendations:

1. *Increase awareness about digital health literacy;*
2. *Include co-creation as part of design, implementation and evaluation of digital health solutions;*
3. *Develop an EU Joint Action on Digital Health Literacy;*
4. *Advance capacity building and training of health professionals on digital health literacy;*
5. *Develop methodological guidelines for a systematic approach in conception, implementation and evaluation of digital health interventions;*
6. *Create a theoretical framework for cost-effectiveness and health impact assessment;*
7. *Promote technological citizenship (based on an e-health primary education framework; ability to evaluate pros and cons and risks regarding use of big data).*
8. *Advance functional, interactive, and digital health literacy in schools and during the life course.*
9. *Develop EU regulations on search engines;*
10. *Provide an approach to enable digital health solutions to be taken up widely across Europe;*
11. *Design a formal framework for effective and reliable eHealth tools;*
12. *Set up health platforms with online support groups facilitated by experts;*
13. *Develop a repository to share results and facilitate networking (knowledge hub);*
14. *Produce an integrated platform that can serve as a learning community (EU wide system where countries can learn from each other and communicate);*
15. *Increase interoperability of systems to ensure safe and efficient data sharing;*
16. *Monitor actions – regulate commercial determinants and select the appropriate type of regulations;*
17. *Always ensure interdisciplinary cooperation;*

18. *Encourage implementation of digital Health Literacy at all levels and tailored to target groups (national, regional, local, community levels);*
19. *Recognize that technology is an enabler to reach, succeed and improve digital health literacy.*

# 8 Conclusions

In a step towards ensuring that the development of digital health leaves no one behind and benefits the most vulnerable, EuroHealthNet and the Portuguese Directorate-General of Health and the participants have drawn conclusions on how national public health bodies can strengthen digital health literacy following an expert meeting. The growth of digital health is rapid and unstoppable. It brings many advantages but threatens to exacerbate existing health inequalities experienced by people who have lower levels of digital health literacy.

The discussions at the workshop focused on platforms as well as wider debates regarding the increased digitisation of health and health promotion. It was recognised by the workshop that digital health is a very innovative field and this is evidenced by the breadth and depth of tools showcased during the session. However, it was clear to all participants that there are risks and rewards with digital tools and methods. It was decided by the workshop participants during the breakout discussions that precaution must be used to ensure costly and harmful threats to health equity with the increase of digitalisation. Digital health literacy tools must prioritise universal access for all as well as addressing health literacy and digital technical skill. It is vitally important that we avoid exacerbating health inequalities between the most advantaged and disadvantaged and within and between European member states.

The issue of trial and evaluation was identified as being key to the successful adoption of digital health literacy tools. On the one hand, only tools that are proved to be useful should be widely adopted. On the other hand, a clear set of universal evaluation criteria is needed to help bring clarity to tool developers. The need to protect vulnerable groups is paramount in evaluation criteria and was at the heart of the work conducted by the Pharos Institution. In addition, the co-design and co-evaluation with health professionals, users, and representatives of vulnerable groups will help to ensure that newly adopted tools are suitable for all in society and not just the early adopters or skilled professionals. The diverse needs, skills, local practices, and cultures must be understood and thought through if digital health literacy is to make a successful and equitable impact.

There are many positives that new technologies and styles of communication bring. However, we all must be cautious to safeguard and protect patient and privacy rights, personal data, and electronic identification. The concerns that people have regarding the use of their personal data must not be overlooked in favour of digital advancements. Regulation, and application of, will be key in ensuring all citizens' data is protected.

Finally, the workshop identified the European Pillar of Social rights and the Sustainable Development Goals as both providing suggestive pathways and support for health promotion via digital tools that benefit from and contribute to inter/intra-sectoral activities. Digital health literacy is a key cross-cutting field that can work in improving health, reducing social isolation, and upskilling digital competencies. As the workshop attendees agreed the future is happening now. As such, we need urgent, integrated, and collaborative work to develop the best digital health literacy tools to improve health for all.

# 9 Annex

## VA Self-care (Virtual Assistant)

Working Questions		
How is digital health literacy implemented in your organization/sector?		
Context	Key Individuals	Other Important Details
<b>Older people with Diabetes</b>	<ul style="list-style-type: none"> <li>To elderly people for test (largely by invitation), using tablet, over 6 month period;</li> <li>Nurses/Professors of:                             <ul style="list-style-type: none"> <li>- Pharmaceutical;</li> <li>- Sports Professionals;</li> <li>- IT professionals;</li> <li>- Family Nurses.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Avatar as Motivator (Victoria);</li> <li>Dialogue developed and theory of behavioural change factors (Mitchell);</li> <li>In VAT (testing)*;</li> <li>Alerts when something out of the ordinary arises;</li> <li>User enters personal data.</li> </ul> <p>Difficulties:</p> <ul style="list-style-type: none"> <li>Developing the dialogue.</li> </ul>

\*VASelfcare: [rd.ciencias.ulisboa.pt](mailto:rd.ciencias.ulisboa.pt)

Storyteller (Name, Country, email)	Key Message(s)
<b>Adriana Henriques</b> <a href="mailto:ahenriques@esel.pt">ahenriques@esel.pt</a>	Develops health literacy, and enables ongoing management of long-term conditions (need to involve designers).

*PyDeSalud.com (Participa y Decide sobre tu salud)*

**Working Questions**

**How is digital health literacy implemented in your organization/sector?** Regional Level: Policies and plans through different actions/interventions laws. National Level: Policies and plans and laws.

**Which stakeholders are involved in the agenda setting and implementation of digital health literacy?** Health-care professionals, policy-makers, patients and citizens.

**Which achievements and milestones can be shared? and which barriers were encountered in the process?** Decision-making tools/videos of experiences/list of information and research need from patients perspective. Barriers encountered: involvement of different regions/different languages.

**Which processes/policies can be recommended for implementation of intersectoral digital health strategies? Involving** different sectors (education, social, health, legal department). Training to exchange knowledge resources, etc.

Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>National and Regional level.</b></li> <li>• <b>Chronic Diseases health promotion.</b></li> <li>• <b>Including patients and families.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Patient;</li> <li>• Families;</li> <li>• Health care professionals;</li> <li>• Administrative and non-health care professionals;</li> <li>• Policy Makers.</li> </ul>	<ul style="list-style-type: none"> <li>• Using qualitative (interviews, focus groups) and quantitative (systematic review, cross-sectional study) methodology.</li> </ul>

Storyteller (Name, Country, email)	Key Message(s)
<p>Lilisbeth Perstelo-Pérez Lilisbeth.perstelopez@sescs.cs</p>	

*Lone Life – Website and social media channel*

**Working Questions**

**Which achievements and milestones can be shared? and which barriers were encountered in the process?** Barriers: Tools to evaluate/search engine optimizations is made only by the companies; Not having a communication department; Validation that takes time.

Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>Platform</b></li> <li>- <b>Targeted at HIV and other transmissible diseases.</b></li> <li>- <b>Targeted to the general populations and targeted groups, especially men that have sex with other men and HPV.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Team members for the HIV prevention.</li> <li>• Digital Experts Company of marketing that helps to produce the information.</li> </ul>	<ul style="list-style-type: none"> <li>• Focus groups to see which contents are more adaptable to some groups.</li> <li>• Superior validation of the contents.</li> <li>• Search engine optimisation is made from outside companies and the team doesn't know how to do it.</li> </ul>

**Storyteller (Name, Country, email)**

Storyteller (Name, Country, email)	Key Message(s)



*Nutrimento – Blog for healthy eating ([www.nutrimento.pt](http://www.nutrimento.pt))*

**Working Questions**

**How is digital health literacy implemented in your organization/sector?** Communication department (management of face); Department of Health, Literacy and Well-being.

**Which stakeholders are involved in the agenda setting and implementation of digital health literacy?** Ministry of Health; Ministry of Agriculture; Ministry of Economy; Ministry of Finances; Ministry of Social security, Municipalities, schools; etc.

**Which achievements and milestones can be shared? And which barriers were encountered in the process?** Barriers: human resources, budget.

Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>Inserted in the National Strategy for the promotion of healthy eating, with the objective of promoting reliable information and disseminate it to the general population with focus on specific target groups.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Three nutritionists in teams, to perform the roles:               <ul style="list-style-type: none"> <li>- Produce information;</li> <li>- Manage blog;</li> <li>- Manage social networks: Facebook, twitter;</li> <li>- Videos;</li> <li>- Analyse online works.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• No validation needed from superior/ministry for day-to-day content/communication.</li> <li>• Analytics (google) show that information is being looked and directs information/work in progress (user-centered) / (self-evaluation).</li> <li>• Very attractive image.</li> <li>• Back office with tools available for use (search engine).</li> </ul>

Storyteller (Name, Country, email)	Key Message(s)
<p><b>Sofia Sousa, Portugal</b> (<a href="mailto:sofiamsousa@dgs.min-saude.pt">sofiamsousa@dgs.min-saude.pt</a>)</p>	<ul style="list-style-type: none"> <li>• Reliable information;</li> <li>• Evaluate our performance;</li> <li>• Promotion of information from other stakeholders;</li> <li>• Some budget barriers and team management;</li> <li>• Adapt information and contents for different targets;</li> <li>• Blog that allows people to comment and ask questions.</li> </ul>

*The Digital Library*

Working Questions		
Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>Good practices and documents for citizens; professionals, and public (focus on citizen).</b></li> <li>• <b>Information, videos, films for citizens.</b></li> <li>• <b>My Agenda my private health record, personal notes (e.g. quit smoking).</b></li> </ul>	<ul style="list-style-type: none"> <li>• A national board to decide on which items may be included.</li> </ul>	<ul style="list-style-type: none"> <li>• Dissemination:               <ul style="list-style-type: none"> <li>○ National campaigns and health professionals (Primary care).</li> <li>○ Municipalities (national, local, regional).</li> <li>○ NGO's.</li> </ul> </li> </ul>
Storyteller (Name, Country, email)	Key Message(s)	
<p><b>Miguel Telo de Arriaga, Portugal</b>  <a href="http://www.sns24.gov.pt">www.sns24.gov.pt</a></p>	<ul style="list-style-type: none"> <li>• Dissemination and Integration - Change perspective close to home.</li> </ul>	

### Quit Smoking

Working Questions		
Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>A lot of people smoke;</b></li> <li>• <b>Low income groups;</b></li> <li>• <b>Most interventions used by the highly educated people.</b></li> </ul>	<ul style="list-style-type: none"> <li>• The mobile App was developed to get the smokers;</li> <li>• Pay attention to underlying courses/problems to keep smoking;</li> <li>• Examples: isolation, loneliness, poverty, stress.</li> </ul>	
Storyteller (Name, Country, email)	Key Message(s)	
<p><b>Robert Van Bokhoven</b></p>	<ul style="list-style-type: none"> <li>• Co-creation;</li> <li>• Community approach;</li> <li>• Recognition of underlying problems.</li> </ul>	

*Future 2040 Scenarios*

<b>Working Questions</b>		
<b>Which processes/policies can be recommended for implementation of intersectoral digital health strategies?</b> Using communication tools that have succeeded in other areas (like advertisement).		
<b>Context</b>	<b>Key Individuals</b>	<b>Other Important Details</b>
<ul style="list-style-type: none"> <li>• <b>Inspirational videos of how you'll live in the future.</b></li> <li>• <b>Allows to make changes now by the awareness of where we're going in the future.</b></li> <li>• <b>Disseminate on social media.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Focus groups of citizens.</li> <li>• Researchers of public or private organizations.</li> <li>• Communication developers.</li> </ul>	<ul style="list-style-type: none"> <li>• Positive use of social media to prepare a better future.</li> </ul>
<b>Storyteller (Name, Country, email)</b>	<b>Key Message(s)</b>	
<b>Andrew Barnfield, Belgium</b>	<ul style="list-style-type: none"> <li>• Health Literacy needs is be literate in other areas of communication to reach all groups.</li> </ul>	

*Eurolink Cat*

**Working Questions**

**How is digital health literacy implemented in your organization/sector?** Parents of children can be part of the research questions, parents can communicate their children’s needs.

**Which stakeholders are involved in the agenda setting and implementations of digital health literacy?** Parents, researchers.

**Which achievements and milestones can be shared? and which barriers were encountered in the process?** Private, Facebook groups (13 MS). Traveller group with wider digital platform.

**Which processes/policies can be recommended for implementation of intersectoral digital health strategies?** Civil society (parents associations); research/national registries (who can direct parents).

Context	Key Individuals	Other Important Details
<ul style="list-style-type: none"> <li>• <b>Parents need information about children’s health conditions, education and morbidity.</b></li> <li>• <b>Major groups of anomalies.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Parents of rare diseases.</li> <li>• Network of researchers who will help parents to maintain platform.</li> </ul>	<ul style="list-style-type: none"> <li>• Also translate research and help maintain platform in the future.</li> <li>• Support groups/peers support of parents.</li> <li>• 0-11 children year old (age range in study).</li> <li>• Improves health information availability of translated/accessible information/knowledge.</li> </ul>

Storyteller (Name, Country, email)	Key Message(s)
<p><b>Ana Santos, Portugal</b>  <b>Ana.carvalho@insa.min-saude.pt</b></p>	<ul style="list-style-type: none"> <li>• Transmission of health information to stakeholders in the most comprehensive way.</li> </ul>

*The importance of influencers in health messages*

<b>Working Questions</b>		
<b>Context</b>	<b>Key Individuals</b>	<b>Other Important Details</b>
<ul style="list-style-type: none"> <li>• <b>We should use influencers in digital health literacy.</b></li> <li>• <b>Include influencers in health videos/campaigns.</b></li> <li>• <b>Normal people with normal lives can pass the message too (micro influencers).</b></li> <li>• <b>We have to give some tools to distinguish the real from the fake news.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Influencers;</li> <li>• Social Media.</li> </ul>	
<b>Storyteller (Name, Country, email)</b>	<b>Key Message(s)</b>	
<b>Gisela Serafim</b>	<ul style="list-style-type: none"> <li>• It is important to use mainstream influencers and micro influencers to convey health messages.</li> </ul>	