Integrating mobile health data in health service value chains

Health data spaces and ecosystems - Virtual workshop

29/04/2021

@ehtel_ehealth
Welcome and introduction
Experts from 19 countries present

EHTEL members and friends
How do you imagine health and care in 2029 in an era of digital transformation?

**Imagining 2029 Work Programme**

- Health data spaces and ecosystems
- Hybrid care
- Mind the gap
Last year

Moving towards European Health Data Space(s)

► From the European Strategy for Data to Health Data Spaces
► Architectures and processes enabling data re-use
► Towards European data spaces for medicines

Building health data ecosystems

► Health data ecosystems for integrated care – a new “blue ocean”
► Deep diving into health data ecosystems for integrated care: sustainability and governance

https://www.ehtel.eu/media-room/ehtel-factsheets.html
This year

Workshops

- Integrating mobile health data in health service value chains
- Building the data-driven hospital and facing the challenges: from EHRs to data ecosystems
- Outlining reference architectures in the health sector

EHTEL Symposium 2021
Agenda

Welcome and introduction
Presenters: Tino Martí and Luc Nicolas (EHTEL)
Time: 10 minutes

From mHealth app idea to integrated health service: the More Stamina story
Presenter: Guido Giunti - University of Oulu (North Ostrobothnia, Finland)
Time: 15 minutes

Integrating data from mobile devices into healthcare processes: mConnecta
Presenter: Yolanda Lupiáñez - TicSalutSocial (Catalonia, Spain)
Time: 15 minutes

Wrapping up discussion
Live poll
Time: 5 minutes

Discussion
Front row: Eirik Årsand (Norwegian Centre for E-health Research, Norway), Heather Cook (ORCHA, United Kingdom), Javier Ferrero and Belen Sotillos (European mHealth Hub), Markus Kalliola (SITRA, Finland)
Time: 40 minutes

Conclusions
Key messages of the workshop and announcement of next session.
Time: 5 minutes
Goals of this workshop

• Explore different paths to integrate patient-generated data through mobile applications into health data ecosystems for improving clinical work and generate value.

• Reflect on the organisational, technical and human challenges encountered by health organisations and mHealth apps developers and how they could be overcome to accelerate the uptake of mobile solutions and enrich health data ecosystems.
From mHealth app idea to integrated health service: the More Stamina story

Guido Giunti MD PhD

guido.giunti@oulu.fi

buscandoagodot
More Stamina is a digital health solution for people with Multiple Sclerosis to help them manage their fatigue.

As they keep track of their day, the app learns how to provide personalized recommendations.

The aggregated data is gathered and used to discover hidden characteristics of MS.

User-centered design was followed and every step of the process is evidence-based.
MORE STAMINA’S JOURNEY

Social Circle

Healthcare Professional

Patients

Researchers
We did a series of **focus groups and interviews** with persons with MS and healthcare professionals from a neurological rehabilitation center to discover their most pressing needs and expectations from digital health.

“I just don’t know what to do sometimes. I think that if I do too much I’ll have no energy left and it will mess up my whole day.”

“Patients usually dread physical activity and it’s always hard to convince them that exercising actually helps them.”

“If there was something that could measure how much energy I have left for the day and how much I’ve already used so far. That would be amazing.”

“Having an app that would allow patients to visualize their energy levels would be incredibly useful. It would be a great tool to have.”

“There’s so much information online that it’s hard to know what to pay attention to. It would be really helpful if there was just one place I can rely on.”

“Setting clear and specific goals is key for these patients. It’s vital finding ways so that these goals become tangible.”

MORE STAMINA’S JOURNEY

Product

Social Circle

Healthcare Professional

Patients

Researchers
MOBILE HEALTH APPLICATIONS

Disease & Treatment Management:
- Healthcare Providers / Insurance
- Medication Reminders & Info
- Women’s Health & Pregnancy
- Disease Specific

Wellness Management:
- Fitness
- Lifestyle & Stress
- Diet & Nutrition

>165,000 Mobile Health Applications

Source: Mevvy, June 2015; IMS Health, AppScript, June 2015; IMS Institute for Healthcare Informatics, August 2015
MULTIPLE SCLEROSIS APPS

- We systematically reviewed all apps in the iOS and Android stores looking for solutions destined for people with MS.

- An initial total of 1,622 apps matched the search terms of “multiple sclerosis”. However, after removing duplicates from each store and manually inspecting them we found only:

  25 apps

  for Multiple Sclerosis

  Most apps focused only on disease and treatment information

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MORE STAMINA’S JOURNEY

Idea

Product

Social Circle

Patients

Researchers

Healthcare Professional
We hosted a series of co-design workshops to iteratively design concepts that would address MS needs.

The workshops gathered physicians, nurses, engineers, designers and patient representatives from global conferences like AMIA, MIE, Nursing Informatics and others.

• **User-centered design** was used to iteratively create a mobile solution aimed to help fatigue self-management.

• The steps in the design process were confronted with core concepts of behavioral change models.

• When a specific element of behavioral change models was not addressed by a concept, integration was explored or the concept was discarded.

Enjoyed your articles in JMIR mHealth

7/4/22

Hello Dr. Giunti,

I enjoyed reading your articles on mHealth solutions for multiple sclerosis published this year in JMIR mHealth. I'm a fellowship-trained multiple sclerosis specialist at Duke and I spend roughly 70% of my time in patient care. Since October 2017, my role has been conducting mHealth research in the United States (US)

I recently benchmarked you from our Twitter feeds to hear more about More Stamma! Perhaps we can collaborate? Do you have any time for a 30-minute conference call within the next few weeks? Will you be attending ECTRIMS this October in Berlin?

Sincerely,

mHealth for MS patients

11/8/2018 View details

Dear Dr. Giunti,

I am interested in your mHealth solutions for patients with MS. After I read your articles, I thought I should try to contact you and ask for your advice.

After I worked on 2 projects with MS patients and their family members in the last 2 years, I learned that there are research gaps in mHealth for these patients. While I have been working on developing a research project focusing on development, testing, and comparing mHealth tools for effective self...

Guido Giunti
@buscandoagodot

@buscandoagodot very interested in your new MS fatigue app. Any availability for pwMS yet?

9:23 AM · 06 Mar 18

Hi! Thanks for the interest. We are still working out the kinks. I'll keep you posted :)

Shirley Upton
@brummygirl999

Guido Giunti
@buscandoagodot · 0s

Repeating to @brummygirl999
A mixed-methods, multicenter study will be used to assess the feasibility, acceptability, and usability of More Stamina.

The study will take place in 4 locations: Finland, Argentina, Spain, and Switzerland.

Understanding the needs of people with MS

Exploring what is commercially available for MS

Co-creating potential digital health solutions

Designing the More Stamina concept
• Giunti G, Mylonopoulou V, Rivera Romero O. More Stamina, a Gamified mHealth Solution for Persons with Multiple Sclerosis: Research Through Design. JMIR mHealth uHealth. 2018;6(3):e51

Testing the prototype with people with MS
ICT DEPLOYMENT OVER TIME

- 1969 – First teleradiology
- 1997 – Focus on EHR
- 2003 – Nation wide EHR started
- 2007 – Nation wide EHR implemented
- 2008 – ePrescriptions started
- 2010 – 100% EHR coverage
- 2017 – 100% ePrescriptions
OULUHEALTH ECOSYSTEM
Accelerates the implementation of health innovations, boosts the health-tech business and creates better solutions for the benefit of citizens

• The main stakeholders are **from academia, the public sector, and the private sector**
  • Oulu University Hospital (OYS), University of Oulu, Oulu University of Applied Sciences, VTT Technical Research Centre of Finland, and BusinessOulu and the Department of Healthcare and Social Welfare of the City of Oulu

• Activities are collaborative
  • business development
  • testing and piloting
  • research and innovation
  • outreaching activities
Digital Health is the present future.
THANKS FOR YOUR ATTENTION!
Integrating data from mobile devices into the healthcare processes

Yolanda Lupiáñez
Digital transformation director
TIC Salut Social

• Integrating data from mobile devices into the healthcare processes

• Yolanda Lupiáñez
  • Digital transformation director
Catalan healthcare model overview

- Decentralized, multi-provider model integrated in a single public network.
- Enhances the autonomous management of each provider, free to select their information systems.
- Interoperability among ICT systems must be guaranteed.

369 Primary Health Centres
69 Acute Hospitals
96 Long Term Centres
165 Mental Health Centres

REGION OF CATALONIA

- 7.5 M people
- 83 years life expectancy at birth
- 18% of population over 65 (4.3% over 80)
Catalan mHealth plan

Government agreement on 2015

New technical guidelines
Innovation observatory
Accreditation model
Showroom
mHealth solutions

Initiatives to be carried out
How to set priorities?

2021 processes

- Monitoring diabetic patients
- Monitoring bipolar disorder patients
- Pain monitoring after drug infiltrations
Monitoring patients with diabetes

Set up a new relationship model with the industry and lay the foundations for data integration.

36 different type of medical devices and APPs
12 providers from 5 different countries
150K patients

NEW PUBLIC PROCUREMENT PROCESS

Drive a big change in the way we use and share the information both in our processes and across the health system.

Set up a new relationship model with the industry and lay the foundations for data integration.
Challenges faced

1. Ensuring APPs **quality** and **reliability**
2. Defining and **agreeing** a set of relevant data
3. Building a **new technological architecture & platform**
4. Creating an **interoperability framework**
5. **Helping industry** to be prepared
1. Ensuring APPs quality and reliability

1. FILL IN ONLINE REQUEST

2. INITIAL VALIDATION AND CLASSIFICATION

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120 evaluation criteria

II. Content and functionality
III. Privacy and security
IV. Technological requirements

3. EXPERTS EVALUATION

4. APP CERTIFIED
2. Defining and agreeing a set of relevant data

Establishing a multidisciplinary working group

Defining processes change requests

Identifying representative clinical variables

Transforming to a standard clinical terminology

Primary care
Specialized care
Endocrinologists
Paediatricians
...

1 time x month

Basal glucose (mg/dL),
Glycated hemoglobin A1c,
Cholesterol HDL (mg/dL),
Cholesterol LDL (mg/dL),
Bilirubin (mg/dL),
Gamma glutamyl transferase (GGT).
3. Building a new technological architecture & platform

Service operability 365/24/7
3. Building a new technological architecture & platform

Mobility elements are prescribed to patients

Relevant data generated is integrated into patient’s health record

Access to upload information

real-time tracking
4. Creating an interoperability framework
5. Helping industry to be prepared

... by providing them information, tools and support:

How to codify, develop and test the FHIR interoperability messages

https://ticsalutsocial.cat/actualitat/mconnecta-obre-el-banc-de-proves-per-lassaig-dintegracio-de-solucions-per-diabetis/

How to analyse GDPR impact on the ICT provided solutions

Our experience in a nutshell: challenges and solutions

- Provisioning trusted apps
- Identifying and standardizing relevant data
- Collecting and integrating data from mHealth
- Sharing relevant data across health processes
- Dealing with changes

- Accreditation model
- Co-creation & interoperability framework
- mConnecta technological platform
- Commitment, training & support
Thank you!

Yolanda Lupiáñez

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🐦 @YolandaLupianez

@ticsalutsocial  @ticsalut

TIC | Salut Social
Generalitat de Catalunya
Discussion
Front row

- Eirik Årsand – Researcher, Norwegian Centre for E-health Research (Norway)
- Heather Cook – Associate Director of Partnerships, ORCHA (United Kingdom)
- Javier Ferrero and Belen Sotillos – Project coordinators, European mHealth Hub (Andalusian Ministry of Health, Spain)
- Markus Kalliola – Project director Health data 2030, SITRA (Finland)
Key messages
Key messages

• **Societal value** is now a must-have for any successful digital solution.

• Interoperability and liberated data are also now becoming more and more an essential **ethical** issue (and key to business models).

• Co-creation must happen **from start**, involving all actors, continuously and along the entire value chain.

• The “**use case**” approach to understand and validate the needs, federate the community, co-create and create a common health data space remains a very rich approach.
Next sessions

► Hybrid care: Mainstreaming virtual care with new models of care
  20 May 2021

► Building the data-driven hospital and facing the challenges: from EHRs to data ecosystems
  June 2021
Thank you for your participation