Industrial Applications for e/m-Health

5G-enabled Health Technologies and Applications, WWRF Workshop, Thessaloniki, February 2016

Pantelis Angelidis
2015

de the end of healthcare... as we know it

CMS to Reimburse Physicians for Remote Chronic Care Starting January 1, 2015

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In alternative payment models, providers are accountable for the quality and cost of care for the people and populations they serve, moving away from the old way of doing things, which amounted to, “the more you do, the more you get paid.”
NO! I CANNOT BE BOTHERED WITH A NEW TECHNOLOGY WE HAVE A BATTLE TO FIGHT
Global Health challenges: Impact of ageing

“ageing and health care and long-term care expenditures appear to be highly related at first sight ...” EPC/ECFIN/630-EN final
The results of the baseline projections show a possible significant impact of demographic changes on future expenditure levels on health and long-term care ...

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<td>EU (weighted average) (3)</td>
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Notes:
(1) There are no results for long-term care for these Member States.
(2) Weights are calculated according to the Member States for which results are available. Therefore for health care it is a weight for the EU-14, and for long-term care, and total expenditure on health and long-term care the average is for 10 Member States.
Optimal care will require new models of service provision

- Information and Communication Technologies (ICTs) have an ever-growing impact on our working and private lives and the healthcare sector is no exception.

- Used appropriately, the tools and services which contribute to eHealth provide better, more efficient healthcare services for all.

- ICT in HEALTH/CARE SECTOR could become the catalyst for the re-formation of the traditional health care models.

- “old organization with new equipment means more costly organization”
Connected health creating a new market and fostering innovation

- A new market/industry is emerging with employment opportunities

- Substantial number of venture capital investments tend to focus on wireless remote patient monitoring start-ups.

Ref. : “State of the Industry Reports”
Integrated Care

• Integrated care involves organizing functions and activities around patient care and services.

• The focus is on:
  o continuity and coordination of care,
  o disease management,
  o good communication among caregivers,
  o smooth transfer of information
  o the elimination of duplicate testing and procedures and promotion of self-management activities.

Reference Suter E et al. Ottawa, ON (Canada): Canadian Institutes of Health Research (CIHR); 2007.
ICT integrated care

Many of the integrated care processes can only happen with the support of state-of-the-art information and communication technologies (ICT) that allow effective tracking of utilization and outcomes.

Ideally, integrated care delivery should be standardized and delivered by multi-disciplinary teams to ensure continuity of the care process and incentives should be provided to meet performance and efficiency standards.
The chronic care model requires coordinated social and health care in cooperation with the patients and the use of technology.
SMARTCARE aims to define a common set of standard functional specifications for an open ICT platform enabling the delivery of integrated care to older European citizens.

EU regions will pilot integrated health & social services to combat a range of threats to independent living commonly faced by older people with the support of connected health services.

Total Budget: 16 m €  
http://pilotsmartcare.eu/
Mhealth vitals
Online medical consultation
Online personal health record

Vital data transferred via BT to vida24 application on smartphone to web-platform over 2G/3G/4G

New data entries by users, based on alerts & motivational messages

Medical consultation – personalized alerts

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5G Challenges

- The growing demand for diverse IoT health applications with modest communication needs, with huge number of interacting devices with power/energy limitation.

- Lack of a unified framework for integration of IoT systems and services with the rest of the all-IP networks, for global coverage.

- Autonomous operations with no or limited human involvement, but with low revenue per device and/or service.
Target Outcomes

- A new scalable end-to-end network architecture infrastructure for efficient and cost-effective IoT communications, aiming towards an all-IP networking system.

- Cost, spectrum, and energy efficient radio access technology and/or mechanisms for IoT applications, communicating via a high capacity network.

- Power and energy efficient terminal devices supporting low cost autonomous operations.

- Low cost automated security and provisioning solutions.

- New business models and opportunities in Europe and Worldwide.
Expected Impacts

- Accelerate the development of IoT IC Health solutions in combination with broadband wireless access systems, hence strengthening the position of the European industry as supplier for advanced communication infrastructure.

- Trigger enhanced applications in health care, including remote monitoring, virtual collaborations spaces with video and telerobotic applications and enable new business opportunities

- Shape the development of standardisation

- Develop key technical features: cooperative, heterogeneous, capillary networks of devices, integrated with the rest of the “all-IP” networks by means of both short-range communications and cellular networks, focused with energy minimization, data aggregation, and security.
Thank you - Ευχαριστώ

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