eHealth: state of affairs and perspectives

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Outline

• Context

• eHealth roadmap 2015-2019
  • health care providers
  • patients

• Some focus points

• Role and responsabilities of the eHealth-platform
Some evolutions in health care

- More chronic care instead of merely acute care
- Remote care (monitoring, assistance, consultation, diagnosis, operation...), and mobile care
- Multidisciplinary, transmural and integrated care
- Patient-centric care and patient empowerment
- Rapidly evolving knowledge => need for reliable and coordinated management and access to knowledge
- Threat of excessively time-consuming administrative processes
- Thorough support of health care policy and research requires thorough, integrated and anonymised information
- Cross-border mobility
- Need for cost control
The reported evolutions require...

- Cooperation between all actors in health care
- Efficient and secure electronic communication amongst all actors in health care
- High-quality, multidisciplinary electronic health records
- Care pathways
- Optimised administrative processes
- Technical and semantic interoperability
- Guarantees with regard to
  - information security
  - privacy protection
  - respect for the professional secrecy of health care providers
Electronic communication also stimulates…

- Quality of care and patient safety
  - avoidance of wrong care and medication
    - incompatibility between medicines
    - contra-indications against certain medicines or treatments for a specific patient (e.g. allergies, diseases…)
  - avoidance of errors in concrete care provision and administration of medicines
  - availability of reliable databases on good treatment practices and decision support scripts
  - more opportunity for multidisciplinary consultations and second opinions
- Avoidance of unnecessary multiple examinations => less stress for the patient and avoidance of unnecessary additional costs
The patient consults his/her physician

Administrative advantages

Via eID of the patient (at least at the first consultation)

- Authentication of identity of the patient
- Verification of insurance status
- GMF?

Possibility of registering informed consent and therapeutic relationships
Medical lab results and results of medical imaging

History via the SumEHR and hubs/metahub

Medication schedule

Online advice and guidelines

Electronic prescriptions

Electronic referrals
Rate setting & invoicing

SumEHR, medication schedule, ... updates

Create and send certificates

Send report to GMF holder

Registrations
eHealth Roadmap 2015-2019

• End of 2012: organisation of a Round table conference on the priorities for computerising the health sector

• Participation of about 300 people involved in the sector

• Result: eHealth Roadmap providing concrete targets for the next 5 years

• 2015: update of the eHealth Roadmap 2.0
eHealth Roadmap 2015-2019

• Principles
  • cooperation: coalition of the willing
  • involvement of all stakeholders
  • empowerment of all stakeholders
  • reliable basic services and business continuity actions
  • simplification where possible
  • emphasis on concrete results rather than on everlasting discussions
  • steady progress because of SMART goals and action points
  • multidisciplinary approach, including training and financial aspects
  • basis for synergies necessary for high-quality and affordable health care
Nexus effect

Bron: MIT Sloan
Roadmap 2.0: health care providers

• All GPs will have digitised medical records for all their patients and will publish and keep updated a SumEHR in a secure 'health vault' (Vitalink, Intermed or BruSafe)

• For all other health care professionals, a digitised patient file (DPF) will be set up and they will also be able to publish and keep (certain) information from their DPF up to date in secure ‘vaults'

• Hospitals, psychiatric institutions and laboratories will publish their documents via hubs with which they are affiliated and will consult data in secure vaults (Vitalink, Intermed, BruSafe) using this method
Roadmap 2.0: health care providers

- Pharmacists will publish a shared pharmaceutical file (SPF), which will feed into the medication schedule

- The medication schedule will also be available in secure vaults and will be shared between doctors, pharmacists, home nurses and hospitals

- GPs, through the EHR (electronic health record for GP’s), will have access to all the medical information published about their patients
Roadmap 2.0: health care providers

• All health care providers will have access to all health data published about their patients, insofar as they are relevant to them
  • filters will be set up for this purpose
  • the information may also be added to on a multidisciplinary basis

• Thus, maximum support will also be given to multidisciplinary care

• Health information and documents collected and published will be structured and coded to the greatest extent possible
  • ! this will not be fully in place until 2019
Roadmap 2.0: health care providers

• All health care providers will be able to communicate through the eHealthBox
  • certain standard forms will be provided for this purpose

• Health care providers will be able to make use of remote health care through 'mobile health' applications which must be officially registered
  • registration will be subject to controls as regards respect for private life, interoperability, the CE label for medical devices and evidence-based medicine (EBM)

• Registers will be optimised and standardised and registration will be automated insofar as possible

• Traceability of implants and medicines must comply with international standards
Roadmap 2.0: health care providers

• Health care providers will receive incentives for adequate use and usage of eHealth
  • financial incentives may include a federal element, as well as an element in relation to the various communities and regions

• They will be trained on eHealth, both as part of their basic training and continuing professional education

• A single point of contact will be in place for all information for the INAMI, SPF Santé Publique, AFMPS and the federal authorities (the 'only once' principle)
Roadmap 2.0: patients

• Patients will have access to all ‘objective’ health information concerning them that is available via the secure vaults and the hubs

• The possibility of setting up a consolidated platform is being looked into > this platform would allow patients to consult all their information in an integrated way and to use analysis tools as well as 'translation' tools for a better understanding of the information
  • contribution to 'health literacy' among patients (preventive health care)
Roadmap 2.0: patients

- Patients can themselves add information, either via the consolidated platform, or in the secure vaults or the hubs.

- All the information present on the hubs and the secure vaults on the consolidated platform or in the cloud makes up the patient's PHR (Personal Health Record).

- Via the consolidated platform, other information may also be added by sickness funds, the Crossroads Bank for Social Security and other relevant sources such as the patient's declarations of their wishes as regards organ donation and euthanasia.
Roadmap 2.0: patients

• The patient will have access to his/her PHR through various channels
  • e.g. a preinstalled application on their smartphone
  • strengthening the role of the patient in their treatment

• In principle, the patient should no longer receive papers from their doctor (unless by special request)
  • the statement of health care provided will be sent to the sickness funds electronically
  • the medication prescription will be available in the medication schedule
  • proof of unfitness for work will be sent in electronic format to the employer/school
  • the patient will receive the acknowledgement of receipt (transparency act) in their inbox
Roadmap 2.0: patients

- Prerequisite to the above: the patient must have given his informed consent
Focus: GMF* = EMF => SumEHR

- In order to assure the quality of care and to provide patients with correct information, the GP has to register the medical data in an EMF (Electronic Medical File)

- The EMF is the authentic source for data sharing by the GP

- The SumEHR (SUMmarized Electronic Health Record) is a brief summary of the EMF in a structured and encrypted form

- Each patient is, if desired, entitled to a SumEHR

- Subject to consent of the patient, the information provided in the SumEHR is accessible for each doctor having a therapeutic relationship with the patient and for the patient himself

- Priority for the use of SumEHR for out-of-hours GP services and emergency services

* Global Medical File
Focus: GMF = EMF => Sumehr

• Targets 2019
  • For 100% of the GPs
    • an EMF for each patient
    • publication and update of the SumEHR in a secured “health vault”
  • For all the other health care providers
    • definition of the EMF
    • publication and update of certain information in the secured “health vaults”
• Responsible organisation: RIZIV (the Belgian National institute for Health and Disability Insurance) and eHealth platform
Focus: Hubs & Metahub

- Hubs-Metahub system = system for the provision of health data between health care providers
  - consultation reports
  - surgery reports
  - discharge letters
  - protocols of medical imaging
  - ...

- Target
  - linking of regional and local exchange systems of medical data (hubs);
  - possibility for the health care provider to find and consult the available electronic medical documents on a certain patient regardless of
    - the place where the documents are stored
    - the place where the health care provider logs in to the system
Focus: Hubs & Metahub

- **Situation 2016**
  - system for sharing data and documents for the general and psychiatric hospitals via 5 hubs
    - Collaboratief Zorgplatform (Cozo)
    - Antwerpse Regionale Hub (ARH)
    - Vlaams Ziekenhuisnetwerk KU Leuven (VZN)
    - Réseau Santé Wallon (RSW)
    - Réseau Santé Bruxellois (RSB)
  - reference to the first-line documents (SumEHR, medication schedule...)
    - via the 3 secure vaults/hubs-metahub
      - Vitalink
      - InterMed
      - BruSafe
  - May 2016: 13.283.824 Hubs patients relationships registered in the Metahub (total volume)
Hubs & Metahub system

5 hubs
3 technical implementations
Almost all Belgian hospitals connected
Hubs & Metahub system before
Hubs & Metahub system today

1: Where can we find data?
2: In hub A and C

3. Retrieve data from hub A

B

4: All data available

C

3: Retrieve data from hub C
Extramural data
Hubs & Metahub

Active Physicians Evolution by HUB

- ABRUMET
- ARH
- ARH + Cozo
- RSW
- VznKUL
Hubs & Metahub

Successful Document Consultation by HUB

- ABRUMET
- ARH
- ARH + Cozo
- RSW
- VznKUL

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Focus: informed consent

- Necessary condition for the exchange of health information: consent of the patient for the electronic sharing of his health information

  - regulations approved by the different management and advisory bodies of the eHealth platform (Conciliation Committee with the users, Management Committee and Health Sector Committee)

  - only between health care providers/institutions having a therapeutic/health care relationship with the patient (ex. no access for the labour doctor)

  - registration of the consent by the patient himself or via his doctor, pharmacist, mutual insurance company or hospital
Focus: informed consent

- Possibility to exclude a health care provider

- Possibility to withdraw the consent

- Possibility to modify the consent profile at any time, without any restriction regarding the modifications

- Possibility to see who has entered/modified the informed consent
eHealth Consent

Uw status van de toestemming

Ik stem er mee in om de uitwisseling van mijn medische gegevens langs elektronische weg te faciliteren in het kader van mijn gezondheidszorg.

U heeft uw toestemming gegeven voor de uitwisseling (langs elektronische weg in het kader van uw gezondheidszorg) van gegevens betreffende uw gezondheid tussen de gemachtigde zorgverleners (er bestaat een bewezen therapeutische relatie tussen u en deze zorgverlener en u hebt geen uitsluiting ten aanzien van deze zorgverlener geregistreerd). Om deze elektronische uitwisseling mogelijk te maken stemt u tevens mee in dat er verwijzingen naar deze gezondheidsgegevens worden opgenomen in een repertorium waarin aangeduid wordt waar deze gegevens beschikbaar zijn (bijvoorbeeld in welk ziekenhuis). Ter herinnering, deze bepaling houdt rekening met de patiëntenrechten, de wet op de bescherming van de persoonlijke levenssfeer en de medische deontologie.

Ik wil meer informatie over de toestemming
Focus: informed consent

- Target 31/12/2015: 2.75 million registered consents
- 26/05/2016: 3,424,043 registered consents
- [www.patientconsent.be](http://www.patientconsent.be)
  - information folders
  - advertising spot spread in hospitals, mutual insurance companies, pharmacies
  - call centre
Wat is de geïnformeerde toestemming?

De geïnformeerde toestemming is de goedkeuring die u als patiënt aan uw zorgverleners geeft om uw gezondheidsgegevens elektronisch en op een beveiligde manier met elkaar te delen. Het delen van de gegevens vindt uitsluitend plaats in het kader van de continuïteit en de kwaliteit van de zorg en voldoet aan de regels inzake de bescherming van uw persoonlijke levenssfeer. Het zijn uw gegevens en die worden beschermd. U kunt op ieder ogenblik beslissen om ze al dan niet uit te wisselen.

Waarom uw toestemming geven?

In de loop van uw leven raadpleegt u verschillende zorgverleners. Door uw toestemming te geven, aanvaardt u dat de personen die u behandelen informatie over uw gezondheid met elkaar delen. Deze zorgverleners kunnen u beter behandelen als ze samenwerken en uw medische voorgeschiedenis kennen. Ze kunnen u sneller zorg verlenen en voorkomen dat u onnodige onderzoeken moet ondergaan.

Via de geïnformeerde toestemming stemt u in met het elektronisch delen van uw gezondheidsgegevens

Welke gegevens worden gedeeld?

Alle gegevens die in het bezit zijn van zorgverleners kunnen worden gedeeld voor zover ze nuttig zijn voor uw behandeling.

Het gaat bijvoorbeeld om:
- resultaten van bloedonderzoeken
- röntgenfoto’s
- vaccinatie- en medicatieschema’s
- voorgeschreven en afgeleverde medicatie
- informatie die bij uw ontslag uit het ziekenhuis aan uw behandelend arts werd meegedeeld
- ...

Al deze gegevens samen vormen het zogenoemde ‘gedeeld gezondheidsdossier’.

Wat zijn uw rechten als patiënt?

- U kunt op ieder ogenblik uw toestemming intrekken.
- U kunt bepaalde zorgverleners uitsluiten van toegang tot uw gegevens.
- Zelfs als u uw toestemming heeft gegeven, kunt u de zorgverlener in kwestie vragen om bepaalde informatie niet te delen.

Wie heeft toegang tot uw gegevens?

De zorgverleners met wie u een zorg- of therapeutische relatie heeft, of met andere woorden degene die u in het strikte kader van de kwaliteit en de continuïteit van de zorg behandelen. Dit betekent dat de arbeidsgeneesheer, de geneesheer van uw ziekenfonds en van uw verzekeringsmaatschappij geen toegang tot uw gegevens hebben.

Hoe registreert u uw toestemming?

Als u instemt met het principe van het beveilig delen van uw gezondheidsgegevens, kunt u uw toestemming registreren met uw elektronische identiteitskaart (eID):
- Via de website van het eHealth-platform: https://www.ehealth.fgov.be/nl/burgers/on-line-diensten/ehealthconsent
- Via uw huisarts, uw zorgverlener, uw ziekenfonds, uw apotheek of de opnamedienst van het ziekenhuis.

Voor kinderen die geen elektronische identiteitskaart hebben (kids-ID met een PIN-code) en voor alle andere personen die niet over een eID beschikken, zijn de zorgverleners gemachtigd om uw toestemming te registreren, indien u dit wenst.
Focus: Informed consent

Active Consents Evolution by Entry Type

Number of Consents [ ]

- Total
- WA
- WS

3314032
3283472
30560

03/06/2016
Focus: eHealthBox

- **eHealthBox - Status 2015**

  - standard functionalities of an electronic mailbox system with a high-level security for the exchange of medical information

  - each message is fully encrypted > the health information can be securely exchanged between the different health care actors

  - 2015: 44,753,486 messages sent
  - 2015: +/- 4 million messages sent per month
  - April 2016: 4.104.056 messages sent
  - April 2016: 34.301 active health care providers including 18.085 GPs
Focus: eHealthBox

• Targets 2019
  • generalized use of the eHealthBox and of the health care providers’ information available in CoBRHA
  • allowing a safe electronic communication of health and confidential information between the health care actors
  • developing and maintaining a common database with information of the health care actors and institutions
  • allowing the health care actors to consult and modify/complete specific information themselves
    • address book (database CoBRHA)
    • unique desk of the care provider

• Responsible organisation: eHealth platform and FPS Health, Food Chain Safety & Environment
Focus: mobile Health (mHealth)

- Objectives 2019
  - framework for mHealth actions > efficient implementation
  - support of health care using mHealth applications
  - integration of legal, financial and organizational framework into existing and new care agreements
  - integration of basic services of the eHealth platform in mHealth
  - to support the quality and accessibility of mHealth

- Responsible organization: FAMHP, RIZIV and eHealth platform
Focus: mHealth - types of apps

- Apps aimed towards communication, e.g.
  - apps allowing patients to ask questions online to health care professionals (tele-coaching)
  - apps allowing patients to answer questions of researchers
  - apps allowing patients to access their electronic patient file

- Apps used as a reference source for health information (for health care professionals and/or patients)

- Training apps: apps used for (permanent) training of health care professionals and/or patients
Focus: mHealth - types of apps

- Monitoring apps: apps that measure, register and/or transfer health parameters

- Apps for health self-management

- Medical devices: apps used for diagnostic or therapeutic purposes
Focus: mHealth - examples

• iHealth – MyVitals
  • measures and registers into the app several basic health values; the actual values are registered in the app; the patient can take a look at them and examine how he evolves comparing to his goal values
Focus: mHealth - examples

- MyDiagnostick
  - tool allowing to measure heart rhythm disorders
Focus: mHealth - examples

- iBaby: DIY echography
Focus: mHealth – social utility

• Improvement of health care quality by focusing on prevention

• Health care support at any time and in any place, both for health care providers and patients

• Reinforcement of patients' autonomy

• Stimulation of technical innovation and entrepreneurship
Focus: mHealth - apps and data

• The data are
  • either registered locally and processed in the mobile device
  • either transferred by the mobile device to a central platform that is administered by the organization in charge of the aggregation, the processing and the exchange of the data

• Need for clarity regarding the objectives of the data processing: the apps and platforms are often developed and administered by the pharmaceutical industry or by companies that sell monitoring data to third parties
Focus: mHealth – objectives of mHealth

• To achieve improved health and comfort for citizens (patients and users) in the Belgian health care by facilitating effective and efficient health care support using mHealth applications
• To create a framework in the health care sector for the legal, financial and organizational integration of mHealth applications into the existing and new care agreements
• To make the eHealth platform services available on mobile devices
• To support the quality and availability of mHealth
• To empower the health care user through mHealth applications
• To realize an organized mHealth policy in Belgium with a flexible and administratively simple application in all regions
Focus: mHealth – mHealth objectives

• Focus on mHealth applications that can be integrated into the health care system

• Responsible public institutions
  • FAMHP (certification of medical devices)
  • RIZIV (reimbursement)
  • eHealth platform (technical aspects)
Focus: mHealth – division of tasks

- The social care entrepreneurship and the industry examine the added value of mHealth applications.
- The authorities, in synergy with the umbrella governance model, using international examples and best practices as much as possible, are in charge of:
  - determining the general principals to which the mHealth applications have to comply in a context of integrated care and reimbursed remote care.
  - organizing the mobile access of all health care providers and patients to relevant information within the scope of health care continuity.
  - supporting the quality, the deontological use, the safety and accessibility of mHealth applications.
  - verifying the respect of privacy when using mHealth applications.
  - clarifying when it comes to liability of users and industry when using mHealth applications.
Focus: mHealth - action items

• The authorities realize this by
  • determining standards and specifications regarding
    • interoperability
    • information security and privacy protection (e.g. user and access management, encryption, ...)
  • user-friendliness
  • reliability
  • verifying the compliance with standards
  • independent review and user review
  • organizing training
  • directives on the use of mHealth applications
  • promoting useful adjustments for target groups
Focus: mHealth

• 5 priority use cases

• Chosen for their impact (number of patients x gravity) and the available technical tools of mHealth

• The functioning and the results of these cases are shared with the public and are immediately applied in a concrete market situation > they obtain the political guarantee of embedding in the Belgian health care system
Focus: mHealth – priority use cases

• Stroke: mHealth apps for acute stroke care with ultra-fast and specialized treatment, physiotherapy at home, rehabilitation – mobile access, self-management and empowerment of the patient and his environment
• Cardiovascular diseases: risk management and care (lipids, weight, blood pressure, …)
• Diabetes: tele-monitoring, point-of-care tests and digital support of integrated care
• Mental health care: tele-care and tele-psychotherapy, compliance, combination with mobile teams, …
• Chronic pain: multidisciplinary approach of chronic pain in specialized pain center, including monitoring of the patient: effort, sleep quality, pain intensity and compliance
Role and responsibility of the eHealth platform
Mission of the eHealth platform

• How?
  • through a well-organised, mutual electronic service and information exchange between all actors in health care
  • by providing the necessary guarantees with regard to information security, privacy protection and professional secrecy

• What?
  • optimisation of health care quality and continuity
  • optimisation of patient safety
  • reduction of administrative burden for all actors in health care
  • thorough support of health care policy and research
10 Tasks

• Development of a vision and of a strategy for eHealth

• Organization of the cooperation between all governmental institutions which are charged with the coordination of the electronic service provision

• The motor of the necessary changes for the implementation of the vision and the strategy with regard to eHealth

• Determination of functional and technical norms, standards, specifications and basic architecture with regard to ICT
10 Tasks

- Registration of software for the management of electronic patient files

- Managing and coordinating the ICT aspects of data exchange within the framework of the electronic patient files and of the electronic medical prescriptions

- Conceptualization, design and management of a cooperation platform for secure electronic data exchange with the relevant basic service
10 Tasks

- Reaching an agreement about division of tasks and about the quality standards and checking that the quality standards are being fulfilled

- Acting as an independent trusted third party (TTP) for the encoding and anonymisation of personal information regarding health for certain institutions summarized in the law for the support of scientific research and the policymaking

- Promoting and coordinating programmes and projects
Basic Architecture

Patients, health care providers and health care institutions

Network

Basic Services
eHealth-platform

Users

Suppliers
10 Basic services

- Coordination of electronic sub-processes
- Portal
- Integrated user and access management
- Logging management
- System for end-to-end encryption
- eHealthBox
- Timestamping
- Encoding and anonymization
- Consultation of the National Identification Registers
- Reference directory (metahub)
Critical success factors

- Governance by stakeholders
- End-to-end process optimisation
- ICT architecture
- Agile delivery
"The way to get started is to quit talking and begin doing."

Walt Disney
THANK YOU!
ANY QUESTIONS?

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