Sustainable UHC through Stronger Health Systems

Session 4: ICT and big data with UHC

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1. E-health is of course a very wide term that is used for truly overarching purposes. E-health can refer to:
- electronically stored health records, images and other medical data
- use of electronically stored data by medical profession and patients
- process of creating and storing medical data by patients themselves
- delivering medical services from distance by means of telecommunication
- medical decision support programs
- e-services to provide more efficient access to care, such as digital prescriptions, digital letters of referral, electronic medical consultations and electronically managed waiting lists.
- all of the above (big data)

2. There are some key general requirements for efficiency of any of the above mentioned components:
- Universal coverage and comprehensiveness of the underlying data base: ideally, e-health should apply to and should cover the whole population of the country
- Validity of medical data stored in the underlying data base: ideally, data should enter the data base immediately or shortly after it has been created by measurements, diagnostics or by any other means, and medical data should be validated prior the storage.
- Architecture and ease of use of the data: database should be structured in such a way that it can be quickly and meaningfully used and the storage and retrieval of data is easy.
- End user interfaces should be customer friendly.
- IT-infrastructure that supports interlinkages and data transfer between central data system and data systems of service providers (or individuals)

3. Estonian example – public central medical data storage and e-health system, accessible via internet and www services
- Legislation requires all medical data that is created by GPs, hospitals and other service providers in course of medical care to be stored in central data base, maintained by Estonian E-health Foundation. So we have a central system of electronic medical records (essentially case summaries), images and test results. Essentially, we should have in central data storage all medical data for our population as far as it is created in Estonia.
- E-health Foundation also offers a few public services to hospitals, service providers and general public: access to and viewing data, incl. images by medical professionals and patients, infrastructure for e-consultations between medical professionals (GPs

and specialists), issuance of digital medical certificates, management of emergency medical services, including access to patient's medical data.

- Also, in use, but in need for development are the central system of digital letters of referral and central system of waiting times' management.
- Registries of illnesses managed by govt and by medical professional organizations

4. Service providers have their own data systems, so part of health data is stored twice– once by service providers and once in central data base. They also provide some e-services, such as waiting times' management and some on-line consultation.

5. Estonian example - EHIF (monopolistic public health insurance provider)

- Electronic database of all invoices or claims issued by Estonian GPs and hospitals to EHIF for services delivered, essentially information for every visit and every treatment the EHIF pays for. Claims contain information on, for instance, DRG and all services provided during inpatient treatment and on all services in case of outpatient treatment.
- Electronic database of all prescriptions (all prescriptions are issued digitally) and ingredients that are prescribed.
- Electronic database for personal medical devices that are compensated by the EHIF
- Electronic database of all sickness leave benefits
- To be launched shortly: personalized drugs interaction database to be used by physicians
- Under development as publicly available service: decision support system for medical professionals

6. Use of central e-health systems (both government's e-health and EHIF)

- Retrieve information in course of providing care, particularly by GPs and smaller hospitals
- E-consultations and e-letters of referral in some specialties
- Prescriptions for drugs and personal medical devices are issued electronically
- EHIF to analyze validity and correctness of claims, costs of treatment cases, and also to analyze the quality of care
- EHIF for planning purposes, incl. commissioning and contracting
- Analytical purposes

7. Further development needs

- More efficient and wider use of central system
- Comprehensiveness of Estonian e-health data
- Ease of use – IT architecture of the database and ease of retrieving big amounts of data; storage in the central system vs. data retrieval on demand from other systems
- Ease of transmission of data between central system and service providers
- End user interface