Survey on the use of ICT systems in health care services

Commissioned by the Ministry of Social Affairs and Health
FinnTelemedicum and the National Institute for Health and Welfare

Notes on the use of these metrics

The survey metrics consist of three sets of questions: one for public secondary care (hospital-based specialised medical care), one for public primary care (health care centres) and one for private care providers. Because the sets of questions were quite similar, only the master question set (for secondary care) is published here.

Instructions for responding to multiple-choice questions:

All the questions apply to information and communications technology (ICT) systems or applications unless otherwise specified in the question. First, we ask about the use of the system or application in your unit. '*In use*' means that you are using the system or application in service production or otherwise in an actual operating environment. In the context of paid services, 'in use' usually means that a price has been determined for the service. Some questions are more specific about what stage you are at in introducing an application. In these questions, 'in use' means the same as above, '*testing*' means that the system or application is being tried out or piloted at your unit, '*planned*' means that you intend to introduce the system or application in the next few years or are preparing to procure it, and '*no*' or '*no plans*' means that you are not using the system or application and have no plans to introduce it.

Estimated intensity of production use: 'Production use' means the regular use of the application or information system in an actual operating environment. In several questions concerning an ICT system or application, respondents are asked to estimate how large a percentage of the function for which it was introduced the system or application is being used for. The scale in most cases was: ≤25%, ≤50%, ≤90%, ≤99%, and 100%.

Example 1: if you estimate that eReferrals are used for about one third of all referrals, the estimated intensity of production use of the eReferral system is more than 25% but less than 50%; select '*≤ 50%*'. Or, if you estimate that more than half but not all the patient records related to home care are transferred wirelessly, select '*≤90%*'.
Example 2. If the transfer of patient records in the regional information system represents about one third of all transfers of patient information between health care units in the region (the remainder involving sending papers by mail, etc.), select '*≤ 50%*'. Answer similarly for laboratory results, imaging, etc.

NB: In case of a health centre run by a municipal federation with several municipalities or a health centre run on the host model, respond according to the situation at the main health centre unless otherwise specified.

Public specialist medical care

Background information on respondent (*required fields)

Please select your hospital districts* (menu)
Respondents contact information:
Name*
E-mail*
Phone*
Your title or job duty at the unit (menu)

1. ELECTRONIC PATIENT RECORDS SYSTEM

1.1. What is the product brand of the electronic patient record (EPR) system in your organisation (principal system) (menu)?
If other, please specify the product brand: (*answer box*)

Is the EPR system mentioned above in use for
   a) conservative area? yes/no Estimated intensity of production use ($\leq 25\%$, $\leq 50\%$, $\leq 90\%$, $\leq 99\%$, 100%)
   b) operative area? yes/no Estimated intensity of production use ($\leq 25\%$, $\leq 50\%$, $\leq 90\%$, $\leq 99\%$, 100%)
   c) psychiatric area? yes/no Estimated intensity of production use ($\leq 25\%$, $\leq 50\%$, $\leq 90\%$, $\leq 99\%$, 100%)
   d) emergency clinic area? yes/no Estimated intensity of production use ($\leq 25\%$, $\leq 50\%$, $\leq 90\%$, $\leq 99\%$, 100%)

If municipalities of your hospital district are using different product brand as you, are they planning to change to the same main brand as you? (Yes, please spesify/ No)

1.2. What is your organisation' produt brand for picture archiving and communication system (PACS)? (menu) Estimated intensity of production use ($\leq 25\%$, $\leq 50\%$, $\leq 90\%$, $\leq 99\%$, 100%)

If your organisation is using, in addition to PACS, other picture archives (for example for mammography, photos etc.), please, define and identify what organisation is administrating the archive.

1.3. What is your organisation' produt brand for radiology information system (RIS)? (Menu)
If yes, please specify for what servises: (answer box)

1.4 What is your organisation' or your service provider' product brand for laboratory information system (LIS)? (Menu)
Please enter the product brand of user interface for LIS: (answer box)

1.5. In addition to your principal system does your organization have another EPR system for the following speciality areas? (Yes/No, Brand name, single sign in from the main EPR system, at least some data available via the main EPR system)
    Cardiology/ Rheumatic diseases/ Ophthalmology/ Pediatrics/ Labour/ Orthopedics/ Surgery/ Preoperative area/ Anesthesiology/ Intensive care/ Emergency/ Pathology/ Endoscopy/ Rehabilitation/ Home care/ Lending out assistive devices/ Other

1.6. Does your organisation use electronic ECG? (Yes/No) Estimated intensity of production use (≤25%, ≤50%, ≤90%, ≤99%, 100%)
If yes, is it (select one or more): compliant with the DICOM standard/compliant with another standard/manufacturer's own/a system that saves the ECG in PDF format

1.7 Does your hospital district use electronic transmission of ECG between emergency medical service units **and health care units?** (Yes/No)
Estimated intensity of production use (≤25%, ≤50%, ≤90%, ≤99%, 100%)

What proportion of the health care emergency units can receive telemetric ECG from emergency medical service units? (≤25%, ≤50%, ≤90%, ≤99%, 100%)

1.8 Is the ECG standard used in ambulances compatible with the hospital EPR system? (compliant with the DICOM standard /complian as picture (including PDF)/not compliant)

1.9. Is the patient information contained in the EPR available to the emergency medical service unit? (Yes/No)

1.10. Do you use electronic nursing documentation (this does not mean entering 'other information' in the EPR)?
(Yes, included in the principal system/ Yes, separate brand, please specify the brand: (*answer box*)/ No)
Is the documentation structured? Yes/no

1.11. Do you have a dictation system (which converts dictation directly into text)? (Yes/no)
If yes, please specify is it used for
   a) radiology (Yes/No)
   b) Some other speciality (Yes/No). Please specify the spesility area where in use: (*answer box*)

1.12. Estimate the portion of your physicians having a smart phone provided by the organization? (All/ All permanent/some/not at all)
Can it be used to access the EPR system? (Yes/No)

1.13 Estimate the portion of your physicians have a tablet computer provided by the organization? (All have personnel tablets/ All have access to tablets/ none).
Can it be used to access the EPR system? (Yes/No)

1.14. Does your organisation have wireless access to the EPR system?
   a) outside the unit, for text-based information (e.g. backups, home care, not related to patient transport) (Yes/No)
   b) outside the unit, for imaging information (e.g. backups) (Yes/No)

1.15. Does your organisation have single sign on prosedure for essential care component of your EPR system? (Yes/No)
Does it keep your signed on when chanking to another terminal? (Yes/No)

1.16. Does your organizations' EPR provide the following information? (Yes/No)
Mediaction list/ diffirent summaries (e.g. body temperature)/ summary of vaccinations/ basic physiological functions (such as body temperature, puls, blood pressure, respiration rate) / risk data (e.g. allergies and other matters must be considered)

1.17. Does your organisations' EPR system include possibility to list patients (Yes/No)
Based on diagnoses/ based laboratory results/ based on medication/ other, please spesify?

1.18. Does your organisation have elelctronic medication management system that registers and verifys right medication for right patient (for example bar code, RFID)? (In use/being tested/being planned/no)

2. REGIONAL INFORMATION EXCHANGE

2.1. Has your organization joined one or more regional information systems or other regional information exchange system (does not include national Kanta)? (Yes/no)

If yes, how many regional information systems?

2.2. Is your organization part of a joined database for regional information management? (Yes/No)

2.3. Is a regional information system, or regional information exchange otherwise, available to you in the following (does not include national Kanta)? (Yes/No)
a)   sending/receiving patient summary and reading them
b)   sending/receiving patient record data and reading them
      b1) sending/receiving patient' basic physiological functions (such as body temperature, puls, blood pressure, respiration rate)
      b2) sending/receiving patient' data on allergies
      b3) sending/receiving patient' vaccination data
c)   Ordering or taking order for laboratory examinations
d)   sending/receiving lab results and reading them
e)   sending/receiving imaging examination results (=images) and reading them
f)   sending/receiving imaging examination consultation responses and reading them
g)   access to an image archive shared by several organisations
h)   Patient summary sending or receiving

If your organization has regional information exchange (does not include national Kanta) in the following areas
(Patient record/Laboratory/Imaging/Imaging statement), please define
- Which information system model is used? (Master patient index system, Altti/Navitas model/ Alue-Effica/ Kunta-ESKO/ Alue-Pegasos/ Alue-Mediatri/ Other model/ no regional information system)
- In addition to the one above, do you use other regional information exchange systems? Please, define.
- Are the data from hospital district also available for the health care centres? (All/Some/none)
- Are the data from health care centres available for the hospital district? (All/Some/none)
- Are you able to read data from other hospital districts? (Yes/No)

Additional information: (answer box)

2.5. Are you using or planning to use special healthcare region related information systems, such as imaging center, for example in the following areas? (In use/ being planned/being tested)

Imaging/ Laboratory/ ECG/ Other, please specify *(answer box)*

2.6. Does your organization have eReferral system in the following? (Yes/No) Estimated intensity of production use: ($\leq$25%, $\leq$50%, $\leq$90%, $\leq$99%, 100%)
a) Receiving an eReferral from basic health care (accepting care responsibility from the sender), somatic health care
b) Receiving an eReferral from basic health care (accepting care responsibility from the sender), psychiatric health care
c) Sending eReferrals to another specialist medical care unit
d) Receiving eReferrals from another specialist medical care unit
e) Sending an eDischarge letter (epicrisis) to another unit
f) Receiving an eDischarge letter (epicrisis) from another unit
g) Sending an electronic document of nursing to another unit
h) Receiving an electronic document of nursing from another unit
i) Receiving a consultation eReferral from basic health care (with identification but care responsibility retained by the basic health care unit), somatic health care
j) Receiving a consultation eReferral from basic health care (with identification but care responsibility retained by the basic health care unit), psychiatric health care

If eReferrals are not in use in certain specialist areas, please list them: *(answer box)*

2.7. Can you engage in a remote consultation with another unit by televideoconferencing? (Yes/No)
How often is the system used? (in the last three months/more seldom/not in use)
In which specialist areas is this system used for consultations: psychiatry/child psychiatry/dermatology/ophthalmology/surgery/internal medicine, diabetes/ oncology/ neurology, clinic appointment/ neurology, telestroke/ other, please specify *(answer box)*

2.8. Data exchange with social services
   a) Can your organisation access data on a patient in the social services client information system (with the patient's permission)? (Yes/No)
   b) Can the social services organisation(s) in your region access data on a patient in your organisation's EPR system (with the patient's permission)? (Yes/No)

2.9. In your organisation, what is the primary source of patients' medication list? Please select those that fit best
Local database/ Regional database/ National prescription database/ Other, please spesify: *(answer box)*

3. PRIVACY AND AUTHENTICATION SYSTEM

3.1. In addition to Electronic Identification for Health Care Professionals, is your organisation using other eSignature for professionals? (Yes/No)

Is this Identification card is used alsot to other services than Kanta? If yes, please specify/no

Which authentication method(s) do you use for patients/clients for electronic services? (Yes/No)
NationalIdentification service (Suomi.fi)/ Population Register card/ Tupas or online banking IDs/ Online banking IDs/ mobile authentication of client/ user ID and password/ Other, please specify (*answer box*)

Does your organisation use patients/clients automatic/electronic registration when arriving to the clinic? (Yes, in routine use/Yes, in some of the organisation' clinics/Yes, as a pilot/Being planned/No)

Does your organisation have the following? (Yes/No)
A written information security policy (defining objectives, responsibilities, management, etc.)/ an information security plan/ designated privacy officer/ written Business Continuity Plan/ written Disaster Recovery Plan/ have had to follow Disaster Recovery Plan recovery action/ security plan for medical devises connected to data network/ Is it allowed to connect personal devices to your organisations' network?/ Does your organisation have a written policy for using personal devices in organisations network?

If your unit has had to activate recovery plan actions, please describe in what kind of occasions? (*answer box*)

3.2. Down time
    a) What was the organisation' defined permissible down time for EPR system for 2016? (% of usage time, not including preplanned down time, such as system päivitys) Yes/No
What was the percentage of down time period based on total EPR usage time in 2016? (*answer box*)

4. INFORMATION EXCHANGE WITH PATIENTS RELATING TO EXAMINATIONS AND TREATMENT

4.1. What information and/or functions does the website offer for the patients? (Yes/No)

Reliable information on wellbeing, health, and supporting services (either from organisation's www-pages or as links from there)/ information on services provided by the organisation/ systematically collected quality information on organisations' services (numerical or user feedback)/ search function for units or service providers providing various services in the region/ information on the organisation's units (contact information, location)/ function for sending preliminary data to the care facility online/ function for sending patient feedback on the care/ function for entering a living will/ Function for entering organ donation will/Personal care plan/ Electronic question-answer service, without identification/ Electronic question-answer service, with identification

Do you provide via your organisation's www-pages services for self-assessment of health (e.g. risk tests) for your patients? (Yes/No)
If yes, do these include automatic guidance or treatment control (does not include asking from health care professionals)? (Yes/No)
What other information or services do you provide via your www-pages? (answer box)
Have the accessibility been considered for your organisation's www-pages? (Yes/No) If yes, please specify how?

4.2. Which of the following services does your organisation offer for the patients?

    a) Direct online appointment booking (patient selects appointment time on his/her computer and the time is automatically bookedfrom the system) (Yes/No)

    If yes, please specify for which services this is in use (menu)
    How large a percentage of appointments for this service(s) is made online? (*answer box*)

    b) Direct online appointment changing or cancellation (Yes/No)
    If you answered yes, please specify for which services this is in use (menu)

Appointment booking, confirmationor cancellation by txt message (not including muistutus) Yes/No; if you answered yes, please specify for which services this is in use (menu)

4.3 Which of the following functions available for patients are integrated to your system (outside the Kanta-functionalities)? (Yes/No)
Information exchange with patient using conventional e-mail/ information exchange with patient using e-mail with encryption/ information exchange with patient using text messages/ online system where patients can read their EPRs/ online system where patients can read their laboratory results/ online system where patients can read their imaging examination statements/ online system where patients can read their medications/ online system where patients can read their diagnose

  4.4. Does your organization have an online system where patients can request renewal of medication? (Yes, via organizational system/ yes, via

national Kanta system/no)

What percentage of requested renewal of medication are made electronically? (answer box)

4.5 Does your organization provide personal health records (PHR) to archive patient-produced data? (In use/in testing, in planning, no)

4.6. What kind of systems your organisation has to receive self produced information from patients? (Yes/No) How often do your reseive this kind of data? (Often/occasionally/seldom/I am not able to say)
Patient system where patients can enter self-performed measurement results in the health care system/ patient system where patients can enter text in the health care system.
Does your organization have other systems to collect self produced information from patients? Please, spesify

4.7 Does your organisation have a patient home monitoring system that does not require any actions from the patient? (Yes/No)
If Yes, please specify for what (Yes/No)
Passive home monitoring system (does not include safety alarms)/ diabetesmonitoring/ remote monitoring of pacemaker/ Other, what?

4.8. Does your organisation have televideoconferencing service for patients (this does not mean the patient's physician consulting another physician in the presence of the patient) (Yes/No)
If yes, please specify the type of the service (Yes/No)
Realtime text and/or text (chat)/ Realtime voice connection (a call)/ Realtime video connection (traditional or mobile video call)

5. ADMINISTRATIVE SYSTEMS

5.1. Does your organisation have access to local or regional data warehouses of operating information? (Yes/No)

5.2. Does your organisation have access to an electronic incident reporting system? (Yes/No)
HaiPro/ Other, if yes, please specify: *(answer box)*

5.3 EPR data can be used to support administration. Which of the following functionalities are electronically integrated from EPR to administrative supporting system? (Yes/No)
Guiding the follow up of daily patient work/ quality control (e.g. quality registers)/ following the set objectives of the organisation (e.g. number of patients, care time) / following the usage of resources/ research, innovation and business activities/ other, please specify/ none

c)

5.4. Does your organisation use one or more ICT systems for operations, administration or other purposes (stand-alone systems) which was/were not referred to earlier in this survey? (*answer box*)

6. ELECTRONIC DATABASES AND SYSTEMS FOR PROFESSIONAL DECISION-MAKING AND TRAINING

6.1. Spesify your decision-making system by integration level:

a) A standalone online database on the same desktop as the EPR (e.g. links to an external database on the computer desktop): Multiple choise: Diagnosis support systems (e.g. Terveysportti)/ Drug interactions system (e.g. SFINX)/ Care pathway support systems (e.g. regional and national databases and guidelines) /Nurse's handbook/ other (please specify)/ not in use

b) An online database with access by navigating from the EPR: Multiple choise: Diagnosis support systems (e.g. Terveysportti)/ Drug interactions system (e.g. SFINX)/ Care pathway support systems (e.g. regional and national databases and guidelines) / Nurse's handbook/ other (please specify)/ not in use

c) A system that automatically displays selected items on the desktop and is integrated with the EPR but offers no patient-specific suggestions (e.g. reminders or colorful fonts): Multiple choise: Diagnosis support systems (e.g. warnings about pathological laboratory results)/ drug interactions system (e.g. SFINX)/ Care pathway support systems (e.g. reminders about lab results or referrals)/ other (please specify)/ not in use

d) An automatic integration of the EPR system and a knowledge database that includes patient-specific suggestions (e.g. reminders of medications based on patient condition): Multiple choise: Diagnosis support systems (e.g. EBMeDS or other system that is able to compare EPR patient data to DSS database)/ drug interactions system (e.g. SFINX)/ Care pathway

support systems (e.g.smart system that is able to compare EPR patient data to care pathway data base, and suggest feasible protcols for the patient)/ other (please specify)/ not in use

6.2 Does your organisation use spesified test collections (for example diagnose based) which can be ordered with one action? (Yes/No)

6.3 Does your system alarm on known medication allergies when priscriping mediacation? (Yes/No)

7. Human resources for digitalization

7.1. How large a percentage (%) of the employees whose job includes entering and/or reading patient information is computer-literate (basic skills)? (menu: % 10, 20, 30, 40, 50, 60, 70, 80, 90, 100)

7.2. How much privacy / information security training have your employees received? (Comprehensively/some/not at all)

7.3. Do you use online training for your personnel training? (Yes/No)
If you answered yes, is it (select one or more): privacy and data security/ operating model and procedures/ radiation safety/ patient security/ pharmacological treatment/ information systems/ Other, please, spesify

7.4. How comprehensively has your organisation made technical support available for users of the patient record system? (at all times during opening hours of the organisation/during normal office hours/daily, but for less than normal office hours/occasionally)

7.5. How much of the budget for your unit in 2016 was used in all for the procurement, maintenance and development of ICT systems and for training employees in how to use them? (In euros) (*answer box*), and as % of total budget. (*answer box*)
Was the information above (menu): (Calculated/estimated)

7.6 How would you estimate the percentage of your budget used for ICT systems in 2013 as compared to 2012?
(Stayed the same/gone up/ gone down)

8. Technical details and co-creation

8.1. Have representatives of your organisation been involved in the selection and definition of national information structures: (Yes/No)
Participating in preparatory work in expert groups/ participating in online work/ participating in workshops organised on the topic/ submitting expert statements to the responsible authorities on request/ having direct contact with the responsible authorities/ Other ways, please define

8.2. Which of the following classifications available on the health care code server is used by your organisation in its patient record systems?

AR/Form – Personal information form	YES/NO
AR/Core – Primacy of diagnosis or procedure	YES/NO
AR/Core – Stage of care process	YES/NO
AR/Core – Type of risk data	YES/NO
Fimea – ATC classification	YES/NO
FinLOINC – Physiological measurements	YES/NO
Nursing – Care need classification (v 3.0)	YES/NO
Nursing – Care need classification (v 2.0.1)	YES/NO
Nursing – Care procedure classification SHToL v 3.0	YES/NO
Nursing – Care procedure classification SHToL v 2.0.1	YES/NO
Nursing – Care outcome classification	YES/NO
Association of Finnish Local and Regional Authorities – ICPC-2 Basic health care classification	YES/NO
Association of Finnish Local and Regional Authorities – Nomenclature of assistive rehabilitation services	YES/NO
Association of Finnish Local and Regional Authorities – Physiotherapy codes	YES/NO
Association of Finnish Local and Regional Authorities – Laboratory test codes	YES/NO
Association of Finnish Local and Regional Authorities - Radiology examination and procedure classification	YES/NO
Association of Finnish Local and Regional Authorities - Occupational therapy codes	YES/NO
PTHAVO - SPAT, The Finnish classification of procedures in open primary care	YES/NO
SFS/THL - Assistive device classification	YES/NO
Ministry of Social Affairs and Health - Health care functions classification	YES/NO
THL - Register for social and health organisations	YES/NO
THL - Oral health procedure classification	YES/NO

THL - ICD-10 classification of diseases	YES/NO
THL - Source of information	YES/NO
THL – Procedure classification	YES/NO
THL/Information content – Health and care plan	YES/NO
THL/Information content – Diagnoses	YES/NO
THL/Information content – Imaging examinations	YES/NO
THL/Information content - Laboratory examinations	YES/NO
THL/Information content – Risk data	YES/NO
THL/Information content – Vaccinations	YES/NO
THL/Information content – Procedures	YES/NO

8.3. Which solutions are principally used in the ICT systems of your unit at the moment for information exchange between organisations in your region?
 a) OVT/EDI
 b) HL7 CDA R1
 c) HL7 CDA R2
 d) DICOM
 e) eReferral and eDischarge messages in XML
 f) IHE-XDS
 g) HL7 CCD (continuity of care document)
 h) HL7 FHIR
 i) other, please specify: (*answer box*)
 j) no information exchange with other organisations