



# avain

## TECHNOLOGIES

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Smart solutions for eSociety

April 28, 2014

# Finnish Information security and data protection

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- **Hospitals and municipal healthcare centers are patient register keepers**
- Current problems:
  - Around 400 different patient registers
  - Patient data is in around 500 different ICT-applications in Finland
  - How to make sure that there is a patient consent when doctor is viewing the data of a patient
  - Time consuming and Non effective system
  - Social care have their own registers
  - Disclosure of information between healthcare units requires a treatment relationship and the patient's consent

# Healthcare reform in Finland

## Current structure

## New structure

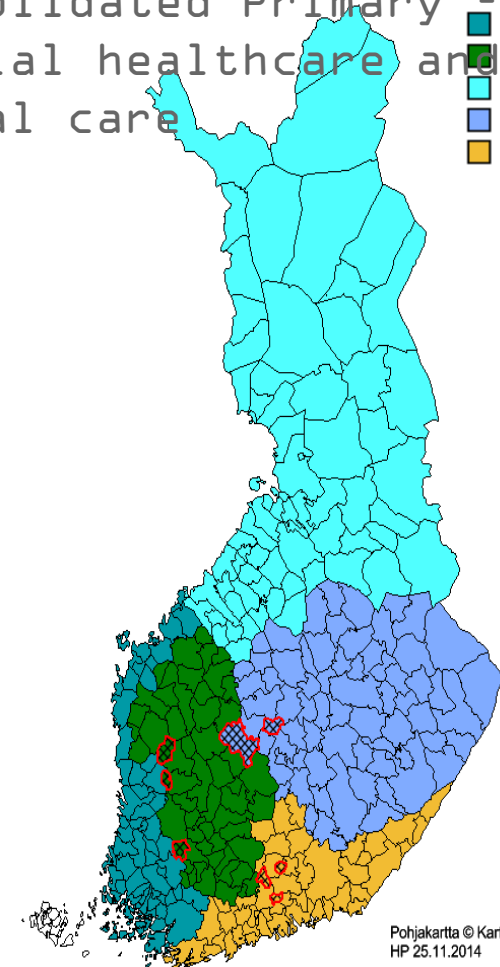
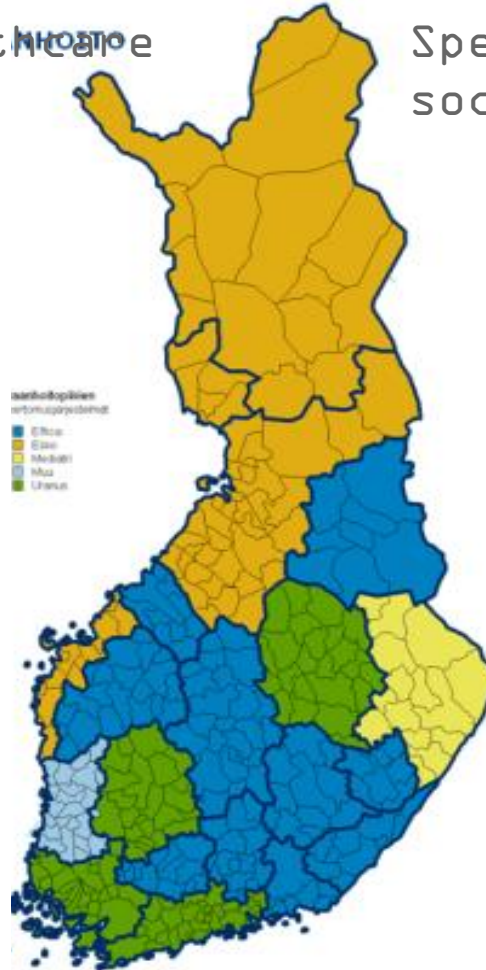
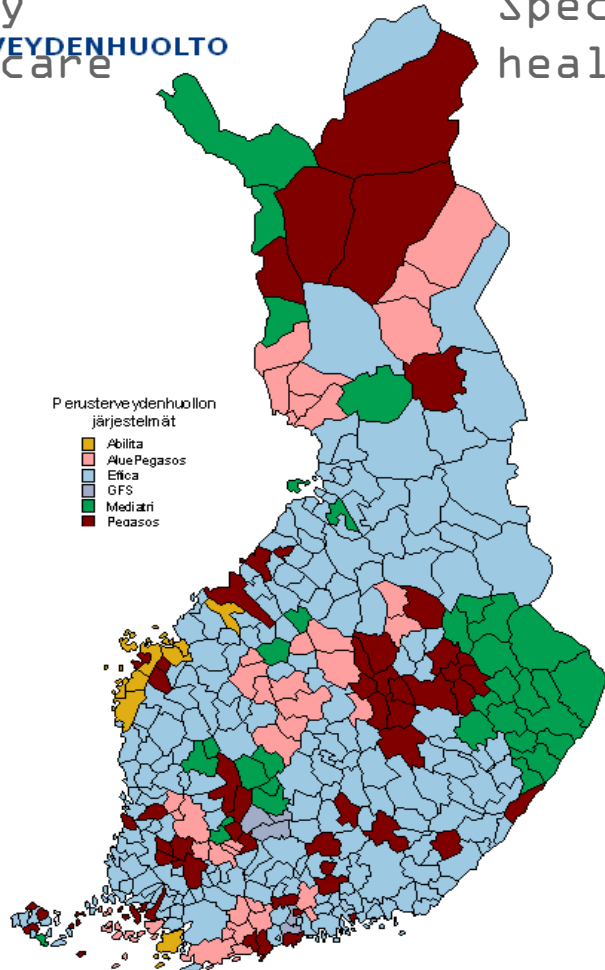
Primary  
**PERUSTERVEYDENHUOLTO**  
 healthcare

Special  
 healthcare

Consolidated Primary  
 Special healthcare and  
 social care

Sote-alueet

- Läntinen
- Keskinen
- Pohjoinen
- Itäinen
- Eteläinen



# Finnish Information security and data protection

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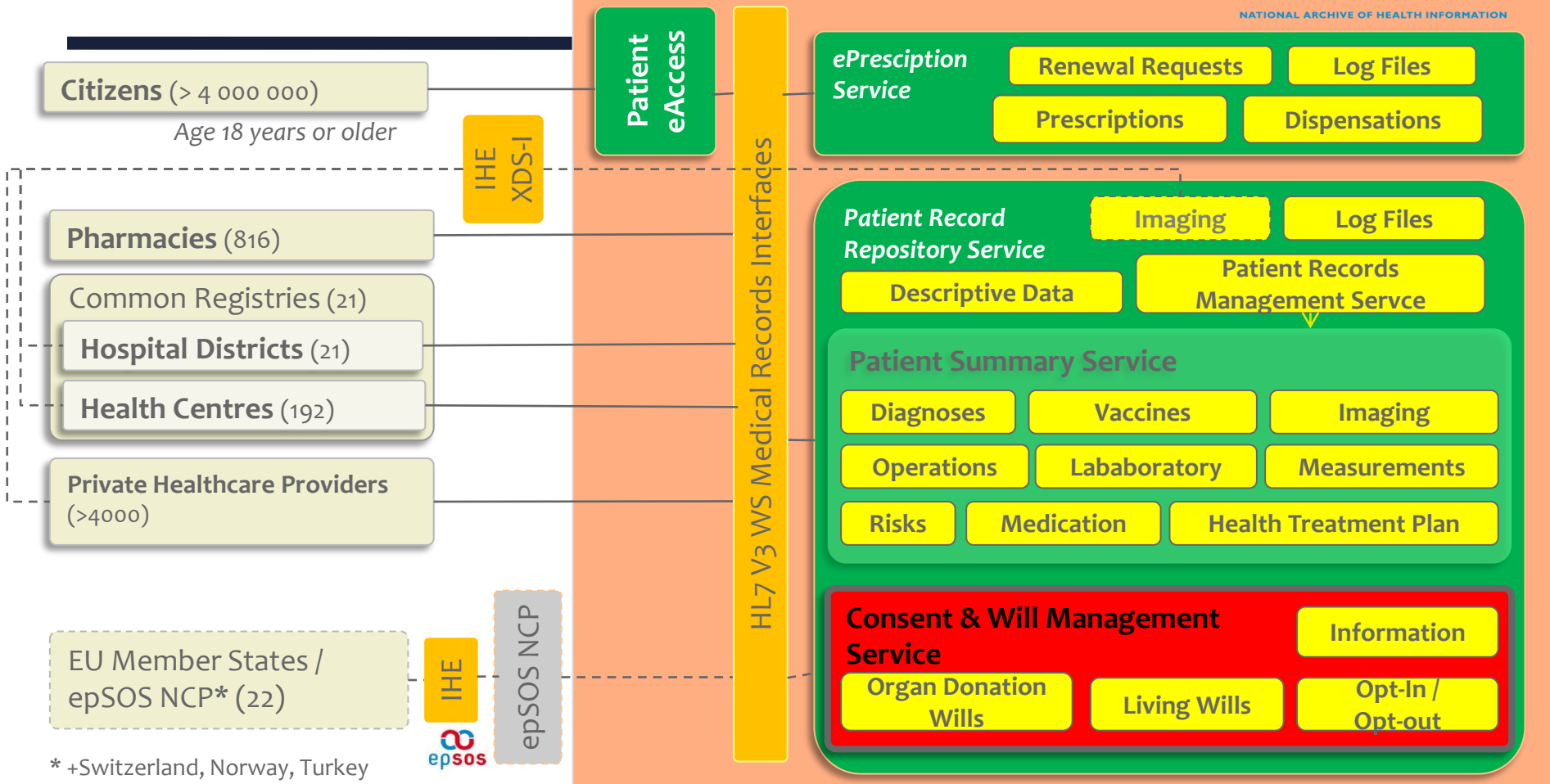
- Draft law proposal in the Parliament
- New structure to be implemented by January 1, 2017
- Healthcare reform targets:
  - Better care for the patients
  - Better information flow between the different organizations
  - Better support for the national ICT-solution
  - Consolidated social and healthcare registers
  - Effective health and social care – cost savings
  - **Reduce the number of health- and social care registers from around 400 to 5 consolidated registers**
    - **Better support for national will and consent management systems**
    - **Disclosure of information between healthcare units requires a treatment relationship and the patient's consent**

# RESULTS

## National Kanta Services

**Kanta**  
NATIONAL ARCHIVE OF HEALTH INFORMATION

Kela<sup>®</sup>



\* +Switzerland, Norway, Turkey

### Main Standards

- HL7 V3: CDA R2 Level 3 and Medical Records
- IHE IT-I Profiles
- W3C XML-Signature
- WS Addressing, WS-I
- TLS, X.509



## Other National Services

### National Code Server

- Code Lists, Terms
- Document Structures
- SOTE Organisation Registry
- Registry of Pharmacies

### Registry of Healthcare Professionals

### Certification Services

### Medication Database



Valvira  
Sosiaali- ja terveysalan lupa- ja valvontavirasto



Kela<sup>®</sup>

# Data protection in national systems

## 1) ePrescriptions

[Etusivu](#) > Sähköiset reseptit

### Sähköiset reseptit

**Testi, Potilas** [redacted]

**i** Sähköinen resepti on lääkemääräys, joka laaditaan sähköisesti Reseptikeskukseen. Tarkemmat tiedot reseptistä näet valitsem palvelussa 2,5 vuotta määräyspäivästä lukien. Resepti on voimassa voimassaoloaikaa ole rajattu. Kun reseptillä ei enää ole lääkemääräystä saamatta oleva määrä ja reseptin voimassaoloaika eivät enää...

**Yhteenveto sähköisistä resepteistä**

Yhteenvetoon tulostetaan alla valitsemasi vaihtoehdon mukaiset sinu viivakodin avulla nopeutat asiointiasi apteekissa.

Kaikki reseptit  Reseptit, joissa on lääkettä saamatta

Määräyspäivä	Lääke
<a href="#">28.2.2014</a>	DOLCONTIN 30 mg depottabletti
<a href="#">28.2.2014</a>	LOMUDAL 40 mg/ml silmätipat, liuos kerta-annospipetissä

## 2) Data on Prescriptions & Deliveries

[Etusivu](#) > [Sähköiset reseptit](#) > Sähköinen resepti

### Sähköinen resepti 28.02.2014

**Testi, Potilas** 1 [redacted]

**i** Valmisteen kokonaishinta on apteekin myyntihinta valmisteelle ennen mahdollisen sairausvakuustain mukaisen korvauksen vähentämistä.

**Lääke** LOMUDAL 40 mg/ml silmätipat, liuos kerta-annospipetissä

**Annostus ja käyttötarkoitus** 1-2 tippaa 2 kertaa vuorokaudessa kumpaankin silmään. Pipetti on yhtä annostekertaa varten. Pehmeät piilolinssit otettava pois ennen lääkkeen tiputtamista, ja ne saa asettaa takaisin aikaisintaan 10 minuutin kuluttua lääkkeen ottamisesta. Allergialääke.

**Määrätty määrä** 4X60 x 0,3

**Hoidon laatu** Sairauden...

**Määräaja** von Mark

**Määräyspäivä** 28.02.2014

**Määräyspaikka** Terveyskeskus

**Resepti voimassa saakka** 28.02.2014

**Lääkettä saamatta** 3 X 60 X

**Lääkeostot:**

Ostopäivä	28.02.2014
Lääke	LECROLY
Lääke vai	
Ostettu määrä	1X80X0,25
Kokonaishinta	21,08 EUR

[Tietojen luovutukset](#)

## 3) Log Data

[Etusivu](#) > [Sähköiset reseptit](#) > [Sähköinen resepti](#) > Tietojen luovutukset

### Yhteenveto sähköisen reseptin 28.02.2014 tietojen luovutuksista

**Testi, Potilas** [redacted]

**i** Tietojen luovutuksista voit seurata, missä apteekkeissa tai terveydenhuollon yksiköissä reseptitietojasi on käsitelty. Kun reseptitietojasi haetaan henkilötunnuksella, apteekki tai terveydenhuollon yksikkö saa tiedot kaikista sähköisistä resepteistäsi.

<b>Lääke</b>	LOMUDAL
<b>Määräaja</b>	Timo Markka
<b>Määräyspäivä</b>	28.2.2014

**Reseptin tietoja on käsitelty seuraavissa terveydenhuollon toimintayksiköissä ja apteekkeissa:**

Aallon apteekki	28.2.2014
Terveyskeskus testausta varten 1	28.2.2014

# Information security of national services

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- Prescription and patient records are sensitive health information.
- The Kanta Services permit processing of this information reliably and securely.
  - All data transfers between the healthcare system, pharmacies, Patient Data Repository and Prescription Centre take place encrypted between identified parties.
- The identity of every user of the Prescription Centre and Patient Data Repository is verified using strong electronic identification.

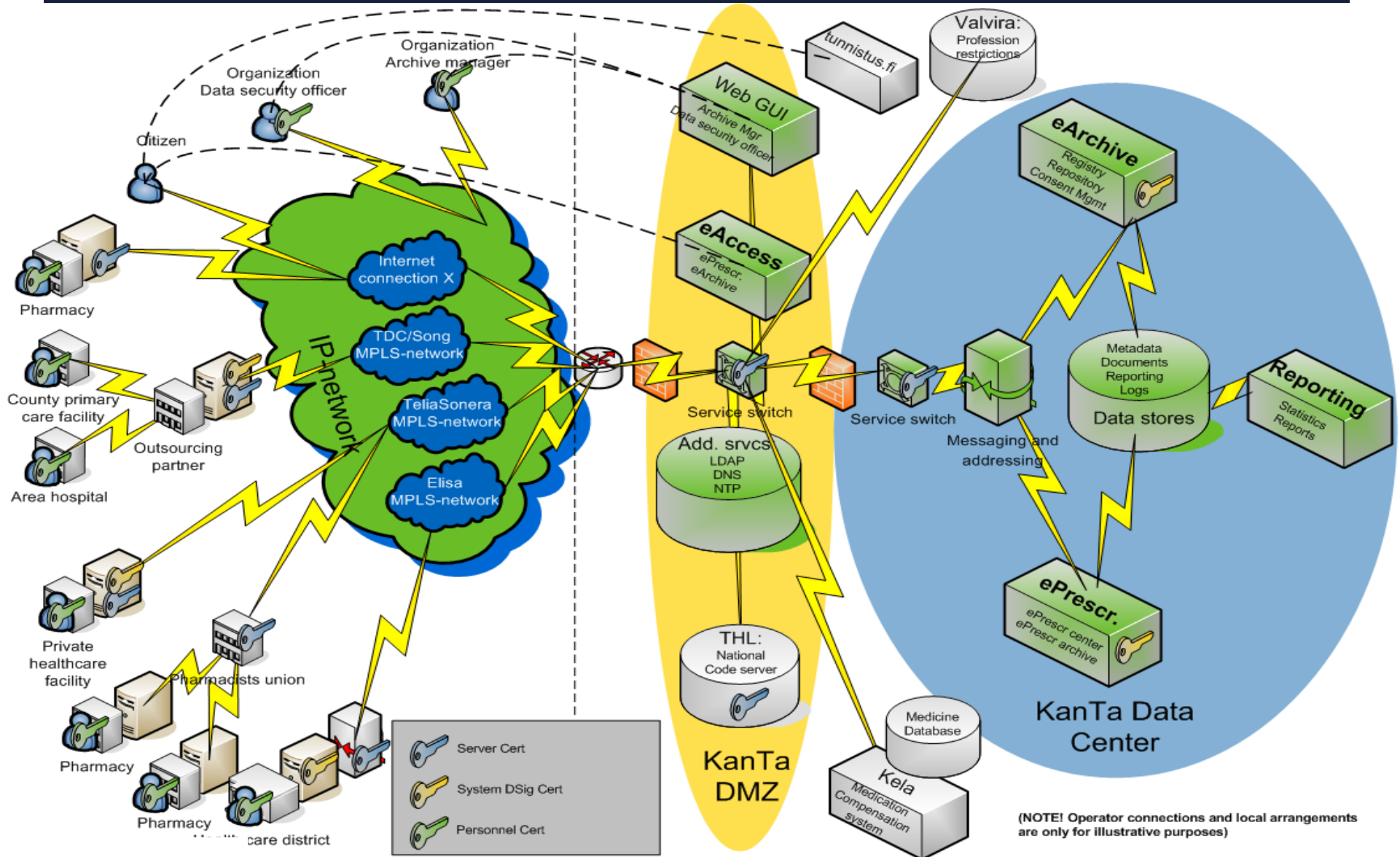
# National level Information security

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- In the healthcare system, the Prescription Centre may be accessed by doctors, dentists and students of both disciplines who have completed the required studies, as well as nurses.
- In pharmacies, the information in the Prescription Centre may be viewed by pharmacists with or without an MSc (Pharm) (proviisori) and pharmacology students.
- Handling information held in the Prescription Centre requires a healthcare professional card and appropriate user rights to the Prescription Centre.
- Additional requirements are a treatment or client relationship and the patient's consent.



# E-Health Standard Forum - Information security



# Patients control use of their information

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- Patients are also able to control the use and disclosure of their information.
- Patients can see in My Kanta pages which organizations have viewed or handled their prescription details or where their medical records have been sent.
- Patients can also request from the register controller details of who have handled and viewed any of their records. The controller of the medical records is the healthcare organization (e.g. health centre) where the patient was treated and the patient's documents created.

# Monitoring and control of data processing

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- Kela, healthcare organisations and pharmacies oversee in their part that data security is observed and data processing complies with the legislation.
- In order to permit ex-post control, logs are maintained on the use and disclosure of the information. The log data are based on identified users (personal certificate card) and reason for accessing the data.
- If there is cause to suspect misuse, it is possible to establish who has handled the data and on what grounds.
- Healthcare units and pharmacies must appoint persons responsible for data security to carry out monitoring and control functions, as well as ensuring that the whole staff receive adequate training in data security issues.

# Information security - certificates

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- The Population Register Centre is currently the only so called Certificate Authority of qualified certificates in Finland that is able to issue Pan-European certificates, as specified by the Act and the relevant EU Directive, that provide high levels of information security and contain the correct identity. Every personal certificate issued by the Population Register Centre is a **qualified certificate.**

# Information security - certificates

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- The Population Register Centre certificate system is based on Public Key Infrastructure (PKI).
- Electronic identification offers you the opportunity for secure online transactions anywhere and any time.
- The system enables the realization of privacy protection and information security, which is a basic right of citizens and an absolute requirement for online service providers

# Information security - certificates

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- Population Register Centre provides the certification authority services (CA services) for the users of the nationwide healthcare information systems.
- Organizations providing healthcare services including their employees and data networks are the intended user group of the healthcare CA services.
- Healthcare CA services provide the means for identifying the users and the hardware in nationwide healthcare information systems.
- It is also possible to electronically sign documents and other data transferred in the healthcare information systems.
- Use of the identification and electronic signature services requires that the user has a healthcare smart card.

# Information security

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- The Patient Data Repository is only accessible to persons employed in the healthcare services who have **a smart card granted by the healthcare certification provider** and user rights appropriate to their position to the information in the Patient Data Repository. Disclosure of information between healthcare units requires a treatment relationship and the patient's consent.
- **An electronic signature authenticates the signatory's identity and that the information signed for has not changed during transfer or saving. Kela, healthcare organizations and pharmacies have a data security policy for the Kanta Services.**

# Information security – smart cards

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- Healthcare smart card is a smart card including healthcare certificate issued by Population Register Centre. Certificate shows the identity of the card holder in electronic form.
- Healthcare professionals and other authorized persons that use healthcare information systems, use the smart card to log on to information systems and to sign documents electronically.
- Population Register Centre issues the healthcare smart card and the certificate upon application to authorized applicants.
- Distribution of healthcare smart cards takes place in registration facilities that are maintained by the hospital districts



# Information security – smart cards

Healthcare Id-card is a smart card including healthcare certificate issued by Population Register Centre

## ID-card for regulated healthcare professionals

- All healthcare professionals in Finland will have healthcare professional cards with certificate



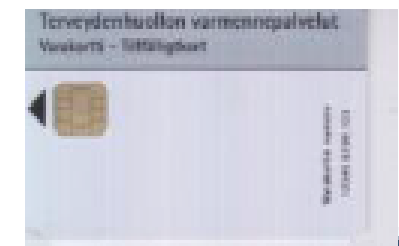
## ID-card for non-regulated healthcare workers



## ID-card for non-clinical healthcare sector staff



## Replacement card for healthcare sector staff



# Information security – Healthcare certificates

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## Public Key Infrastructure

- RSA algorithm and RSA 2048 key
- **2 key pairs, certificates and PIN-Codes:**
  - Authentication + encryption
  - Non-repudiation signature
- Valid for **5 years**
- Meets the requirements of the European qualified certificate
- **FINEID-specifications -**  
<http://fineid.fi/default.aspx?id=502>

## Healthcare Registration Authority Service

- Distribution of healthcare smart cards takes place in:
  - 300 Registration Authority facilities that are maintained by the hospital districts
  - 150 Registration Authority facilities that are maintained by the pharmacies
  - 12 Registration Authority facilities that are maintained by the private hospitals

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THANK YOU FOR YOUR ATTENTION

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