

# The Icelandic Pharmaceutical Database

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SCHOOL OF HEALTH SCIENCES

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# Overview

- Health system – reasons for IPD
- Data contents
- Legal and ethical issues
- Strengths and weaknesses of IPD

Population: ~300.000 Area: 103 000 Km<sup>2</sup>



# The Icelandic Health care system

- Universal comprehensive and financed by general taxation
- No private health insurance
- Health Care Centers providing primary care, staffed by salaried specialists in primary care. Patients pay a small fee.
- Private specialists, paid fee-for service, no gate-keeping. Patients pay larger fees.
- Pharmacies are private and ownership not restricted to pharmacists since 1996.
- Hospitals in Reykjavik are merged into one University Hospital. No copayment for inpatient care.



## Directorates and agencies dealing with medicines in Iceland

- Ministry of Health
- Directorate of Health (Landlæknir)
- State Social Security Institute
- Icelandic Medicines Agency
- Drug Pricing Committee

# Origin of Database

- Started operations in 2006
- Data initiation January 1st 2003
- Constructed for surveillance of
  - habit-forming and narcotic drugs
  - “problem” physicians and patients
  - drug costs / rational drug use

# Framework and Operation

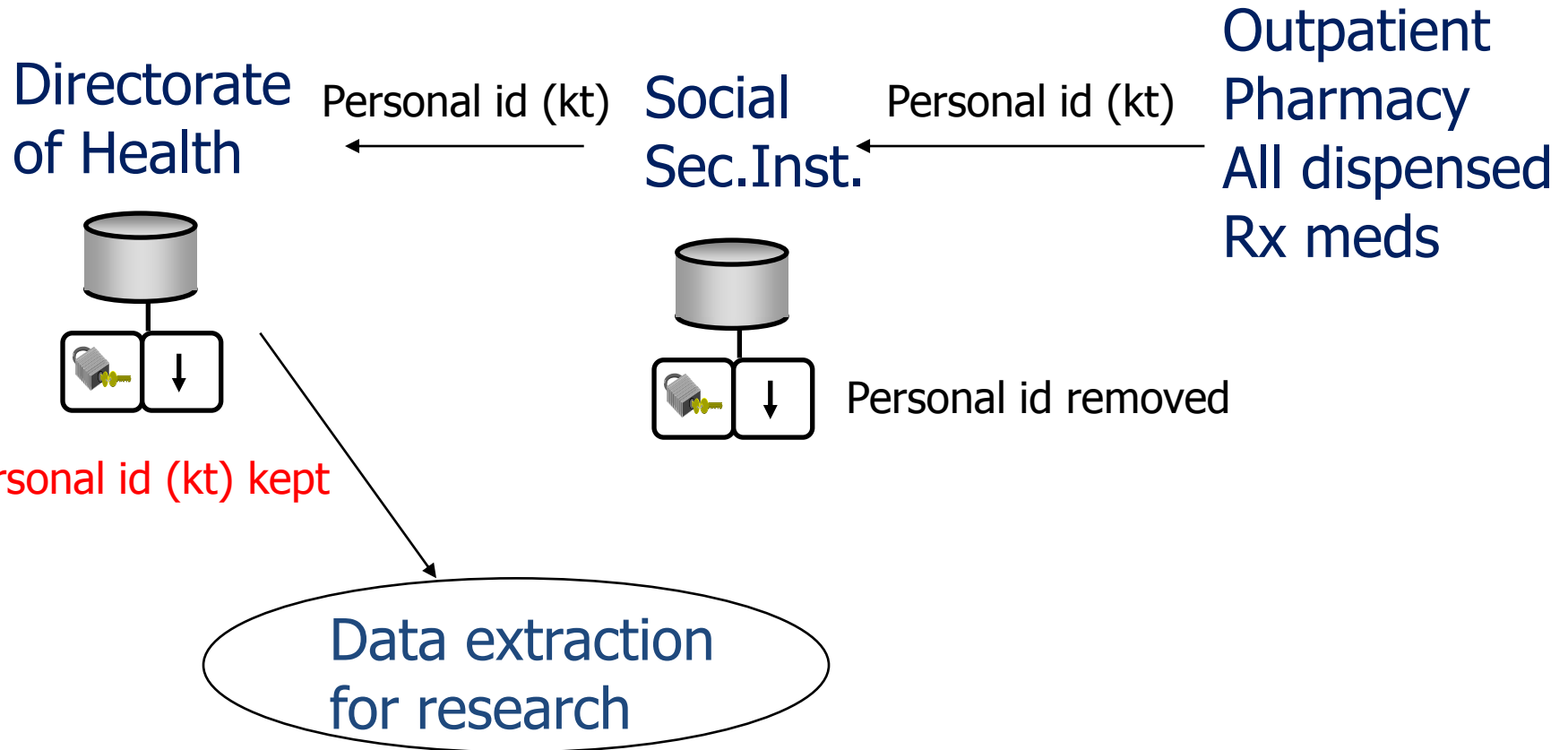
- Governed by Icelandic law
  - The Medicinal Products Act nr. 93/1994
- At first data only to be kept in IPD for 3 years.
  - Law amended in 2008 and now allowed to be kept for 30 years
- Operated by the Directorate of Health (Landlæknir)
  - responsible for encrypting personal identifications
  - preserves the sole key to encryption and decryption
- Data updated monthly

# Data Content

- All electronically dispensed prescription drugs
  - Outpatient care
- Reimbursed and non-reimbursed drugs
- Mechanical dose dispensing since January 1st 2006
  - Approx. 8%



# The two pharmaceutical databases



# Database for Research

- Studies on psychotropic drug use
  - Children
  - Elderly
- Studies on adherence to long-term treatment
  - Statins, SSRIs, Anti-diabetics
- Increasing demand for data
  - New programme in Public Health at University of Iceland
  - MPH & PhD
  - Research Institute for Pharmaceutical Outcomes and Policy (RIPOP)
- Permission needed



# Data Access and Research Permission

- Directorate of Health
- Ethical Review Board
- Data Protection Authority
- Research collaborations



# Data Linkage

- Technically possible
  - Via personal identification number
- Has only been performed twice
  - Educational Testing Institute's database (Children's academic performance and stimulant use)
  - National patient registry + Mortality registry (Cardiovascular risk of coxibs)
- Strict ethical procedure



## Variables directly from the prescription

1. Prescription number
2. Patient name
3. Address
4. Personal identifier (Kt)
5. Validity period of prescr.
6. (Pharmacist)
7. Pension or disability status
8. Pharmaceutical trade name
9. Formulation
10. Strength
11. Amount dispensed
12. Usage instructions
13. (Indication)
14. Dosage dispensing
15. Number of iterations (no, 2x, 3x, 4x)
16. Date of dispensing
17. Name of prescriber
18. Address of prescriber
19. Prescriber code
20. Pharmacy
21. Price
22. Patient share (max)

## Variables entered indirectly by linkage

1. Age (Date of dispensing – birthdate. Derived from the personal identifier)
2. Gender (Linkage to the National registry of inhabitants)
3. Postal code (Linkage to the National registry of inhabitants)
4. ATC number (WHO list)
5. Nordic package number (List of drug prices)
5. DDD (WHO list)
6. Physician speciality (Health Directorate)

## Potential strength of the IPD

- Information from all prescription drugs whether reimbursed or not
- Validity check at the Social Security Institute
- Information on individual doctors
- Total population coverage
- Possibility for a "Nordic Cohort"

## Weaknesses of the IPD

- Indications missing
- Dosing information is text
- Population is small
- Speciality classification not reliable
- No OTCs



# Possibilities for linkage

## National registries

- Cancer registry
- The Icelandic National Patient Registry (INPR)
- Mortality registry
- Educational Testing Institute database
- Demographics from Statistics Iceland
- Tax registry

## Cohort studies

- Icelandic Heart Association
- deCODE genetics
- Icelandic Cancer Society



# Whom to contact for info on IPD

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