Dissemination of EHR in hospitals

– an experience from Slovenia

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Nyborg, October 28th, 2003

Agenda

- An overview
- Current projects
- Developing EHR
- Examples

Slovenia – some general facts

In the middle of Europe

Total population: 1,984,000

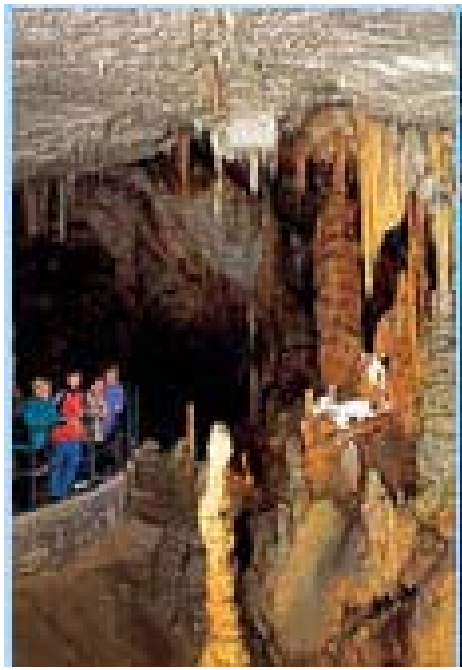
Area: 20.000 m2

GDP per capita : 9.800USD

Life expectancy at birth m/f (years): 72.1/79.5

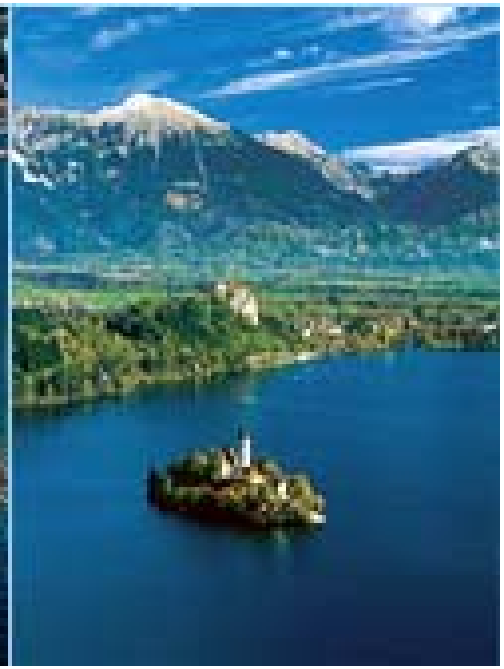
Healthy life expectancy at birth m/f (years): 65.1/70.3

Slovenia – beautiful country



Postojna

Piran



Bled

Slovenia – some special facts

Health

Hospitals: 27 (16 general hospitals)

Physicians: 4500

Dentists: 1200

Nurses: 14200

Total health expenditure as % of GDP: 8.6

Infonet – some general facts

Software provider for health informatics

Founded: 1991

Ownership: private

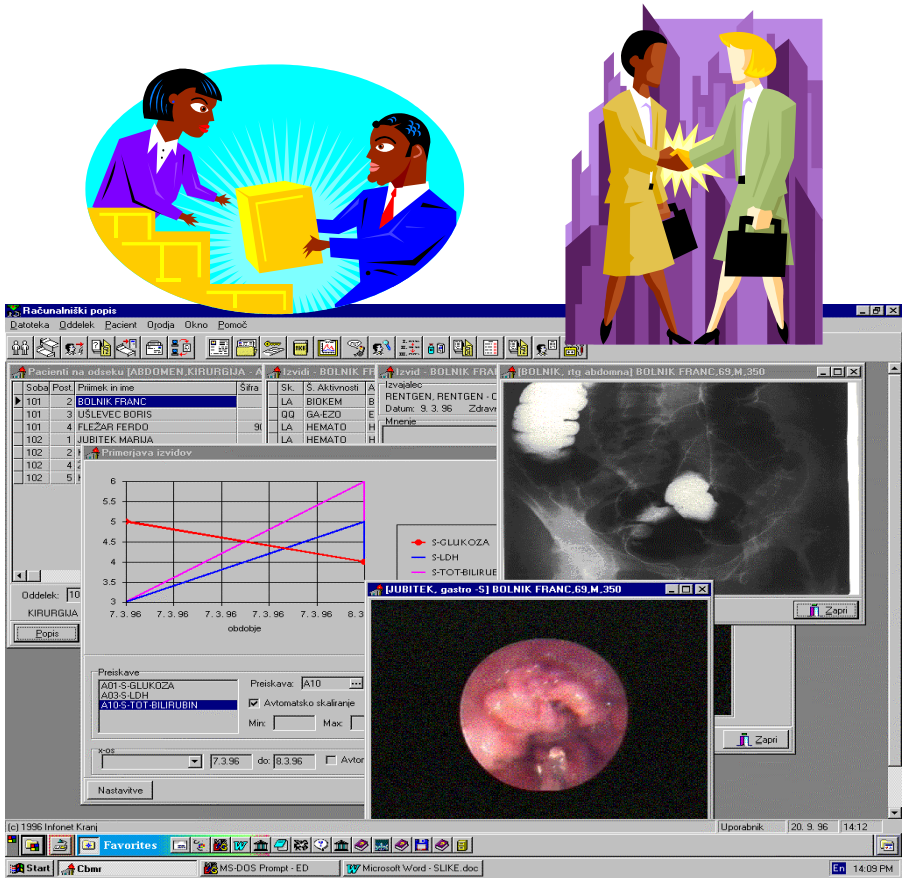
Employees: 29

Annual turnover: 3 mio EUR

Sphere of activity: developing, implementation and maintenance of information systems for health providers

Infonet – some special facts

References



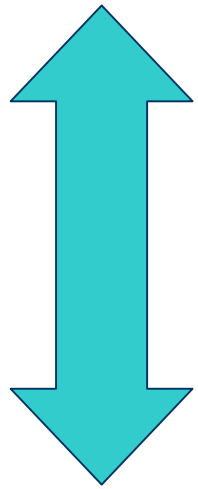
Basic fields of interest:

- **hospital information systems:**
  18 hospitals
- **information systems for Primary Health Care and GPs**
  37 health centres and 412 private doctors
- **pharmacy information systems**
  82 pharmacies
- **IS for microbiological labs**
  5 labs, 1 institute

Main players in medical informatics

Health Insurance Institute

- Delivered 2750 computers and basic application - 1991
- Initiated EDI for invoices (EDIFACT standard) 1993
- Introduced Health Insurance Smart Card at national level 2000



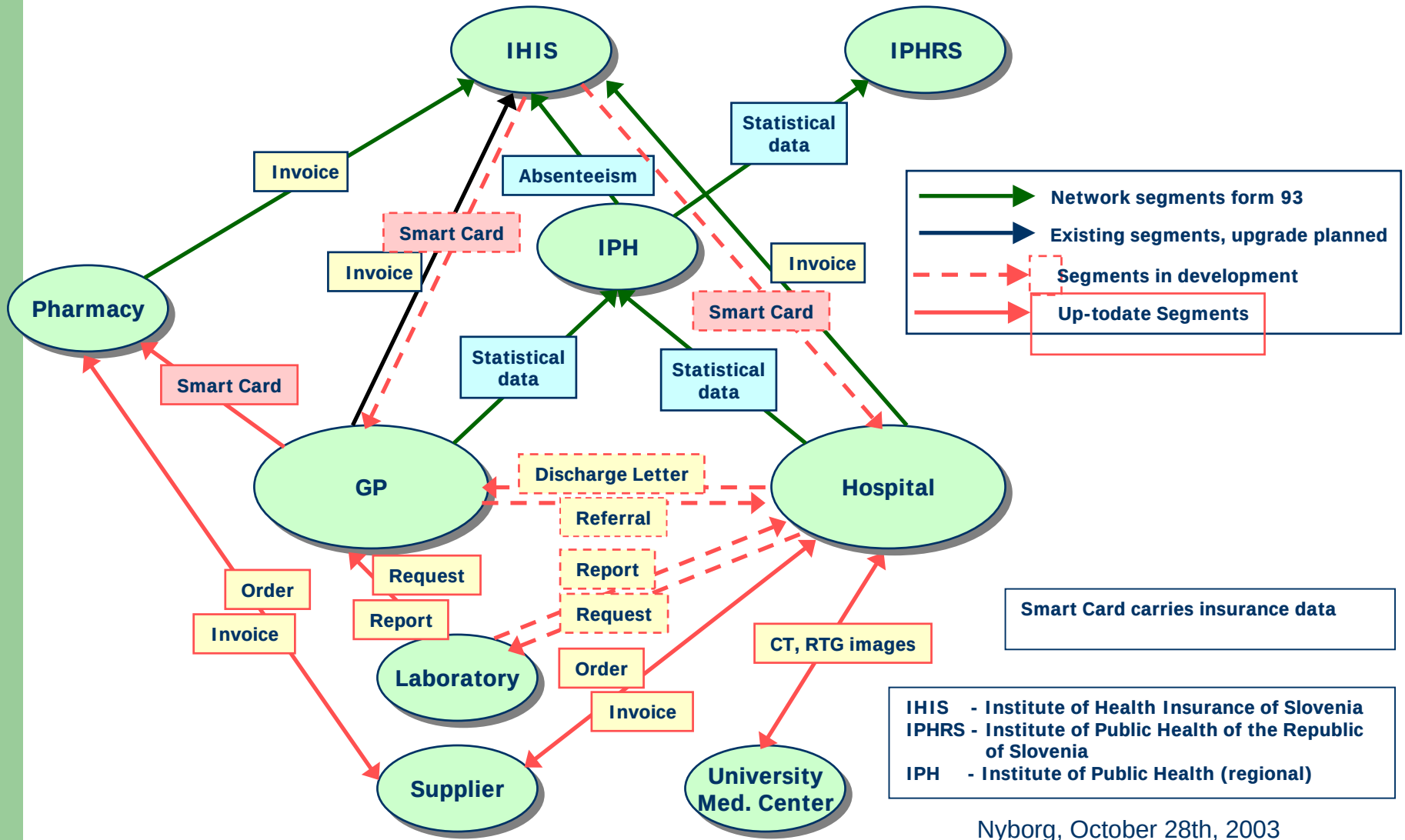
Public Health Institute– national and regional

- Health statistics
- Prenatal Information system
- Register of sick leaves

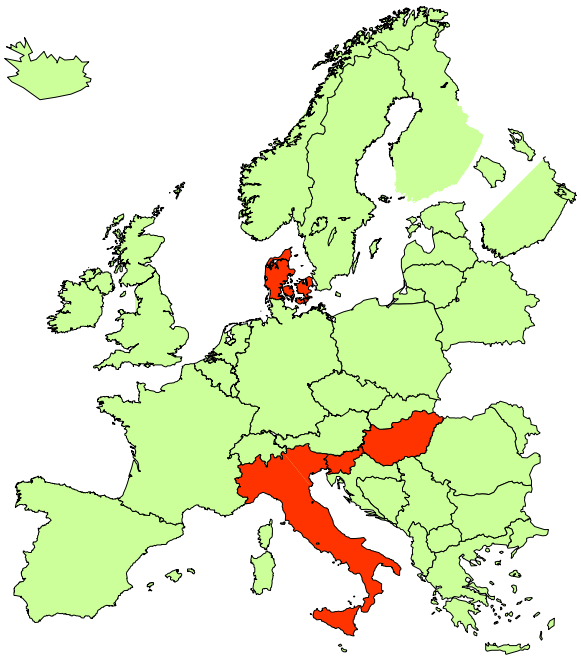
Ministry of Health

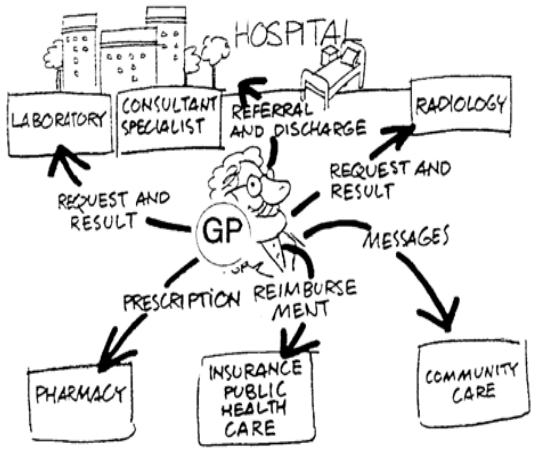
- Health sector management project

Communication and Introduction of EDI



Important international experiances



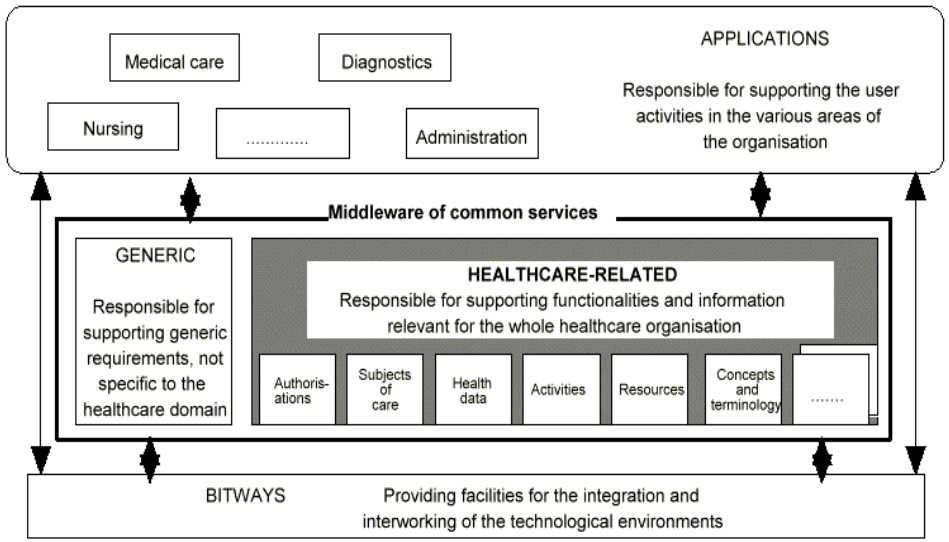


Primacom

Primary Care Physician's Communication Network

- To supply health care professionals with systems and infrastructure for enhancement of communication between primary and secondary care.
- Co-operation between researchers, health care authorities and industry.
- To use European communication standards and electronic mailbox systems.

Important international experiances (2)



HANSA East

develop a prototype application on the top of DHE

HISA STANDARD

- To learn and familiarize with the DHE middleware
- To evaluate the DHE middleware (capabilities, possibilities)
- To use the DHE middleware as a basic layer for the development of a prototype application
- To support a real life needs of our users (industrial initiative)

Health Sector Management Project (2001-2004)

The HSMP contains four inter-locking components

- Component 1 **- Health Policy Support Component**
  - C11 - Reimbursement System
  - C12 - Healthcare Management
  - C13 - Clinical Guidelines Development
- Component 2 – **Health Information Standards Component**
- Component 3 – **Health Information Systems Implementation**
- Component 4 – **Project Management and Professional Support**

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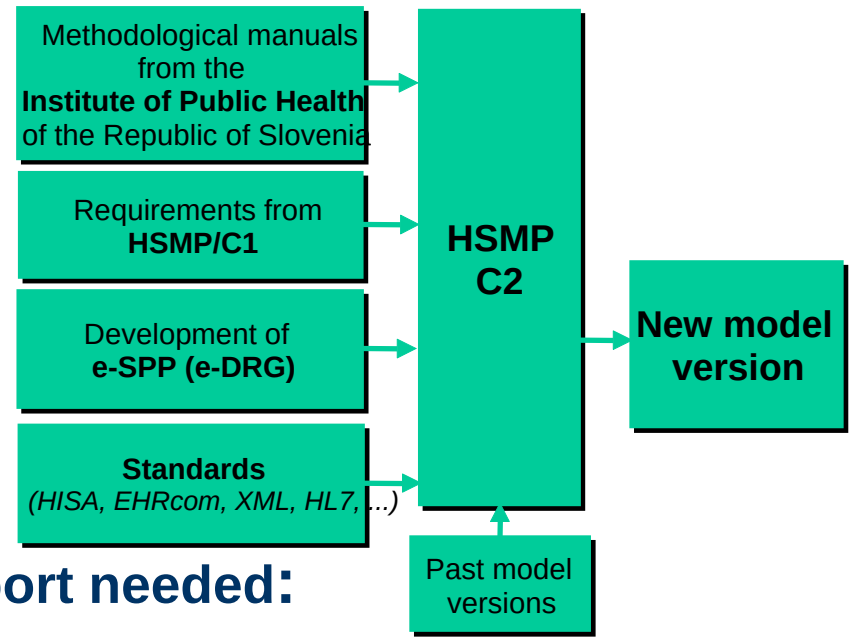
HSMP – results

- **AR DRG model was introduced as a new financial model for hospitals**
- **The definitions and the data model were harmonized**
- **New DRG/SPP reporting system was developed**



- **A rather demanding IT support needed:**
  - at the health care providers side
  - at the national level.

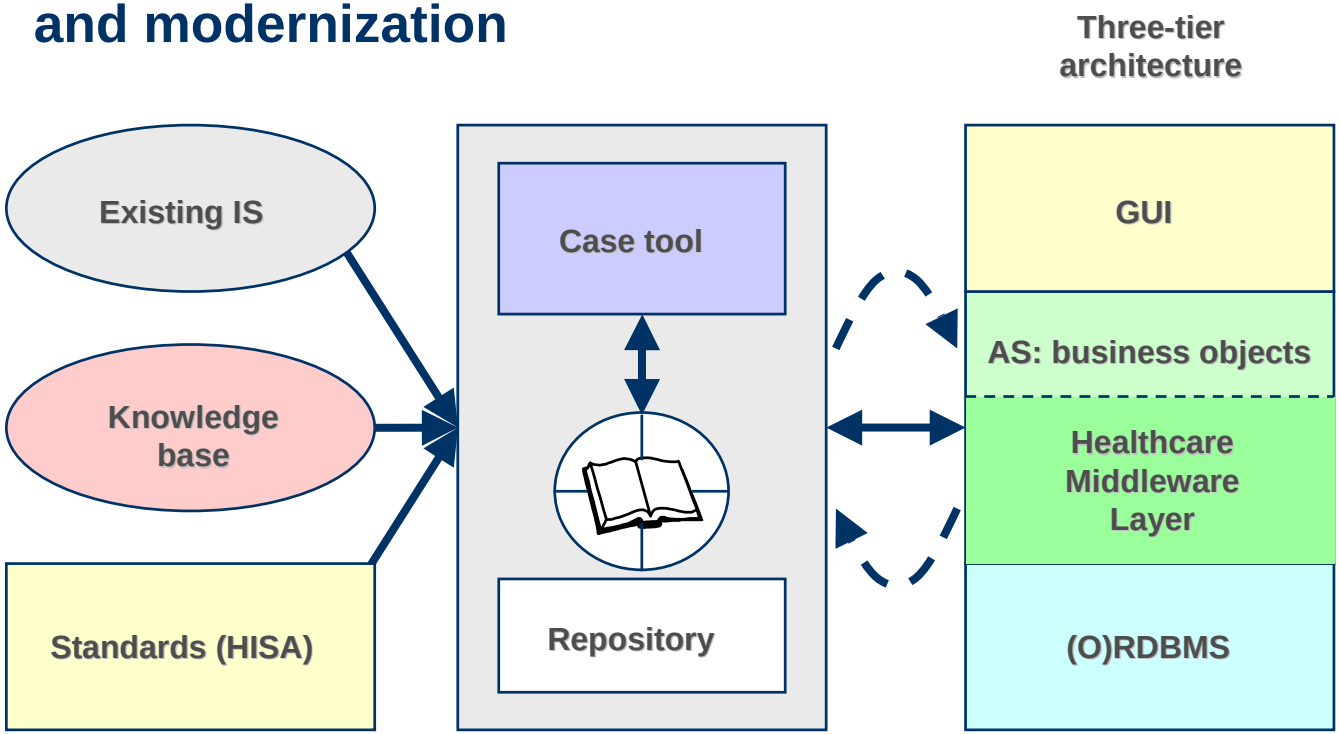
Development of IS in HealthCare in Slovenia

Key principles of IT strategy

- Information is person-based (unique ID key-e.g. Health Insurance code - HIC)
- Systems are integrated (data need to be entered in the databases only once)
- Information is secure and confidential (accessible only to those who are authorised to know it)
- Information is shared across the Slovenian Health System

Development of IS in HealthCare in Slovenia

The process of migration, standardisation and modernization



- member of CEN/TC 251 Working Group 1 (WG I)
- participation in Task Forces TF 13606 - EHRcom and Task Force HISA.
- a member of HL7

Administrative data and segments of EHR in legacy IS

Administrative data:

- Patient personal data
- Administration data (contracts, service units)
- Statistics and accounting

Health characteristic (medical) data:

- Anamnesis and status
- Diagnoses – main and additional
- Clinical procedures (requests for activities, also to other units, and reports - medical results)
- Medicines
- Other therapy
- Requests for additional treatment (GP, specialists or hospital)
- Sick-leave.

Electronic Health Records in Slovenia

Many attributes (doctors notes) are still explained as free text

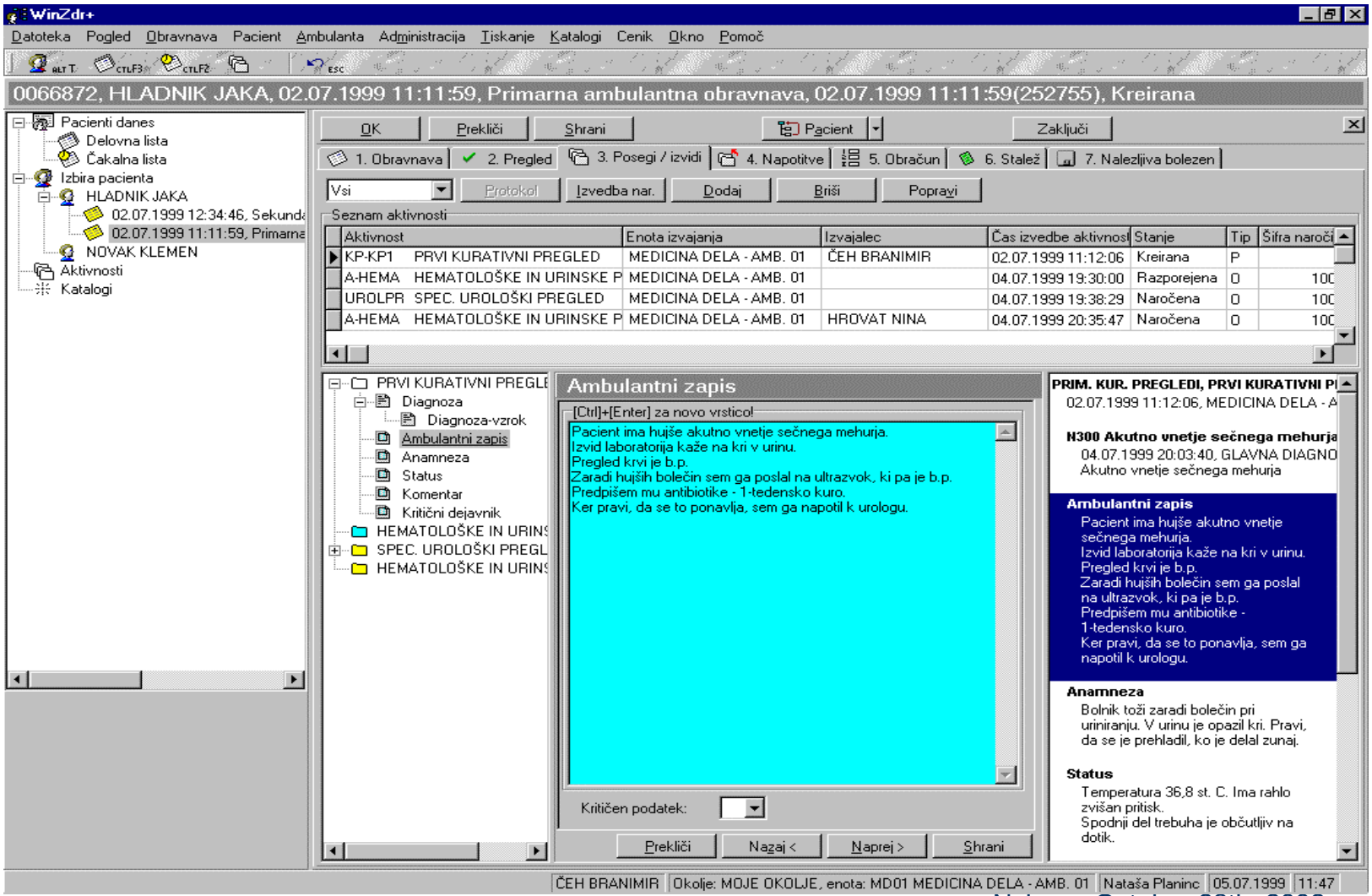
(anamnesis, clinical status, epicrisis)

but they are used in almost all Slovene hospitals except Clinical centre.

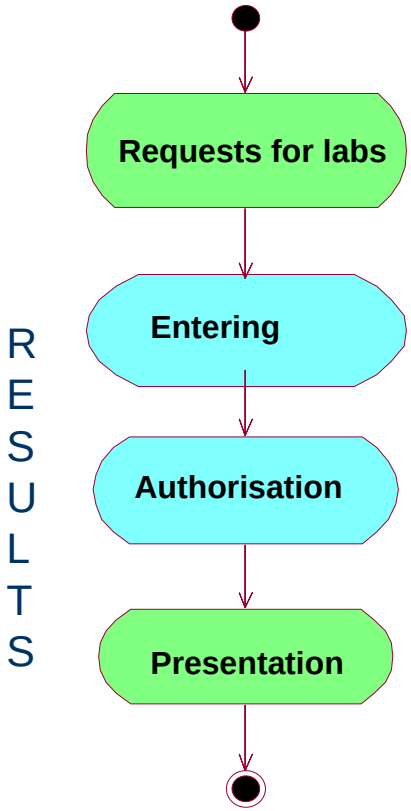
What is structured and standardised?

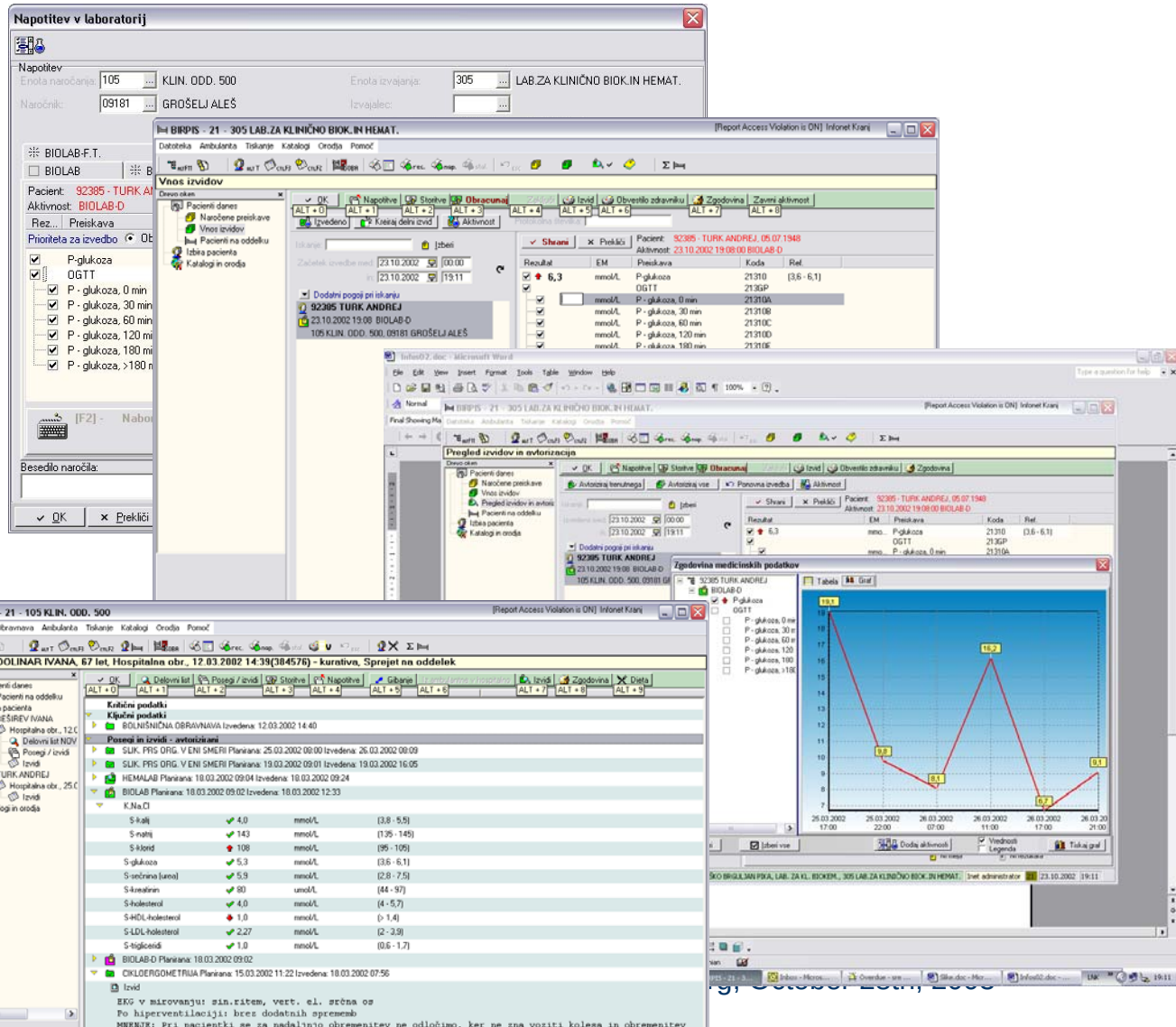
- **main and additional diagnoses: ICD 10 classification from 1998**
  - ICD 10 AM by 1st of January 2004
- **Clinical procedures: local classification from 2000**
  - ICD 10 AM by 1st of January 2004

An example of Clinical file - EHR in our applications



Communication between HIS and LIS





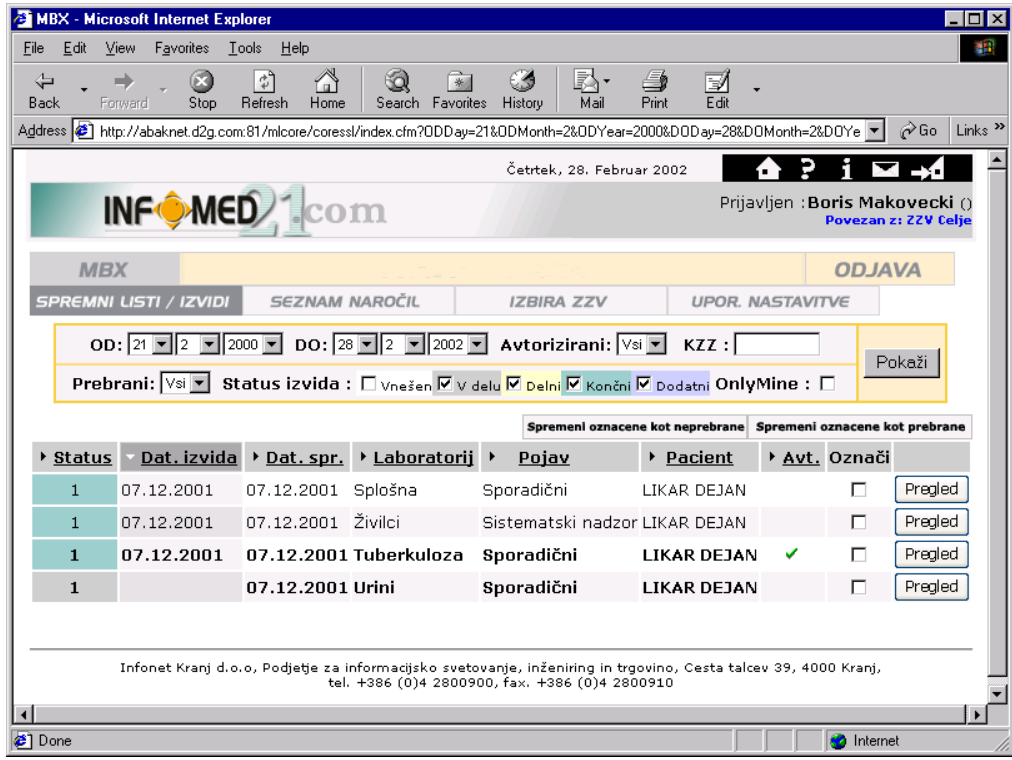
WEB applications

MBX - fast review and examination of microbiology laboratory tests.

Web portal at http://www.infomed21.com.

- for all laboratory request (referral)
- senders and results users:
  - hospitals,
  - primary healthcare centres and
  - general practitioners.

It enables a simple insight into the sent requests and laboratory findings over the internet.



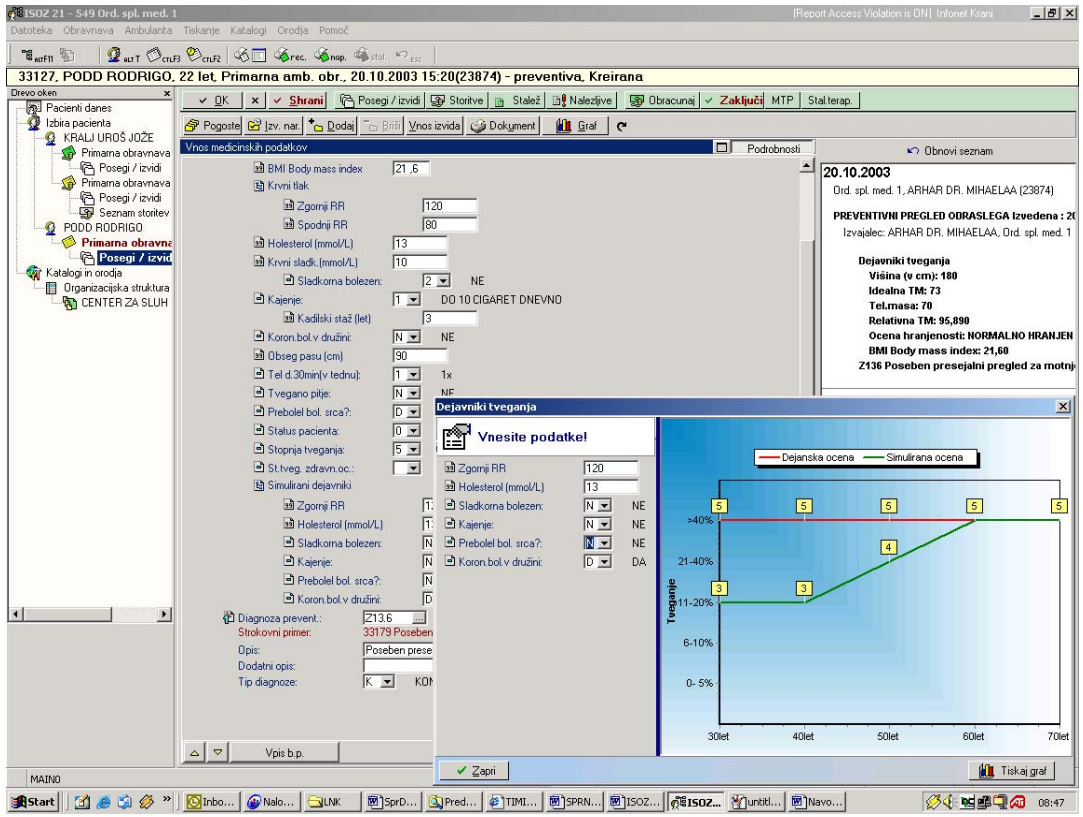
Primary health care providers and their EHR

Prevention is very important for each selected doctor.
Gathered data is collected at national level.

- **Risk factors for heart attack**

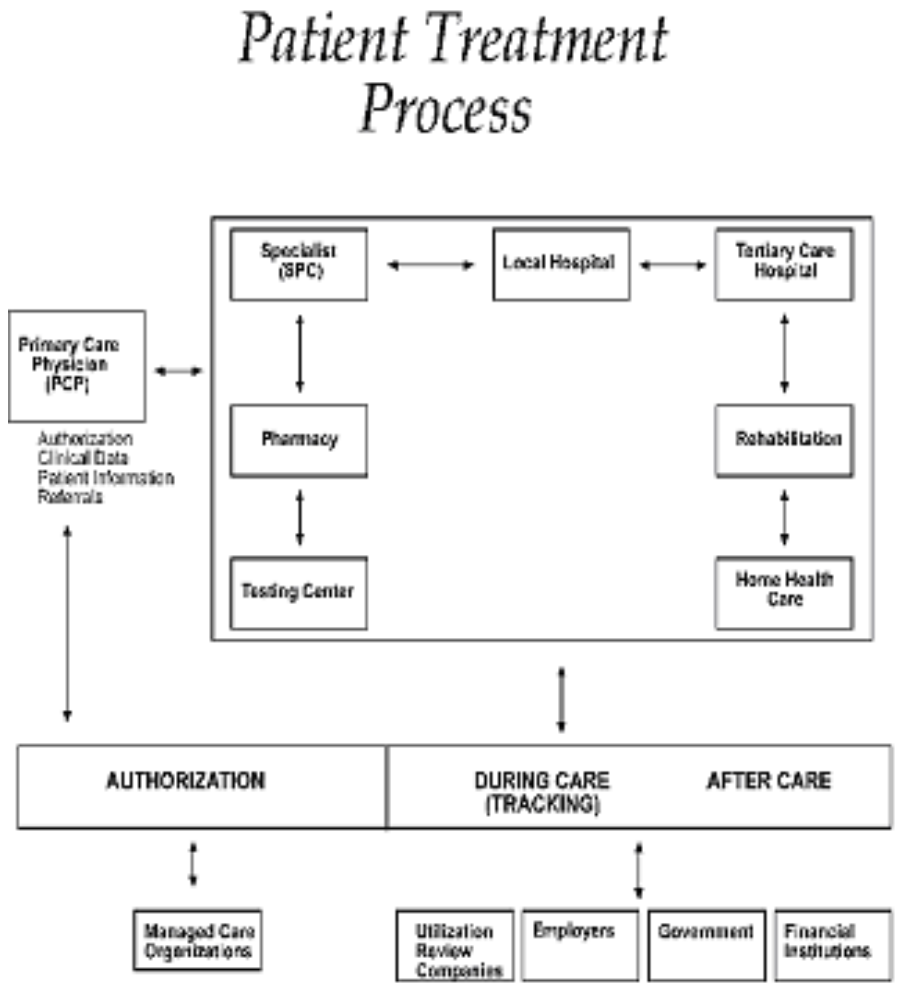
all citizens after 35/45 y are invited to visit their Selected doctors

- **Some cytological tests to prevent cancer**



Communication between Hospitals and GPs – Discharge Letters

- ***Discharge letters from hospitals to GP***
- **Data sent**: provider data, patient identification and medical data (diagnoses and free text – other data is to be defined by experts)
- **Future use**: For referrals and discharges in the whole Patient Treatment process



Communication between Hospitals and GPs – Discharge Letters

Thank you for your attention.

And thank you to all our Danish friends for their hospitality.

Nyborg, October 28th, 2003