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# eHealth

A global view and a practical perspective  
on health information and records  
management

Presented by Angelika Haendel

ARMA Roundtable 2008  
Brussels

# Current situation

- Increasing
  - health consciousness
  - migration of people
  - patient empowerment
  - self-determination of aged people
  - medical-technical progress

➔ Health care is a growth market par excellence  
Prognosis: growth of 80% (540 billion €) by 2020  
( $\cong$  17% GNP)

*Oberender, 11/2007*



# What is eHealth?

- eHealth encompass a range of services that are at the edge of medicine/healthcare and information technology
- No development of basic technology, but development of beneficial applications for patients, physicians, care facilities and health insurance companies
- eHealth is always a matter of linked applications regardless of time and space
- **Synonyms:**
  - Health Telematics
  - Telecommunication
  - Telemedicine, Teleconsultation, Telehealth (second opinion & consultation applications)
  - Health-IT (HIT)

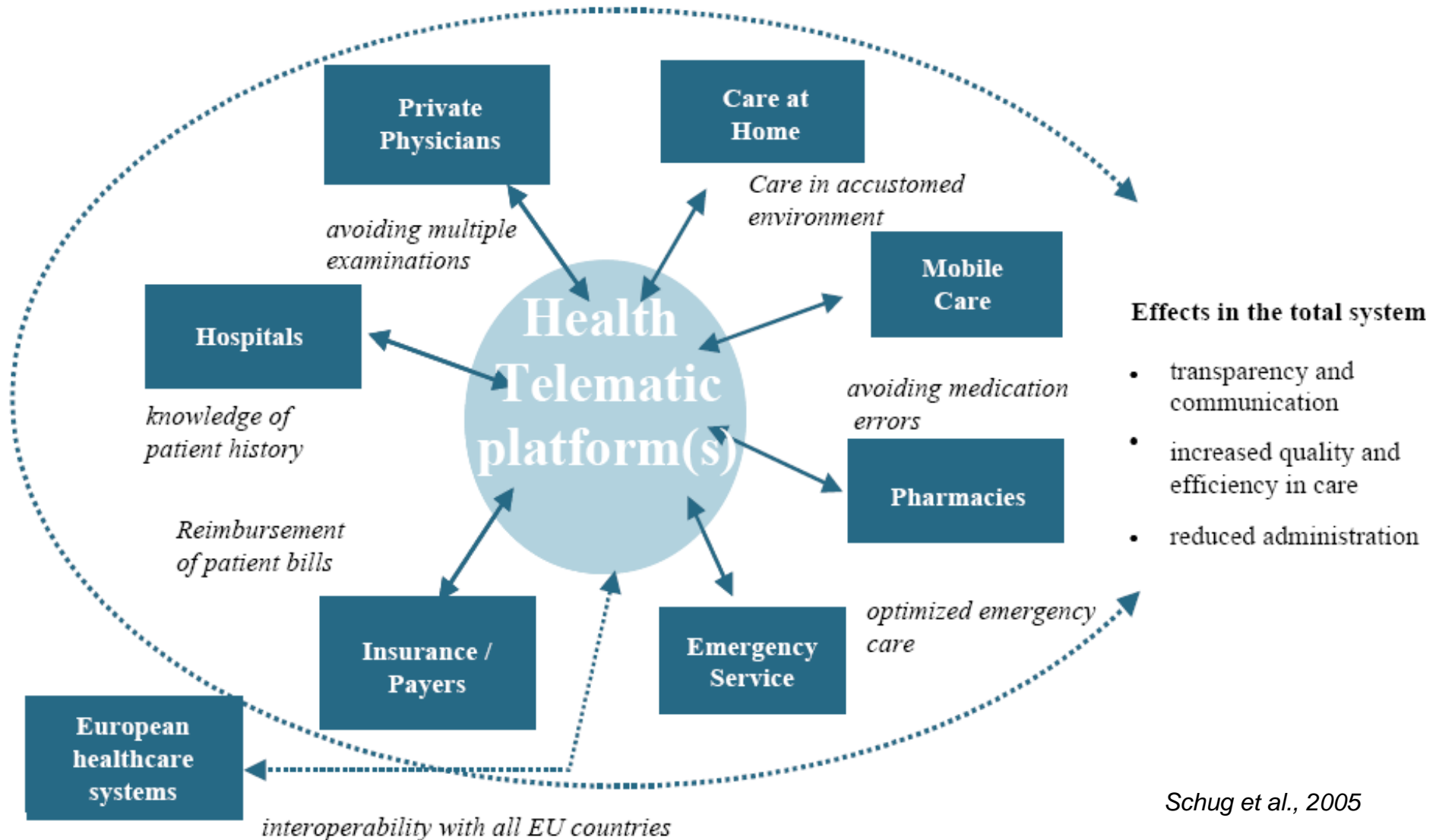
# What is eHealth?

*“eHealth describes the **application of information** and communications technologies **across the whole range of functions that affect the health sector**, from the doctor to the hospital manager, via nurses, data processing specialists, social security administrators and - of course - the patients” – EU ICT*

*“Electronic information and interactions connecting people and communities to health services “– New Zealand Ministry of Health e-Health Working Group*

*“eHealth is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or **enhanced through the Internet** and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.” - J Med Internet Res 2001;3(2):e20, by eHealth researcher Gunther Eyesenbach*

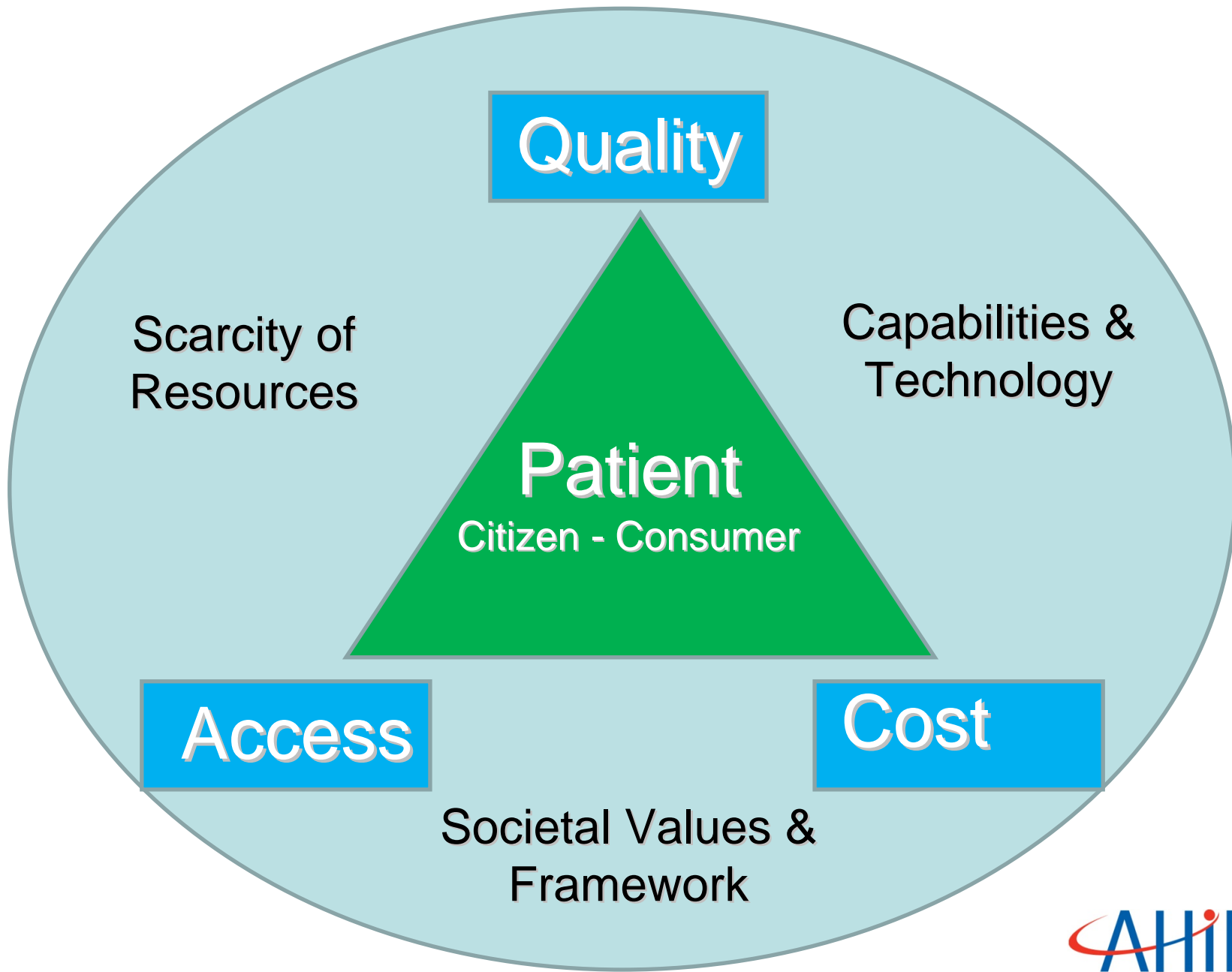
# Interoperability is prerequisite for connecting eHealth applications



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ENVIRONMENTAL DRIVERS OF CHANGE

# GLOBAL FACTORS



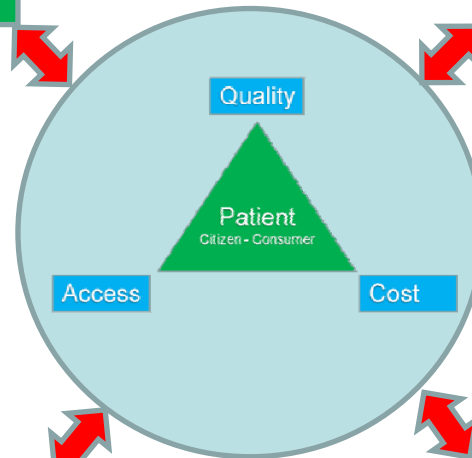
# Mobility

Cheaper, Faster transportation

- Patient mobility
- Medical Travel

# Globalization of commerce

- Cross border Care
- Ventures
- Multinational corporations



Dynamic Healthcare Environment

# Economic Reforms & Deregulation

- Healthcare reform
- Regional specialization

# Digitization of business

Cheaper faster IT

- eHealth
- info.exchange

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International Research and Dialogue

# SHARED CHALLENGES

# Healthcare delivery is globalizing

- Trends in health delivery and health information needs and utilization are making national boundaries less relevant
  - Business process outsourcing across borders for lab, radiology, information management and other service
  - Medical Travel and Tourism (considered disruptive innovation)
  - Telemedicine
  - Relative free movement between countries
  - Rise of multinational companies
  - Attractive lifestyle in developed countries drive emigration
  - Training of medical staff occurs around the world

# Cross Border Care is on the increase

- Nearly a Trillion Euro in cross-border healthcare delivery expected this decade\*
  - Physically
    - Medical travel
  - Virtually
    - Telehealth, eHealth

\*OECD Data

# Physically: Medical Travel

- Medical tourism refers to the practice of a patient going for healthcare services to an area outside of his or her home country.

2007: 750.000 Americans travelled abroad for medical care

2010: Estimated 6 Millions (100%↑)

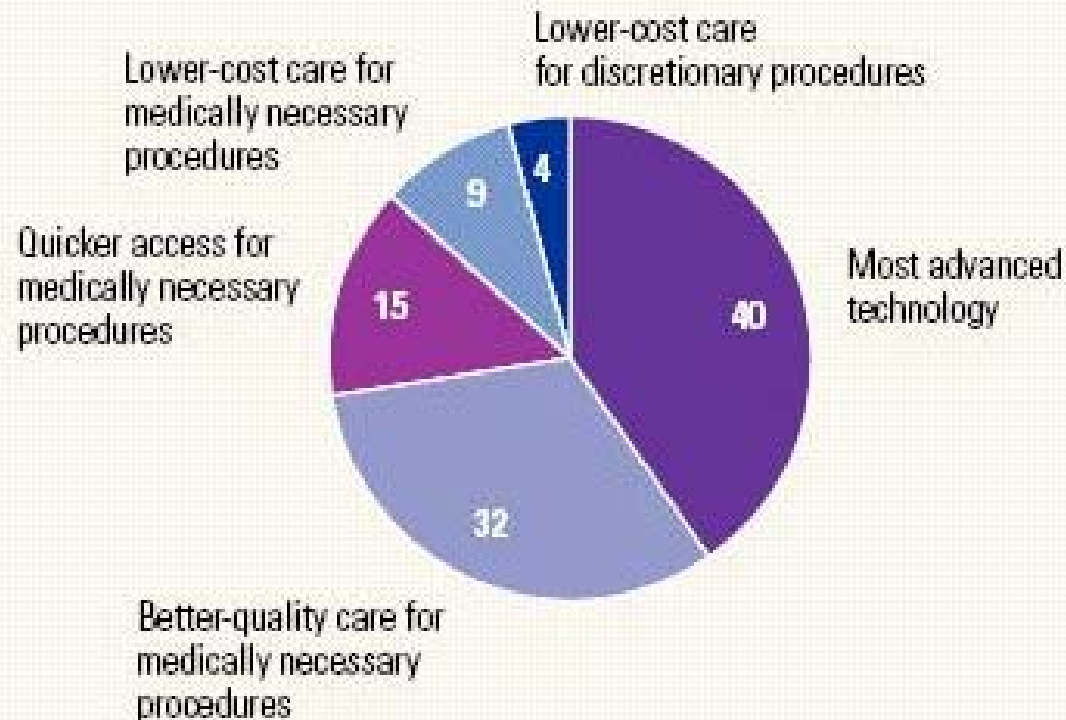
*Deloitte Center for Health Solutions, 2008*



# Medical Travel Segments

Relative size of medical-traveler segments

100% = 49,980 patients<sup>1</sup>



<sup>1</sup>Number of patients come from providers that participated in research; total market size assumes that participating providers represent 60–80% of market.

# Medical Travel



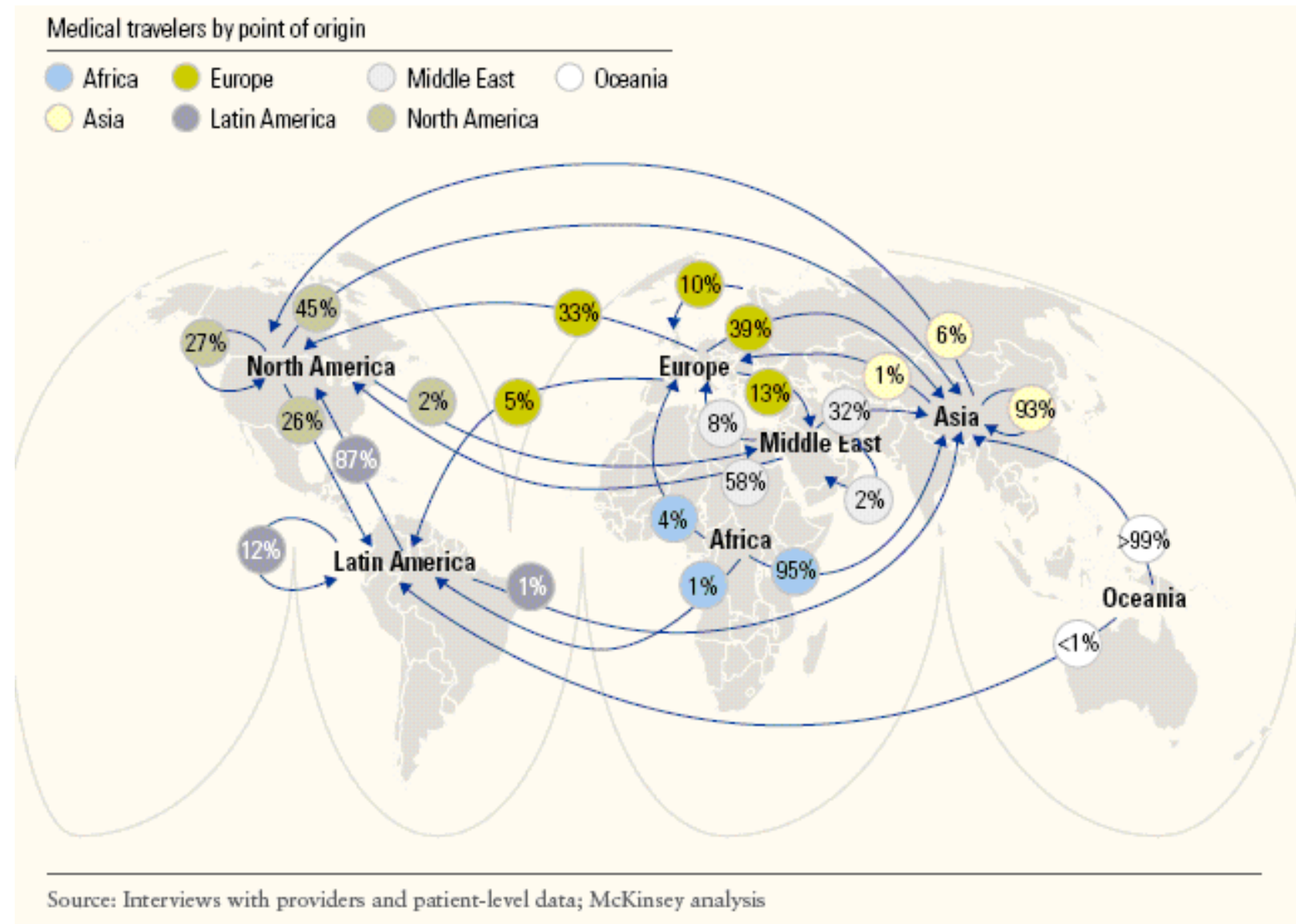
- **Advantages (for the patient):**

- Huge potential für saving costs
- Poor waiting period for the treatment
- More personal care, more quality and service (luxurious hospitals)
- Recuperation in a relaxing environment

- **Disadvantages:**

- Some countries may not regulate professional licensing
- Very little legal recourse in case of malpractice
- Often minimum and limited postoperative care
- Higher risk of catching an infection
- Wast of local resources like energy, food etc. that is already in short supply in that country

# Medical Travel Routes



### Definition: Medical Tourism

Medical tourism refers to the act of traveling to another country to seek specialized or economical medical care, well being and recuperation of acceptable quality with the help of a support system

### Market Drivers for Medical Tourism

- Cost savings
- Comparable or better quality care
- Shorter waiting periods, thus quicker access to care

### Global Market for Medical Tourism

- World medical tourism market is estimated to be around \$60 billion currently; it is expected to grow to \$100 billion by 2010 (estimates vary)
- Over 500,000 Americans traveled abroad for medical procedures in 2005
- Over 35 countries are serving around a million+ medical tourists annually

### Hungary

- Cost: 40%-50% of U.S.
- Mainly used by Europeans
- Reliable dental and cosmetic surgery
- No JCI accreditation

### Gulf States

- Healthcare City designed to provide advanced healthcare services
- 38 JCI accreditations total; with 17 in Saudi Arabia

### India

- 450,000 tourists in 2007
- Cost: Avg. 20% of U.S.
- 10 JCI accreditations

### Thailand

- 1.2 million tourists in 2006
- Cost: Avg. 30% of U.S.
- 4 JCI accreditations

### Mexico

- Cost: 25%-35% of U.S.
- High volume of U.S. visitors due to proximity
- Mainly dental and cosmetic surgery
- 3 JCI accreditation

### Singapore

- 410,000 tourists in 2006
- Cost: Avg. 35% of U.S.
- 13 JCI accreditations

### Costa Rica

- Cost: 30%-40% of U.S.
- Mainly dental and cosmetic due to proximity to U.S.
- 1 JCI accreditation

### Brazil

- Cost: 40%-50% of U.S.
- Proximity makes it attractive for U.S. patients
- Reliable cosmetic surgeries
- 12 JCI accreditations

### South Africa

- Cost: 30% to 40% of U.S.
- Suitable for cosmetic surgery
- No JCI accreditation

### Malaysia

- 300,000 tourists in 2006
- Cost: Avg. 25% of U.S.
- Mainly cosmetic surgery and alternative medicine
- 1 JCI accreditation

Note: JCI accreditation details at [www.jointcommissioninternational.org/23218/fortiz/](http://www.jointcommissioninternational.org/23218/fortiz/). Other sources and explanation appear in Appendix II.

# Numerous E-Health Projects

## Developed Countries

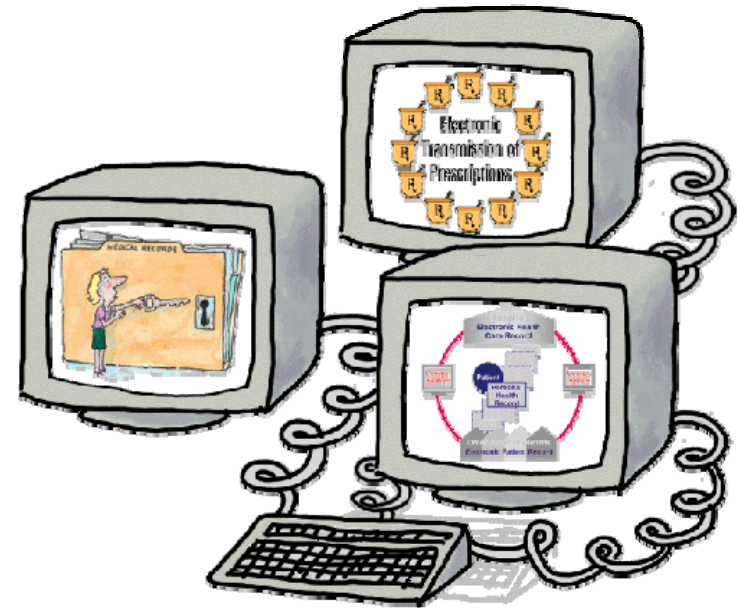
- **Italy:**
  - Telecardiology (Boario Home Care Project)
  - Home tele-nursing
  - 44M Electronic Health Project
  - United Primary Care Plan (UTAP)
- **Spain**
  - Teleradiology
  - The largest Telemedicine center in Europe and is linked to Australia.
- **Sweden**
  - Teleradiology is standard.
  - Electronic Regional Networks, elec. emergency care
  - Telecoach Project for monitoring chronic illness
- **Denmark**
  - Decades of experience in telehealth due to remote areas including multidisciplinary telecare and electronic patient records..
- **Germany**
  - Electronic Patient Card (eGK)

## Developing Countries

- **India**
  - 120 telehealth centers throughout the country. Due to remote and limited access to care, this is an increasing trend.
  - Outsourcing work for medical coding and transcription for countries like Canada, the US and Saudi Arabia.
- **Ethiopia**
  - Collaboration with institutions and governments to bring visually based, low cost telemedicine.
- **Iraq**
  - Telemedicine for treatment and diagnosis of children with cancer through a partnership with an Italian hospital and lab.

# Virtually: eHealth is still in early adoption in much of the world

- eHealth projects in Europe:
  - EU strategic frame:  
i2010: A european information society for growth and employment
  - EU for Health
  - Online-healthcare: Better health and better health care by the use of IT
  - Action program of the community in the field of public health



# Electronic Health Card (eGK)



Bundesministerium  
für Gesundheit



Medical identity card

eGK



**step 4:**

- patient record
- physician's letter

**step 3:**

- emergency data
- pharmaceutical data

**step 2:**

- e-prescription

**step 1:**

- administrative data
- European patient card



# Europe and eHealth

- **eHealth is an item of growing importance on the EU agenda**
  - The healthcare sector now accounts for 8%-9% of GDP EU-wide, while eHealth on its own accounts for .5% of EU-wide GDP.
  - eHealth projects sponsored by the EU have grown significantly since the first initiative was funded in 1989 at the cost of \$20 million euro. Today, there are over 130 EU-funded eHealth programs with a dedicated budget of over \$200 million euros. (Comparison: UK has committed 1.6B in national health infrastructure)
  - An important element of the EU eHealth Action plan and funded projects is to identify priorities, barriers, gaps, approaches and solutions for interoperability and connectivity issues across member states.  
EU für die Gesundheit (2008-2013)  
EU projects have placed Europe in a leading position on use of regional health networks, EHR's and potentially eHealth will be the 3rd largest sector at 11B Euro.
- **eHealth is a key aspect of healthcare reform**

# European Union

- Healthcare is a national responsibility and healthcare delivery services structure and organization is highly fragmented.
- Electronic storage of records in private medical practices has grown significantly increased from 50% to over 80% since 2004 but only 10% share with other health centers.
- ePrescribing is only practiced by 6% of the general practitioners
- Only 1% of General Practitioners share patient data across borders.

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A practical perspective

# eHEALTH IN ACTION

# Reform-Project: Integrated Care



Bundesministerium  
für Gesundheit

## Purpose:

- Close division between different care units
- Provide all relevant patient data in-time and at the right place
- Offer care that is patient-centred
- Avoid redundant (double) examinations
- Increase efficiency through better coordination of care

# Integrated Care: Practical Application



University of Erlangen-Nuremberg



Insurance company

## Requirements:

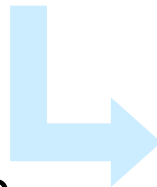
- **Verifiable high quality standards:**
  - quality certification (e.g. ISO 9001)
  - clinical pathways
  - standard operating procedures (SOP)
  - guide lines
- **Great number of patients**
- **Surgeons with a lot of experience**
- **Management system (reimbursement)**
- **Electronic patient record !!**

# Process Cataract Surgery within the Integrated Care Project



Ophthalmologist  
in Practice

Diagnostic/  
Examination



University Eye Hospital

Cataract Surgery



Follow-up

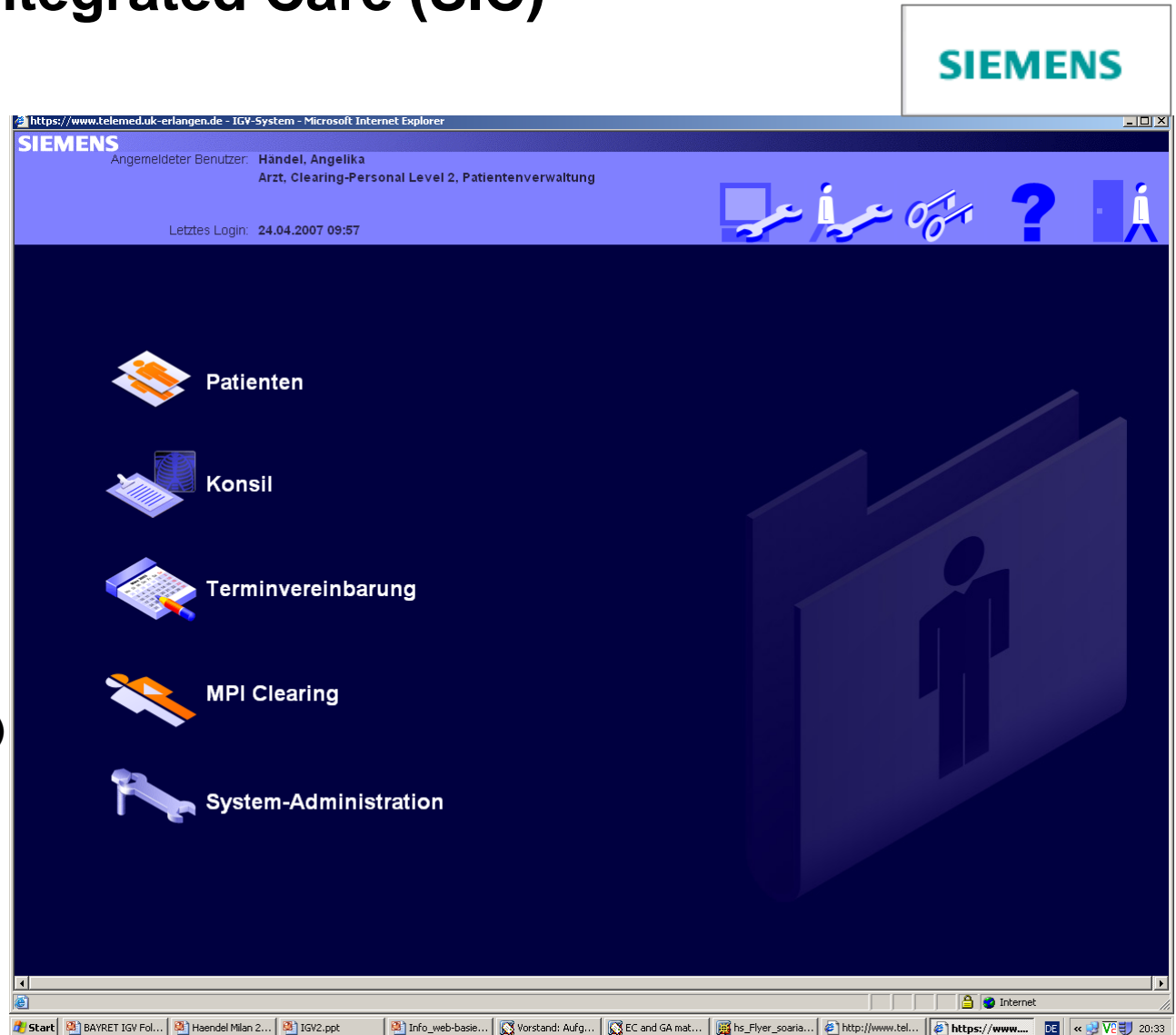


Ophthalmologist  
in Practice

# Electronic Patient Record

## Siemens Soarian® Integrated Care (SIC)

- web-based
- real-time
- medical imaging devices
- Windows XP
- Internet access
- ISDN better DSL
- MS Internet Explorer (Vers.6.0)
- Adobe Acrobat Reader (Vers. 8.0)





Universitätsklinikum  
Erlangen

Augenklinik  
Ambulantes OP-Zentrum  
Direktor: Prof. Dr. F.E. Kruse



### Qualitätssicherungsbogen BayCatRet-IGV Katarakt-OP: Postoperative Untersuchung:

OP-Auge: <input type="checkbox"/> RA <input type="checkbox"/> LA		Untersuchender Arzt: <input type="text" value="Arzt-HZL, Vorlage"/>	
1) Postoperative Visite (1. Tag), Datum <input type="text"/>			
Visus:	RA: <input type="text" value="1,0"/> LA: <input type="text"/>	Refraktion:	RA: <input type="text"/> <input type="text"/> <input type="text"/> LA: <input type="text"/> <input type="text"/> <input type="text"/>
Tensio:	RA: <input type="text"/> mmHG LA: <input type="text"/> mmHG	dpt. sph. opt. cyl. Achse	dpt. sph. opt. cyl. Achse
Spaltlampe	RA: <input type="text" value="reizfrei"/> LA: <input type="text" value="reizfrei"/>	PostOP regelrecht? <input checked="" type="checkbox"/> Ja <input type="checkbox"/> Nein	
Komplikation siehe unter Punkt 2)			
2) Postoperative Visite <b>Komplikationen</b>		<b>Re-Operation notwendig?</b> <input type="checkbox"/> Nein	
<input checked="" type="checkbox"/> relevante IOL-Dezentrierung		<b>Falls Ja:</b>	
<input type="checkbox"/> zentrale HH-Dekompensation		<input type="checkbox"/> IOL-Zentrierung	
<input type="checkbox"/> Wunddehiszenz		<input type="checkbox"/> IOL-Austausch	
<input checked="" type="checkbox"/> ausgeprägte VK-Einblutung (>2mm)		<input type="checkbox"/> Vorderkammerrevision	
<input type="checkbox"/> ausgeprägter Vorderkammerreizzustand		<input type="checkbox"/> Wundnaht	
<input type="checkbox"/> cystoide Makulopathie		<input type="checkbox"/> pp-Vitrektomie	
<input type="checkbox"/> ausgeprägte hintere Kapselbibrose		<input type="checkbox"/> YAG-Kapsulotomie bei Kapselbibr.	
<input type="checkbox"/> Hypopyon		<input type="checkbox"/> Sonstiges: <input type="text"/>	
<input type="checkbox"/> Endophthalmitis			
<input type="checkbox"/> Sonstiges: <input type="text"/>			

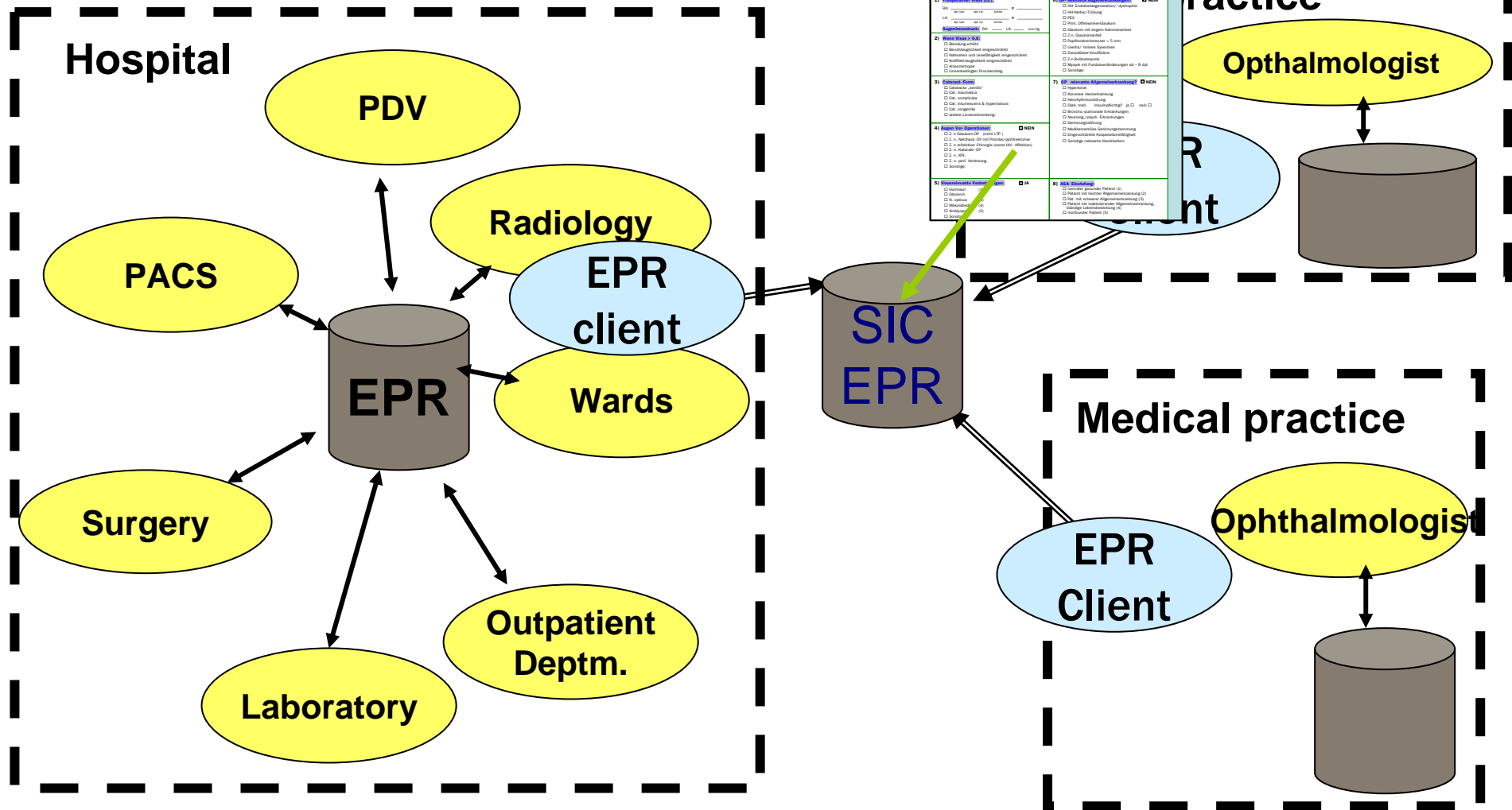
Abschicken

Input mask

Soarian  
Integrated Care®



# Structure of a common sector spanning EPR



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In closing

# **INNOVATION OF THE FUTURE OF HEALTHCARE DELIVERY**

# The future of eHealth

- Different views of healthcare, trust across national boundaries and cutting through the bureaucracy are challenges.
- Yet, the variety and intensity of efforts by nations around the globe to improve healthcare through eHealth, electronic connectivity and a health information infrastructure is growing at an exciting pace with very common threads.

# Summary of eHealth

- Key factor to address common Access, Quality/Outcomes and Cost problems and response to and driver of globalization of healthcare
- New models of healthcare delivery bring new types of challenges beyond technology
- Creates new types of skill and labor requirements
- Global challenges of eHealth Innovation include:
  - Socioeconomic / development constraints
  - Market characteristics that vary by country and region including cultural impact on information and healthcare
  - Cross-border issues
  - Successful Use of Technology
  - Human Resources
  - Standardization
  - Security and Privacy concerns
  - Insurance-reimbursement

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## *About AHIMA*

*AHIMA's more than 52,000 members are health information management (HIM) professionals and others dedicated to the effective management of personal health information required to deliver quality healthcare to the public. Founded in 1928 to improve the quality of medical records, AHIMA is committed to advancing the HIM profession in an increasingly electronic and global environment through leadership in advocacy, education, certification, and lifelong learning.*

*AHIMA members live and work in more than 50 countries around the world.*

*[www.ahima.org](http://www.ahima.org)*

# International Federation of Health Records Organizations (IFHRO)



NVMA National Meeting in Amsterdam, June 2008

## European Associations



[www.ihrim.co.uk](http://www.ihrim.co.uk)



[www.nvma.nl](http://www.nvma.nl)



[www.dvmd.de](http://www.dvmd.de)



[www.aidosimera.it](http://www.aidosimera.it)

in conjunction with



[www.ifhro.org](http://www.ifhro.org)



[www.ahima.org](http://www.ahima.org)