



Patient Centric e-Health Seminar
Arab Health Conference
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Agenda

- Lose-Lose or Win-win scenarios for the future healthcare system
- E-health (patient centric) solutions

We believe that Healthcare Systems around the world are on a road towards total meltdown



www.ibm.com/healthcare/hc2015

Others do to...

Robert H. LeBow, M.D.

HEALTH CARE
MELTDOWN

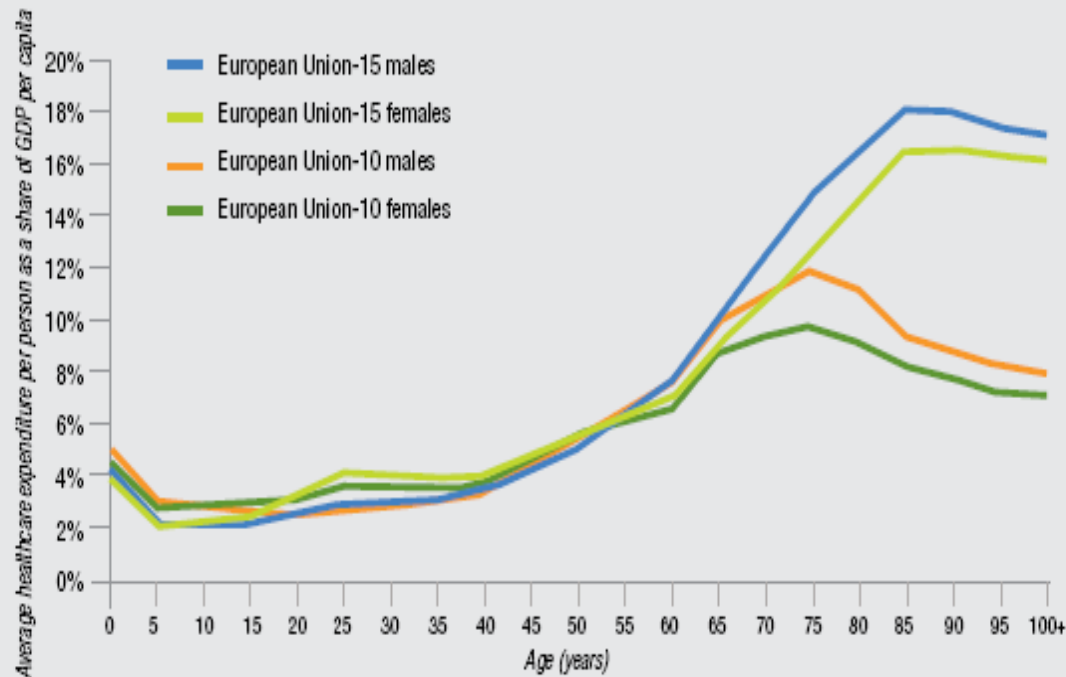
CONFRONTING
THE MYTHS
AND FIXING OUR
FAILING SYSTEM

Foreword by John P. Geyman, M.D.

Afterword by Don McCarne, M.D.

Cost Drivers

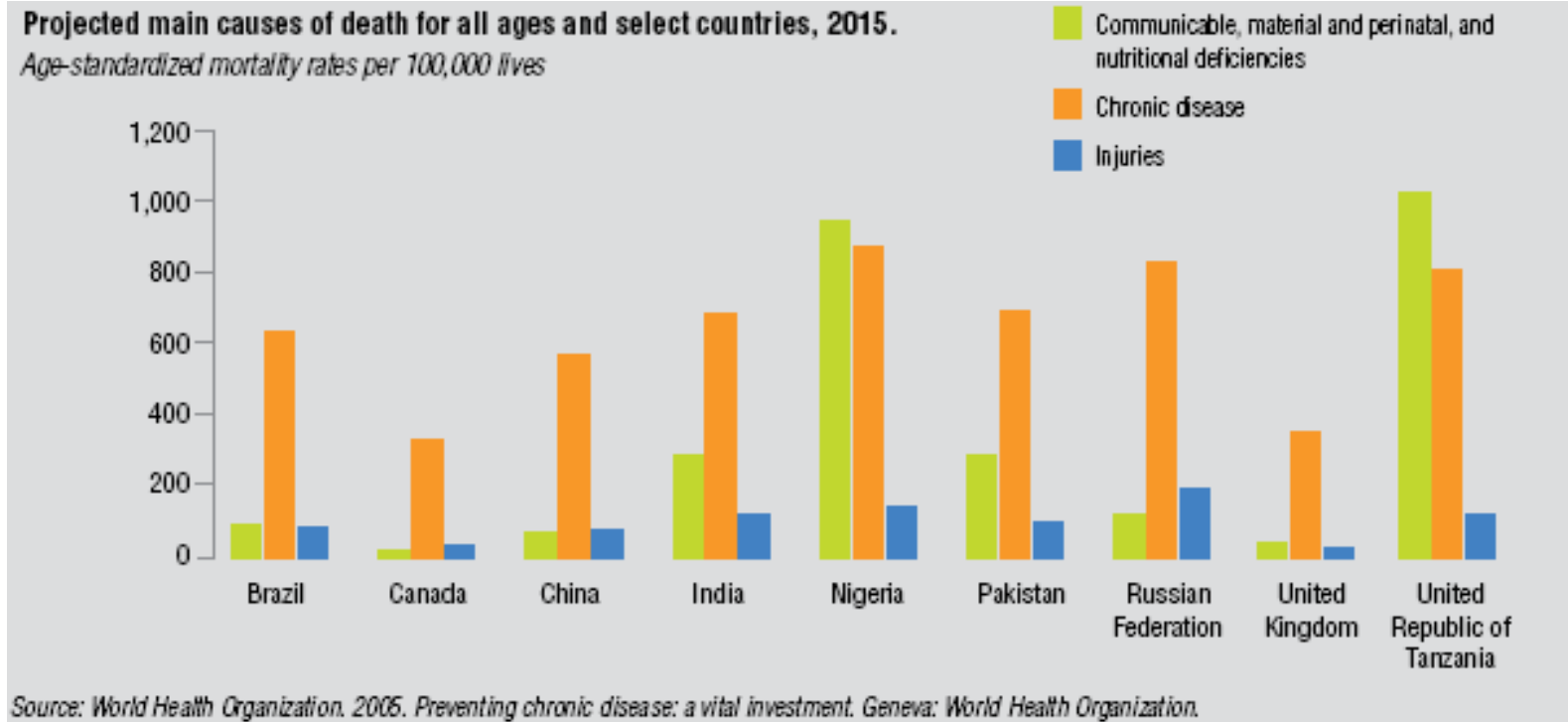
FIGURE 1.
Healthcare expenditures among European Union Member States by age and gender.



Source: Economic Policy Committee and the European Commission. 2006. *The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050)*. Special Report No 1/2006, DG ECFIN, February 14, 2006.

Note: "European Union-15" refers to the European Union Member States of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Sweden, Netherlands, and United Kingdom. "European Union-10" includes those Member States that joined the European Union on 1 May 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. Although the two sets of lines illustrate that nominal healthcare spending is higher among the European Union-15 than European Union-10, both illustrate the general relationship between healthcare expenditure and age.

Cronic Disease Drivers



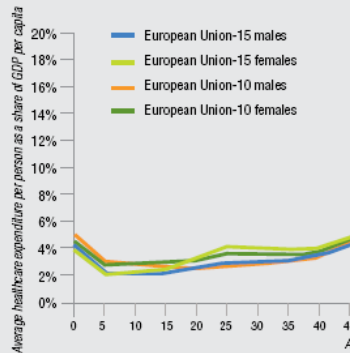
If nothing drastic is done, these drivers will create a Lose-Lose-situation to the Healthcare system

The United States spends 22 percent more than second-ranked Luxembourg, 49 percent more than third-ranked Switzerland on healthcare per capita, and 2.4 times the average of the other OECD countries.¹ Yet, the World Health Organization ranks it 37th in overall health system performance.

In Ontario, Canada's most expensive province, health care costs are projected to account for 50 percent of the province's GDP by 2017, and 100 percent by 2030.

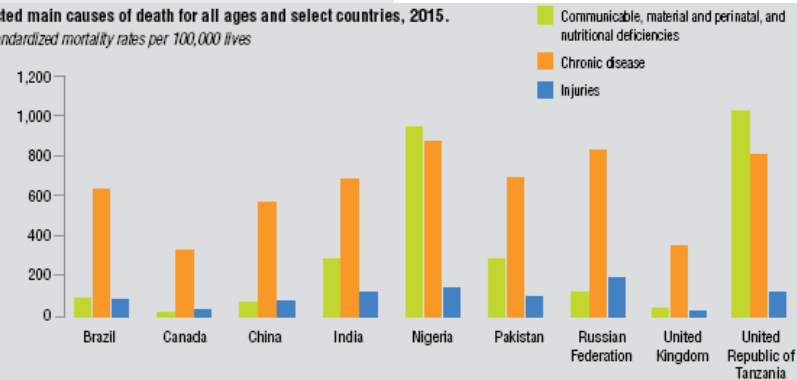
In China, 39 percent of the urban population cannot afford to pay for health care, despite the success of the reforms over the past 25 years.

FIGURE 1. Healthcare expenditures among European Union Member States by age and gender.



Source: Economic Policy Committee and the European Commission, 2006. The impact of health care, long-term care, education and unemployment transfers (2004-2050). Special Note: "European Union-15" refers to the European Union Member States of Austria, Belgium, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom. "European Union-10" includes the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. "European Union-15" and "European Union-10" both illustrate the general relationship between age and healthcare expenditure.

Projected main causes of death for all ages and select countries, 2015. Age-standardized mortality rates per 100,000 lives



Source: World Health Organization, 2005. Preventing chronic disease: a vital investment. Geneva: World Health Organization.

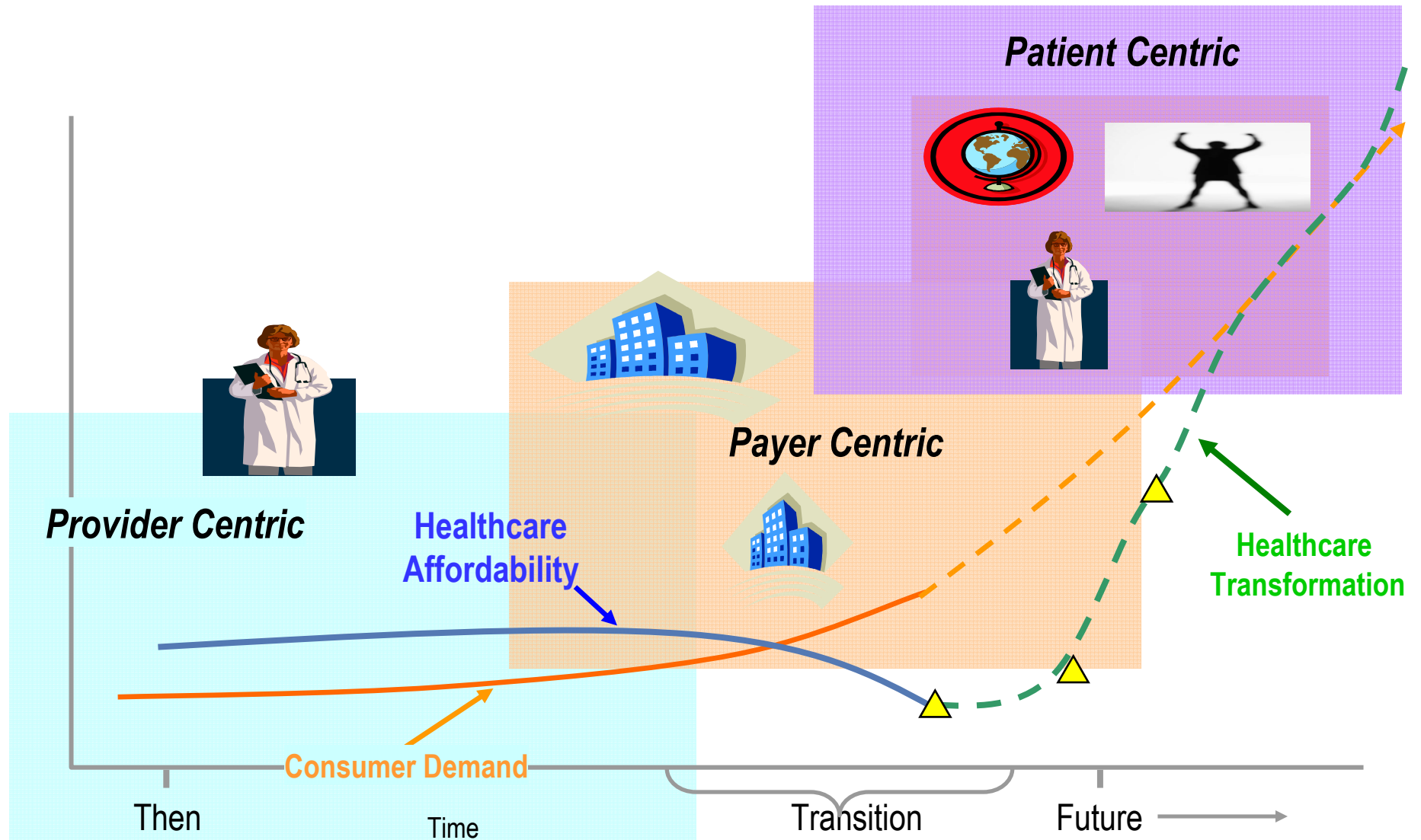
How to create a win-win scenario through transformation of the healthcare system



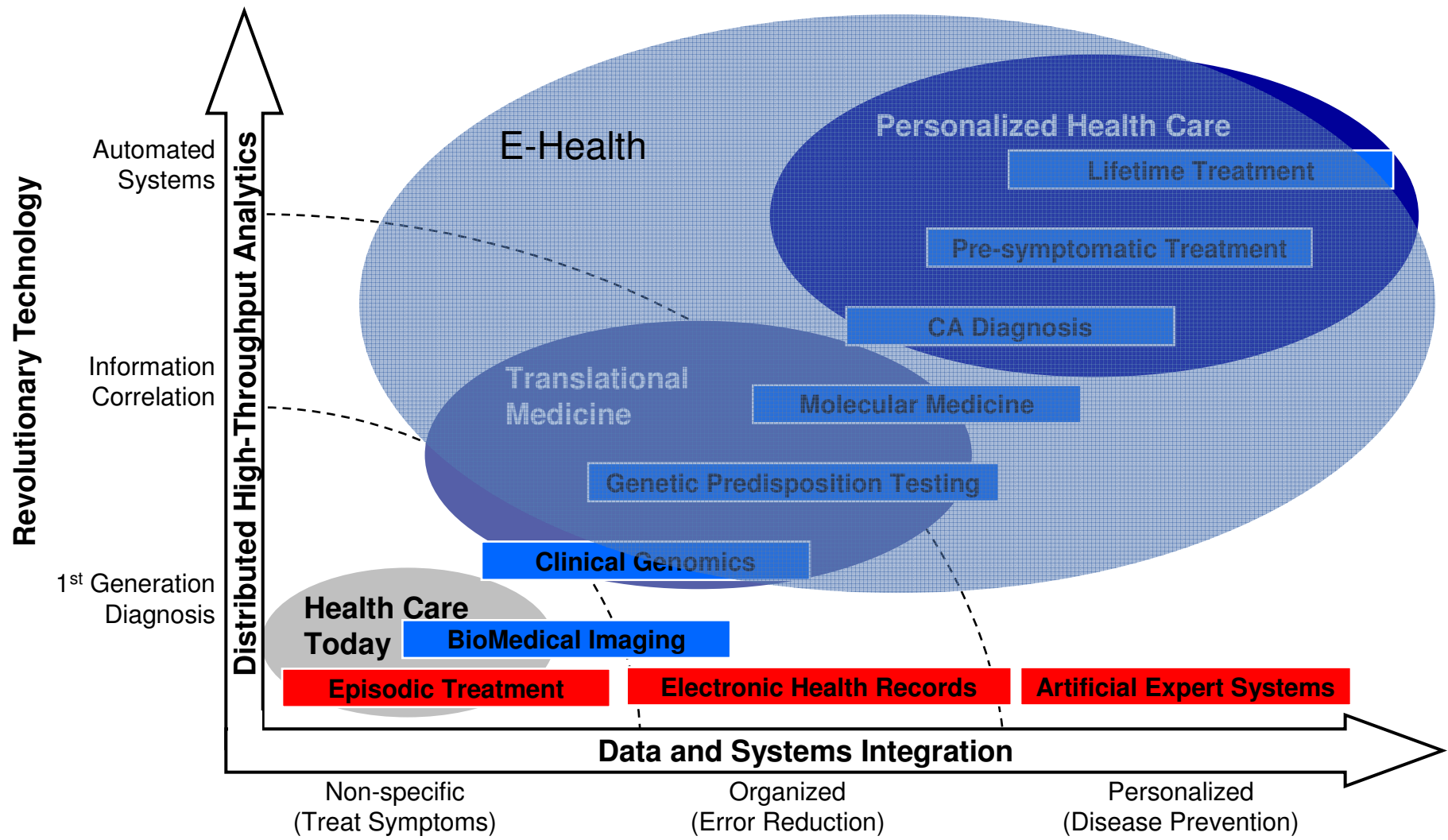
Source: IBM Institute for Business Value.

- **Focus on value** – Consumers, providers, and payers (public or private health plans, employers, and governments) will increasingly direct healthcare purchasing, delivery of healthcare services, and reimbursement based on a shared definition of value.
- **Develop better consumers** – Consumers will make better lifestyle choices and become wiser purchasers of healthcare services, frequently with the help of health infomediaries.
- **Create better options for promoting health and providing care** – Consumers, payers, and providers will increasingly seek out more convenient, effective, and efficient means and settings for healthcare delivery.

Evolution of Healthcare



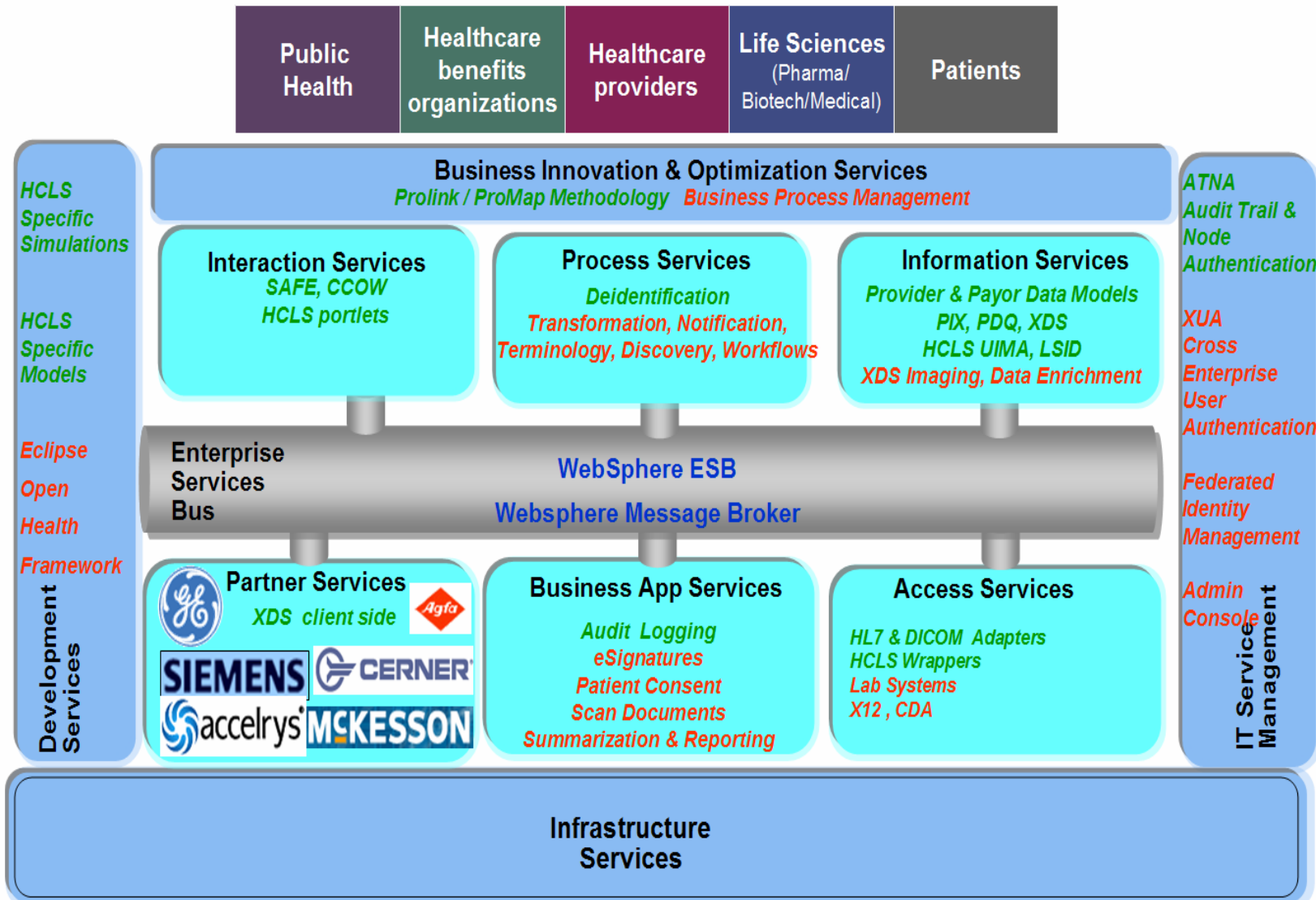
Technology Drivers



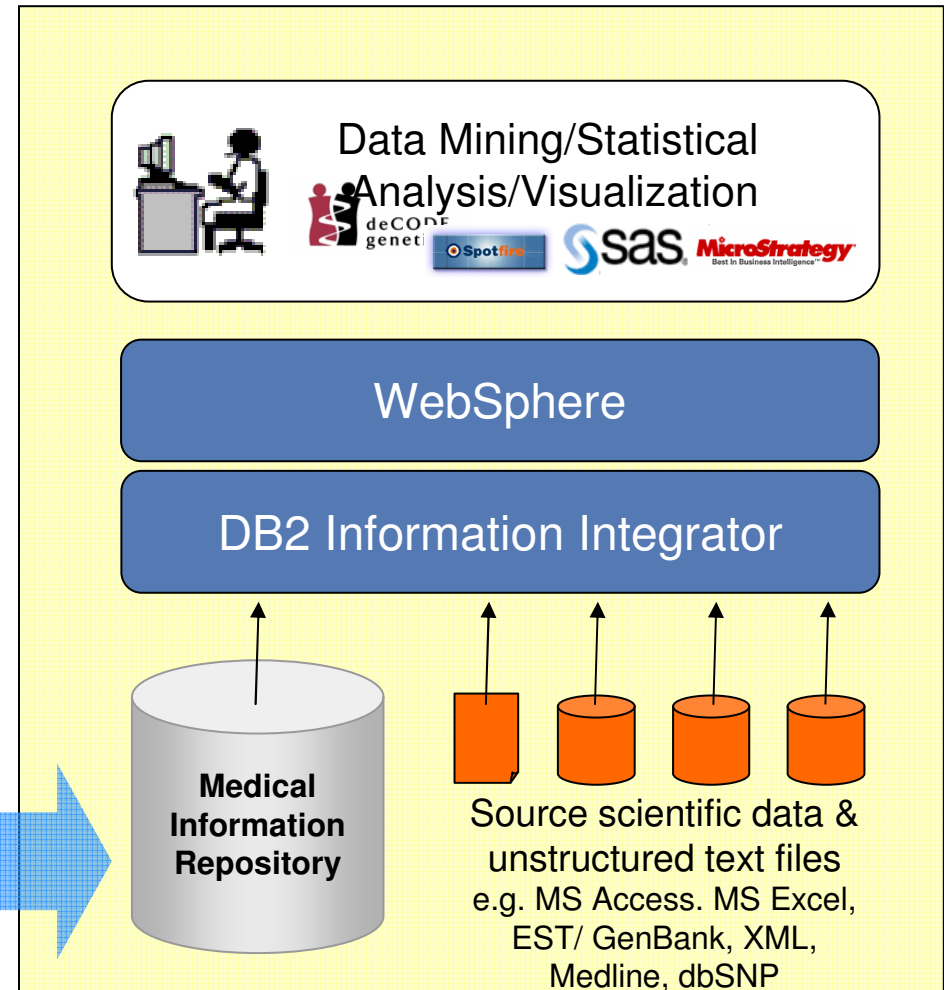
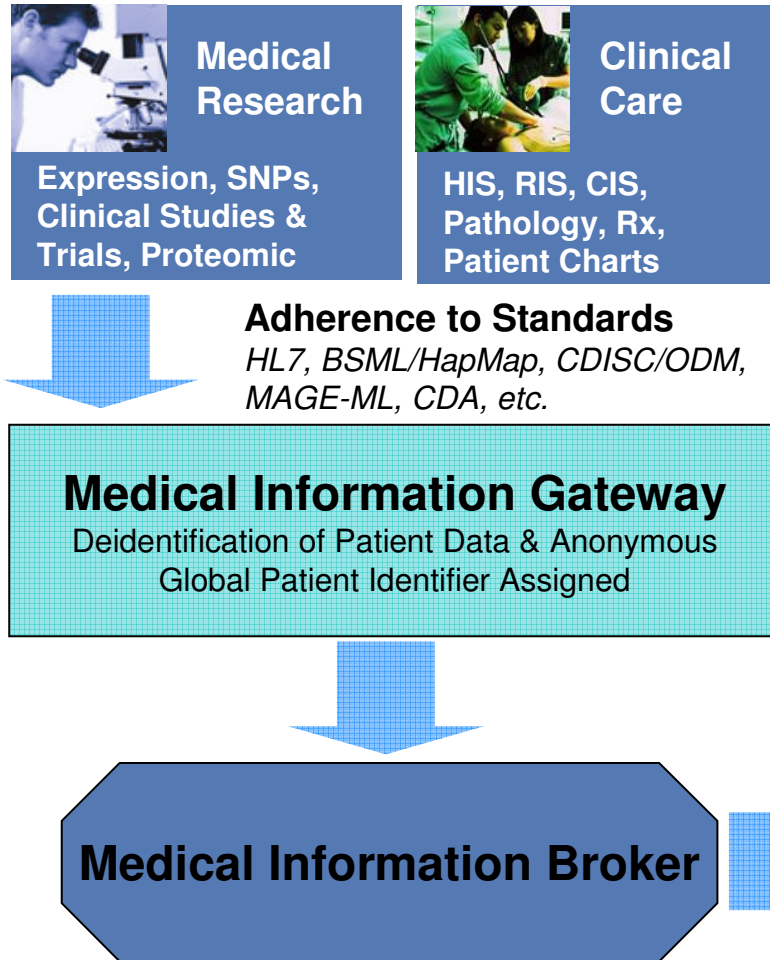
How to enable this change of the Healthcare System?

- E-health solutions
- Change Management and implementation of best practices

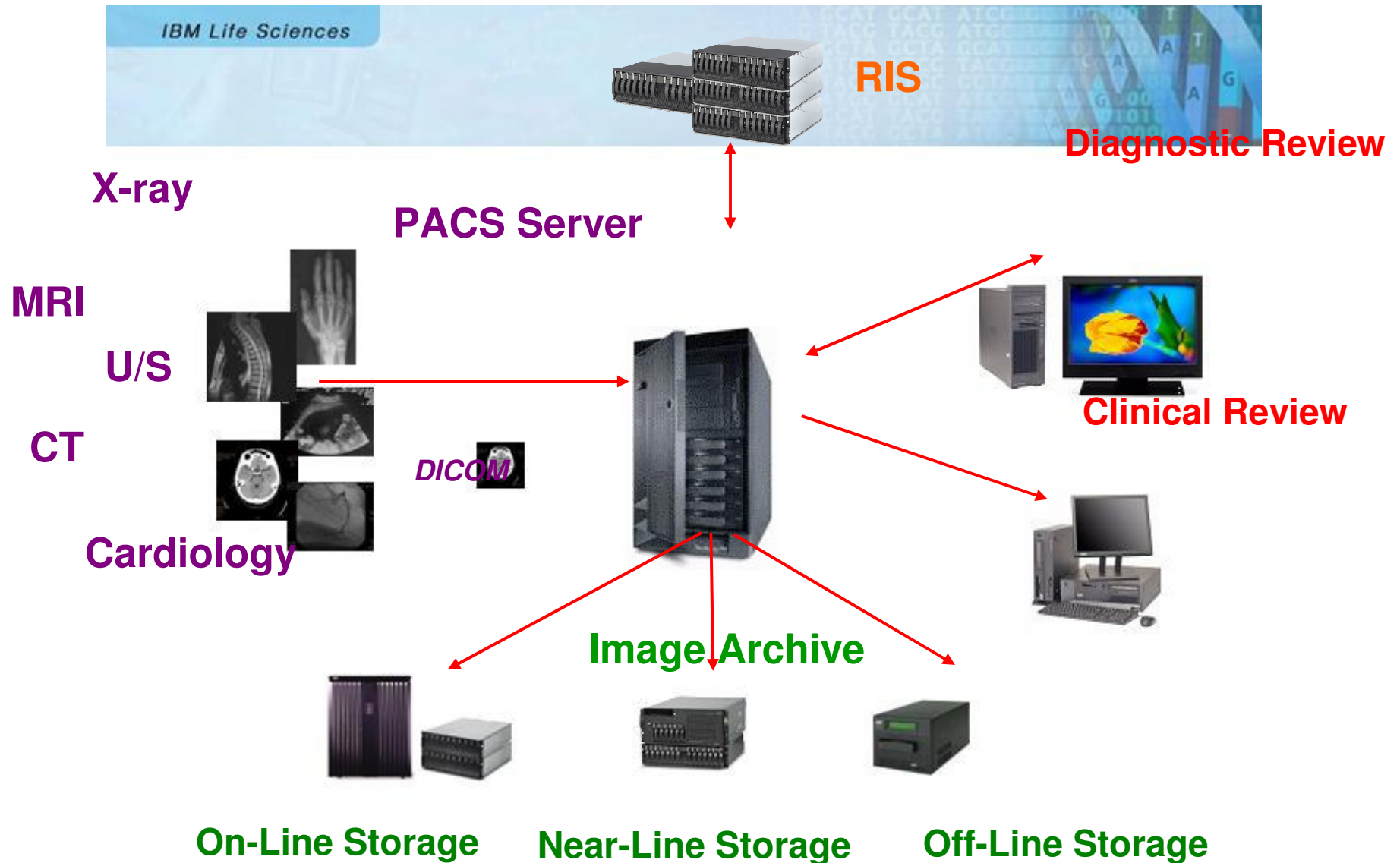
(e-)Health Information Framework - HIF



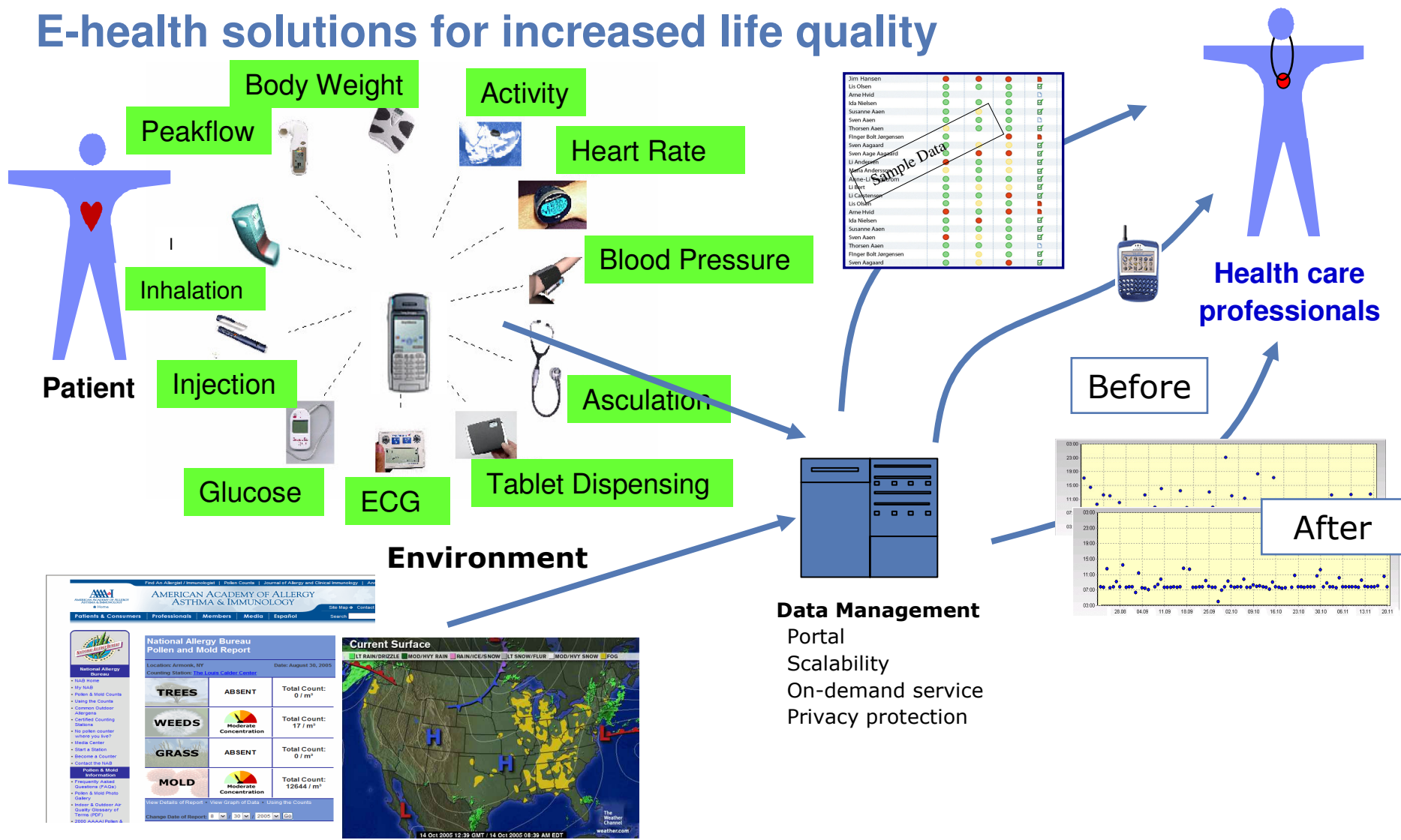
E-health solutions for Research



E-health solutions for diagnostic support

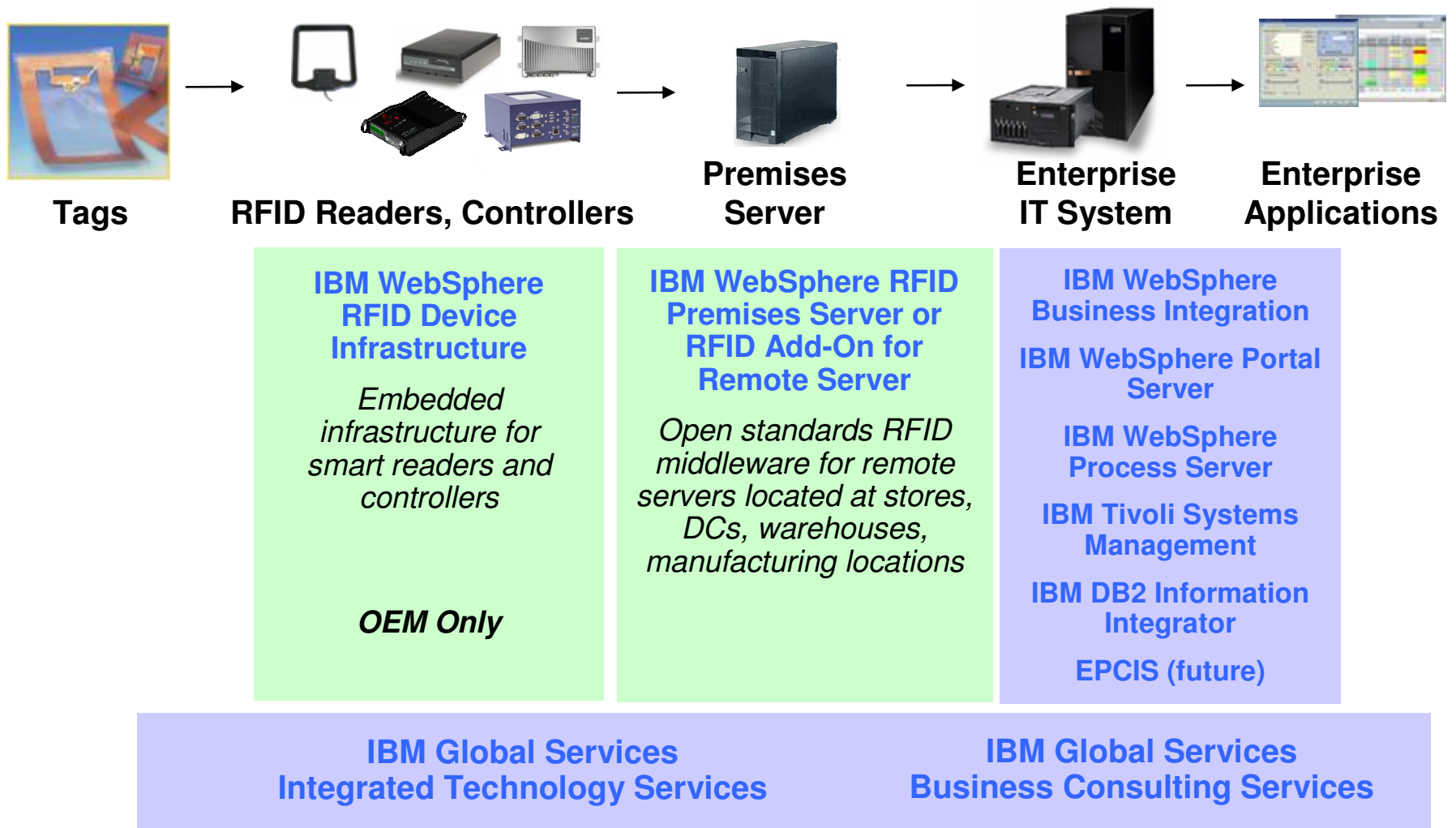


E-health solutions for increased life quality



Almost any other medical device can be blue-tooth enabled and used with PCC

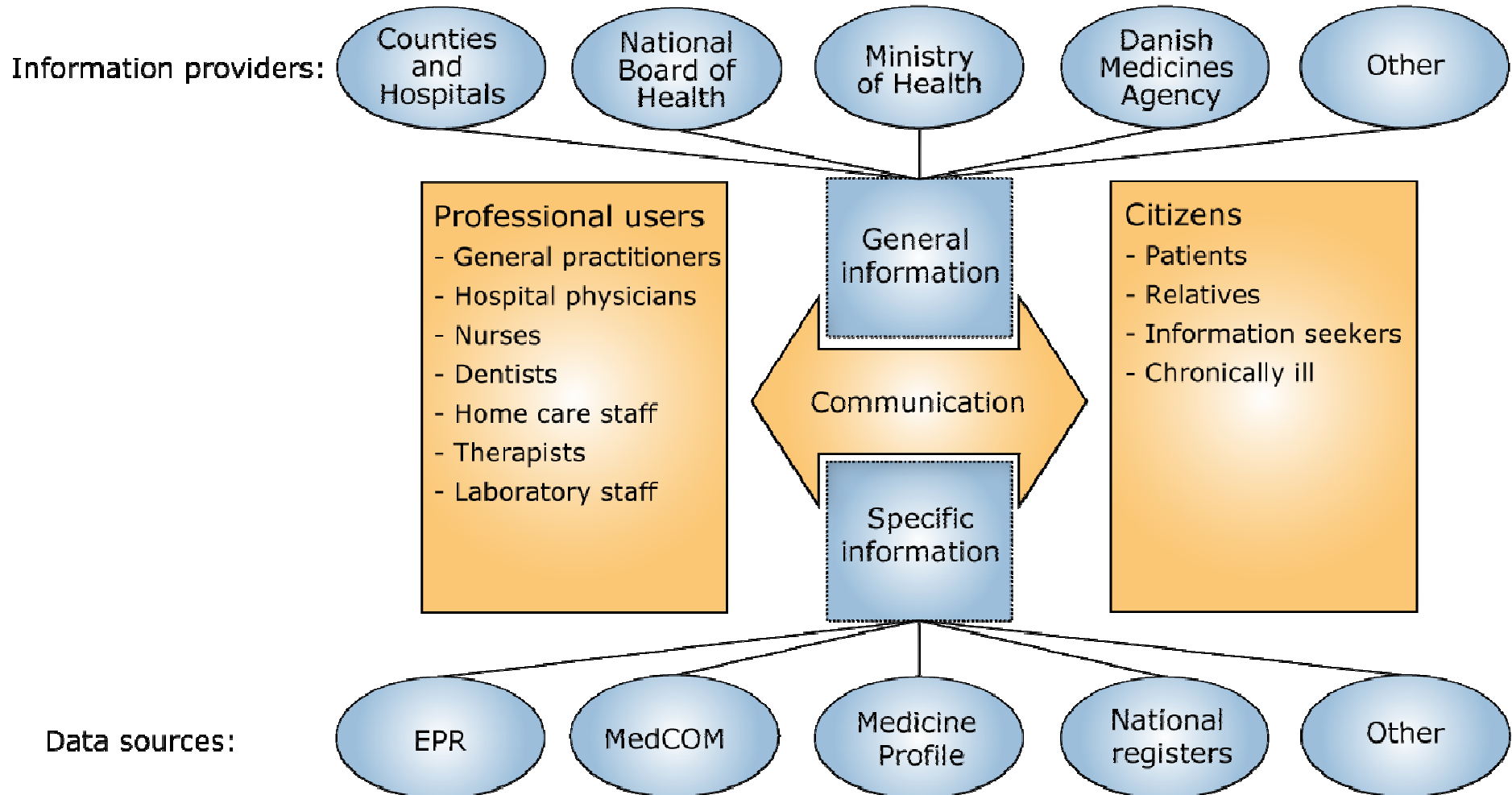
E-health solutions for inventory management

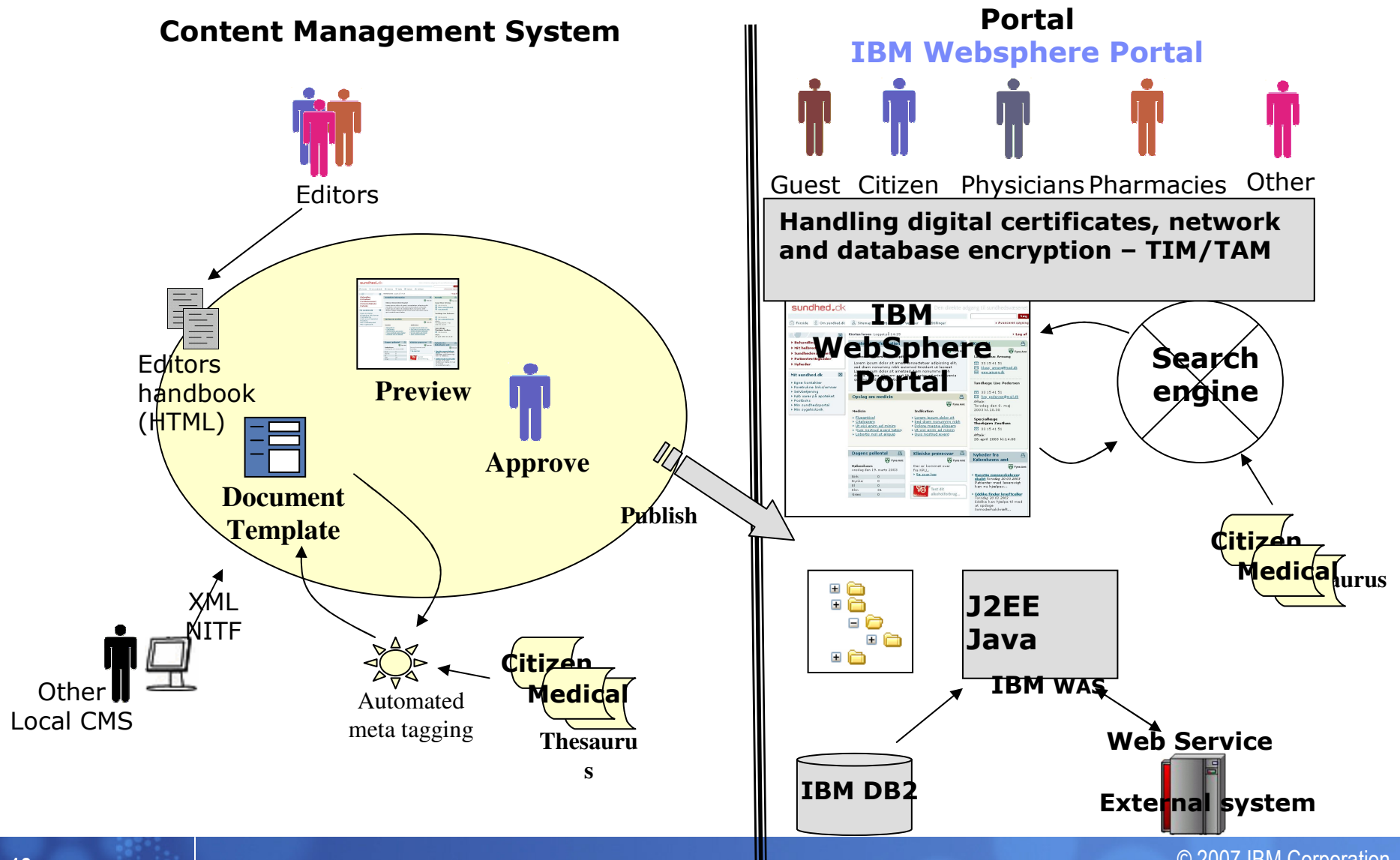


Selected E-health solutions

- **Danish National eHealth Portal**
- SUP (Standardised Use of Patient records)
- ePrescription
- Personal Electronic Medicine Profile
- DiaLog

Integration via the e-health portal (sundhed.dk)

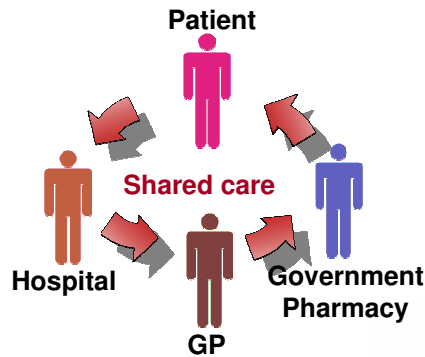




Security, privacy and confidentiality ✓

The healthcare challenge

The ehealth approach



Co-operation

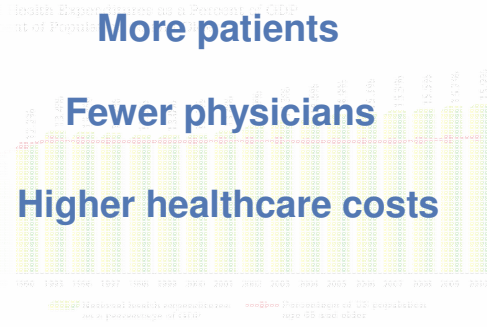
- eReferrals
- eDischarges
- Access to HR
- Work on same HR

Optimize work routines

- eBooking
- eConsultation
- Healthcare Yellow pages
- Support choice of healthcare organization
- eRenewal of medicine prescription
- Update own information

Use the patients capacity

- Shared Care
- Track own medical history
- Track own medicine use
- Treatment information



Prevent illness

- Disease Information
- Medicine information

The right treatment

- Decision support
- Medical history
- Adverse drug reaction
- CAVE Registration
- Access lab results

Take action in time

- Track medicine use
- Test yourself

E-Health portal - demo

Selected E-health solutions

- Danish National eHealth Portal
- **SUP (Standardised Use of Patient records)**
- ePrescription
- Personal Electronic Medicine Profile
- DiaLog

SUP – background

- SUP stands for "Standard for Udveksling af Patientdata"
- The project was established in 1999 by 2 Danish counties
- SUP purpose is to:
 - solve the problem of data exchange between multiple Electronic Patient Record (EPR) systems within the same organisational entity (County or Region)
- In 2002, after proof-of-concept, SUP was included in the National Danish IT-strategy

SUP – clinical pathway overview

Forløbsoversigt - Microsoft Internet Explorer

Address: <https://suptesta.vejleamt.dk/SUPWebApp/ForloebControl?context=cr&control=d&type=FORLOEB&CPRNR=010171-6vh2&startDato=&slutDato=&forloebId=8>

Forløbsoversigt, omvendt kronologisk

CPR-nr.: 010171-6vh2 **010171-6vh2 22 årig kvinde. ukendt vej, Jylland**

Fradato:

Tildato:

Forløb Personopl.

SUP

Startbilledet

Log af

IXI	Fra: 06.06.2003	Til: 08.06.2003	Opr. ansv. enhed: 6008230	Afdeling: Obstetrisk afdeling Institution: Vejle sygehus	Klass.: SKS
A Diagnose:	D2340 Svangrekontrol af 1. gangs fødende, normal graviditet			Kilde (system):	
IXI	Fra: 20.01.2003	Til:	Opr. ansv. enhed: 6008230	Afdeling: Obstetrisk afdeling Institution: Vejle sygehus	Klass.: SKS
A Diagnose:	DR102 Abdominalia lokaliseret til pelvis og perinaeum			Kilde (system):	
IXI	Fra: 03.12.2002	Til: 17.01.2003	Opr. ansv. enhed: 6008230	Afdeling: Gynækologisk afdeling Institution: Vejle sygehus	Klass.: SKS
A Diagnose:	DO210 Hyperemesis gravidarum levi gradu			Kilde (system):	
IXI	Fra: 15.11.2002	Til: 29.11.2002	Opr. ansv. enhed: 6008230	Afdeling: Gynækologisk afdeling Institution: Vejle sygehus	Klass.: SKS
A Diagnose:	DO210 Hyperemesis gravidarum levi gradu			Kilde (system):	

SUP WEBversion 4.2.06 - SUP XMLversion 2.1

Done Local intranet

Selected E-health solutions

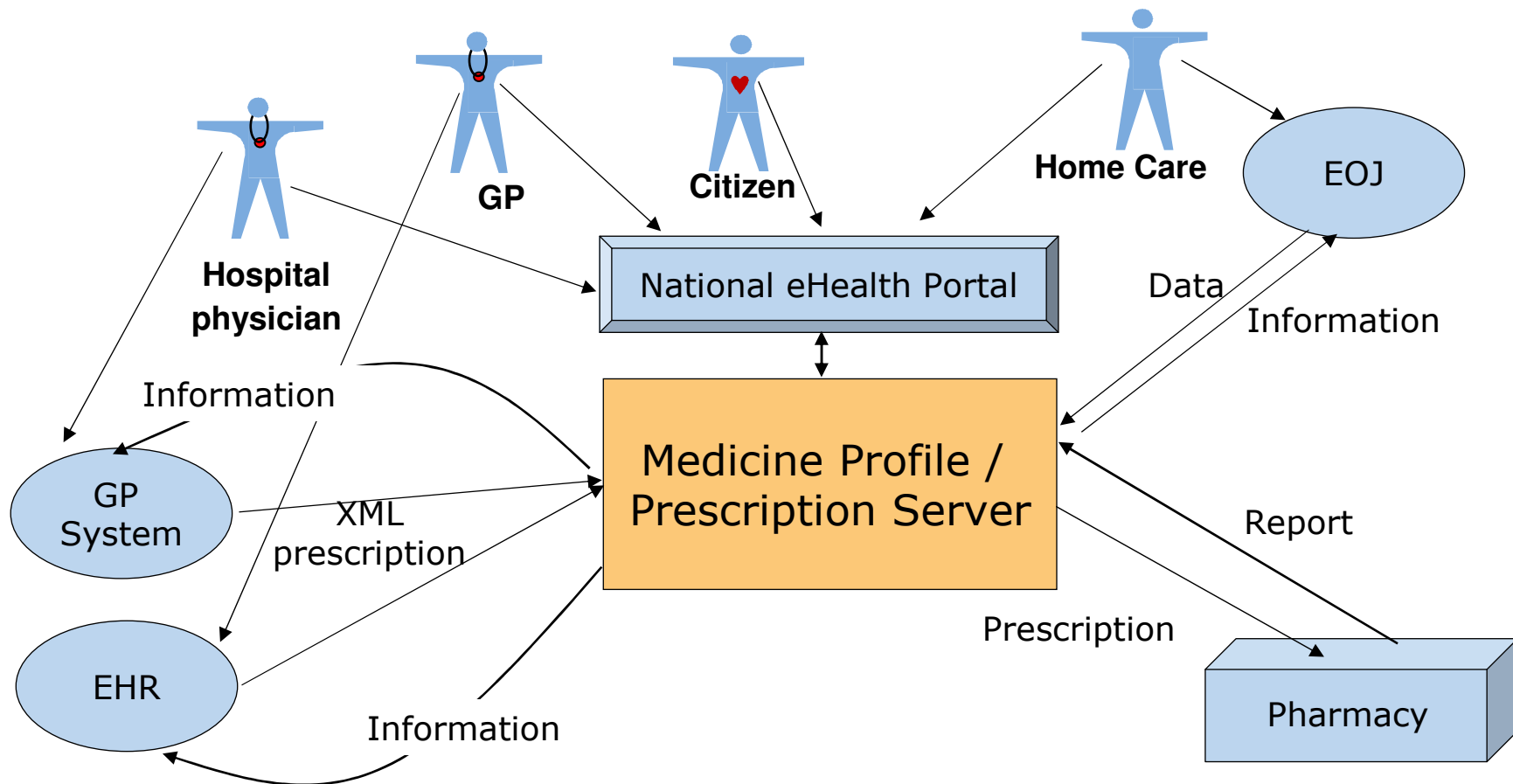
- Danish National eHealth Portal
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Prescription Server and Medicine Profile

- Prescription Server
 - Improved communication between physicians, pharmacies, home care staff and patients

- Medicine Profile
 - Decision support with both intention of prescription and follow up on consumption

Medicine Profile and Prescription Server



Prescription Server and Medicine Profile

- Improved communication between physicians, patients and home care staff
- Better and more correct medication
- More precise overview of medicine use – also over time
- Knowledge collection in one place
- Information follows the patient
- Better monitoring and follow-up

- And a very positive business case:
 - Prescription server savings of minimum 80.000 Euro per 100.000 prescriptions
 - Home care savings of 20 mEuro in Denmark

Functionality – GPs & Citizens

- GPs
 - Creation of prescriptions
 - Prescriptions being processed at pharmacies
 - Overview of patients prescription status
 - Details on prescriptions
 - Uncollected prescriptions
 - Prescription refills not fully used
 - Generation and transfer of XML prescriptions either directly on the prescription server or integrated through the medical doctors own system to the Prescription Server
 - Send notice/prescription to a specific pharmacy
 - Report generator

- Citizens/Patients
 - Status of own uncollected or not fully used prescriptions
 - Activation of prescriptions for processing at an optional pharmacy
 - Cancellation of prescriptions
 - Print of status

Functionality – Pharmacies

- Pharmacies
 - Access to prescription server via internet or receive prescriptions in own pharmacy system through XML integration
 - Search for specific patients based on unique ID, name or address
 - Search for prescriptions being processed in other pharmacies
 - Mark prescriptions for being processed in own pharmacy
 - Complete processing in own pharmacy
 - Overview of patients prescription status
 - Details on prescriptions
 - Uncollected prescriptions
 - Prescription refills not fully used
 - Update prescriptions if none-electronic, e.g. fax, paper etc.
 - Update prescriptions if substitutional drugs dispensed to patients
 - Report generator

Selected E-health solutions

- Danish National eHealth Portal
- SUP (Standardised Use of Patient records)
- ePrescription
- **Personal Electronic Medicine Profile**
- DiaLog

Electronic Medicine Profile

- Citizen's and GPs access through the internet to information regarding physician ordinated drugs given to the individual
- The purpose of PEM is to increase the quality of medical treatment of patients by preventing:
 - Incorrect medication
 - Too high drug doses
 - Combination of drugs that do not work effectively when used together

medicinprofilen.dk



Functionality for patients, example

Personlig Elektronisk Medicinprofil - Microsoft Internet Explorer

Log ud Restart | Vis nøgler

Hovedmenu > Medicinprofil søgning > Receptkøb > Medicintilskud

Receptkøb **Hospitalsudleveringer** **LÆGEMIDDELSTYRELSEN**

Medicintilskud **Medicinskab** **Cave** **Log**

111111-1118, Anita Andersen

På denne side kan du finde oplysninger om dine medicintilskud. Oplysningerne kommer fra Lægemiddelstyrelsens Centrale Tilskudsregister.

Aktuel periode
 Tilskudsperiode **03-06-2004 - 02-06-2005**
 Patienttype **Almen/Voksen**
 Udligningsbeløb **0,00 kr.**
 Saldo **659,60 kr.**
 Aktuel tilskudssats **50 %**

Individuelle tilskudsbevillinger
 Nedenfor kan du se hvilke individuelle tilskud, du har fået bevilling til. *Læs mere om individuelle tilskudsbevillinger.*

Nr.	Lægemiddel	Bevillingstype	Gælder fra ▲	Gælder til
1	Calcium sandoz po	Enkelt tilskud	01-02-1996	Ikke tidsbegrænset
2	Etalpa peroral	Enkelt tilskud	01-02-1996	Ikke tidsbegrænset
3	Calcium sandoz po	Enkelt tilskud	09-07-1993	Ikke tidsbegrænset
4	Losec peroral	Enkelt tilskud	01-01-1990	Ikke tidsbegrænset

Antal poster 4

Tilskudssatser (Almen/Voksen)
 I tabellen nedenfor kan du se beløbsgrænserne for din aktuelle tilskudssats er fremhævet. *Læs mere om tilskudssatser.*

Årlig udgift	Procentsats
Over 2950 kr.	85 %
1260 kr. - 2950 kr.	75 %
520 kr. - 1260 kr.	50 %
Under 520 kr.	0 %

Beløbene er udgift før tilskud er trukket fra. Beløbsgrænserne gælder fra den 1. januar 2004 og ændres hvert år til den 1. januar.

Balance for general reimbursement

Individual reimbursement(s)

General reimbursement rates. Current rate in bold.

Functionality for healthcare professionals, example

Personlig Elektronisk Medicinprofil - Microsoft Internet Explorer

Log ud Restart | Vis nøgler

Hovedmenu > Medicinprofil søgning > Receptkøb > Lægemiddel > Compliance

Lægemiddel **Analoge lægemidler** **Compliance**

Person 111111-1118, Anita Andersen

Grafen viser den beregnede beholdning af dagsdoser for det købte lægemiddel. Compliance beregnes under forudsætning af, at den på recepten ordinerede dosis følges. Hver stigning på grafen markerer et lægemiddelkøb på listen nedenfor.

Hvis der er valgt visning af analoge lægemidler, vil disse optræde på grafen med forskelligt farvede kurver.

Beregnet beholdning ved ordineret dosering

Bemærk at figurens akser ændres afhængigt af filtrering.

Receptkøb

Fra dato: 10-06-2003 Til dato: 12-04-2005 ATC niveau: Niveau 5 - N06AB10 **Filtrer** **Nulstil**

Nr.	Dato ▲	Lægemiddelnavn	Form	Styrke	Pakning	Antal pakninger	ATC gruppe	Indikation	Dosering	Dosis-dispenseret
1	11-11-2003	Cipralext	Filmovertrukne tabl.	20 mg	56 stk....	1	Escitalopram - ...	Mod depression	1/2 tablet daglig	
2	11-11-2003	Cipralext	Filmovertrukne tabl.	20 mg	28 stk....	2	Escitalopram - ...	Mod depression	1/2 tablet daglig	
3	08-11-2003	Cipralext	Filmovertrukne tabl.	20 mg	56 stk....	1	Escitalopram - ...	Mod depression	1/2 tablet daglig	
4	12-09-2003	Cipralext	Filmovertrukne tabl.	20 mg	56 stk....	1	Escitalopram - ...	Mod depression	1/2 tablet daglig	
5	30-07-2003	Cipralext	Filmovertrukne tabl.	20 mg	56 stk....	1	Escitalopram - ...	Mod depression	1/2 tablet daglig	

TILBAGE 1 2 FREM VIS ALT

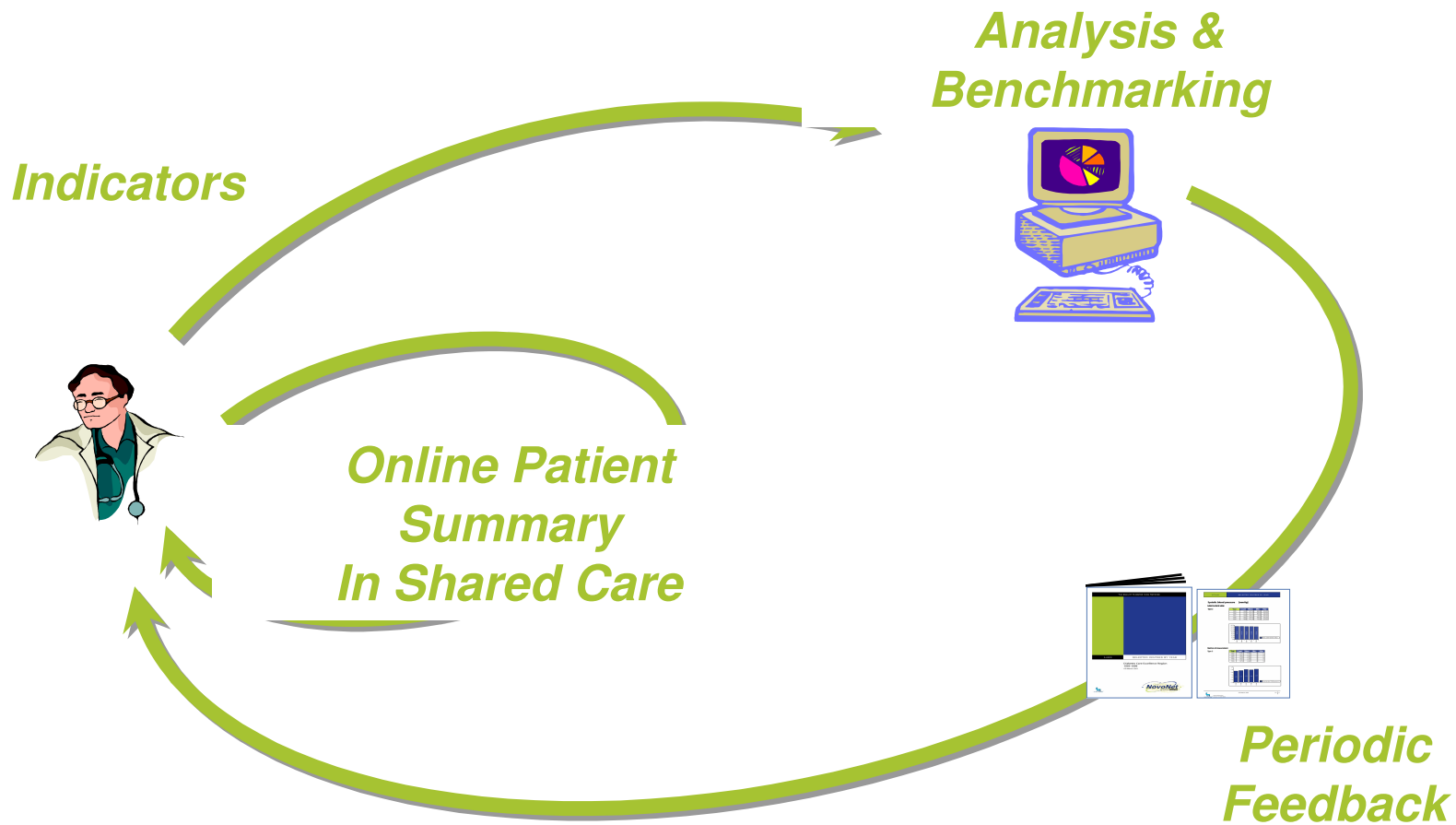
Valg Antal poster 7

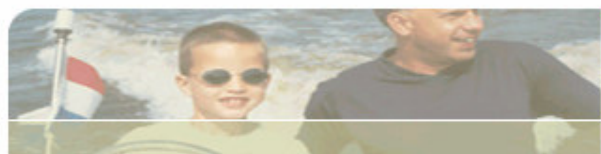
Lægemiddelstyrelsen er data- og registeransvarlig for Medicinprofilen. Spørgsmål til registret kan rettes til Lægemiddelstyrelsen. ⓘ

Selected E-health solutions

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- **DiaLog**

DiaLog Shared Care: Long-term vs. Short-term benefits - Closing the Loop in Diabetes Care





Claudia - 091002 13:20

Jens Hansen - CPR 070954-1737 - Age 48 - Debut 1978 - Type 2

Status

Contacts ? more create [ALT+K]			
220702	Årsstatus	OUH	
151101	Rutinekontrol	OUH	
070901	Diabeteseskole	OUH	
030101	Rutinekontrol	OUH	

Measures ? create [ALT+M]			
Vægt	89.8 kg	210902	more
Højde	184 cm	050400	more
BMI	25.5 kg/m ²	220702	more
BT	135/60 mmHg	220702	more

Lab results ? create [ALT+L]			
HbA1c	10.2 %	180902	more
U-albumin	310 mg/24h	220702	more
UA/creatin ratio	85 ratio	220702	more
Serum kreatinin	110 µmol/l	220702	more
Kreatininudskillelse	102 ml/s	151101	more
Serum triglycerid	2.40 mmol/l	140200	more
Serum kolesterol	5.90 mmol/l	180902	more
LDL kolesterol	3.30 mmol/l	070901	more
HDL kolesterol	0.95 mmol/l	070901	more
GAD	-	-	
C-peptid	-	-	

Insulin ? more create [ALT+I]		
Actrapid	29 IU/Dag	220702
Insulatard	28 IU/Dag	220702

OHA ? more create [ALT+O]		
Riguanid	OUH/JOL	230802
Sylanin	OUH/OHR	230802

Other treatment ? more create [ALT+B]		
For hypertension	Frusemide 60 mg o.d.	220702
For dyslipidemia	Simvastatin 20 mg o.d.	050502
Andet	Fodterapi	260601

Self care ? create [ALT+E]		
Rygning	20 cig/dag	140401 more
Ryger indtil	-	-
Motion	3 timer/uge	031001 more
Selvundersøgelse	5 BG-mål./uge	031001 more

Patient notes ? create [ALT+P]		
JLOUH	Patient klager over ...	140401
JLOUH	Patient klager over fød...	140401
JLOUH	Patient klager over ...	031001
JLOUH	Patient klager over ...	031001
JLOUH	Patient klager over ...	031001

Eye status ? create [ALT+Ø]			
	Venstre	Højre	
Retinopati	2	2	060901 more
Makulopati	Ja	Nej	060901 more
Visus	0,9	0,8	060901 more
Vitrectomi	Nej	Nej	060901 more
Laserbehandling	Ja	Ja	060901 more

Foot status ? create [ALT+D]			
	Venstre	Højre	
Følsomhed	Nedsat	Normal	060901 more
Puls	Ja	Ja	060901 more
AAI	0,5	0,2	060901 more
Fodrisiko	Ja	Nej	060901 more
Sår	Ja	Nej	060901 more
Amputation	Nej	Nej	060901 more

Acute complications ? create [ALT+A]			
	Totalt	Seneste	
Hypoglykæmi	8 x	Jun02	220702 more
Ketoacidose	8 x	Jul02	220702 more
Apopleksi	1 x	Okt02	220702 more
AMI	-		

Other complications ? more create [ALT+O]		
Angina	Ja	220701
Claudicatio	Nej	220701
Inj. Infiltrater	Nej	220701
Terminal nyreinsufficiens	Nej	220701

Summary

- If no changes is made – Healthcare systems are on the way to a meltdown
- Focus has to change towards a more patientcentric view on the healthcare system, focusing on:
 - Creating a system that brings the optimal value to the providers, payors an patient
 - Creating a system that enables consumers to make the better choices
 - Create a system that enables the best posible delivery of care
- Examples of integrated patient centric solutions that supports the above