Konferenz "Telemonitoring in Gesundheits- und Sozialsystemen – Eine eHealth-Lösung mit Zukunft", München

eHealth-Entwicklungen international – Stand und Perspektiven

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European Observatory on Health Systems and Policies

European
Observatory
on Health Systems and Policies

$ 19 Mrd für eHealth im US-Konjunkturpaket

Increasing HIT through the Economic Stimulus Bill

Country: USA

Partner Institute: Johns Hopkins Bloomberg School of Public Health, Department of Health Policy and Management

Survey no: (13) 2009

**Author(s):** Holzer, Jessica and Gerard Anderson

Health Policy Issues: System Organisation/ Integration, HR Training/Capacities, Funding / Pooling, Quality Improvement, New Technology, Remuneration / Payment, Role Private Sector

Current Process Stages

Idea	Pilot	Policy Paper	Legislation	Implementation	Evaluation	Change
			Legislation	**Implementation**		

1. Abstract

The American Recovery and Reinvestment Act of 2009 provides US$19.2 billion to support expansion of health information technology in ambulatory care settings. Such an investment in HIT is unprecedented, and has the potential to significantly change the health IT infrastructure in the US, particularly coverage of electronic medical records. Support has been strong among many stakeholders, including physicians and insurance companies, increasing the chances of the program's success.
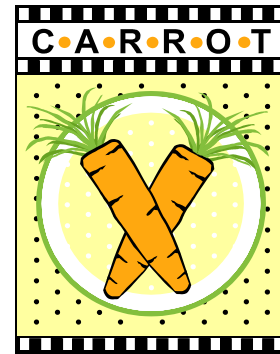
2. Purpose of health policy or idea

The purpose of the Health Information Technology (health IT) expansion in the Economic Stimulus is to establish a nationwide health IT infrastructure capable of connecting providers and patients through compatible, standardized electronic health record (EHR) systems. The Stimulus Bill provides incentives for new adopters of EHR from 2011 to 2014. After 2015, providers who are non-meaningful users of EHR (a term yet to be defined) or non-users of EHR will see their reimbursements from the government decreased by 1% per year until 2018. After 2018, if less than 75% of

C•A•R•R•O•T

Electronic Health Records in Ambulatory Care
— A National Survey of Physicians

Catherine M. DesRoches, Dr.P.H., Eric G. Campbell, Ph.D., Sowmya R. Rao, Ph.D.,
Karen Donelan, Sc.D., Timothy G. Ferris, M.D., M.P.H., Ashish Jha, M.D., M.P.H.,
Rainu Kaushal, M.D., M.P.H., Douglas E. Levy, Ph.D., Sara Rosenbaum, J.D.,
Alexandra E. Shields, Ph.D., and David Blumenthal, M.D., M.P.P.

ABSTRACT

From the Institute for Health Policy
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02114, or at cdesroches@partners.org.

BACKGROUND

Electronic health records have the potential to improve the delivery of health care
services. However, in the United States, physicians have been slow to adopt such
systems. This study assessed physicians' adoption of outpatient electronic health
records, their satisfaction with such systems, the perceived effect of the systems on
the quality of care, and the perceived barriers to adoption.

METHODS

In late 2007 and early 2008, we conducted a national survey of 2758 physicians,
which represented a response rate of 62%. Using a definition for electronic health
records that was based on expert consensus, we determined the proportion of phy-
sicians who were using such records in an office setting and the relationship be-
tween adoption and the characteristics of individual physicians and their practices.

RESULTS

Four percent of physicians reported having an extensive, fully functional electronic-
records system, and 13% reported having a basic system. In multivariate analyses,
primary care physicians and those practicing in large groups, in hospitals or medi-
cal centers, and in the western region of the United States were more likely to use
electronic health records. Physicians reported positive effects of these systems on
several dimensions of quality of care and high levels of satisfaction. Financial bar-

4% „full" + 13% „basic"

Use of Electronic Health Records in U.S. Hospitals

Ashish K. Jha, M.D., M.P.H., Catherine M. DesRoches, Dr.Ph.,
Eric G. Campbell, Ph.D., Karen Donelan, Sc.D., Sowmya R. Rao, Ph.D.,
Timothy G. Ferris, M.D., M.P.H., Alexandra Shields, Ph.D., Sara Rosenbaum, J.D.,
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ABSTRACT

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BACKGROUND

Despite a consensus that the use of health information technology should lead to more efficient, safer, and higher-quality care, there are no reliable estimates of the prevalence of adoption of electronic health records in U.S. hospitals.

METHODS

We surveyed all acute care hospitals that are members of the American Hospital Association for the presence of specific electronic-record functionalities. Using a definition of electronic health records based on expert consensus, we determined the proportion of hospitals that had such systems in their clinical areas. We also examined the relationship of adoption of electronic health records to specific hospital characteristics and factors that were reported to be barriers to or facilitators of adoption.

RESULTS

On the basis of responses from 63.1% of hospitals surveyed, only 1.5% of U.S. hospitals have a comprehensive electronic-records system (i.e., present in all clinical units), and an additional 7.6% have a basic system (i.e., present in at least one clinical unit). Computerized provider-order entry for medications has been implemented in only 17% of hospitals. Larger hospitals, those located in urban areas, and teaching hospitals were more likely to have electronic-records systems. Respondents cited cap-

1.5% „comprehensive" + 7.6% „basic"

Physicians' Use of Electronic Medical Records

Percent of physicians using electronic medical records
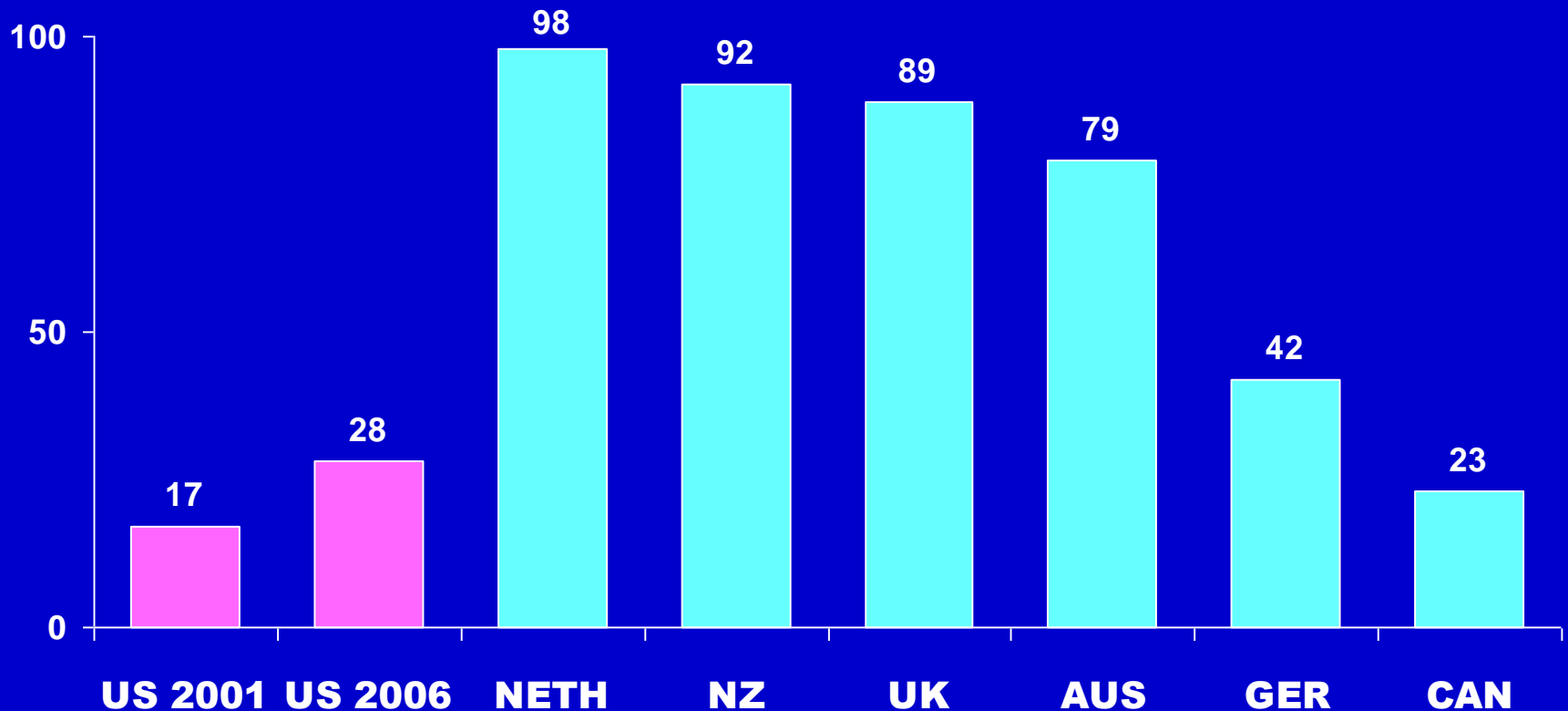
International Comparison, 2006

AUS=Australia; CAN=Canada; GER=Germany; NETH=Netherlands; NZ=New Zealand; UK=United Kingdom; US=United States.
Data: 2001 and 2006 Commonwealth Fund International Health Policy Surveys.
Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008

Primary Care Practices with Advanced Information Capacity, 2006

Percent reporting 7 or more out of 14 functions*

Country	Percent
NZ	87
UK	83
AUS	72
NET	59
GER	32
US	19
CAN	8
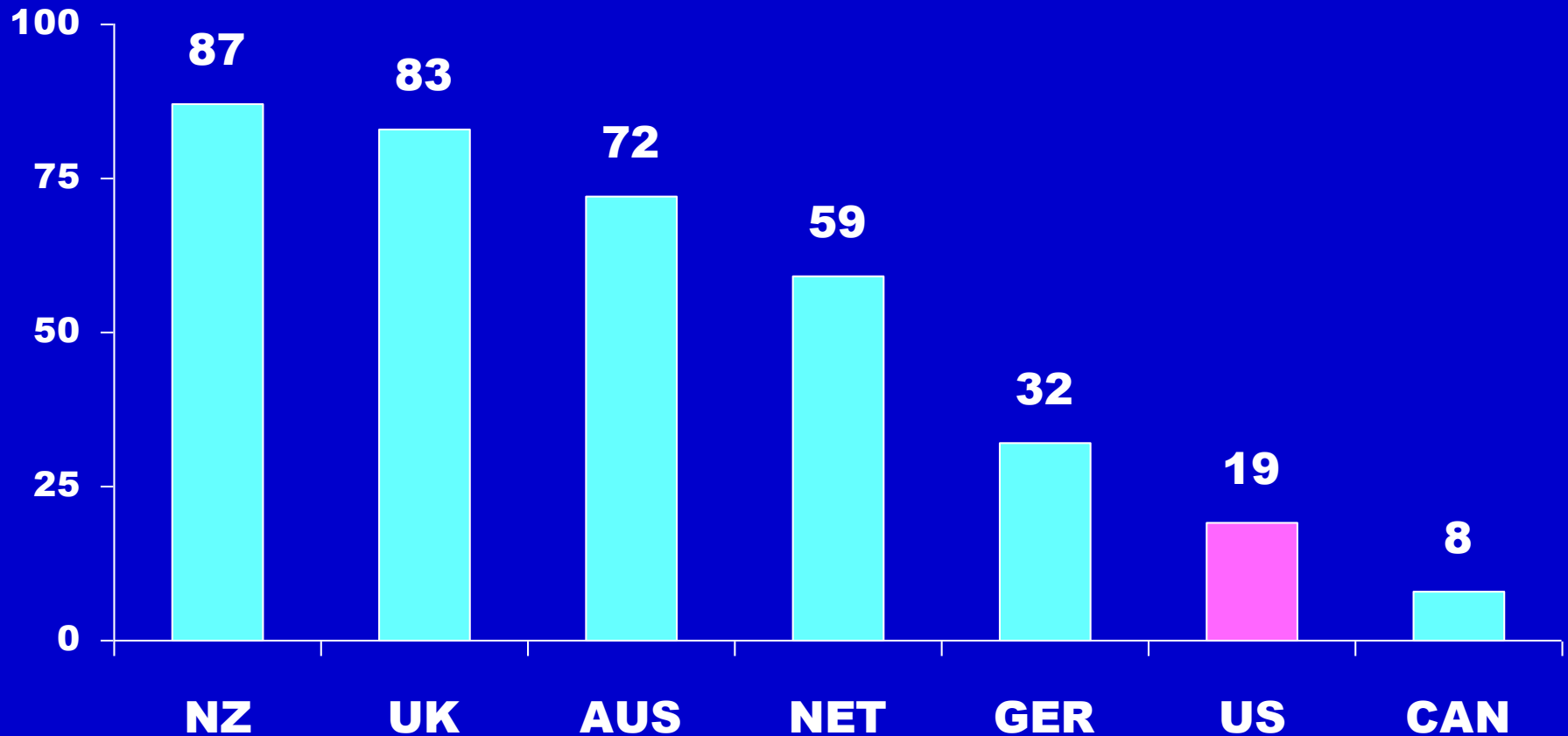
*Count of 14: EMR, EMR access other doctors, outside office, patient; routine use electronic ordering tests, prescriptions, access test results, access hospital records; computer for reminders, Rx alerts, prompt tests results; easy to list diagnosis, medications, patients due for care.

Source: 2006 Commonwealth Fund International Health Policy Survey of Primary Care Physicians

On the other hand, there are eHealth world-leaders …

Information Technology

Kaiser Permanente is making a multibillion dollar investment in KP HealthConnect, a secure nationwide electronic data system that is:

- More than just an electronic record
- A highly sophisticated information management and delivery system
- A programwide system that integrates the clinical record with appointments, registration, and billing
- A complete health care business system that will enhance the quality of patient care

KAISER PERMANENTE.

Scope of Kaiser Permanente HealthConnect™
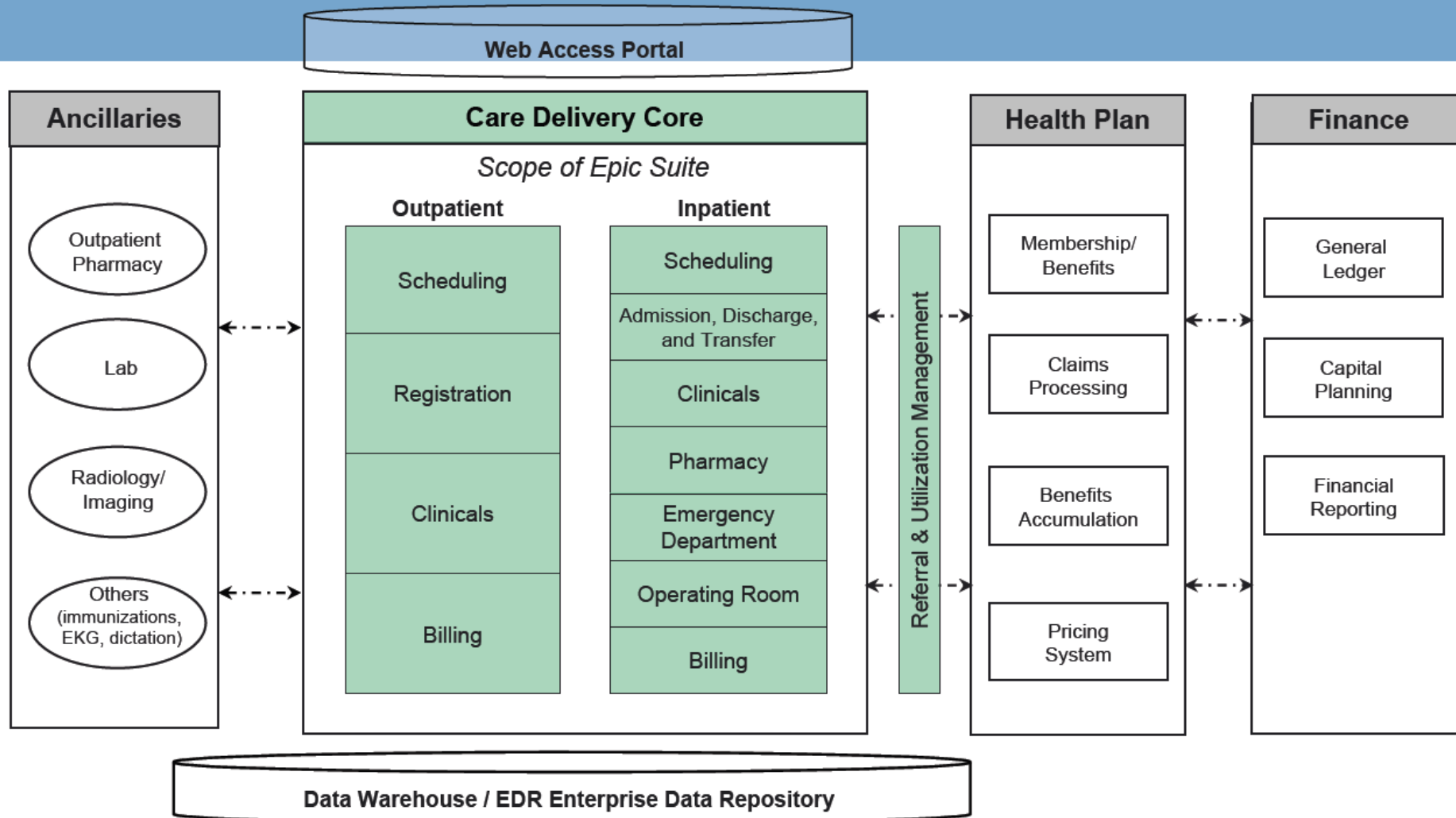
Expanded Online Access for Members

www.kp.org
Member Web Portal

Access medical record

Make/change appointments

Send email to doctor

Check lab results

Access health Information

Review eligibility & benefits

Account summary
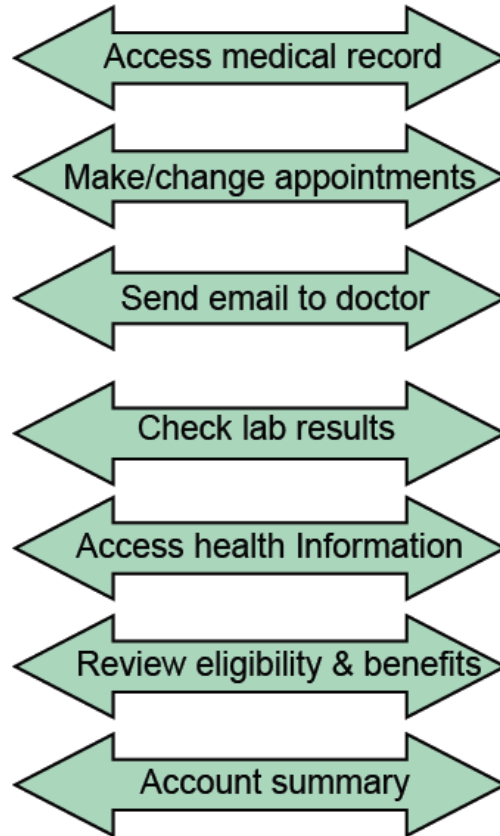
Care Delivery Core	
Scope of KP HealthConnect Suite	
Outpatient	**Inpatient**
Scheduling	Scheduling
	Admission, Discharge, and Transfer
Registration	Clinicals
	Pharmacy
Clinicals	Emergency Department
	Operating Room
Billing	Billing

KAISER PERMANENTE.

KP's e-care Evolution

Impact on Quality and Care Experience

Care

Personalized Information

General Information

➤ **E-Health Management:** including blood pressure, blood glucose, respiratory peak flow, weight measurement, "virtual care" using video and audio cast, and online health assessments

➤ E-mail your doctor
➤ View lab test results online
➤ Refill prescriptions online
➤ Schedule/cancel appointment online
➤ Select a physician online
➤ View your health record

➤ Drug/health encyclopedia
➤ Healthwise Handbook
➤ Facility/staff directory
➤ Link to other Web sites

17

KAISER PERMANENTE.

Systematic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care

Basit Chaudhry, MD; Jerome Wang, MD; Shinyi Wu, PhD; Margaret Maglione, MPP; Walter Mojica, MD; Elizabeth Roth, MA; Sally C. Morton, PhD; and Paul G. Shekelle, MD, PhD

Background: Experts consider health information technology key to improving efficiency and quality of health care.

Purpose: To systematically review evidence on the effect of health information technology on quality, efficiency, and costs of health care.

Data Sources: The authors systematically searched the English-language literature indexed in MEDLINE (1995 to January 2004), the Cochrane Central Register of Controlled Trials, the Cochrane Database of Abstracts of Reviews of Effects, and the Periodical Abstracts Database. We also added studies identified by experts up to April 2005.

Study Selection: Descriptive and comparative studies and systematic reviews of health information technology.

Data Extraction: Two reviewers independently extracted information on system capabilities, design, effects on quality, system acquisition, implementation context, and costs.

Data Synthesis: 257 studies met the inclusion criteria. Most studies addressed decision support systems or electronic health records.

Approximately 25% of the studies were from 4 academic institutions that implemented internally developed systems; only 9 studies evaluated multifunctional, commercially developed systems. Three major benefits on quality were demonstrated: increased adherence to guideline-based care, enhanced surveillance and monitoring, and decreased medication errors. The primary domain of improvement was preventive health. The major efficiency benefit shown was decreased utilization of care. Data on another efficiency measure, time utilization, were mixed. Empirical cost data were limited.

Limitations: Available quantitative research was limited and was done by a small number of institutions. Systems were heterogeneous and sometimes incompletely described. Available financial and contextual data were limited.

Conclusions: Four benchmark institutions have demonstrated the efficacy of health information technologies in improving quality and efficiency. Whether and how other institutions can achieve similar benefits, and at what costs, are unclear.

Resolution WHO EB115.R20 (2005) …
Urges the Members States to

- *develop a national eHealth strategy, including legal and infrastructure frameworks, and public-private partnership*
- *mobilize multisectorial collaboration*
- *establish national eHealth centers and networks of excellence etc.*

eHealth strategy in Switzerland

Positions and Influences at a glance

„Health strategy, not eHealth strategy required"
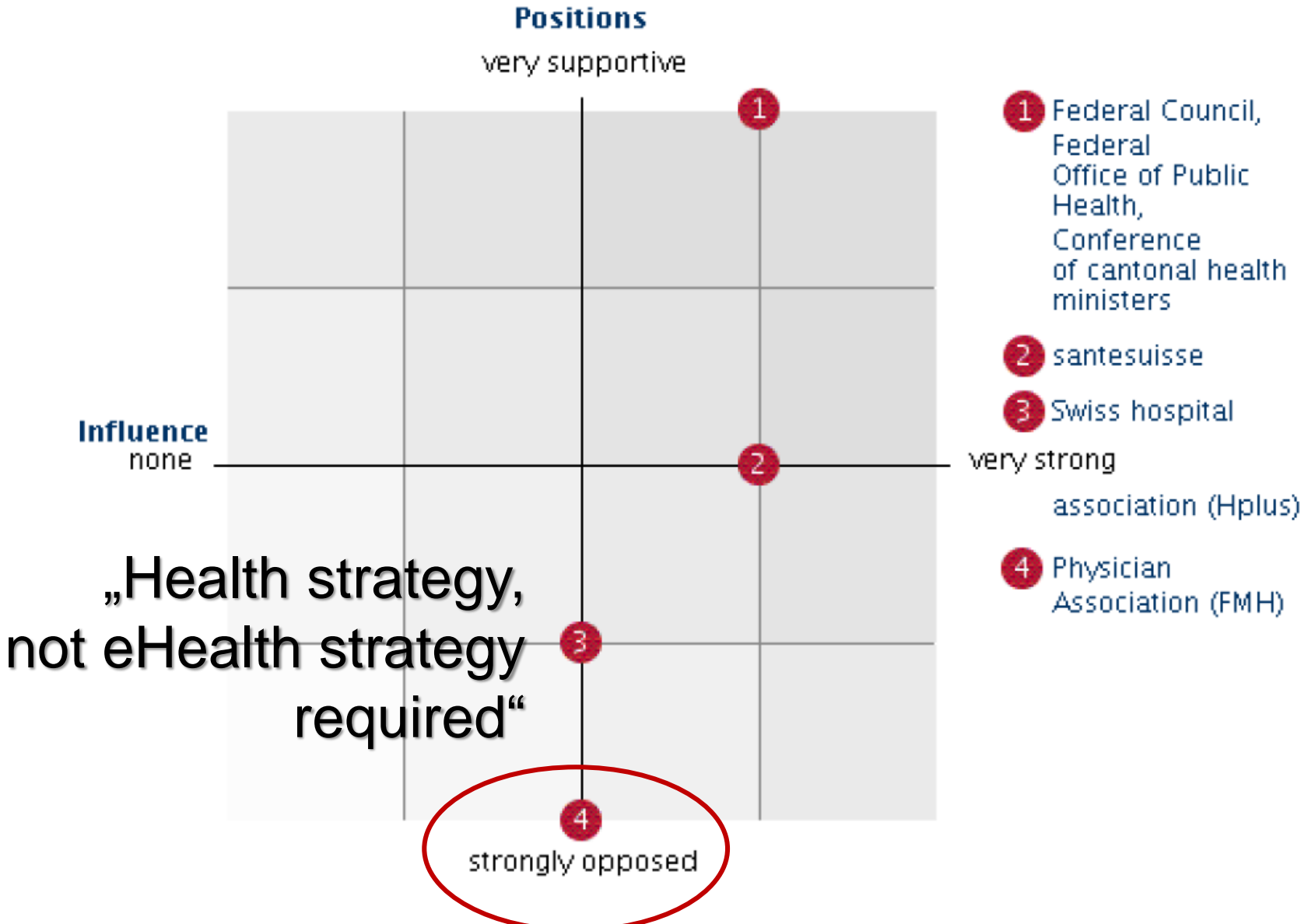
Netherlands: national infrastructure for data exchange between electronic medical records

Positions and Influences at a glance

Positions
very supportive

Influence
none — very strong

strongly opposed

1. patient organization NPCF, Parliament
2. Ministry of Health
3. Information system vendors
4. hospital sector
5. Payers
6. GP organisations
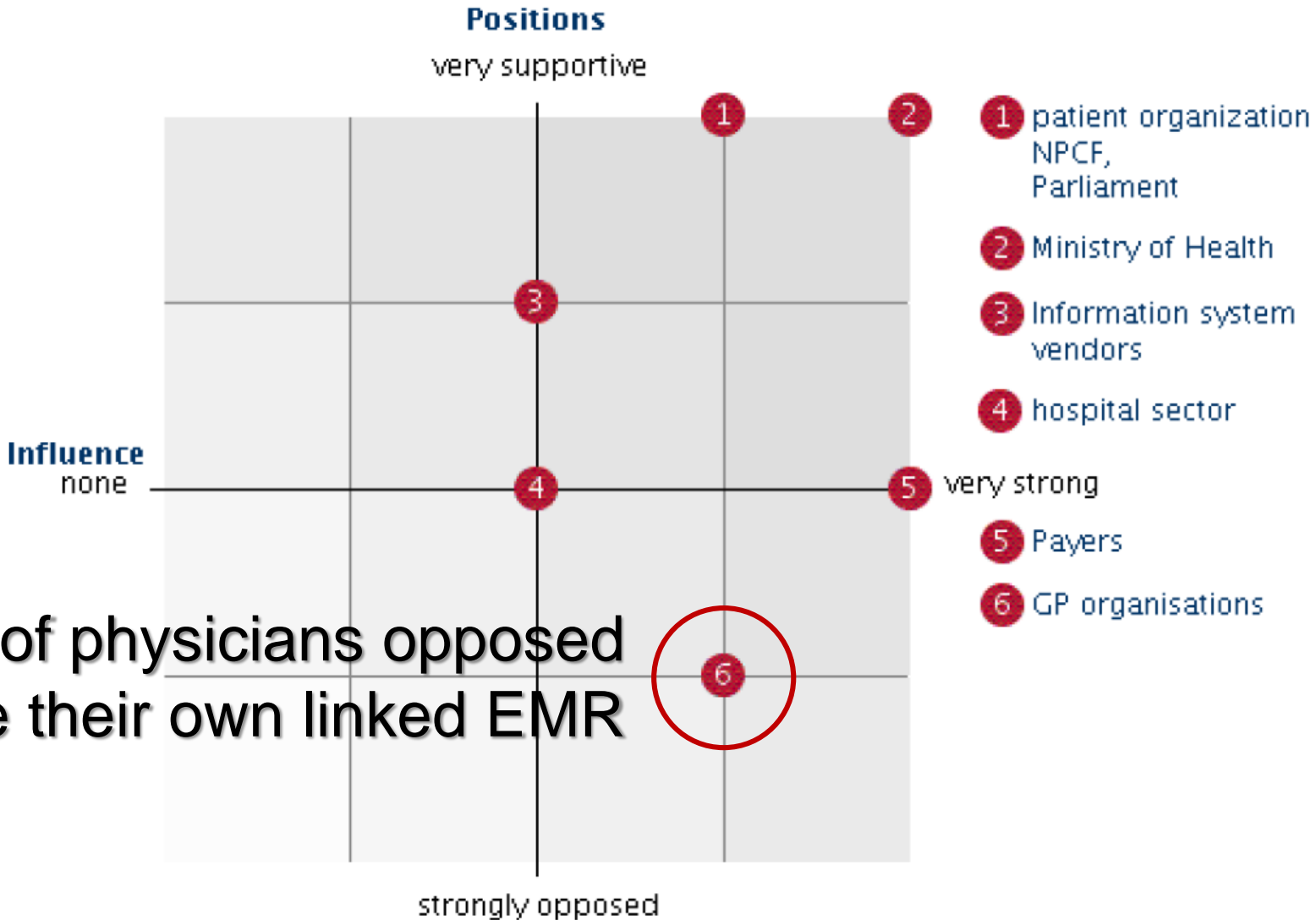
>50% of physicians opposed to have their own linked EMR

Figure 3.5 Primary care as a hub of coordination: networking within the community served and with outside partners[173,174]

Specialized care

Community mental health unit

TB control centre

Diabetes clinic

Consultant support

Referral for multi-drug resistance

Referral for complications

Emergency department

Hospital

Maternity

Surgery

Traffic accident

Placenta praevia

Hernia

Diagnostic services

CT Scan

Diagnostic support

Self-help group

Primary-care team: continuous, comprehensive, person-centred care

Training support

Training centre

Cytology lab

Pap smears

Liaison community health worker

Social services

Other

Other

Waste disposal inspection

Community

Alcoholism

Environmental health lab

Mammography

Gender violence

Alcoholics anonymous

Specialized prevention services

Cancer screening centre

Women's shelter

NGOs

GP attitudes towards ICT use in healthcare

ICT improves the quality of healthcare services
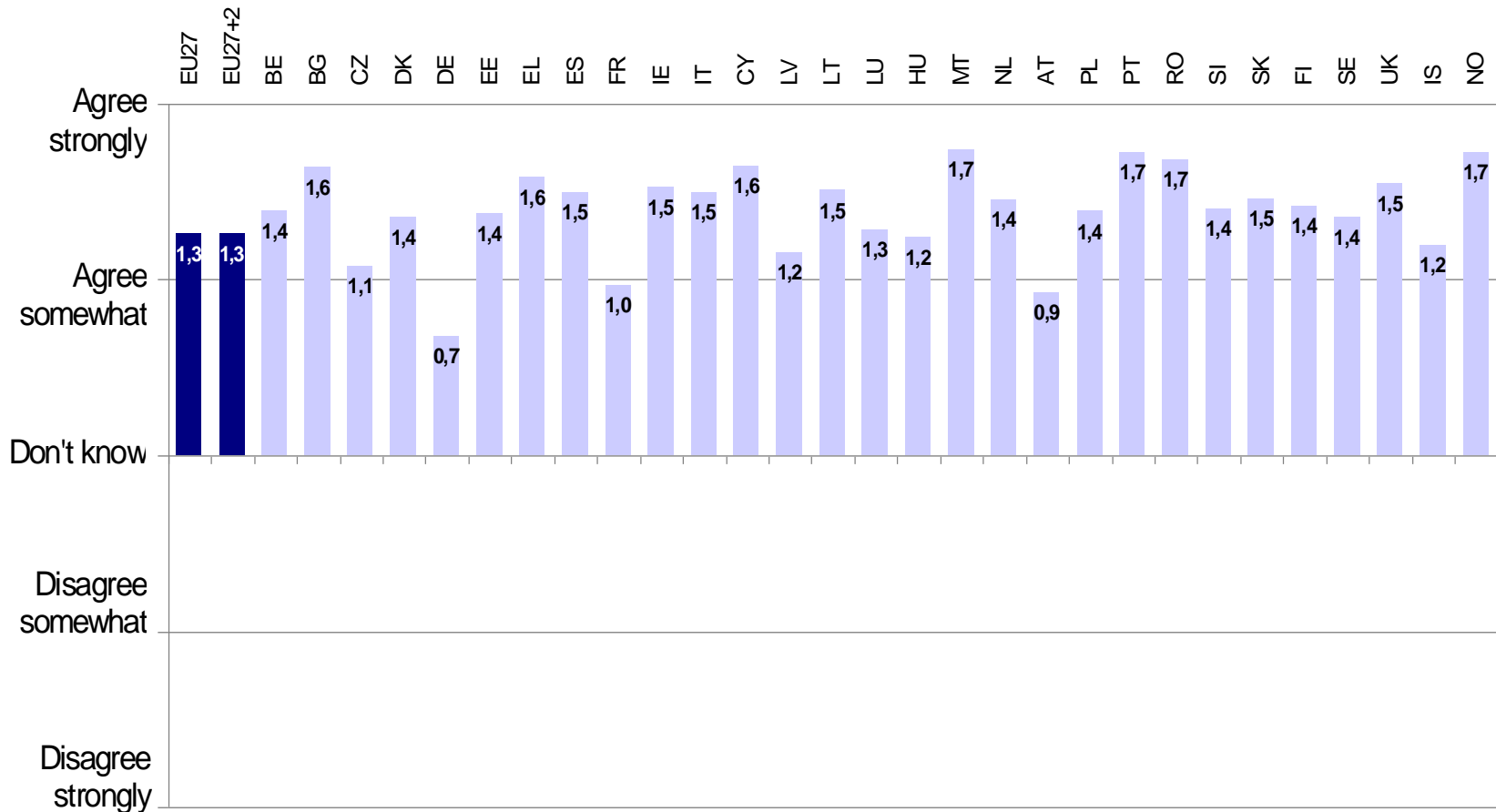
GP perception of ICT use in healthcare

GPs perception of eHealth Impacts 1
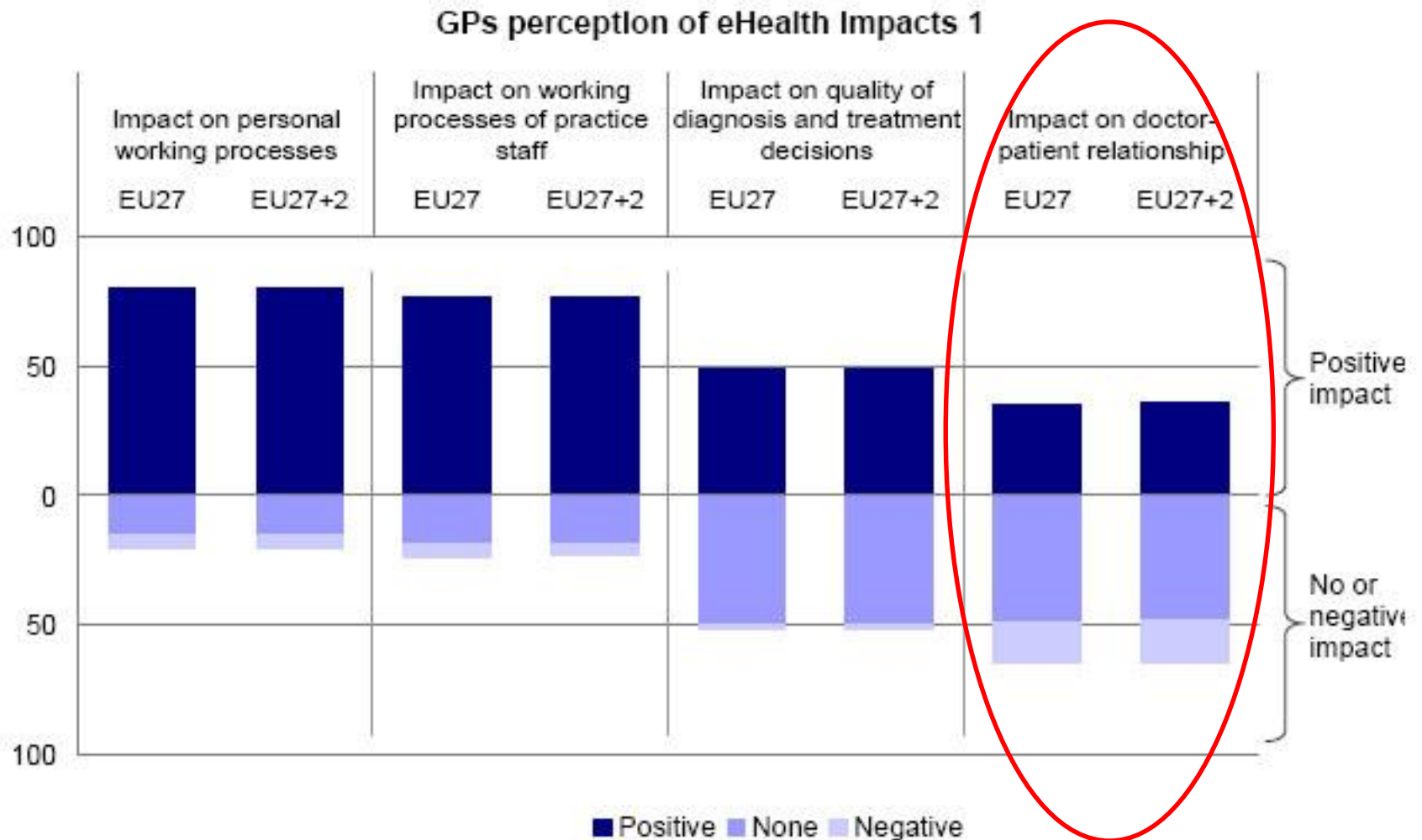
Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GPs' access to computer in practices (in %, EU countries 2007)

Using computers

Random samples of 6,789 GPs in 29 countries

Values (left to right): EU27 87, EU27+2 87, EE 100, HU 100, FI 100, SE 100, IS 99, RO 99, DE 99, NL 99, NO 98, UK 97, SI 97, BG 97, SK 96, LV 88, PT 88, IT 86, BE 86, AT 84, FR 83, CZ 82, LU 80, EL 79, ES 77, IE 73, PL 72, CY 69, RO 66, MT 65, LT 57

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008
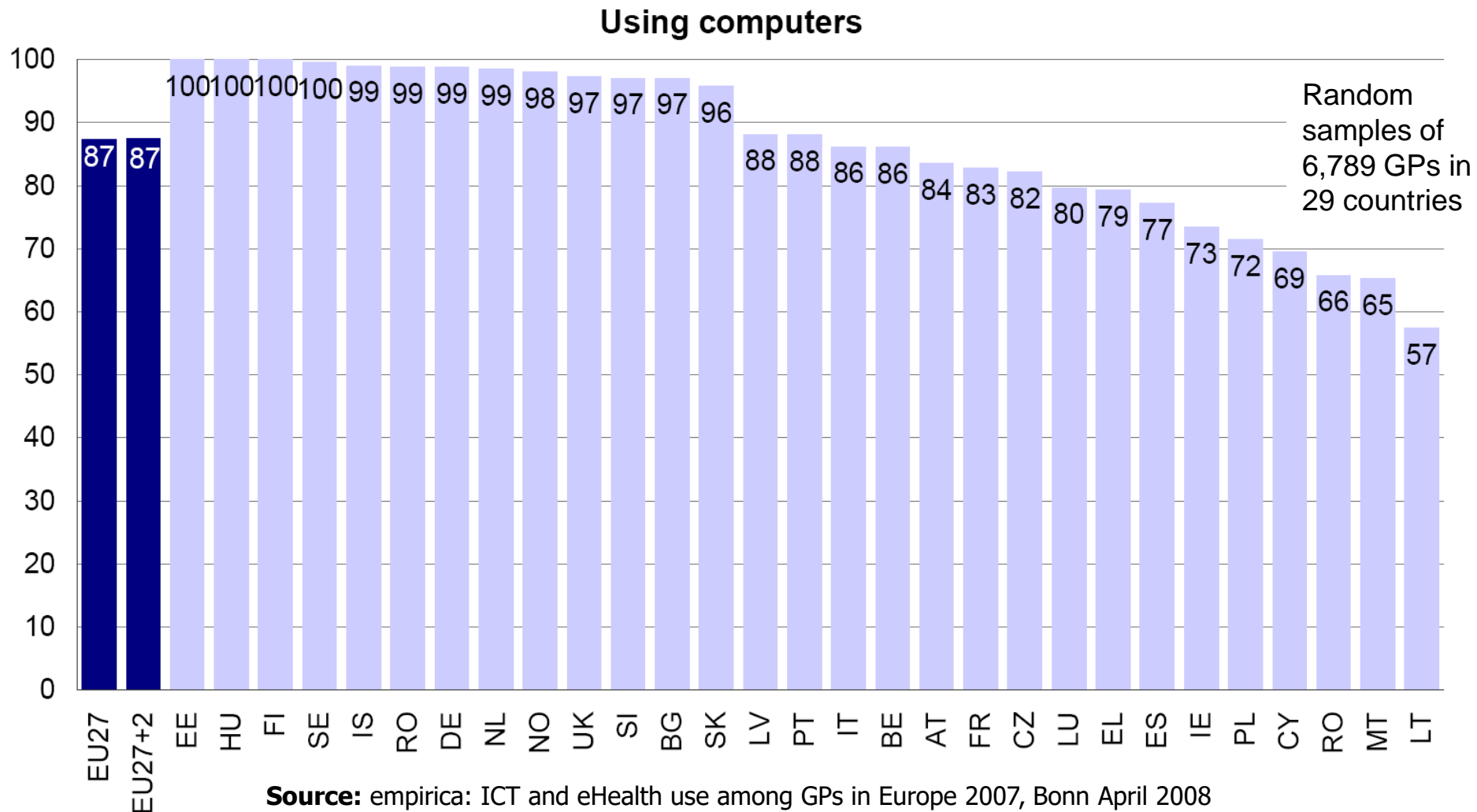
GPs' access to internet in practices (in %, EU countries 2007)

Internet access

Random samples of 6,789 GPs in 29 countries

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008
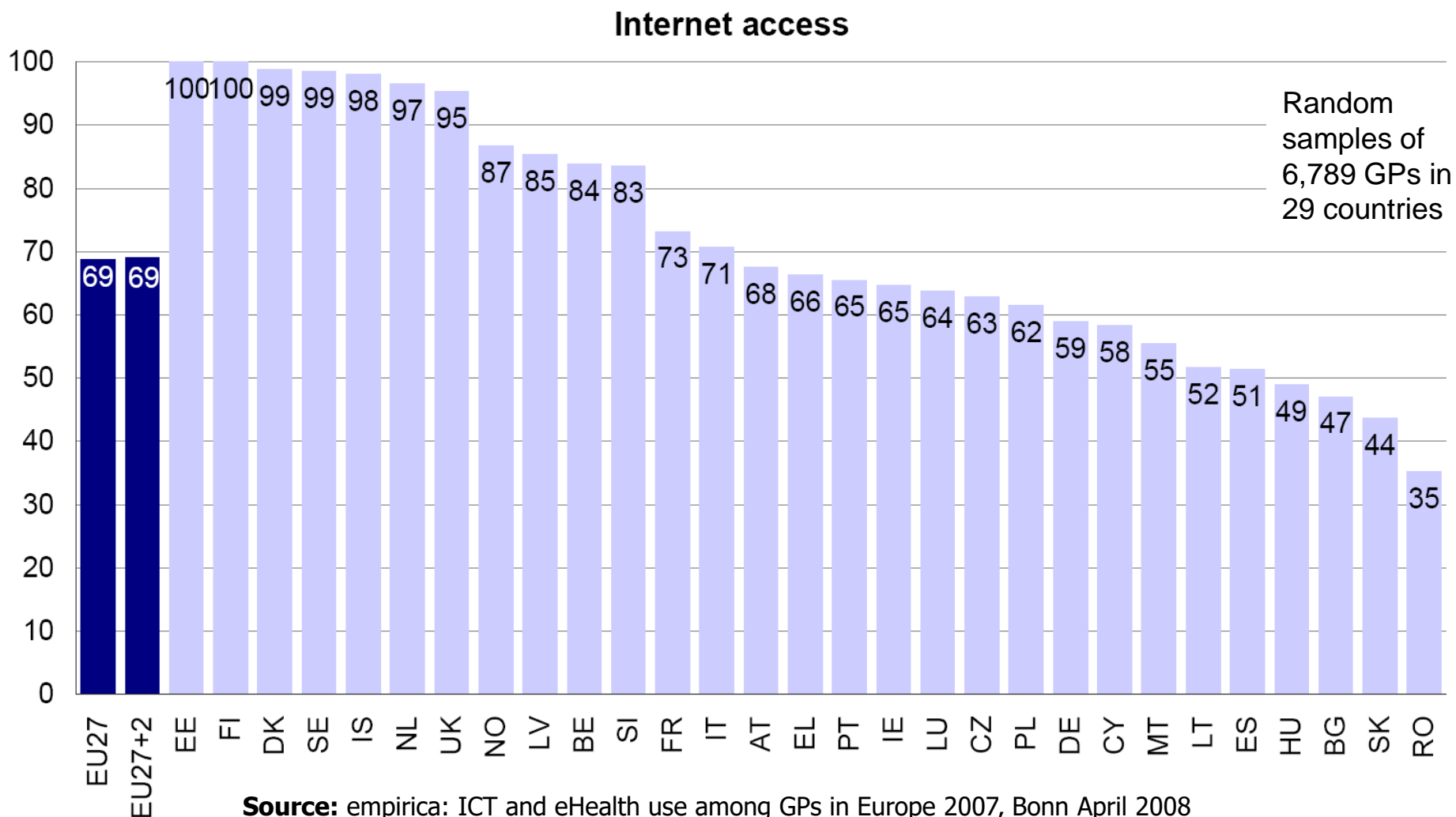
GPs' access to broadband in practices (in %, EU countries 2007)

Access to broadband in practices
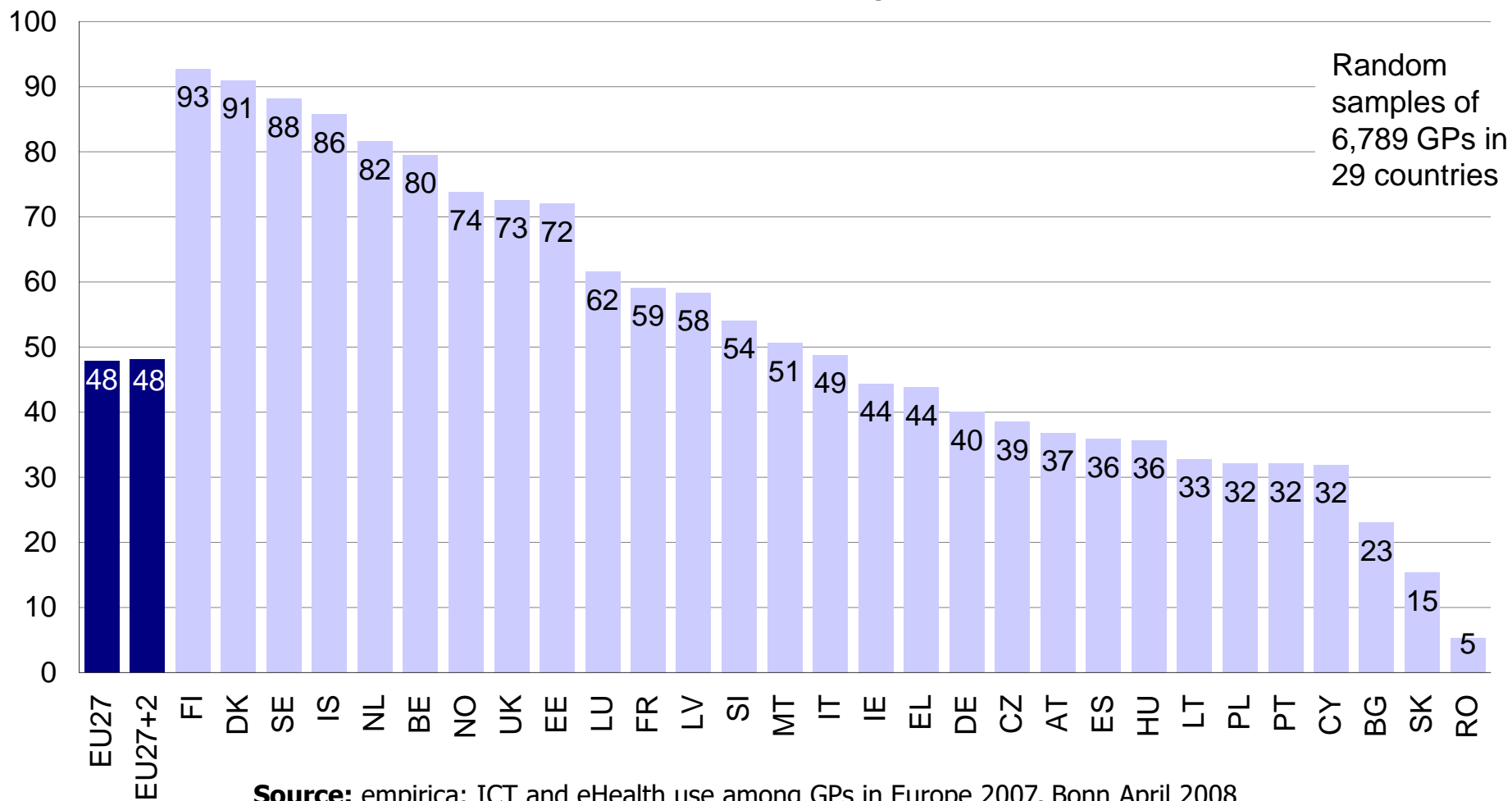
Random samples of 6,789 GPs in 29 countries

EU27	EU27+2	FI	DK	SE	IS	NL	BE	NO	UK	EE	LU	FR	LV	SI	MT	IT	IE	EL	DE	CZ	AT	ES	HU	LT	PL	PT	CY	BG	SK	RO
48	48	93	91	88	86	82	80	74	73	72	62	59	58	54	51	49	44	44	40	39	37	36	36	33	32	32	32	23	15	5

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

IT use by GPs: storage of administrative patient data (in %, EU 2007)

Electronic storage of administrative patient data

Random samples of 6,789 GPs in 29 countries

EU27	EU27+2	HU	FI	IS	NO	EE	NL	DK	SE	UK	BG	DE	SK	SI	IT	BE	AT	FR	PT	LU	ES	CZ	IE	CY	PL	MT	EL	RO	LT	LV
80	80	100	100	99	98	98	97	97	96	95	94	93	90	86	84	84	80	74	74	70	68	67	64	57	54	50	49	47	38	26

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008
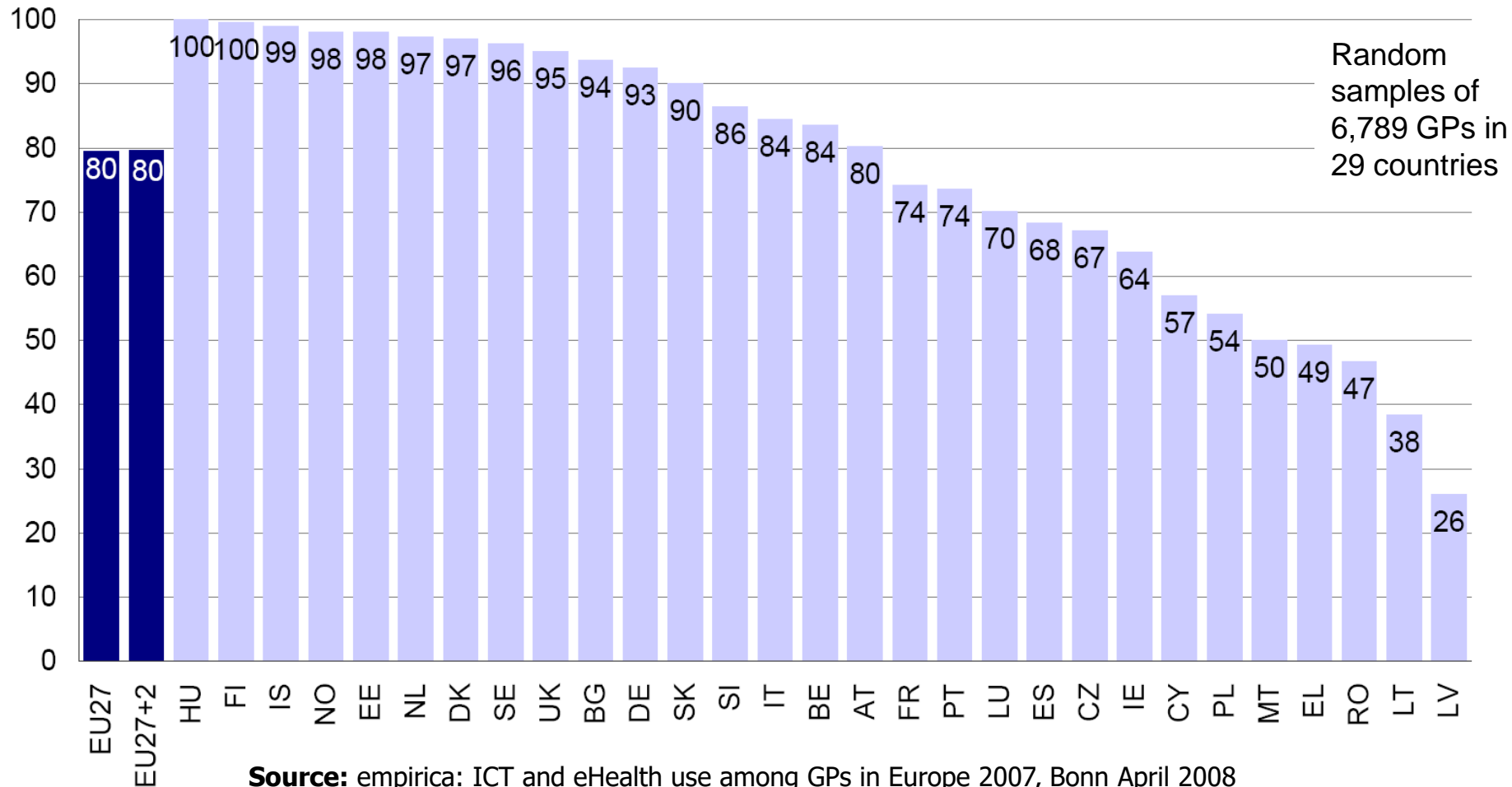
IT use by GPs: storage of medical patient data (in %, EU 2007)

Store of identifiable patient data
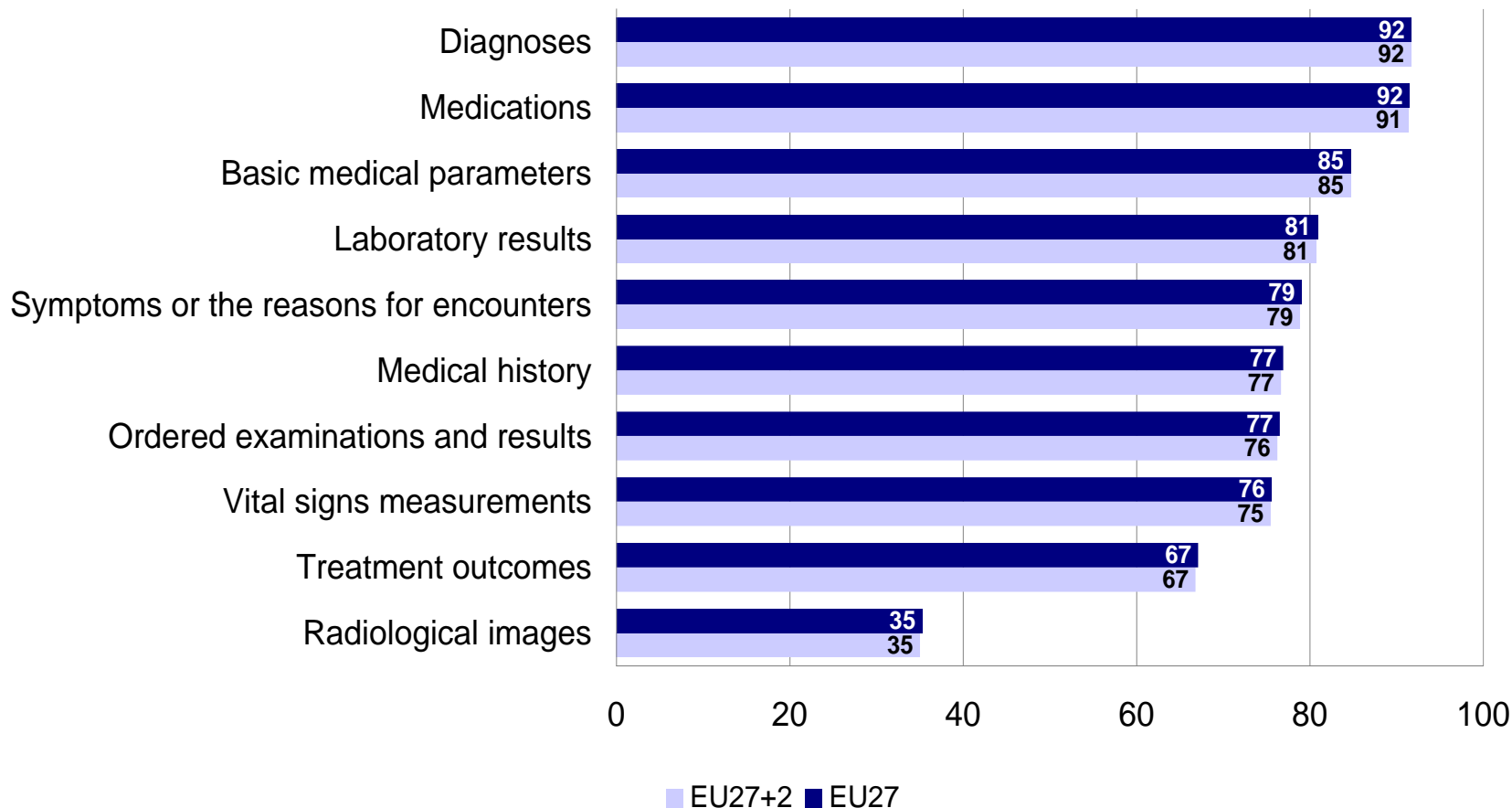
Category	EU27	EU27+2
Diagnoses	92	92
Medications	92	91
Basic medical parameters	85	85
Laboratory results	81	81
Symptoms or the reasons for encounters	79	79
Medical history	77	77
Ordered examinations and results	77	76
Vital signs measurements	76	75
Treatment outcomes	67	67
Radiological images	35	35

Legend: ■ EU27+2 ■ EU27

GPs routinely using a computer during consultation (in %, EU countries 2007)

100%

66%

3%

Random samples of 6,789 GPs in 29 countries

Values by country: FI 100, UK 95, EE 94, NL 94, NO 93, DK 92, IS 84, IT 81, BG 77, BE 76, SK 73, FR 72, DE 72, ES 66, EU27 66, HU 65, PT 64, CZ 59, LU 59, IE 56, AT 54, SE 47, CY 32, MT 27, RO 21, EL 20, SI 18, PL 11, LT 8, LV 3
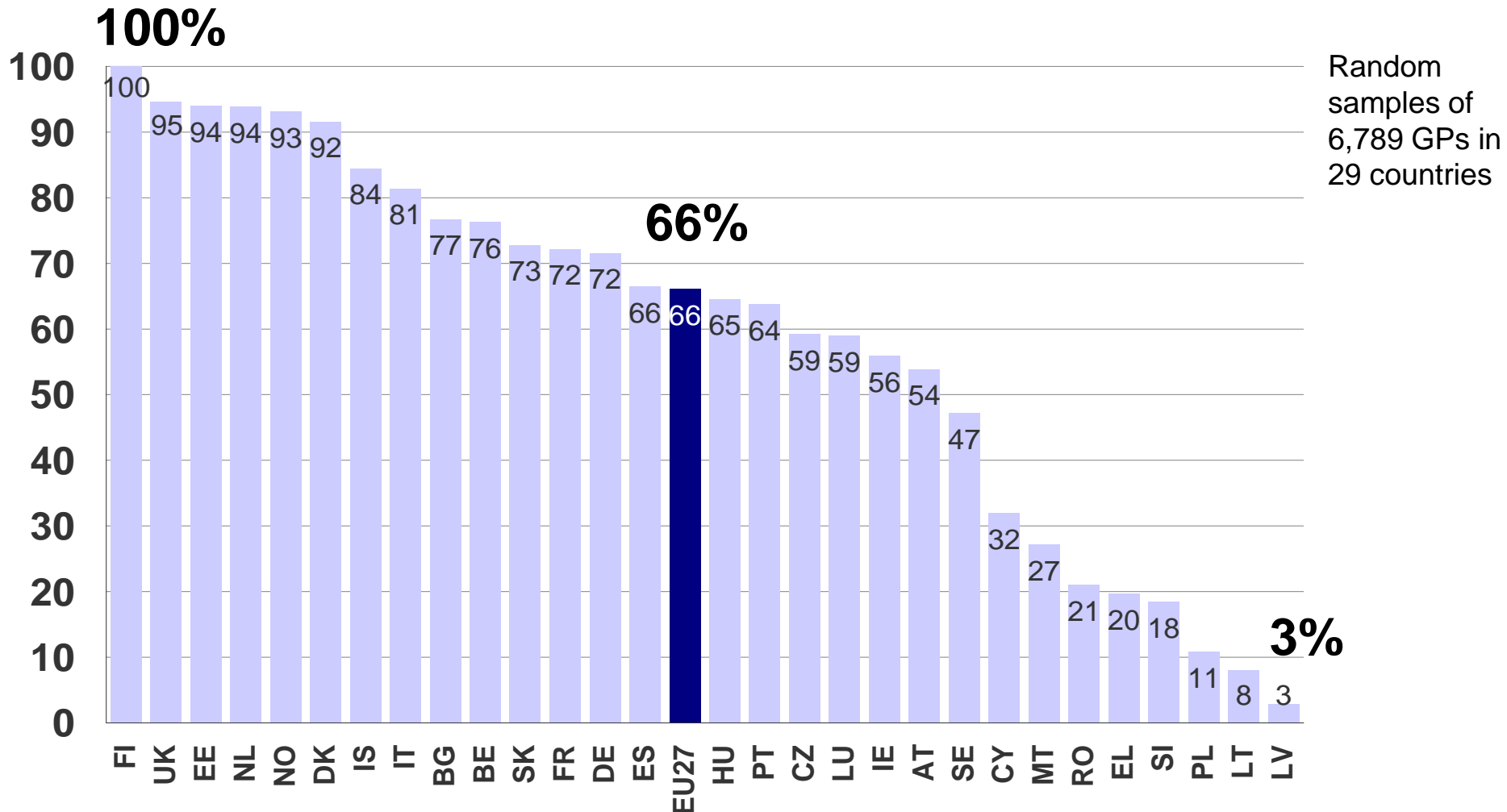
Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

Towards eHealth Deployment: Step 2
Connecting providers: Messaging, EMR, HP tools, on line services

Pharmacy

GP

Hospital

Emergency

Health Centre

mobile PC

Secure Networks

Mobile, Wireless & Broadband

Region 3

Region 2

Region 1

Home

Mobility

GP connectivity: to other GPs (in %, 2007)

Access to electronic systems of other health actors: GPs
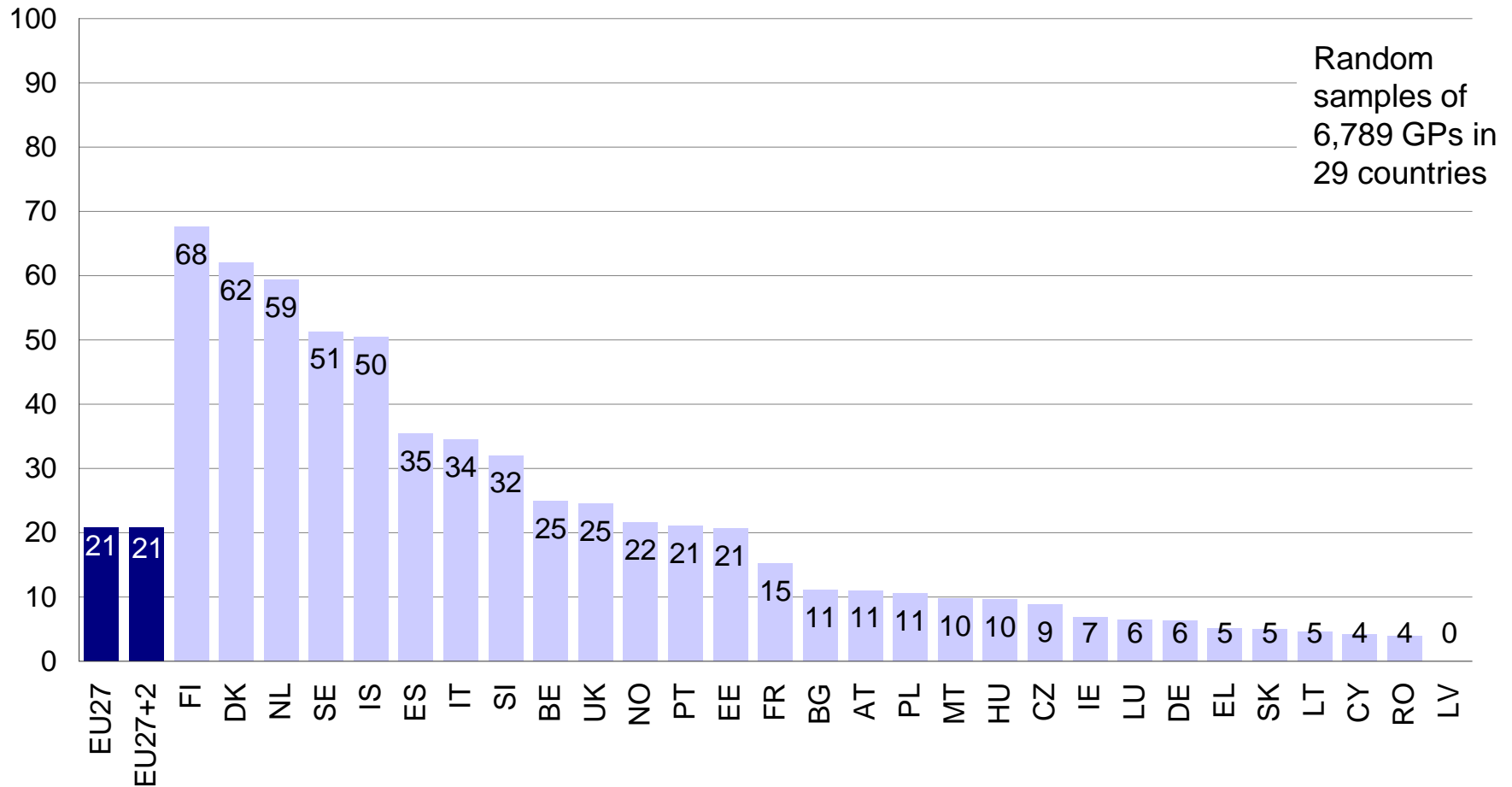
Random samples of 6,789 GPs in 29 countries

Country	Value
EU27	21
EU27+2	21
FI	68
DK	62
NL	59
SE	51
IS	50
ES	35
IT	34
SI	32
BE	25
UK	25
NO	22
PT	21
EE	21
FR	15
BG	11
AT	11
PL	11
MT	10
HU	10
CZ	9
IE	7
LU	6
DE	6
EL	5
SK	5
LT	5
CY	4
RO	4
LV	0

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GP connectivity: to specialists (in %, 2007)
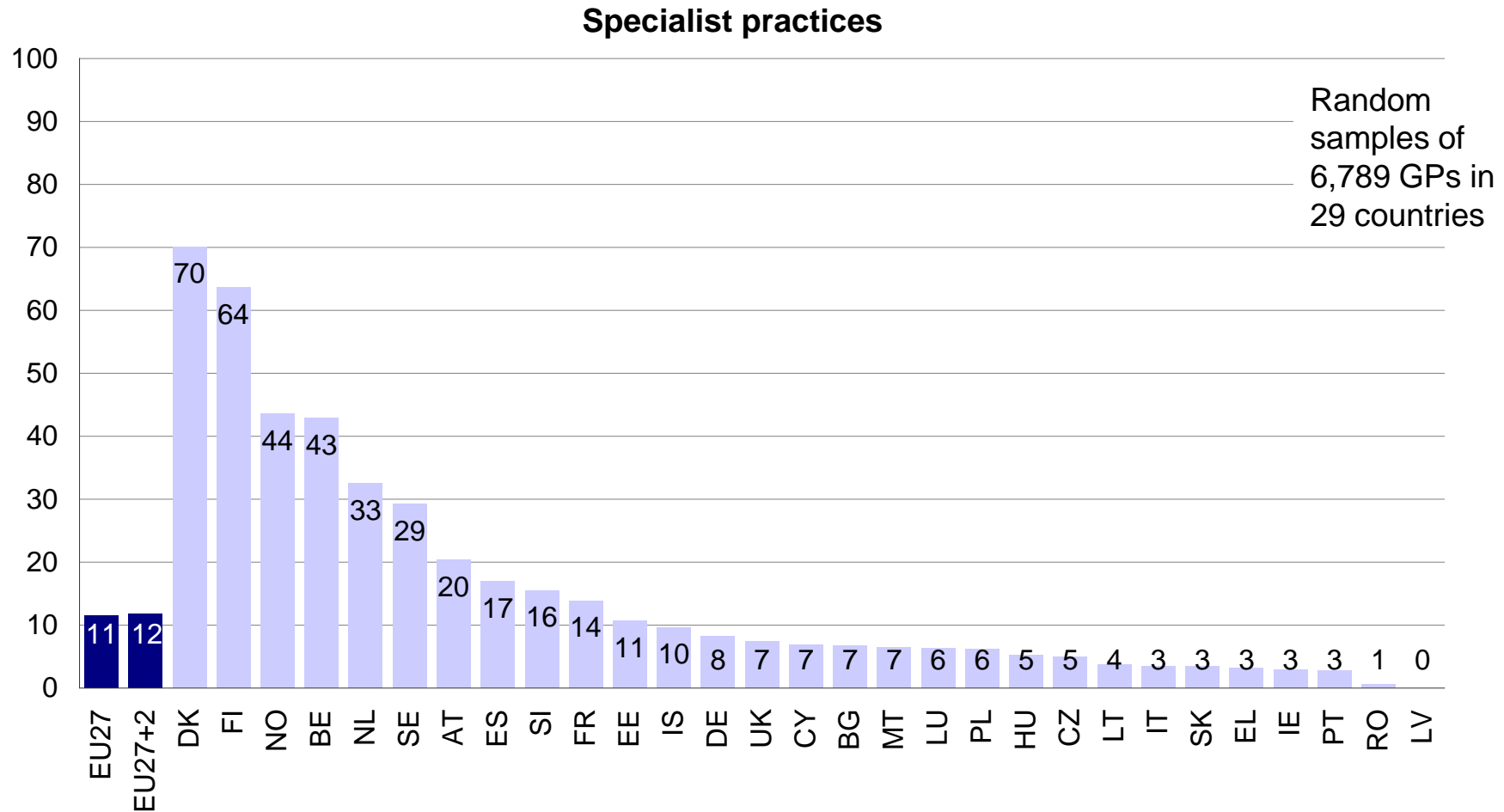
Specialist practices

Random samples of 6,789 GPs in 29 countries

Country	Value
EU27	11
EU27+2	12
DK	70
FI	64
NO	44
BE	43
NL	33
SE	29
AT	20
ES	17
SI	16
FR	14
EE	11
IS	10
DE	8
UK	7
CY	7
BG	7
MT	7
LU	6
PL	6
HU	5
CZ	5
LT	4
IT	3
SK	3
EL	3
IE	3
PT	3
RO	1
LV	0

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GP connectivity: to hospitals (in %, 2007)
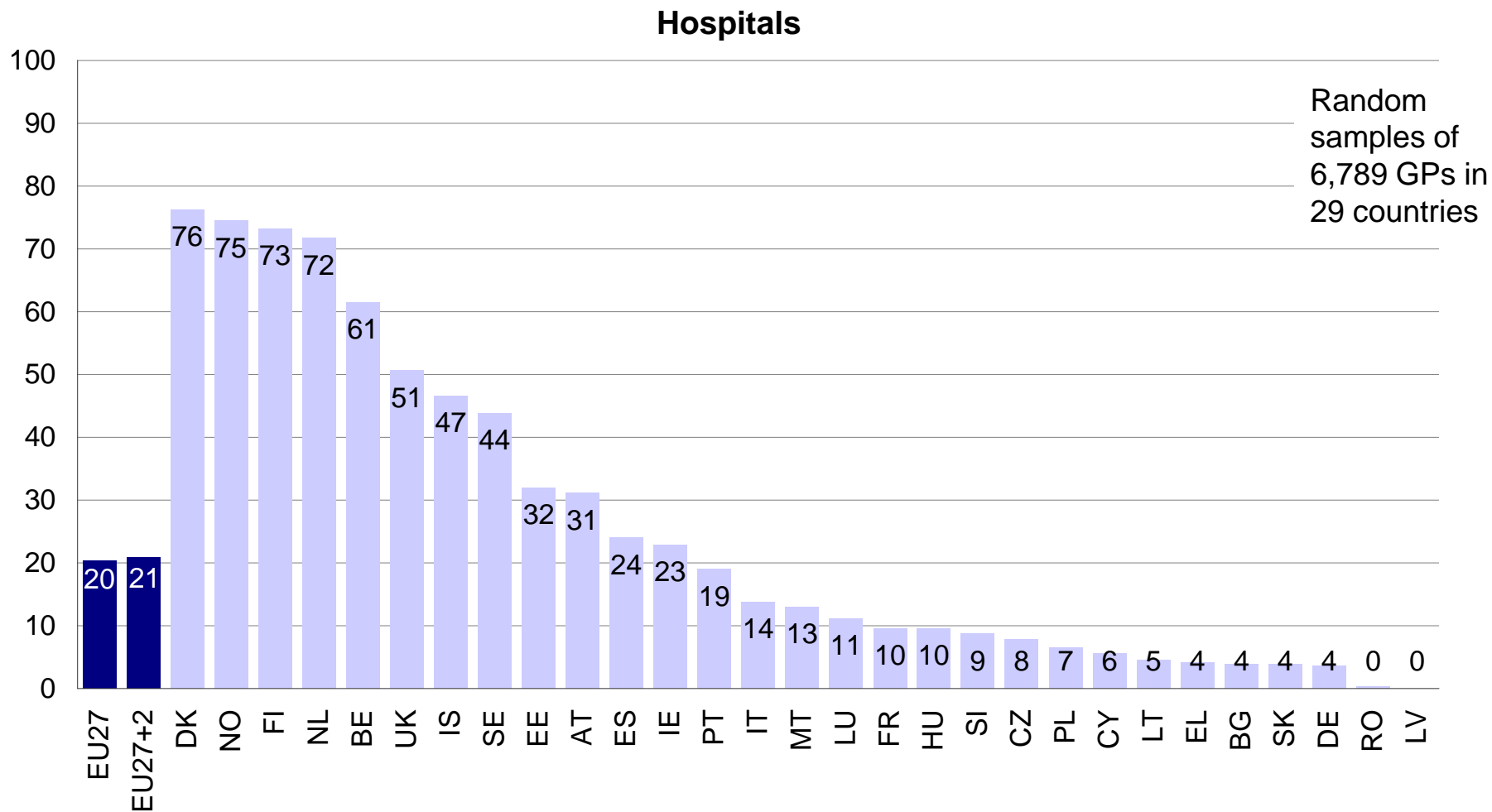
Hospitals

Random samples of 6,789 GPs in 29 countries

Country	Value
EU27	20
EU27+2	21
DK	76
NO	75
FI	73
NL	72
BE	61
UK	51
IS	47
SE	44
EE	32
AT	31
ES	24
IE	23
PT	19
IT	14
MT	13
LU	11
FR	10
HU	10
SI	9
CZ	8
PL	7
CY	6
LT	5
EL	4
BG	4
SK	4
DE	4
RO	0
LV	0

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GP connectivity: to health authorities (in %, 2007)
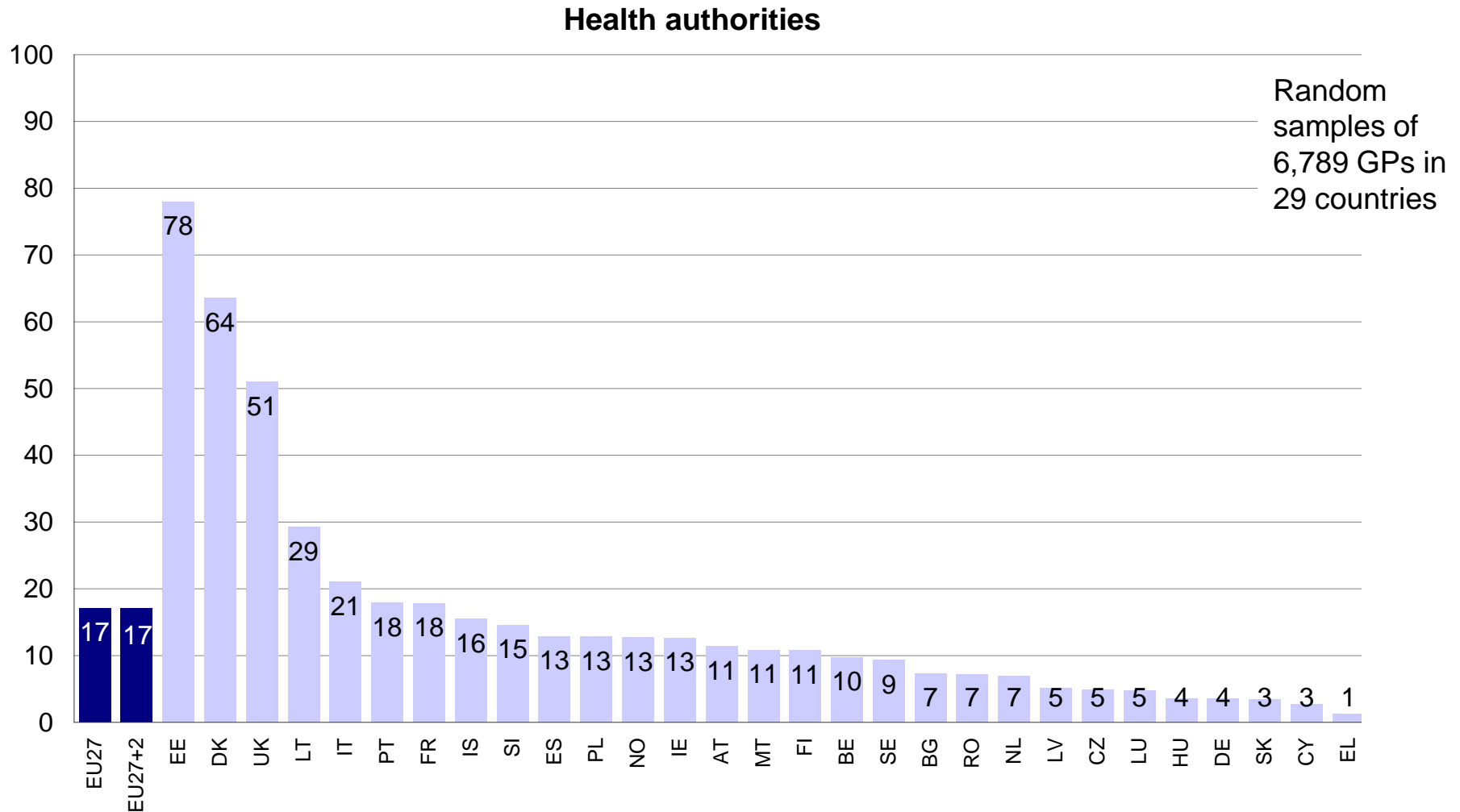
Health authorities

Random samples of 6,789 GPs in 29 countries

Country	Value
EU27	17
EU27+2	17
EE	78
DK	64
UK	51
LT	29
IT	21
PT	18
FR	18
IS	16
SI	15
ES	13
PL	13
NO	13
IE	13
AT	11
MT	11
FI	11
BE	10
SE	9
BG	7
RO	7
NL	7
LV	5
CZ	5
LU	5
HU	4
DE	4
SK	3
CY	3
EL	1

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GP connectivity: to insurers/ reimbursers (in %, 2007)
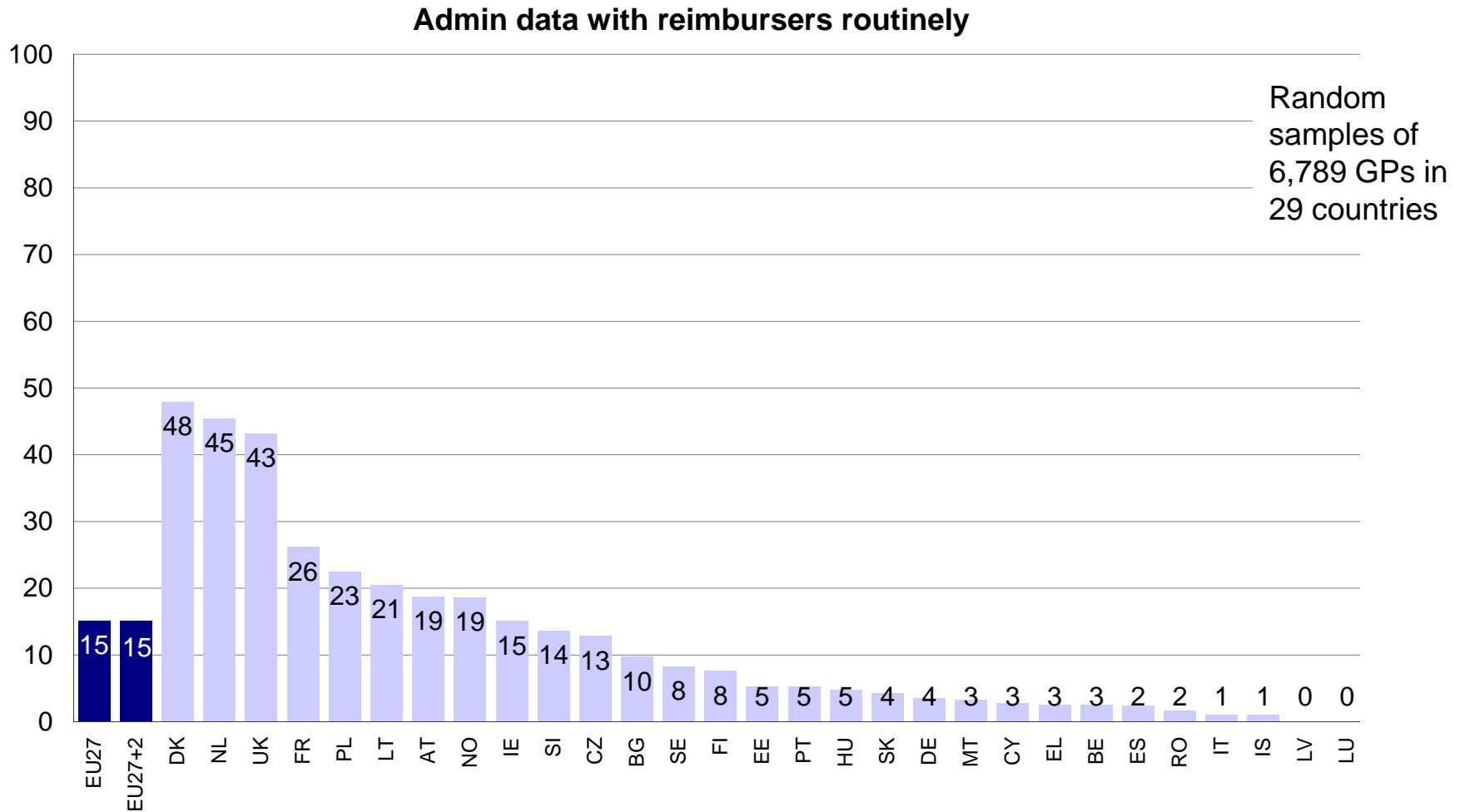
Admin data with reimbursers routinely

Random samples of 6,789 GPs in 29 countries

EU27	EU27+2	DK	NL	UK	FR	PL	LT	AT	NO	IE	SI	CZ	BG	SE	FI	EE	PT	HU	SK	DE	MT	CY	EL	BE	ES	RO	IT	IS	LV	LU
15	15	48	45	43	26	23	21	19	19	15	14	13	10	8	8	5	5	5	4	4	3	3	3	3	2	2	1	1	0	0

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GPs: Electronic exchange of patient data by purpose (in %, EU 2007)
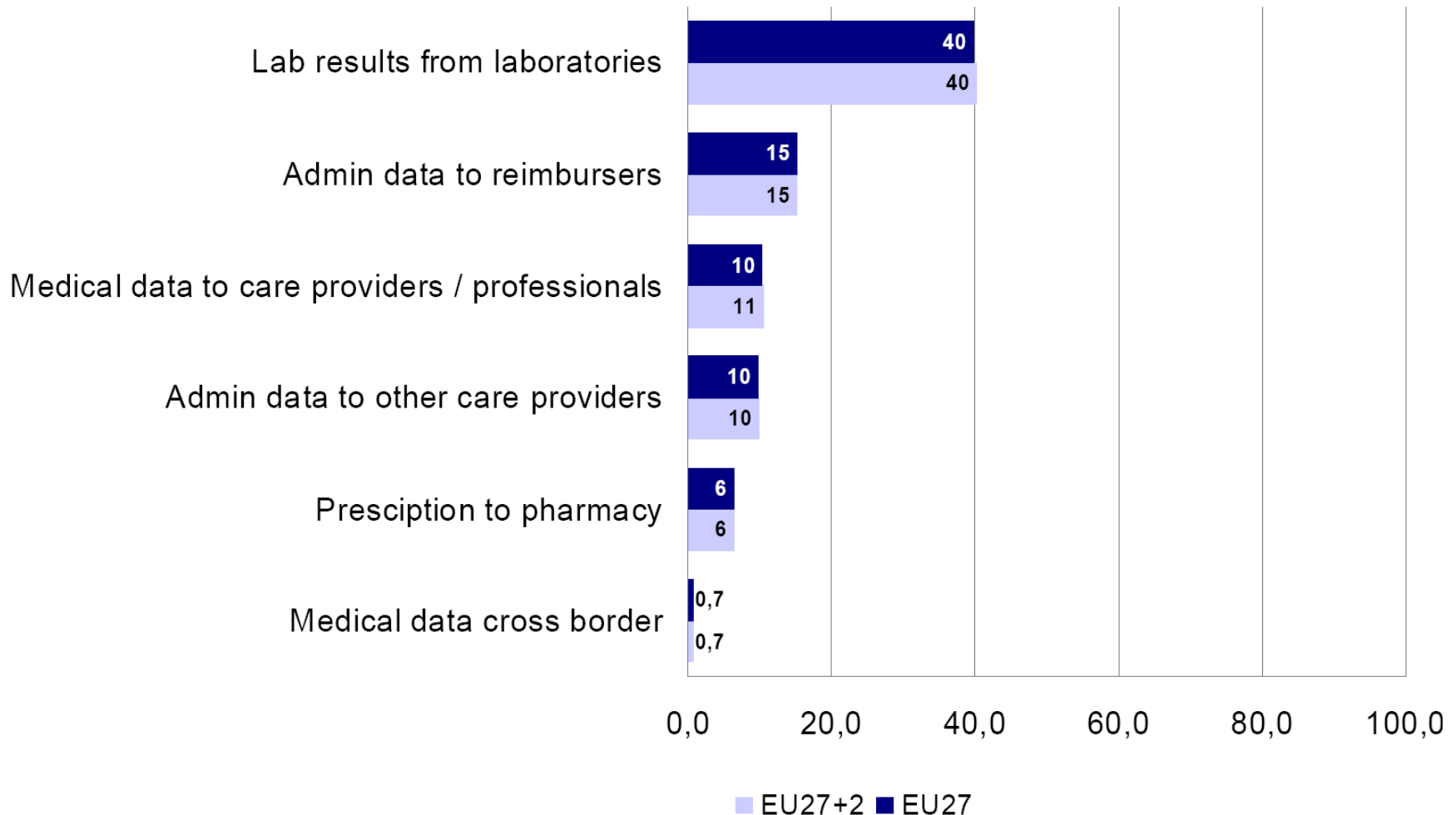
Purpose	EU27	EU27+2
Lab results from laboratories	40	40
Admin data to reimbursers	15	15
Medical data to care providers / professionals	10	11
Admin data to other care providers	10	10
Presciption to pharmacy	6	6
Medical data cross border	0,7	0,7

EU27+2 ■ EU27

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

GPs: Electronic exchange of patient data by purpose (selected countries in %)

	Lab results from laboratories	Admin data to reimbursers	Medical data to care providers / professionals	Admin data to other care providers	Prescription to pharmacies	Medical data cross border
EU27	40	15	10	10	6	1
BE	73	3	13	13	2	1
BG	5	10	3	6	2	1
DE	63	4	4	3	0	0
DK	96	48	74	74	97	2
EE	39	5	1	1	1	0
NL	84	45	26	28	71	5
FI	90	8	55	21	0	0
SE	82	8	13	16	81	1
UK	85	43	26	32	5	0

Receive lab results routinely

EU27	40	
EU27+2	40	
DK	96	
FI	90	
NO	88	
UK	85	
NL	84	
SE	82	
BE	73	
DE	63	
IS	52	
IE	40	
EE	39	
AT	37	
FR	33	
ES	30	
LU	27	
CZ	25	
HU	12	
MT	11	
PL	10	
CY	10	
SI	10	
LT	8	
IT	8	
BG	5	
SK	5	
RO	4	
EL	3	
PT	1	
LV	1	

Admin data with reimbursers routinely

EU27	15
EU27+2	15
DK	48
NL	45
UK	43
FR	26
PL	23
LT	21
AT	19
NO	19
IE	15
SI	14
CZ	13
BG	10
SE	8
FI	8
EE	5
PT	5
HU	5
SK	4
DE	4
MT	3
CY	3
EL	3
BE	3
ES	2
RO	2
IT	1
IS	1
LV	0
LU	0
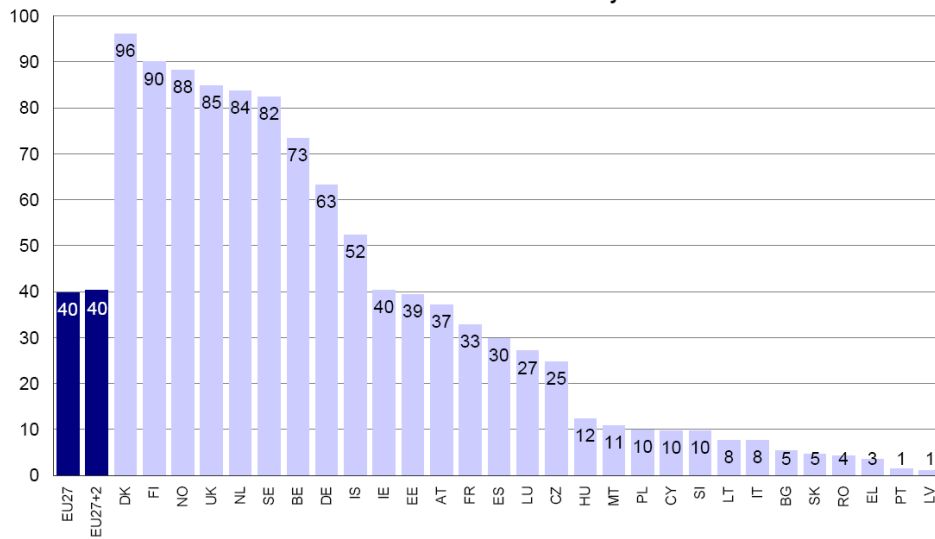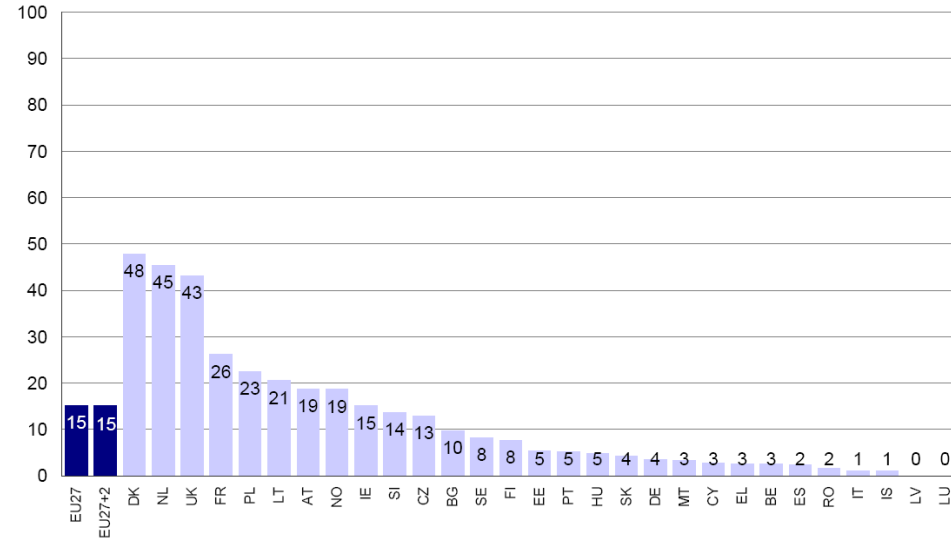
Admin data with other care providers routinely

EU27	10
EU27+2	10
DK	74
UK	32
NL	28
NO	25
FI	21
SE	16
BE	13
IS	12
LT	10
AT	7
MT	7
PT	6
PL	6
RO	6
CZ	6
BG	6
ES	6
EL	4
IE	4
FR	4
DE	3
SI	3
CY	3
IT	3
SK	2
EE	1
HU	1
LV	0
LU	0
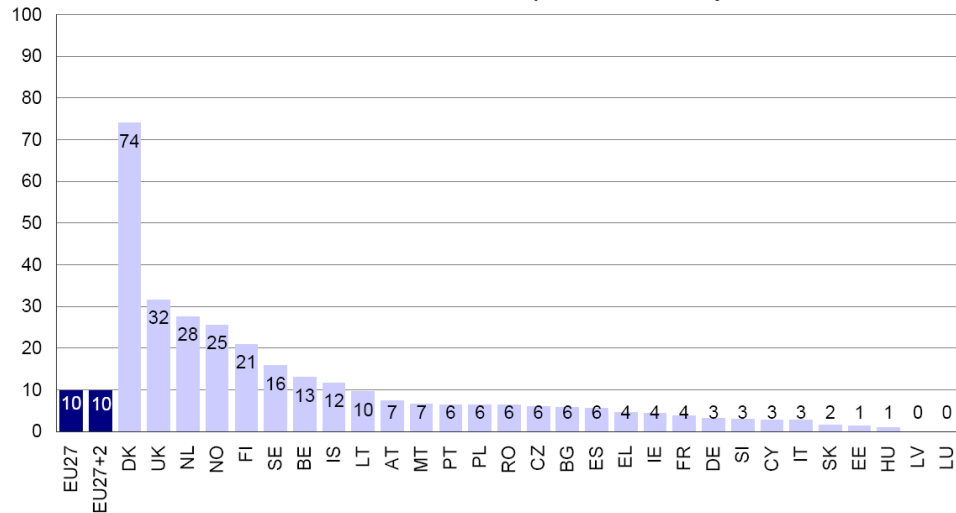
Medical data with care providers / professionals routinely

EU27	10
EU27+2	11
DK	74
FI	55
NO	35
UK	26
NL	26
IS	17
SE	13
BE	13
ES	13
AT	12
PT	8
IT	7
MT	7
CZ	6
FR	5
EL	4
DE	4
BG	3
CY	3
LT	3
HU	2
PL	2
RO	2
IE	2
EE	1
SK	1
LV	0
LU	0
SI	0

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008
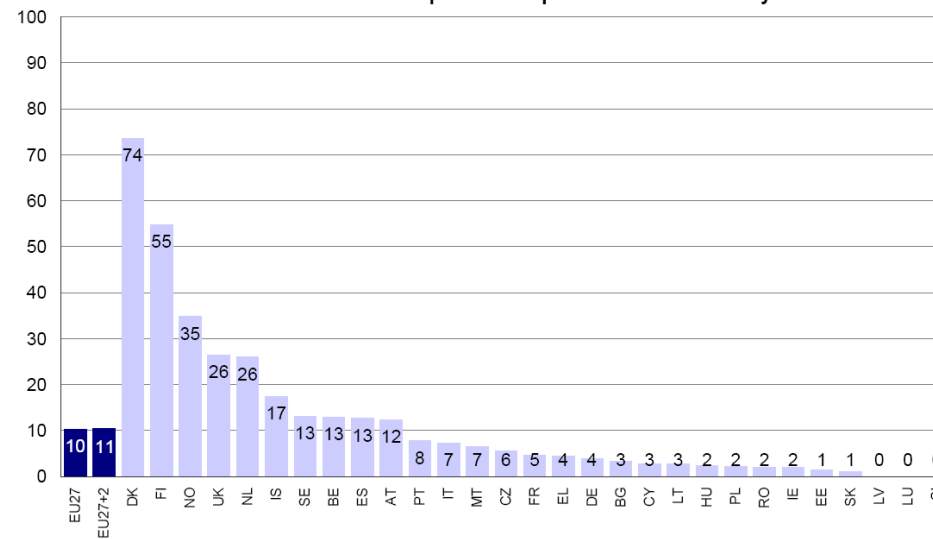
Random samples of 6,789 GPs in 29 countries

Readiness – use gap (example in %, 2007)

Readiness-Use Gap: Internet connection vs. transfer of medical data to other carers

Legend: ■ Electronic patient data transfer: Medical data to other carers □ Gap: Internet connection available

Data labels (Gap values): EU27 59, EU27+2 58, EE 99, SE 85, LV 85, SI 83, IS 81, BE 71, NL 71, UK 69, FR 69, LU 64, IT 63, IE 63, EL 62, PL 59, PT 58, CZ 57, CY 56, AT 55, DE 55, NO 52, LT 49, MT 49, HU 47, FI 45, BG 44, SK 43, ES 39, RO 33, DK 25
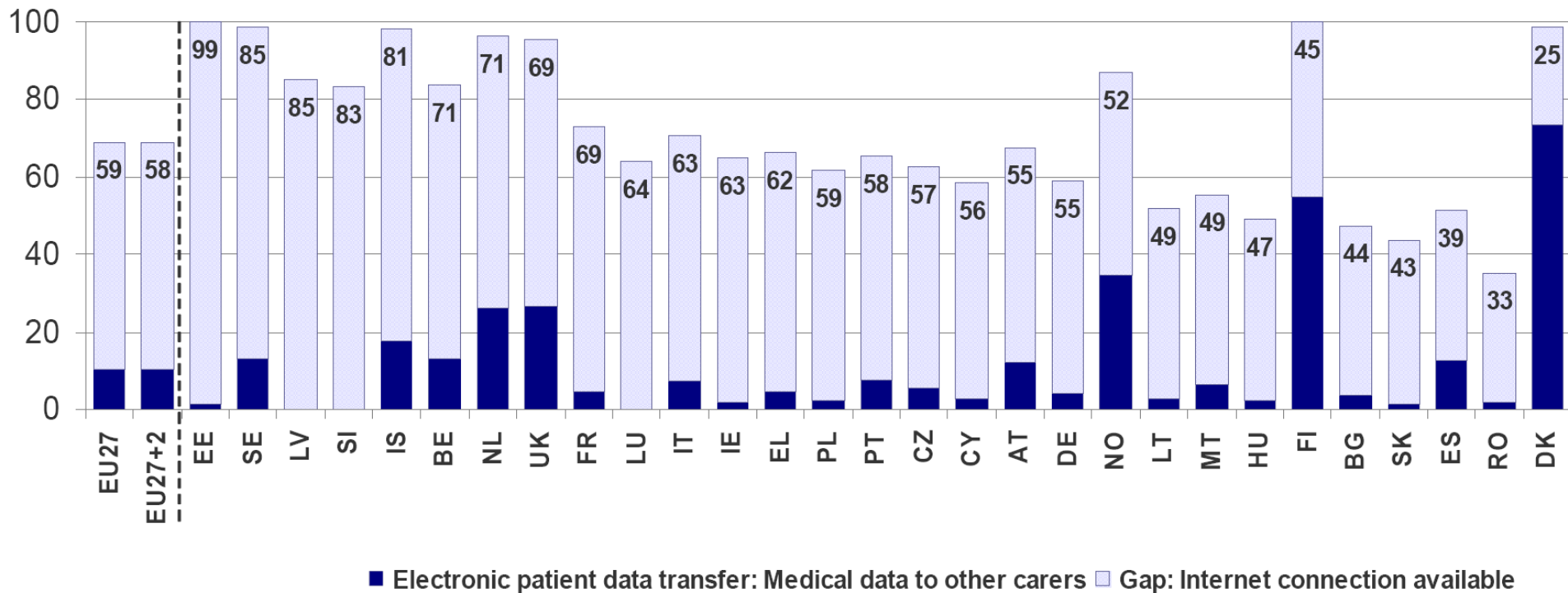
GPs: ePrescribing (in %, 2007)
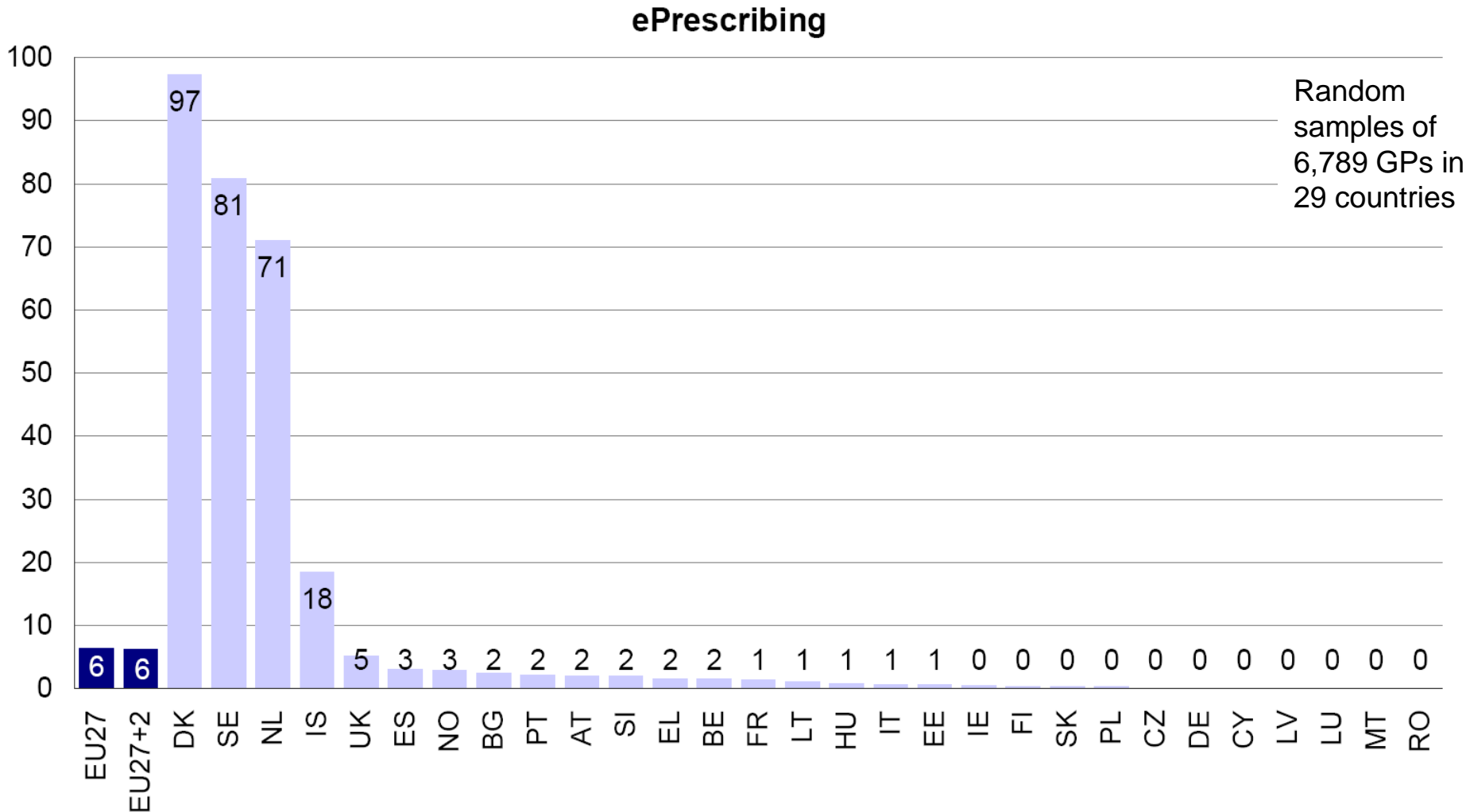
ePrescribing

Random samples of 6,789 GPs in 29 countries

EU27	EU27+2	DK	SE	NL	IS	UK	ES	NO	BG	PT	AT	SI	EL	BE	FR	LT	HU	IT	EE	IE	FI	SK	PL	CZ	DE	CY	LV	LU	MT	RO
6	6	97	81	71	18	5	3	3	2	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0

Country	Electronic storage of patient data		Computer use in consultation		Electronic transfer of patient data				
	Electronic storage of individual administrative patient data	Electronic storage of individual medical patient data	Use of a computer during consultation with the patient	Use of a Decision Support System (DSS)	Transfer of lab results from the laboratory	Transfer of administrative patient data to reimbursers or other care providers	Transfer of medical patient data to other care providers or professionals	e-Prescription (transfer of prescription to pharmacy)	Average index score
EU27	4.0	3.7	3.3	2.3	2.0	0.6	0.5	0.3	2.1
EU27+2	4.0	3.7	3.3	2.3	2.0	0.6	0.5	0.3	2.1
DK	4.8	4.8	4.6	3.8	4.8	3.0	3.7	4.9	4.3
NL	4.9	4.5	4.7	3.7	4.2	1.8	1.3	3.5	3.6
FI	5.0	4.7	5.0	4.3	4.5	0.7	2.7	0.0	3.4
SE	4.8	4.1	2.4	4.1	4.1	0.6	0.7	4.0	3.1
UK	4.8	4.3	4.7	3.1	4.2	1.9	1.3	0.3	3.1
BE	4.2	4.3	3.8	2.5	3.7	0.4	0.6	0.1	2.4
DE	4.6	3.2	3.6	3.2	3.2	0.2	0.2	0.0	2.3
EE	4.9	3.0	4.7	3.6	2.0	0.2	0.1	0.0	2.3
HU	5.0	4.6	3.2	3.8	0.6	0.1	0.1	0.0	2.2

„Frontrunners"

„Followers"

32

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

Denmark Leads the Way In eHealth: An Example of High Performance

- 98% of primary care physicians totally electronic health records and e-prescribing

- Paid for e-mail with patients

- All prescriptions, lab and imaging tests, specialist consult reports, hospital discharge letters flow through a single electronic portal accessible to patients, physicians, and home health nurses

- Specialist payment depends upon filing information in the electronic portal

MedCom -The Danish Health Data Network
Messages/Month

GP´s with EDI : 2120 = 100 %

Specialists with EDI: 765 = 94 %

Hospitals with EDI : 63 = 100%

Pharmacies with EDI: 322 = 100 %

Doctors on Call: 5 = 100 %

Health Insurance : 5 = 100 %

102 messages/min

Prescriptions ●
1389023 = 84%

Disch . Letters ▼
1131750 = 94 %

Lab. reports ▲
988151 = 99 %

Lab Requests
349840 = 85 %

Referrals △
177525 = 65 %

Reimbursement
21049 = 99 %

Source: I. Johansen, Presentation to the International Society for Quality in Health Care,
25th International Conference, October 19-22, 2008.

But even frontrunners can do better: comparing the application of Health IT in primary care in Denmark and Andalucía/Spain

- "… Particulary notable is the reality that the Danish primary care physicians office have "**Electronic Medical Records**" while in Andalucía, the primary care physicians share a common record which, when secondary care is fully integrated, will indeed be an "**Electronic Health Record** …"

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journal homepage: www.intl.elsevierhealth.com/journals/ijmi

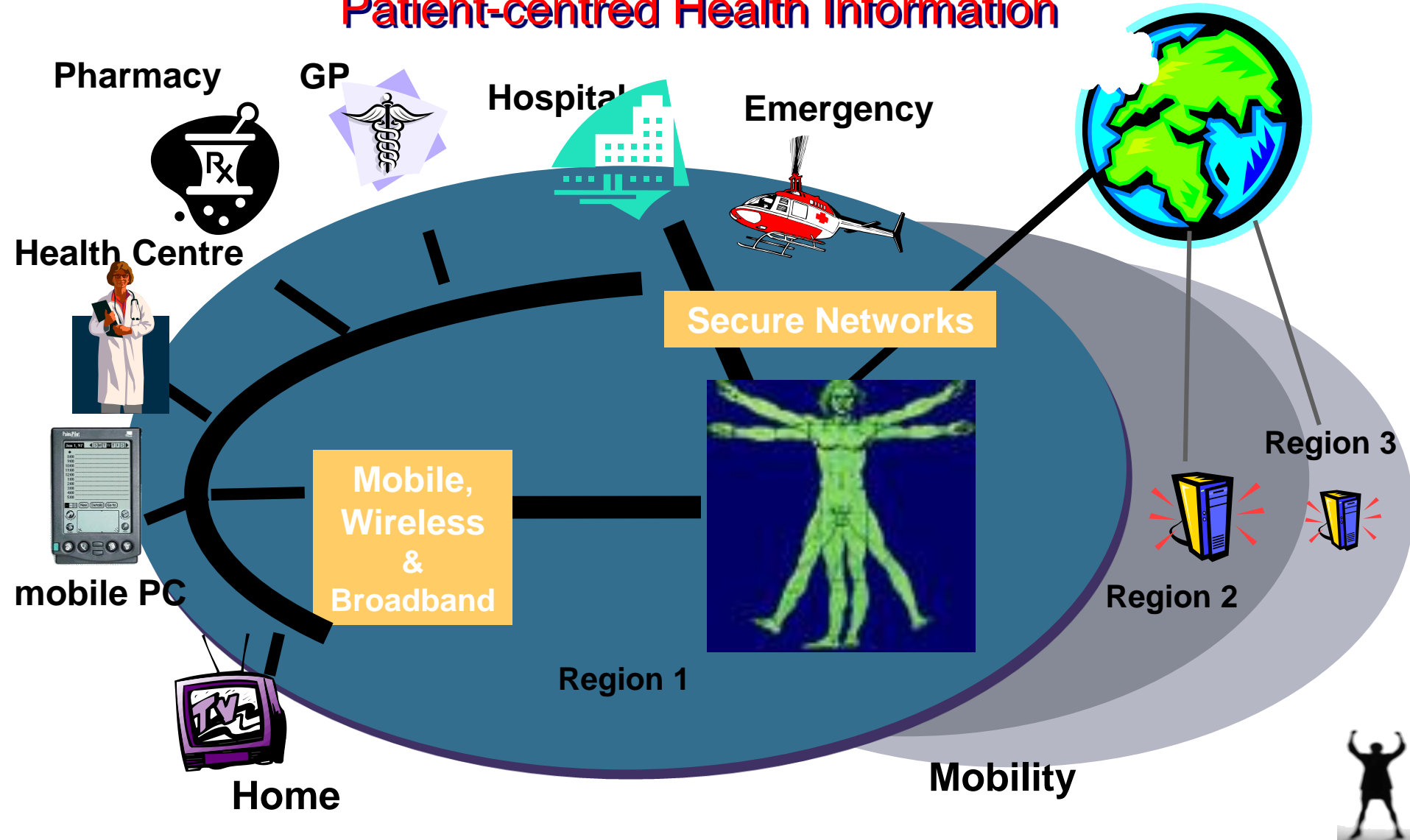**Comparing the application of Health Information Technology in primary care in Denmark and Andalucía, Spain**

Denis Protti [a,*], Ib Johansen [b], Francisco Perez-Torres [c]

[a] Health Informatics, University of Victoria, British Columbia, Canada
[b] MedCom, Denmark
[c] Andalusian Health Service, Spain

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ABSTRACT

Background: It is generally acknowledged that Denmark is one, if not the, leading country in terms of the use of information technology by its primary care physicians. Other countries, notably excluding the United States and Canada, are also advanced in terms of electronic medical records in general practitioner offices and clinics.
Purpose: This paper compares the status of primary care physician office computing in Andalucía to that of Denmark by contrasting the functionality of electronic medical records (EMRs) and the ability to electronically communicate clinical information in both jurisdictions.
Methods: A novel scoring system has been developed based on data gathered from databases held by the respective jurisdictional programs, and interviews with individuals involved in the deployment of the systems. The scoring methodology was applied for the first time in a comparison of the degree of automation in primary care physician offices in Denmark and the province of Alberta in Canada. It was also used to compare Denmark and New Zealand. This paper is the third offering of this method of scoring the adoption of electronic medical records in primary care office settings which hopefully may be applicable to other health jurisdictions at national, state, or provincial levels.
Results: Although similar in many respects, there are significant differences between these two relatively autonomous health systems which have led to the rates of uptake of physician office computing. Particularly notable is the reality that the Danish primary care physicians have individual "Electronic Medical Records" while in Andalucía, the primary care physicians

Protti D, Johansen Ib, Perez-Torres F. Comparing the application of Health information Technology in primary care in Denmark and Andalucía, Spain. International Journal of Medical Informatics 2009;78:270-283
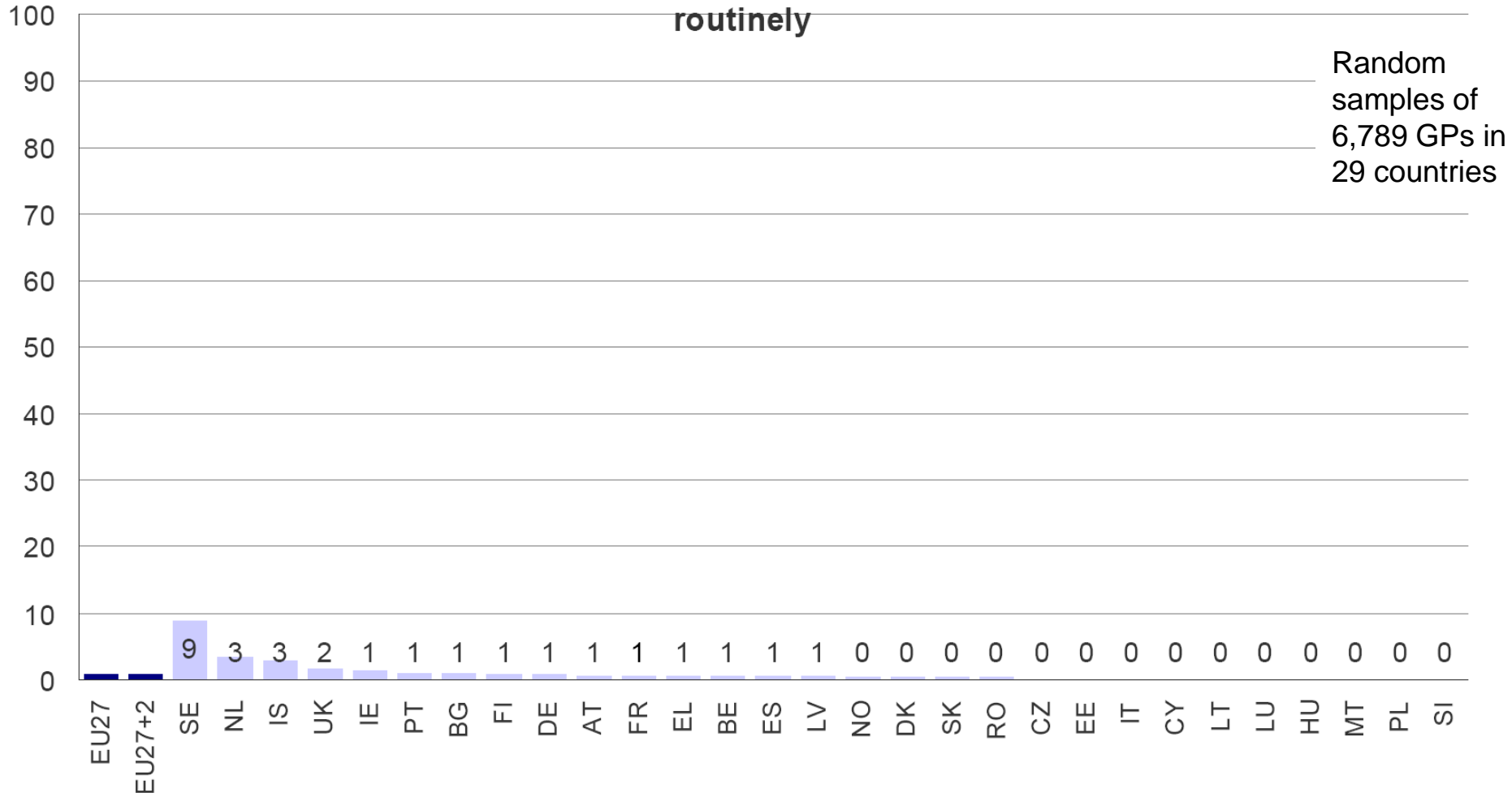
Towards eHealth Deployment: Step 3
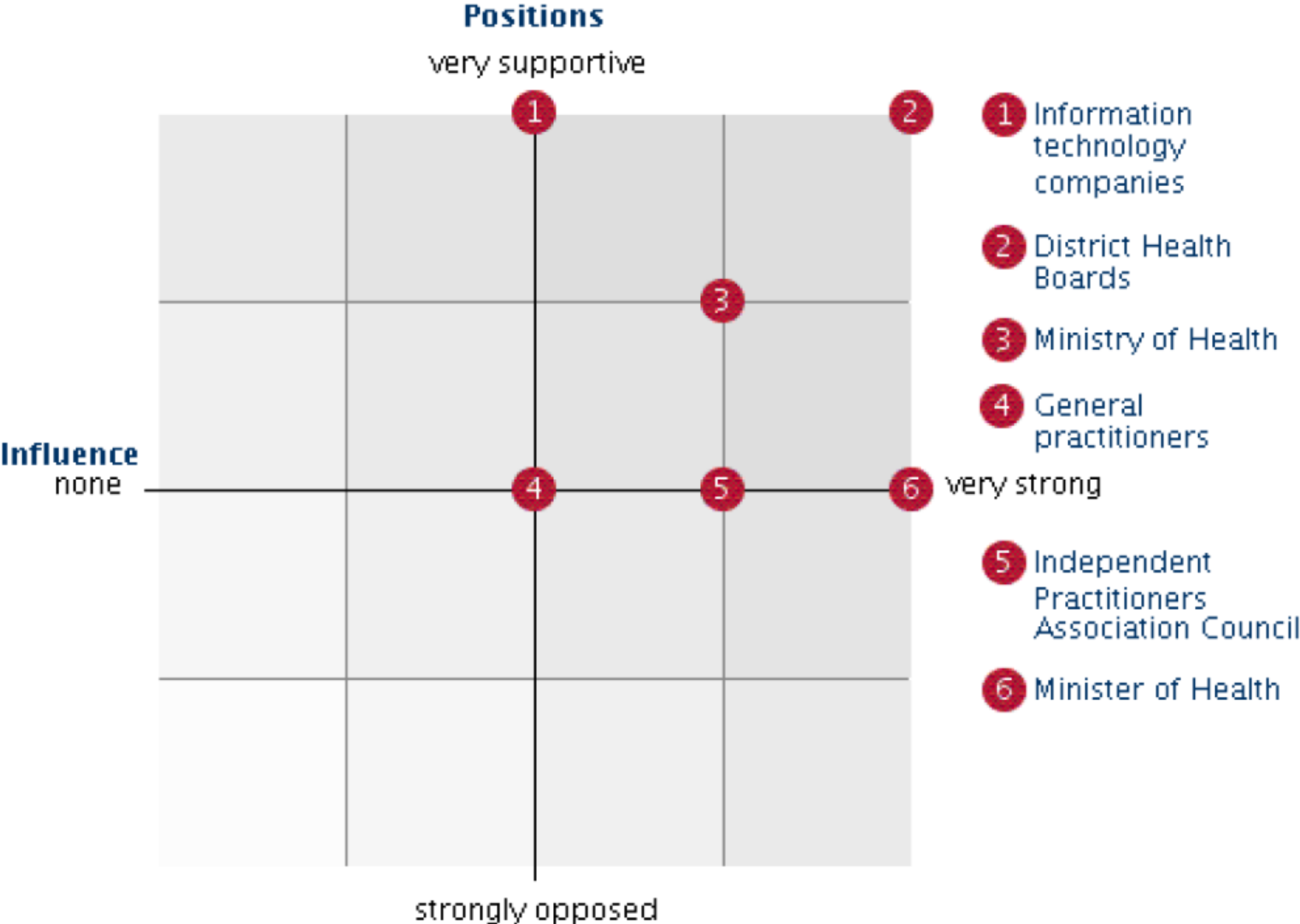## Connecting individuals with providers/
Patient-centred Health Information

Pharmacy

GP

Hospital

Emergency

Health Centre

Secure Networks

mobile PC

Region 3

Mobile, Wireless & Broadband

Region 2

Region 1

Home

Mobility

GPs: telemonitoring routinely (in %, 2007)

Purpose of use of internet and electronic health networks: Telemonitoring routinely

Random samples of 6,789 GPs in 29 countries

EU27	EU27+2	SE	NL	IS	UK	IE	PT	BG	FI	DE	AT	FR	EL	BE	ES	LV	NO	DK	SK	RO	CZ	EE	IT	CY	LT	LU	HU	MT	PL	SI
		9	3	3	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: empirica: ICT and eHealth use among GPs in Europe 2007, Bonn April 2008

New Zealand: introduction of patient-centred electronic health record

Positions

very supportive

Influence none — very strong

strongly opposed

1. Information technology companies
2. District Health Boards
3. Ministry of Health
4. General practitioners
5. Independent Practitioners Association Council
6. Minister of Health

Estland: Nationales Gesundheitsinformationssystem – Patientenorientiertes Monitoring von der Wiege bis zur Bahre

Seit September 2008 vereint Estland die Gesundheitsdaten der gesamten Bevölkerung in einem zentralen Gesundheitsinformationssystem. Diese nationale Datenbank für Gesundheitsinformationen entstammt der Initiative des Sozialministeriums; Träger ist eine private Stiftung für eHealth. Ziel ist es, alle wesentlichen Informationen nicht mehr institutionenbezogen, sondern personenbezogen von der Geburt bis zum Tod zu speichern.

Aufbau des Nationalen Gesundheitsinformationssystems

Ambulante medizinische Versorgung (ca. 450 Einrichtungen)

Datenbankzugang & -verifizierung, Kennungskontrolle

Bevölkerungsregister

Krankenversicherung

Hausärzte (ca. 800)

Hausarztnetzwerk

x-road (elektronische Infrastruktur)

Patient

eBürger

Ärzte

Krankenhäuser (ca. 50)

Elektronische Gesundheitsakte

Apotheken (ca. 350)

Verschreibender Arzt

Statistiken

Medizinische Notfallversorgung (ca. 30 Einrichtungen)

Nutzer von Statistiken

Medizinische Forscher

Medizinische Einheiten in Institutionen wie Kindergärten, Schulen, Gefängnissen etc.

Die Kernaspekte des nationalen Gesundheitsinformationssystems

– eine digitale Krankenakte – alle lebenswichtigen Informationen zentral gespeichert
– eine digitale Bilddatenbank – zentral zugänglich für alle Leistungserbringer
– eine digitale Blutdatenbank
– Verschreibungen – elektronisches Rezept
– Terminverwaltung für die Patienten

Ab 2013 soll die Teilnahme am System für alle Leistungserbringer verpflichtend sein.


Das System bietet Vorteile für alle Beteiligten …

– mehr Informationsmöglichkeiten für Patienten über ihren Gesundheitszustand
– bessere Koordination zwischen Leistungserbringern
– erhöhte Effizienz der Gesundheitsversorgung
– weniger Bürokratie für Leistungsanbieter

… aber steht noch Herausforderungen gegenüber

– zeit- und kostenintensive regelmäßige Aktualisierung der Daten
– ungesicherte Finanzierung auf lange Sicht
– rechtlicher Rahmen für Umgang mit Patientendaten muss noch verabschiedet werden

Breite Unterstützung für die eHealth-Initiative

– Technische Innovationen stehen in Estland hoch auf der politischen Tagesordnung. Der 1,4-Millionen-Einwohner-Staat hat bereits ein ausgebautes eGovernment-System.
– Die Menschen in Estland erwarten weitere Innovationen im eHealth-Bereich und stehen diesen Entwicklungen sehr aufgeschlossen gegenüber.
– Die wesentlichen Stakeholder im estnischen Gesundheitssystem (Sozialministerium, Krankenkasse und Ärzteorganisationen) stehen hinter dem Ansatz.
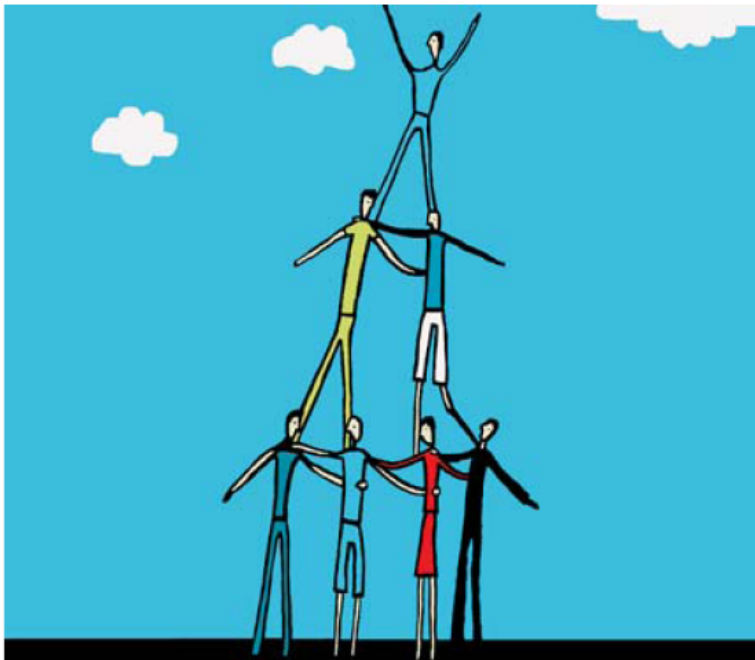
Zusammenfassung

- eHealth-Entwicklung in Ländern sehr unterschiedlich (führend: DK), insbesondere zwischen Leistungsanbietern oft und mit Patienten fast immer wenig entwickelt

- eHealth muss (Haus-)Ärzte einbeziehen

- Gesundheitssystemstrategien, die eHealth beinhalten, vermutlich erfolgreicher als reine eHealth-Strategien

- patientenbezogene Datensammlung bleibt überall Herausforderung

Präsentation, Literatur zum Thema etc. auf:
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