

A Comparison of Information Technology in General Practice in Ten Countries

9th Annual Privacy and Security Conference
Victoria Conference Centre

February 7, 2008

Outline

- Definitions
- Background to the study of 10 countries
- Study findings
- Lessons to be learned
- Conclusion
- Discussion

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Our semantically challenged field (the “xxR” phenomena)

- Continuity of Care Record (CCR)
- Consumer Health Record (CHR)
- Computer-based Patient Record (CPR)
- Electronic Care Record (ECR)
- Electronic Case Record (ECR)
- *Electronic Medical Record (EMR)*
- *Electronic Health Record (EHR)*
- Electronic Health Record Solution/System (EHRS)
- *Electronic Patient Record (EPR)*
- Integrated Electronic Health Record (iEHR)
- Integrated Health Record (IHR)
- National Care Record (NCR)
- Patient Medical Record (PMR)
- *Personal Health Record (PHR)*
- Summary Care Record (SCR)
- Etc.

Electronic Records (ExRs)

- **EMR** – the electronic record in a physician’s office; *in one setting*
- **EPR** – the electronic record in a hospital or facility; *in one ‘organization’*
- **EHR** – the longitudinal electronic record of an individual that contains data from multiple EMRs and EPRs; *shared and/or interoperable across settings*
- **PHR** – the Internet-based record under full control of the patient (citizen)

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Background to the study

- Commissioned by Canada Health Infoway
 - Goal: to identify the governmental, collegial, technological, and other factors contributing to the high levels of GP office automation
 - In all 10 countries, *over 95% of the GPs* had computers (EMR) in their office that were used *for clinical purposes*

Data collected in 2005

- Australia 
- Austria 
- Denmark 
- England 
- Germany 
- Netherlands 
- New Zealand 
- Norway 
- Scotland 
- Sweden 

Data was collected from

- Scientific literature
- Personal interviews with GPs, ministerial and vendor representatives
- OECD, government, and professional association reports and web sites
- *Data quality ranges from very robust and trustworthy to 'estimates' based on small sample sizes*

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Year when EMRs became common (over 50% of GPs)

- England 1992
- Netherlands 1993
- New Zealand 1993
- Denmark 1994
- Norway 1995
- Sweden 1995
- Germany 1997
- Scotland 1997
- Australia 2001
- Austria 2003

% GPs with electronic prescribing of medications *(with varying degrees of decision support re: alerts, etc.)*

- | | | | |
|---------------|------|---------------|------|
| • Australia | Most | • Scotland | Most |
| • Denmark | Most | • Sweden | Most |
| • England | Most | • Austria | Many |
| • New Zealand | Most | • Germany | Many |
| • Norway | Most | • Netherlands | Many |

Most = >75%

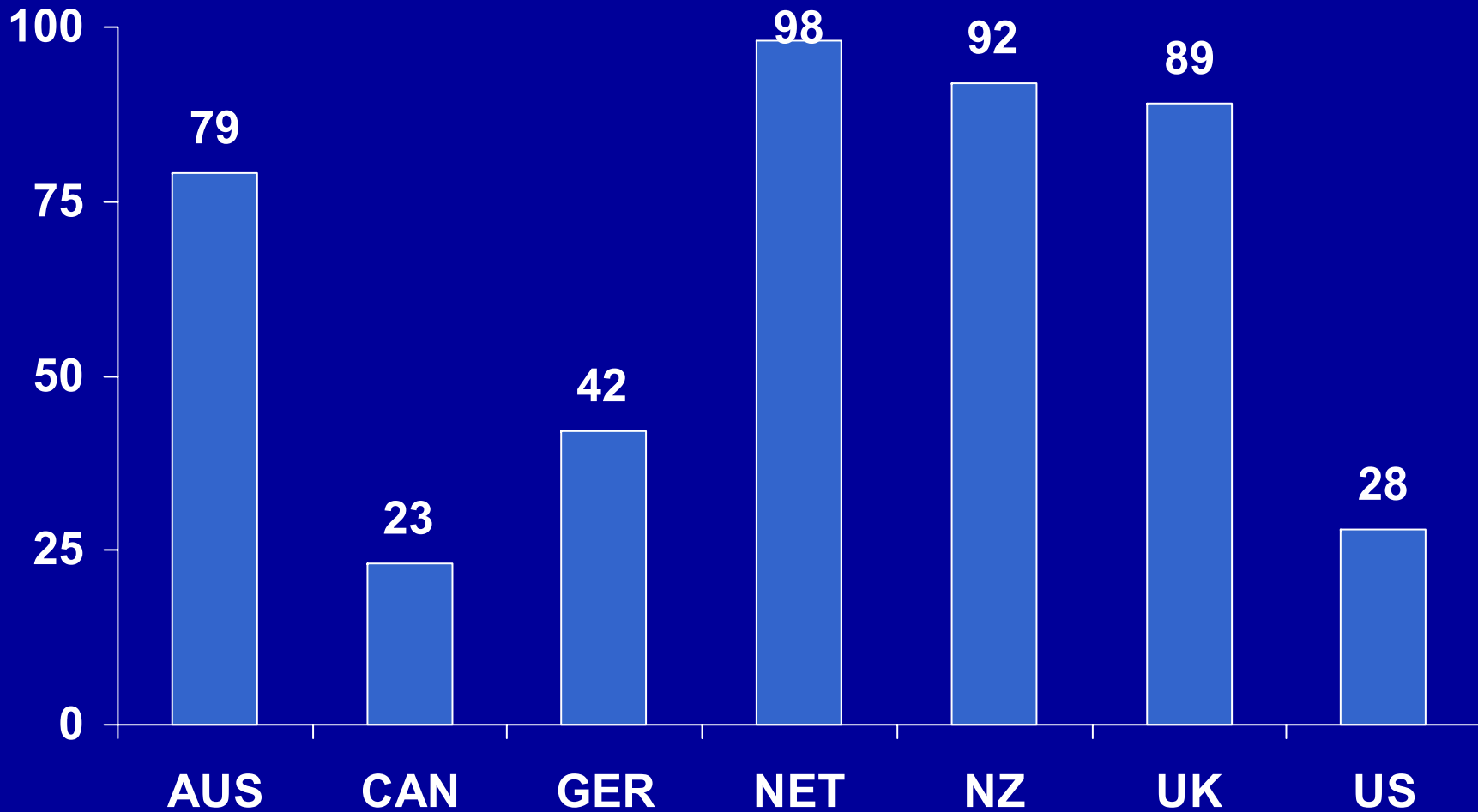
Many = >50%

Some = >25%

Few = <25%

Primary Care Doctors Use of Electronic Patient Medical Records, 2006

Percent



19-Feb-08

D. Protti - University of Victoria

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


Practice Use of Electronic Technology

(from Schoen et al Commonwealth Fund study)

Percent reporting <u>routine</u> use of:	AUS	CAN	GER	NET	NZ	UK	US
Electronic ordering of tests	65	8	27	5	62	20	22
Electronic prescribing of medication	81	11	59	85	78	55	20
Electronic access to patients' test results	76	27	34	78	90	84	48
Electronic access to patients' hospital records	12	15	7	11	44	19	40

.... printed/legible prescriptions

UNA:+.? '
 UNB+UNOC:3+5790000120314:14+5790000172825:14+010430:1
 456+26++++1'
 UNH+15+MEDPRE:0:962:RT:SST012+Æskulap'
 BGM+PRS:SKL:SST++9'
 DTM+137:20010430145604:204'
 PNA+PO++291714:YNR:SFU+++US:Max Berggren+US:MedCom'
 ADR++1:Rugårdsvej 15++5000'
 COM+66133066:TE'
 EMP+4+PHY:SKL:SST'
 PNA+SE++5790000172825:9'
 DTM+97:20010430:102'
 RFF+CH:200118'
 ICD+DK:SKL:SST+NA:SKL:SST'
 GIS+ZZZ:SKL:SST'
 PNA+PAT+2512484916:CPR++++SCC:BERGGREN, NANCY
 ANN'
 ADR+1+1:PARK ALLE 48+Hillerød+3400++020:SKL:SST'
 LIN+1++385229:AK:NVN:LMS'
 IMD+A+DDP+:::creme'
 IMD+A+DNM+:::Diproderm'
 MEA+AAU+CT:::Tube a 60 g'
 MEA+DEN+S:::0,05%'
 PGI+10+NS:SKL:SST'
 QTY+189:1:NMB'
 PNA+GZ++++AB:OR'
 CIN+9+222:LDD:LMS:mod eksem'
 EQN+2:ITE'
 DTM+264:30:804'
 DSG+5+104:LDD:LMS:udvortes 2 gange daglig'
 TOD+2++OAD:SKL:SST'ADR+5+US:Vestergade 17++3400'
 PNA+AB++++US:Knud Mosebryggensen'
 UNT+30+15'
 UNZ+1+26'

 FYNS AMT Udsteder 291714 MedCom Rugårdsvej 15 5000 ODENSE C. Tlf. 66133066		Æskulap
Sikrede 251248-4916 BERGGREN, NANCY ANN PARK ALLE 48 3400 Hillerød		EDIFACT- Receipt Apotek 282 Side 1 Amt 020
Bemærkning sendes pr. bud til Knud Mosebryggensen Vestergade 17 3400		DK
Ordination (Gyldig indtil 2 år fra udstedelsesdatoen) Reparatnavn, doseringsform, styrke, mængde samt brugsanvisning og udlevering Diproderm creme OR 0,05%, Tube a 60 g x 1 Ikke substitution d.s. udvortes 2 gange daglig mod eksem Udleveres 3 gange med 30 dages mellemrum		
Dato og underskrift 30.04.01 15:04 Max Berggren		
Forbeholdt apoteket		
Udarbejdet af Sygeskrivers Forhandlingsudvalg		Kommuneinformation 05 11.542 (02/00) SHA

% GPs recording progress notes

- | | | | |
|---------------|------|---------------|------|
| • Denmark | Most | • New Zealand | Many |
| • Netherlands | Most | • Scotland | Many |
| • Norway | Most | • Sweden | Many |
| • Australia | Many | • Austria | Few |
| • England | Many | • Germany | Few |

Most = >75%

Many = >50%

Some = >25%

Few = <25%

% GPs receiving laboratory results

(electronic data interchange, not paper faxes)

- | | | | |
|---------------|------|---------------|------|
| • Denmark | Most | • England | Many |
| • New Zealand | Most | • Netherlands | Many |
| • Scotland | Most | • Sweden | Many |
| • Australia | Many | • Germany | Few |
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Most = >75%

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Some = >25%

Few = <25%

% GPs transmitting medication prescriptions

• Denmark	Most	• Germany	Few
• Sweden	Many	• Netherlands	Few
• England	Some	• Scotland	Few
• Australia	Few	• New Zealand	None
• Austria	Few	• Norway	None

Most = >75%

Many = >50%

Some = >25%

Few = <25%

% receiving discharge summaries

- | | | | |
|---------------|------|---------------|-----|
| • Denmark | Most | • England | Few |
| • New Zealand | Many | • Germany | Few |
| • Scotland | Many | • Netherlands | Few |
| • Australia | Few | • Norway | Few |
| • Austria | Few | • Sweden | Few |

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Benefits of automation in GP practices

(ranked scale of 1-8)

- **Simplified Repeat Prescription**
 - #1 in Scotland and Sweden
 - #2 in all other countries, except Norway (#3) and NZ (#4)
- **Saving time**
 - #1 in Australia, England, Germany, Netherlands and New Zealand
 - #7 in Austria

Benefits of automation in GP practices

(ranked scale of 1-8)

- Quicker receipt of results – range:1-5
- Easier to find records – range:1-5
- Legibility of records and form – range: 3-7
- More timely communication with other clinicians
– *range: 1-8*
- Availability of clinical data on Intranet or Internet
– range: 3-8
- Data for clinical research – range: 5-8

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Driving Forces for the Evolution of Primary Care Computing

Government funding support

- | | | | |
|--------------------|-----|----------------------|-----|
| • Australia | Yes | • Netherlands | Yes |
| • Austria | No | • New Zealand | No |
| • Denmark | No | • Norway | No |
| • England | Yes | • Scotland | Yes |
| • Germany | No | • Sweden | Yes |

Electronic billing mandate

- | | | | |
|--------------------|-----|----------------------|-----|
| • Australia | No | • Netherlands | Yes |
| • Austria | Yes | • New Zealand | Yes |
| • Denmark | No | • Norway | No |
| • England | No | • Scotland | No |
| • Germany | Yes | • Sweden | No |

College or Association leadership

- | | | | |
|--------------------|------------|----------------------|------------|
| • Australia | Yes | • Netherlands | Yes |
| • Austria | No | • New Zealand | No |
| • Denmark | No | • Norway | No |
| • England | Yes | • Scotland | Yes |
| • Germany | No | • Sweden | No |

Peer Influence

- | | | | |
|--------------------|-----|----------------------|-----|
| • Australia | No | • Netherlands | Yes |
| • Austria | No | • New Zealand | No |
| • Denmark | Yes | • Norway | Yes |
| • England | No | • Scotland | No |
| • Germany | No | • Sweden | Yes |

Accreditation of vendor systems

- | | | | |
|--------------------|-----|----------------------|-----|
| • Australia | No | • Netherlands | Yes |
| • Austria | Yes | • New Zealand | Yes |
| • Denmark | Yes | • Norway | No |
| • England | Yes | • Scotland | Yes |
| • Germany | Yes | • Sweden | No |

In some cases for billing purposes only

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**There is no one answer or reason
why these 10 countries have a
high degree of utilization of
computer technology by their GPs**

**There are however similarities
to draw upon**

1. Government policy

- National unique identifiers
- Health reform, e.g.
 - Physician collectives (group practices)
 - Pay for performance (payment by results)
 - Out of office hours clinics
- Legislation, e.g.
 - Privacy
 - Electronic signatures
 - Data exchange and data sharing
- Health Information Technology adoption, e.g.
 - National electronic network
 - Mandatory electronic communications
 - National information architectures

2. A single unifying organization

- Denmark
 - non-profit organization, arms length from government
- New Zealand
 - a private company
- Scotland
 - the department of health
- They monitor who is doing what and share best practice amongst stakeholders
- *The lack of a unifying organization is seen to be a limiting factor in some countries*

3. Other important factors include:

- Culture and tradition
- *Change takes time and must be managed*
- Standards (e.g. communications)
- Structured data (e.g. Read codes in England & Scotland, ICPC in Norway)
- *Size may also be a contributing factor!*

What seems clear in all ten countries is the recognition that significant progress towards *an EHR* with all its potential to improve clinical outcomes, *is impossible without the full participation of general practitioners*

Electronic Records (ExRs)

- **EMR** – the electronic record in a physician’s office; *in one setting*
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Intentions to create an EHR

- | | | | |
|--------------------|-----|----------------------|-----|
| • Australia | ?? | • Netherlands | No |
| • Austria | No | • New Zealand | No |
| • Denmark | No | • Norway | ?? |
| • England | Yes | • Scotland | Yes |
| • Germany | ?? | • Sweden | Yes |

German doctors say no to centrally stored patient records

- Recent reports about incidents of data loss in the British healthcare system have alarmed medical doctors in other European countries.
- *NAV Virchow (body representing 20,000 doctors) is now calling for the German Ministry of Health to halt all plans for centrally-stored shared electronic patient records, due to the potential risks to patient confidentiality.*
 - Officially, though, there are no national plans for electronic patient records in Germany.
 - But some say the national smartcard project is leading towards that direction.
- As an alternative, the private doctors' body is suggesting the use of encrypted USB-sticks.
 - These could be handed over to patients and would carry all relevant patient data, including digital images such as radiographs or CT-scans.

16 Jan 2008

England BMA Press Release: Doctors have no confidence in NHS database

- Nine out of ten **of the 219 doctors** who responded to the Doctors Decide poll said they did not feel they were in a position to assure patients that their data would be safe.
 - A series of recent high-profile data losses, such as the HM Revenue and Customs computer discs containing the details of 25 million child benefit claimants, have left doctors skeptical about safety.

Feb 02, 2008

BMJ Editorial

- The consequences of these security failures are exacerbated by our increasing tendency to centralise large and detailed data from multiple sources, and the existence of policies and legislation that enable the sharing of data between organisations.
- *In health care, the collection and storage of sensitive personal data is essential for delivering a high quality clinical service and for research. Indeed, the future function of the National Health Service (NHS) depends on it.*

Mark McGilchrist, Frank Sullivan, and Dipak Kalra

Editorial: Assuring the confidentiality of shared electronic health records

BMJ. 335:1223-1224. 15 December 2007

Reaction to BMA view

- “Can I be the only patient scratching my head about the BMA's decision to advise general practitioners to boycott the creation of summary care records for their patients?”
- The new record has two main purposes:
 - to provide the NHS with crucial patient information when none is available from other sources, and
 - to give people themselves access to a good summary of their health records whenever they need it.

For patients' sake, don't boycott e-health records

Marlene Winfield, National Patient Lead, NHS Connecting for Health

BMJ 2007;335:158 (21 July), doi:10.1136/bmj.39275.658171.59

Finite

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