Government of **Western Australia**
Department of **Health**
Child and Adolescent Health Service

What are doctors' attitudes towards Electronic Medical Records (EMRs) at Princess Margaret Hospital for Children?

Julia Logan
Head of Department
Patient Information Management Service

Background

The EMR for the purposes of this research is defined as:

"*an electronic repository of information about a single patient generated by health care professionals as a direct result of interaction with a patient or with individuals who have personal knowledge of the patient (or both). The electronic record resides in a system specifically designed to support users by providing accessibility to complete and accurate data, alerts, reminders, clinical decision support systems, links to medical knowledge and other aids.*"

Reference: Institute of Medicine (U.S.). Committee on improving the patient record. The computer-based patient record: an essential technology for health care (revised edition). Washington, D C: National Academy Press; 1997.

Background cont'd

- Limited information about public hospital doctors' attitudes towards EMRs
- Specifically, hospital doctors' attitudes towards the potential for any differences in the content of medical records if an EMR was implemented
- Limited information about doctors' attitudes towards privacy, confidentiality & security of patient information

Literature Review

- Doctors' attitudes towards EMRs varied
- Limited information available about doctors' attitudes when recording patient information in electronic environment
- Lacking in the area of potential changes that may occur if EMR is adopted
- Limited information about doctors' attitudes towards the confidentiality, privacy and security of patient information in EMR

The Pilot

- No instrument specifically designed to achieve aims
- Questionnaire focussing on 4 themes designed, piloted and reliability tested
- Results from the pilot study reported & modification made to pilot prior to undertaking this survey
- Detmer and Friedman's demographic and computer experience and usage

Survey of PMH doctors

Objectives

- To examine hospital doctors' attitudes towards EMRs
- To determine attitudes towards four dimensions of EMRs:
  - privacy, confidentiality and security
  - record content
  - patients accessing their information
  - doctors' medical record medium preferences

Princess Margaret Hospital for Children

- Public, tertiary, teaching hospital
- 2-3 kms from CBD
- Acute care

Methods

- Questionnaire and covering letter
- Internal mail
- Follow up
- Confidential

Results

- 297 questionnaires
- Response rate 55% (n = 163)
- SPSS®

Respondent Characteristics

- 63% male doctors
- 57% employed full time
- 75% trained in Australia
- 41.6 years mean age
- 17.2 years working as doctor
- 63% consultants, across 35 specialties
  - 27% registrars
  - 10% residents

Respondent Characteristics cont'd

- Hours using computer
  - 8 median
  - range 0 - 60
  - mean 11.6
- 80% used computer at work and 68% at home
- 27% sophisticated and 33% unsophisticated
- 5% formal course and 87% no training

Attitude Statements

Table 1 - Attitude Statements

Statements
Test results should be documented in the EMR
Suggestions for treatment should be documented in the EMR
It concerns me that electronic pt info is able to be accessed by unauthorised users within the hospital
It concerns me that electronic pt info is open to unauthorised access by persons outside the hospital
It concerns me that some data in the EPR may become corrupted
Provisional diagnoses should be documented in the EMR
Computer technology allows me to access pt details more effectively than a paper system
Test results in the EMR should be made available to patients
It concerns me that electronic pt info is open to inappropriate use by authorised users within the hospital
Patients have an important role in addressing privacy and security of the EMR
Medical care will be made much more effective through the use of an EPR
Suggestions for treatment documented in the EMR should be made available to patients
Sensitive information documented in the EMR should be made available to patients
Information stored in the EMR will be private
Sensitive information should be documented in the EMR
Subjective assessments should be documented in the EMR
Patients should have only partial access to their EMRs
A provisional diagnosis documented in the EMR should be made available to patients
Information stored in the EMR will be secure
CPRs will offer me the opportunity to communicate more effectively with patients
Subjective assessments documented in the EMR should be made available to patients
I will restrict or modify my recording of pt info in the EMR to protect the pt from harm
I am satisfied that the EMR will adequately safeguard pt info from unauthorised access
I will inhibit my recording of pt info in the EMR as I have concerns regarding medico-legal implications
Electronic information should be made available to patients without my consent

Results

- Mean scores for first 20 significantly smaller than neutral scale midpoint 3
- First 10 at favourable end of scale with mean scores at or below 2.5
- More than 58% of responses were favourable (agree or strongly agree) and 20% or less were unfavourable (disagree or strongly disagree)
- "Test results should be documented in the EMR" not scored as "disagree" or "strongly disagree"
- Last 5 mean scores = to or > than scale midpoint 3 Range of 18% to 37% of respondents replying neither agree nor disagree
- "Electronic information should be made available to patients without my consent" 68% of doctors disagreed

Principal components analysis (PCA)

- Attitude statements subjected to PCA with problem access factoring for the initial extraction, direct oblimin rotation, mean substitution for missing values
- PCA performed on responses in their original scaled format
- 7 components or subgroups of statements
- 2 statements excluded

PCA cont'd

23 statements fell into 6 components:

Component 1 EMR security, safety & integrity (4)

Component 2 EMR available to patients (5)

Component 3 EMR benefits (3)

Component 4 Content of the EMR (5)

Component 5 EMR access concerns (3)

Component 6 Restricted/inhibited recording (3)

PCA Findings

Table 2 - EMR Dimension: Privacy, Confidentiality and Security

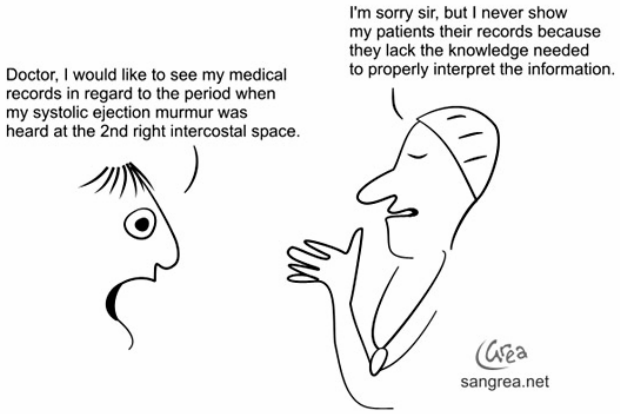
Component 1 EMR Security, Safety & Integrity Component 5 EMR Access Concerns	Agree %	Disagree %
Concerned EMR data may be corrupted	74	14
Information stored in EMR will be secure	32	31
Information stored in EMR will be private	51	25
EMR safe from unauthorised access	25	38
Electronic information open to unauthorised access by persons outside	69	16
EMR will be open to unauthorised access users within	74	10
Electronic information open to inappropriate use by authorised users within	62	17

PCA Findings cont'd

Table 3 - EMR Dimension Record Content

Component 4 Content of the EMR Component 6 Restricted/inhibited recording	Agree %	Disagree %
Sensitive information	57	28
Provisional diagnoses	74	7
Test results	91	0
Subjective assessments	55	23
Suggestions for treatment	83	6
Inhibit recording regard medico-legal	26	44
Restrict/modify entries to protect patient	30	35
Patients should only have partial access	49	29

Is this how it really is?



PCA Findings cont'd

Table 4 - EMR Dimension Patients Accessing Their Information

Component 2 Data Available to Patients	Agree %	Disagree %
Provisional diagnosis	44	32
Sensitive information	59	22
Subjective assessments	37	36
Test results	70	11
Suggestions treatment	55	17

PCA Findings cont'd

Table 5 - EMR Dimension Medical Record Medium Preferences

Component 3 EMR Improvements	Agree %	Disagree %
EMRs communicate more effectively	35	32
Medical care will be more efficient	52	20
Computer technology easier access than paper	67	20

Associations between components and respondents

- Statistically significant difference ($p<0.01$) for doctor classification
- No statistically significant difference for gender

Variation in responses

- "EMRs will offer me the opportunity to communicate more effectively with patients" most support came from the registrars, with support < 30% from registrars & consultants
- "Medical care will be made much more effective through the use of an EMR" supported by residents & registrars, but not consultants (39%)
- "It concerns me that some data in the EMR could become corrupted" supported by > 50% in each category, with strongest support from residents
- "It concerns me that electronic patient information is opened to unauthorised access by persons outside the hospital" Registrars indicated most concern 94%

Variation in responses cont'd

- Literature reports doctors would restrict/modify recording of patient information in EMR to protect patient from harm, registrars were least likely to agree 18%
- More agreement came from residents (88%) and registrars (82%) than from consultants (58%) "Computer technology allows me to access patient details more effectively than a paper system"
- Sensitive information documented in the EMR should be made available to patients, consultants showed more support (67%)
- Subjective assessments documented in the EMR be made available to patients, consultants 44%

Conclusions

- Doctors do hold concerns in regard to privacy, security & confidentiality of patient information held in an EMR
- Variation has been shown in attitudes towards the EMR
- Concern about patients accessing their information
- Doctors perceive risks associated with storage of patient information in an EMR
- Definite need to include doctors in the development and design stages of an EMR
- Assessment & evaluation of doctors' attitudes to be undertaken pre and post implementation of EMR

Questions?

Personal health information should be treated by everyone in healthcare as though it concerned themselves and their families; because the odds are that, someday, it will. **E Freidman, 2001**

Reference:
***Journal of the American Health Information Management Association*, 72(3), p 27**