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ICITST '09 (eHISec stream)

The elephant in the room: Health information system security and the user-level environment

Presentation overview

- **Data CIA**

- **An analysis of the "elephant in the room" – at last!**

- **The data collection tool**

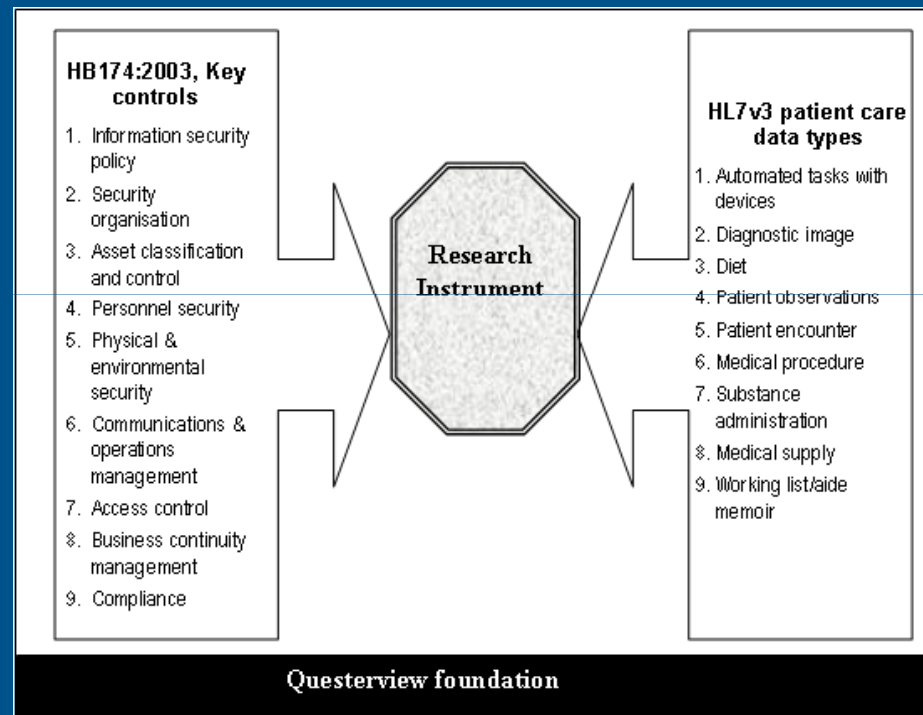- **Clinician beliefs and experiences**

- **So what?**

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Defensive?

1. **Fernando, J. (2009) <u>Clinicians and information technology support services in practice settings - a pilot study</u>. MedInfo 2010 (under consideration).**
2. **Fernando & Dawson (2009) <u>The natural hospital environment</u>. IJHDRI (under consideration).**
3. **Fernando, J. & Dawson, L. (2009) <u>The health information system security threat lifecycle: An informatics theory</u>. Int J Med Inf. doi:10.1016/j.ijmedinf. 2009. 08. 006 78(12)**
4. **Fernando, J. & Dawson, L. (2008) <u>Clinician assessments of workplace security training- an informatics perspective</u>, Privacy and Security Special Issue of the eJHI 3(1) E7**

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Elephant #1: The user-level environment

- *New and emerging evidence about unintended consequences at the user-level eHealth environment.*

- **Organisational factors influencing technology adoption & assimilation in the NHS; a systematic literature review – June 2009**

- *P&S risks 'pivotal' yet the 'elephant in the room'.*

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Questerview tool and method

HB174:2003, Key controls

1. Information security policy
2. Security organisation
3. Asset classification and control
4. Personnel security
5. Physical & environmental security
6. Communications & operations management
7. Access control
8. Business continuity management
9. Compliance

Research Instrument

HL7v3 patient care data types

1. Automated tasks with devices
2. Diagnostic image
3. Diet
4. Patient observations
5. Patient encounter
6. Medical procedure
7. Substance administration
8. Medical supply
9. Working list/aide memoir

Questerview foundation

Questerview published IJMI 78(12)

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Participants

Participant profile				
Area	Case	Discipline	Department	Title
Rural	1	Doctor	Radiology	Manager
	2	*AHC	Social Work	Manager
	3	AHC	Dietetics	Manager
	4	Doctor	Theatre	Surgical Registrar
	5	Nurse	Medical Ward	Manager
	6	Nurse	Surgery	Manager
	7	AHC	Occupational Therapy	Manager
	8	AHC	Physiotherapy	Manager
	9	Doctor	Oncology	Specialist
	10	Doctor	Obstetrics & Gynaecology	Consultant
Suburban	11	AHC	Radiology	Supervisor
	12	AHC	Radiology	Technician
	13	Nurse	Radiology	Manager
	14	Doctor	Radiology	Manager/Doctor
	15	AHC	Social Work	Social Worker
	16	Nurse	Surgical Ward	Registered Nurse
	17	Doctor	Emergency	Manager
	18	Doctor	Radiology	Manager
	19	Nurse	Midwifery	Midwife/Educator
Urban	20	Doctor	Neurology	Specialist
	21	Nurse	Midwifery	Midwife
	22	AHC	Dietetics	Dietician
	23	Nurse	Stroke/Vascular Surgery ward	Manager
	24	Nurse	Neurology Ward	Manager
	25	Doctor	Surgery	Manager
	26	AHC	Speech Pathology	Speech therapist

* AHC - Allied Health Care

26 Participants:

9 x medical

8 x nursing

9 x allied health

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The workspace environment: "the magic curtain"

Context	Functionality	Effect
•Shared workspace & workgroup computers	•Impossible to achieve privacy	•Frustration
•No aural privacy	•Overhear	•Pertinent questions not always asked of patient
•No physical privacy	•Queues	•eHealth record not always updated

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The system environment: "sluggish"

Context	Functionality	Effect
•Computers & associated eHealth P&S tools	•Slow	•Data not available when & where needed
•Screen savers	•Inefficient	•Interruptive
•Access control lists	•Productivity costs	•Not usable
		•Clinician anger

- *"a pain in the a**e"*

- *"interrupt the diagnostic process"*

- *"literally red with rage"*

- *"shut the b*****d down"*

- **pictorial screensavers** 🙂

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Passwords: "beyond a joke!"

Context	Functionality	Effect
•Security tool designed to support a tailored and secure view of the patient record	•Too many •Not usable •Displayed close-by eDevice •Shared logons	•Fear of lockout •Sharing supports data availability •Pragmatic access to patient care information

- *"I have so many"*

- *"either didn't do the work she was supposed to do … or was constantly trying to trace somebody to log her in."*

- *"I'm doing 5 things at once & I'm the only person there"*

- *"they will ring me and I will tell them the password"*

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Handover sheet: "an important medical tool"

Context	Functionality	Effect
•Ongoing template	•Saves time	•Supports data availability
•Patches information from many eHealth systems into a paper sheet	•eHealth system not auditable	•Control of patient care information
•Usability trade-offs	•Errors in transcription	•Supports mobility
	•May be retained by clinician	•Pragmatic collusion
		•Paper persistence

PKI: "don't see the real need"

Context	Functionality	Effect
•Robust security tool	•Relies on trust	•Hinders clinical productivity •Clinicians claim no need, so avoid • IT avoidance, trust system reinforced

Trust: "no-one has ever verified who I am"

Context	Functionality	Effect
•Collusion •Handover sheets •Transcription	•Shared logon information •Night shift support •Mobile patient record	•Trust system entrenched & passed on to recruits •Data breach customary although often confined to the care setting

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IT Support: "really don't meet the times"

Context	Functionality	Effect
•Support eHealth – e.g. new passwords, some system training •Configure eHealth systems in care environment	•Clinician duties expanded •Clinician scepticism of eHealth tools •Clinicians give up on IT- too hard •Support seems un-responsive •Avoidance common	•Hinders productivity •Patient care cost •eHealth avoidance •Magnify pressure on time-poor clinicians •No clinician control •IT support dwindles •Clinicians do not have a basic understanding of eHealth tools •Antipathy to new & emerging technologies

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"Helicopter" rather than "lawnmower" view of P&S

eHealth is like an onion

1. Password vaults
   2. Privacy filters
   3. Soundproof drapes
   4. Encryption tools

Conclusion: So what?

1. If the research findings represent even 1% of clinicians more generally then eHealth frameworks are headed for trouble.

1. Duplication of work, paper persistence, transcription new kinds of AHEs, scepticism- how can the community rely on current implementations? (at least the NHS is finally reviewing this) - millions not 100s of patient records.

1. There is an <u>urgent need</u> for further research to understand the contextual P&S dimensions of eHealth debates.

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Questions?

Please feel free to contact

me further :

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