Health Informatics its role, importance and a historical perspective (why should I care?)

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Agenda

- Where did Health informatics come from?
- What does it do?
- Why should I care?
Why you can’t keep up....

Number of clinical trials published in PUBMED 1975 -2011 per year
Informatics is

- Information-centred not computer centred
- Based on getting clinical value from information
- (Very) important in primary care
- A support for administration and workflow as well as clinical activity
- A New Zealand Success story
History

- Informatics deals with handling information
- Recorded Observations

Hippocrates (460-370 BC)

Index Medicus —

John Shaw Billings 1879
The broad street pump

John Snow
August 1854,
Computers arrive...
Moore’s law

Microprocessor Transistor Counts 1971-2011 & Moore’s Law

The graph shows the transistor count of microprocessors from 1971 to 2011. The curve indicates that the transistor count doubles every two years, aligning with Moore’s law.
People and computers

1 million years BC
History

- Internet started in 1960s – to protect networks in the case of nuclear warfare.
- Browsers early 1990’s
- 19.2 Billion webpages in 2005
- Most users now access WWW via mobile devices.
What does Health Informatics do?

- Successful areas of Health informatics include:
  - Reminder systems
  - Electronic health records
  - Data repositories
  - Coding, Ontologies and vocabularies
  - Data sharing
  - M/Uhealth
Essentially...

- Collecting
- Storing
- Analysing
- Presenting
- Sharing
Medicine needs records
Problems with paper
Problems with paper

DATE & TIME
12/5/06
8:57

CLINICAL NOTES
(Each entry must be signed and name printed)

Dr. A. TAHIR

Soft Abdomen

Tender Mids
Bilaterally

Lower limbs

R L T C

badly slightly difficult

to illustrate

good Bowel & Bladder Control
Electronic Health Records

- Present in effectively all GP surgeries, and most DHB's
“Five uses of clinical data” (MOH)

Data collected should be available for:

- Supporting clinical intervention
- Clinical Governance
- Administration (in all parts of Health)
- Strategy and policy development
- Research
The sixth use?

- Patient (consumer) self-management and self-care.
Decision support

- Use data from Electronic record, combine with rules
- Reminders – eg high blood pressure, protocols
- Decision Analysis – need utility values
Recall and health management

- Cervical Screening, Contraceptive Pill
- Blood pressure, diabetes
- Paediatric checks
- Moving into..
  - Community care
  - Telehealth
The Central Paradox of CaseMIX

- Every patient is different...
- BUT we want to compare them.. So we code them
Why use a vocabulary? example...

- Pre-eclampsia
- Gestational Proteinuric Hypertension
- Toxaemia
- GPH
- PET
- PE

- All the same all map to.. pre-eclampsia 398254007 - code
Asthma

- Asthma (disorder)
- Asthma (condition)
- Airway hyperreactivity
- Asthmatic
- BHR - Bronchial hyperreactivity
- Bronchial asthma
- Bronchial hyperreactivity
- Bronchial hyperresponsiveness
- Bronchial hypersensitivity
- Hypoactive airway disease

Definition: Primitive

A disorder of the respiratory system

Classes:
- Bronchial
- Respiratory System

Severity:
- Severe
- Moderate
- Mild

Episodicity:
- Acute
- Chronic

Courses:
- Exacerbation of asthma
- Resolution of asthma

Original Snomed Id: C2-00336
Read Code (Ctrl): H33...
Why is coding difficult?

- Experts don’t agree — even when a loose standard of agreement is required (Chiang 2006)
- SNOMED CT is very large and changes by 5-10% each release
- Data is used in ways that might be unfamiliar to the originator
Presenting Information - Access (distance) to health care

Population (by territorial authority) more than 30 minutes from a GP; using LCPA (least cost path algorithm)

Sharing : Messaging : HL 7

- Health level 7
- Initial version going back to 1987
- Extensive use around the world, and since 1994 in New Zealand
Why messages?

- No communication electronically at all – life is difficult
- Shared universal record – so far impossible c.f. connecting for health UK
- Messaging – send standard, relevant pieces of information between electronic systems.
Messages and the $n(n-1)$ Problem
Recall and health management

- Cervical Screening, Contraceptive Pill
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Mobile and ubiquitous health
Pill dispensing

- Counts pills dispensed
- Wireless device
Why should I care?

- Informatics needs clinical input and clinical problems to work on.
- Good solutions come from clinical involvement.
- If clinicians don’t get involved...
NHS IT dino-project NPfIT should be killed off - NAO
Damning report blasts all concerned

By John Oates • Get more from this author
Posted in Government, 18th May 2011 08:27 GMT

The National Programme for IT - the multi-billion pound contract to update NHS technology use - continues to show an absence of basic management, and even though the scope of the project is shrinking costs are not.

Today's report from the National Audit Office is damning even for the NAO and questions whether there is any point in continuing the £11.4bn scheme.
Keep Hardware Secure
Data loss firm contract axed

A company which lost the details of thousands of criminals held on a computer memory stick has had its £1.5m contract terminated after an inquiry.

Home Secretary Jacqui Smith said PA Consulting had lost the data after it was transferred securely to the firm.

PA Consulting apologised for the loss of data and said it had accepted its "responsibilities".

The work had now been taken in-house and PA Consulting's other Home Office contracts, worth £8m, are under review.

The Cabinet Office will also launch a review of all contracts signed by the government with private companies to ensure they were "appropriate", said Ms Smith.

Discs loss 'entirely avoidable'

The loss of discs containing personal details of 25 million people was "entirely avoidable", a report says.

The Poynter report does not blame individual officials, but highlights "serious institutional deficiencies" at HM Revenue and Customs (HMRC).

Chancellor Alistair Darling told MPs action was already being taken to improve data security.

The Tories said the report and another by the Independent Police Complaints Commission were "truly devastating".
Questions?

“For Father’s Day, I’m giving my dad an hour of free tech support.”

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Useful information sources

- HINZ – www.hinz.org.nz
- IMIA - http://www.imia.org/
- Health IT cluster : http://www.healthit.org.nz/
- National Health IT board: http://www.itthealthboard.health.nz/
- RACGP ehealth site: http://www.racgp.org.au/ehealth