John Perry Prize Lecture

Cambridge 2005

Triumph of Expectation over Experience (Leo Fogarty 9/05)

The Lesson for Today

- We told you so
- Beyond NPfIT
- Lessons from the Three Peaks Race

Decision Support

- No doctor can carry all the available information in his head. 1993
- The diagnostic toilet

Decision Support for Nurses
N.Jones 1994

- Dr Hayes has 2 lumps in his coffee
  - or
- Dr Davis has one lump in his tea
  - or
- Dr Smith has two lumps
  - and
  - a digestive biscuit

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Health Promotion Band 3 Format as at 19/ 8/94
Age band 15-24      25-34      35-44      45-54      55-64      65-74
Sex        M    F    M    F    M    F    M    F    M    F    M    F
-----------------------------------------------------------------
Number in target population
          532  478  772  755  698  683  634  626  485  476  356  414
-----------------------------------------------------------------
Number with Body Mass Index recorded
          115  201  266  424  325  395  279  393  271  312  178  229
Coverage of BMI recording ( % )
           21  42%   34  56%   46  57%   44  62%   55  65%   50  55%
List size  9266 Age 15-74  6909          Overall BMI coverage      49%
-----------------------------------------------------------------
Number with alcohol intake recorded
          159  241  379  523  418  493  357  449  318  365  238  267
Coverage of alcohol history recording ( % )
           29  50%   49  69%   59  72%   56  71%   65  76%   66  64%
List size  9266 Age 15-74  6909          Overall alcohol coverage  60%
-----------------------------------------------------------------
Number with record of being overweight
           25   33  105  100  151  118  154  162  150  166   96  104
Number with record of being obese
            1    6    4    3    2    6    3   14    4   12    4   10
-----------------------------------------------------------------
Number with record of raised alcohol intake
           31    7   98   14   99   18   80   25   73   17   38    5
-----------------------------------------------------------------
Number with record of family history
          144  221  301  467  360  432  312  401  282  321  181  231
Coverage of family history ( % )
           27  46%   38  61%   51  63%   49  64%   58  67%   50  55%
```
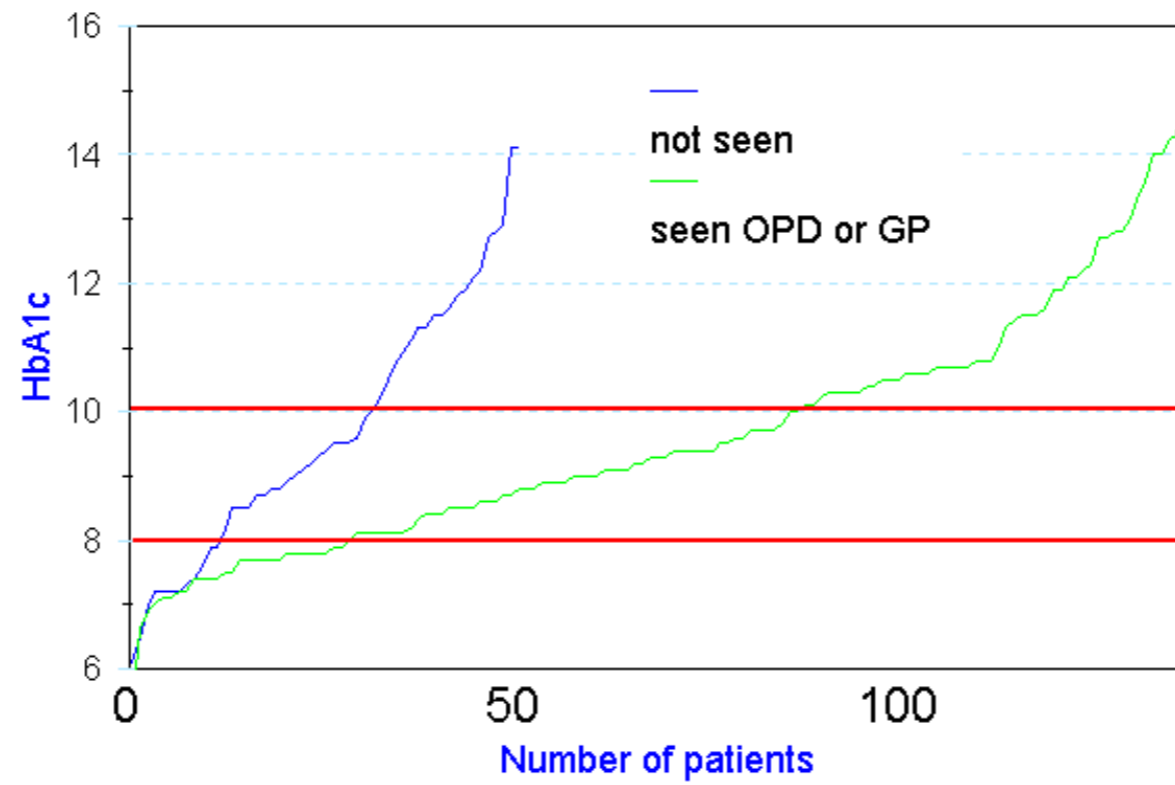
HbA1c

The Ridgeway Surgery

Concern over data from clinical systems

- "Data should not be used for purposes other than that for which it was collected"
- "Garbage in garbage out"
- Garbage can be re-cycled and show trends
- Understanding can allow more detailed analysis

Issues in analysing clinical data.

- The purpose for which the data was collected must be understood
- The data collection mechanisms must be understood
- The environment in which it was collected must be understood

What drives the clinicians to enter data. what do they want it for. does this affect it use for other purposes? Do they know and understand it will be used for other purposes?

Issues such as coding systems, dual systems, who is entering the data, clinicians or admin staff.

If from general practice, the limitations on exposure to patients must be know. It will not cover the whole population but will be much wider than any other data collection.

Local Priorities

- "Religion, culture, disease prevalence wealth & health care organisation make for different preventive priorities and necessitate different approaches to both health education and clinical preventive medicine."

- Prof David Mant, Lancet, 12 Nov 1994

A record which fits into the constraints of the patient encounter 1993

- Rapid response
- Intuitive
- Comprehensive
- Giving something back - helping with patient care
- Secure and Confidential

☒During such an encounter the clinician wants to spend most of the available time concentrating on the patient not the medical record. The CEMR must therefore be both fast and easy to use so it does not disturb clinician concentration. The Graphical User Interface (GUI) has many advantages but it does require user concentration. Keyboard driven systems require less concentration on the screen. The solution is to ensure that a GUI CEMR can be driven equally easily by hot keys and keyboard entry as it can be by means of the mouse.

☒Most important, the recording of data must be intuitive. A good clinician has developed their skills at handling the clinician-patient interaction to a very high degree. If the CEMR interferes with this hard won skill and potentially damages the clinician-patient relationship it will be disliked and not properly used. [5,8]

☒Likewise, the system should provide its decision support, either by prompts or by diagnostic suggestions in a manner which does not interfere with the normal use of the record. The algorithms and Interfaces used during such processing must reflect the needs of clinicians, not the perceived whim of the system designer.[9]

☒It should also be comprehensive and not require a wasteful, parallel need for paper records. This means it should be able to describe anything a clinician may want to record about the patient. i.e... be descriptive not prescriptive[3]. There should be seamless integration between the clinical notes collected directly by the clinician and the externally derived information such as laboratory or radiology results.

☒Of course issues of security and confidentiality must be designed into the CEMR.

The EMR Story of a Patient 1992

- Part or all of the patient's life
- All the relevant medical events
- In a "readable" form
- Not just a list of bits of data
- Must allow patterns to emerge

Giving something back 1992

- Most system are just forms for collecting data
- A System which just collects data is clumsy and difficult to use
- Accurate data must be collected at the coal face
- Clinical staff will only use a system which helps clinical care
- There must be some "added value" from the record
- Otherwise paper is easier and quicker

As part of our understanding of the problems we recognise that computer systems have not been the success in medicine that was hoped for.

Many billions of pounds have been wasted in the civilian NHS because expensive systems have been introduced without an understanding of the underlying problems.

One of the main reasons for this has been the lack of systems which clinicians want to use. Such systems must help the clinician care for an individual patient not just be systems for collecting data.

Clinicians are only interested in concentrating on the individual patient.

In order for them to feel comfortable with computer systems those systems must give them "added value" in caring for patients. Only then will clinicians take the trouble to use computer systems adequately.

Data entry in Structured records 1994

- Structured, standardised views can be clumsy and inflexible.
- Patients are uncontrolled data sources.
- They provide data on several different problems simultaneously.
- Intuitive entry of multi-problem data
- The system must deduce some of the scope and meaning of the data being entered.

The Lessons 1994

- 1. Need multiple Views
- 2. Clinicians record what is useful to them
- 3. During the consultation clinicians are not interested in coding
- 4. Codes causes "pigeon holing"
- Thus - clinicians will not code appropriately after the event

Computers in evidence the current situation 1993

- Audit Trails.
- All data:
  - Date stamped
  - Author stamped
  - Deletions or amendments similarly stamped and displayed
  - Each item and attributes are stored sequentially.
  - The audit trail can resurrect each record as a sequential history.
- Service Committees
- Legitimising the Electronic record

Degree of Supplier responsibility 1993

- The doctor is ultimately responsible to the patient
- Increasing inclusion of medical knowledge
- Doctors rely more and more on computers
- computers are only tools like a stethoscope
- How far does the supplier have to go in protecting the doctor
- Drug Interactions
  - Should the doctor be able to switch them off?
  - If so should the doctor be warned at regular intervals
- Should the doctor be warned every time a drug is prescribed but not checked.

Managing the process - Mobile 1994

- Consider current practice
- Do Not just put IT in
- Plan a hearts and minds strategy
- Plan a training strategy
- Allow time for play
- Start simple, build up at comfortable rates

The Stethoscope 1995

- The Lancet in 1826 classed the stethoscope as an "an ephemeral folly".
- Sir James Mackenzie described it as being "worse than useless".
- We must persuade our colleagues that the Computer record has merit

Beyond NPfIT

- Will there be more to do?

Beyond NPfIT

- A better model for the EPR
- Safety Critical Systems
- The true role of multi media
- Better data entry techniques
- More connected devices
- Assistive technology

Beyond NPfIT

- Patient education by computer
- Patient interviewing

Beyond NPfIT

- Incorporating medical knowledge into point of care
- How what we do changes healthcare practice
- The development of medicine because of real live data