JOURNAL OF INNOVATION IN HEALTH INFORMATICS

In this issue

Benefits and disbenefits of the implementation and adoption of computerised medical records (CMR); plus a more accessible approach to modelling

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IMPLEMENTATION AND ADOPTION AND REMAINS A CHALLENGE IN HEALTH INFORMATICS:

A recent paper from the International Medical Informatics Association (IMIA) and European Federation for Medical Informatics (EFMI) working groups suggests that whilst there is substantial agreement around many health informatics principles there remain substantial disagreements about the process involved in implementation and around clinical interaction with systems post adoption.[1] This theme recurs through this issue of the Journal of Innovation in Health Informatics.

BENEFITS AND DISBENEFITS OF CMR SYSTEM IMPLEMENTATION AND ADOPTION

Two papers touch on challenges around clinically important areas: Burke et al., around diabetes[2] and Lin et al., about kidney disease.[3] Burke's paper shows a "blip," a deterioration in diabetes control (measured using glycated haemoglobin – HbA1c) after a computerised medical record system (CMR) was implemented. Things pick up post implementation, and although control was worse after 5-years this is much in line with the rate of decline in diabetes reported elsewhere. A commentary, by your editor and the peer reviewers highlights this.[4]

Lin et al., then present an interesting paper about drug interactions in patients with renal impairment. This paper looks to theorise uptake using Roger's theory of Diffusion of Innovation; an important theory originally developed to describe the slow uptake of better seeds by farmers, but highly relevant today to describe the slow route towards adoption.

People with impaired renal function, often given the diagnostic name of chronic kidney disease (CKD) are very vulnerable to acute kidney injury (AKI). There is particular risk of AKI when a patient has an infection while taking a medicine that results in hypotension. This often happens to frail older people with comorbidities. The medications that can be involved include hypotensive medications, non-steroidal anti-inflammatory drugs, and diuretics.[5,6]

Is it possible that computerised physician order entry (CPOE) – the computerise ordering of prescriptions – reduced the length of stay (LOS)? Remembering back several decades to when I worked in hospital and I can remember the errors and checking required, with paper flowing to and from the pharmacy. So, based on experiential learning, yes I think CPOE could reduce LOS. Schreiber et al., describe how CPOE appears to be statistically independently related LOS.[7]

PATIENT-CENTRED BENEFITS AND DISBENEFITS OF CMR SYSTEMS

CMRs may not be designed in a sufficiently patient-centred way. Historically the medical record was purely an aide memoire for the clinician. This has been steadily evolving and we include an interesting paper that encourages a much broader perspective of what configurations of technology should be considered for use in the consulting room.[8]

Reflection on your own clinical practice is an established part of continuing medical education (CME). However, the idea of data mining of your CMR data to support is novel. Lewis et al, suggest how this process might support CME.[9]

CMRs should support patient-centred care for all ages. However, there may well be a gap between the expectations of young adults and what health IT delivers. This age group may experience much better interactions with technology outside health care. This might result in expectations that are not met and frustrations with existing technology. Nguyen et al., set out the possible dilemmas for young adults.[10]

MORE ACCESSIBLE MODELLING OF CLINICAL SYSTEMS

Modelling can be inaccessible to clinicians, patients and citizens. This can have the effect of disenfranchising these key stakeholders in health care. Similarly they can be a challenge to managers who are looking to technology to improve the quality, safety and efficiency of health care. The leading article for this issue describes an Anglo-Italian approach towards making modelling systems more accessible.[11]

The Accessible Modelling of Complexity in Health (AMoCH) proposes a four step modelling process:

1. Drawing a rich picture, following Checkland's soft systems methodology;
2. Constructing data flow diagrams;
3. Creating Unified Modelling Language (UML) use case diagrams to describe the interaction of the key actors with the system; and
4. Activity diagrams, either UML Activity Diagram or business process modelling notation (BPMN) diagram.

SUMMARY: THE BENEFITS AND DISBENEFITS OF COMPUTERISED MEDICAL RECORDS

This issue sets out many of the challenges in health care and how CMR systems may offer benefits or result in disbenefits; or the situation can be unclear. Careful theorising and exploration, scientific discourse and modelling can contribute to improving the delivery of health care.

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