

3 PAGE SUMMARY

Computers in General Practice: Clinical governance, data quality and adoption

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Associate Professor Christopher Pearce

Clinical governance

Computerised medical records (CMR) provide a viable mechanism for implementing clinical governance. Computers are involved in all aspects of the clinical interaction - from consulting room to system-level use of large systems that might control entitlement to treatment, screening, recall, and on-line booking of services. In Australia, the UK and Netherlands, primary care is highly computerised, with almost all primary care physicians using a CMR; whilst in the US and Canada, primary care is less computerised, with the hospital sector leading the way. Typically, around 20% of the consultation is spent interacting with the computer.

By analysing the most popular computerised medical records packages (by market share) we were able to develop an understanding of the current state of medical software in relation to a maturity model that will be able to be applied in other areas. The findings of this study are summarised in the next paragraph.

It is important to understand the context within which records are created. Simply having a CMR does not guarantee the creation of a complete record usable for clinical governance purposes; the interaction with the computer in the consultation is complex and evolving. Using a CMR is not a neutral act. There are barriers to using the computer and coding systems and interfacing with them constrains what is recorded.

However, the CMR does enable decision support programs to run that can reduce errors, and the CMR can improve quality through audit/feedback cycles. There are issues about the governance of these records and the repositories derived from these data; and formal governance structures are often lacking.

Redesigning descriptions of work, protocols, and clinical trials documentation for quality improvement and research

Descriptions of Work for quality improvement, protocols and forms used in developing studies and trials have changed very little over the last decade. Health services are becoming increasingly computerised and modelling requirements is an important part of software engineering and system development. With this background we developed and described reference models for common elements of clinical audit, service evaluation, and research studies including data collection involving computer based data for clinical trials. Method: Review reference models for QI, research and e-case report forms.

The business processes and teams needed to enable research: We primarily model the function of the research or quality improvement network using BPML. The primary functions of the network of are to facilitate data oriented quality improvement activities and research. Our model of an effective

network is one with a library of UML and DFD templates that can be deployed to support a range of activities. Using a three arm study involving the influence of either usual practice, guidelines and computerised prompts, or education sessions on the performance of recording of chronic kidney disease (CKD), the design process of the study therefore involves use of the business process model given in figure x below. The business process model serves to present a complete frame of the working model of the study and is the basis to then move to the next two diagrams, UML and DFD.

UML essentially describes the information processing from the researcher perspective in terms of information flow, whilst the DFD concentrates on the actual flow of data. UML therefore has a focus on elements such as consent, actions taken by the researchers in certain circumstances. DFD's focus on the technical aspects of elements such as data warehousing and storage and extraction processes.

The intention is that by using all three models, the studies will be better designed to prevent data and study problems becoming apparent only when data collection is complete and analysis has begun.

Adoption, Israeli experience

The two health systems differ little in the amount of funding, but have some significant differences in the mechanism of distributing that funding. Australia funds its public hospital system via direct method involving grants via the commonwealth, whilst Israel uses a purchaser/provider model. Israel extends that purchaser/provider model to community care, whilst Australia uses an open-ended rebate scheme. Australia concentrates on medical care via doctors, whereas Israel includes dental, occupational therapy and physiotherapy.

In terms of computerisation, Israel pursued a more centralised program, driven by the health funds, whereas Australia has pursued varied approach with a mixture of uptake driven by need and some centralised incentives. That they have arrived at very similar results is an interesting study. If we assume that computer adoption is driven by a balance of three elements: need, Incentives and support, then a more detailed understanding of the significance is apparent. These three elements occupy three points of a triangle. All three interrelate. If the need is strong, then the requirements of incentives and support are low. If the need is not there, then more incentives and support are needed. The less support, the more incentives, and vice versa.

Although the endpoints are similar, the journeys taken to get there have been quite different. In primary care Australia has taken a more organic approach, driven by clinical need. Where there have been gaps identified, the judicious use of incentives and support have removed obstructions and allowed adoption to take place. Thus incentives to buy computers, support through divisions to adopt them.

Australia, with its less centralised system, has allowed for segments of the healthcare system to remain computer naïve. Outside of large institutions, the decisions on computerisation are made by individual and small groups of clinicians on a case by case basis. Specialists remain poorly computerised and therefore poorly integrated into the system. Israel by a centralised system has a more complete system, which allows for better transfer of data within the confines of a health program.

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