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Information Technology for Clinical Decision Support in Primary Health Care Practices

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Abstract

This study of New Zealand General Practitioner (GP) practices demonstrates that those surveyed are generally well equipped with information technology (IT), suggesting there is the potential for them to be able to utilise levels of clinical decision support (CDS) similar to each other. However, three commonly available technologies used by 80% or more of practices were all found to be used by fewer practices for CDS. This suggests that barriers other than the availability of technologies are important inhibitors to the utilisation of IT for CDS.

Keywords:

primary health care; primary health organisation (PHO); Information Systems (IS); Information Technology (IT); General Practitioner (GP); Clinical Decision Support (CDS); case study

Introduction

International and Australasian health care organisations are seeking to improve the use of computerised clinical decision support (CDS) in health care [1;2;3]. New Zealand's primary health care sector is now structured around not-for-profit Primary Health Organisations (PHOs) [4]. Knowledge of IT infrastructure and its usage by PHO practices would enable their management organisations to formulate appropriate strategies to encourage better use of technologies, and the decision support capabilities they provide. This paper presents preliminary results regarding the IT supporting patient care in primary care General Practitioner (GP) practices.

Methods

A multiple case study of medium sized PHOs, consisting of a pilot and two other case study organisations, was undertaken. Triangulation [5] was achieved by the use of face-to-face interviews, a postal questionnaire survey of GP practices and the collection of documentation at each case study organisation.

Results

A response rate of 43.5% was received from 10 completed questionnaires. Table 1 shows the most popular technologies identified as used in the support of patient care by the responding practices.

Figure 1 illustrates that individual practices used between 35.7% and 96.4% of the technologies identified as being present in similar practices belonging to their PHO. All but the three smallest practices used more than 40% of the technologies, but otherwise there appeared to be little evidence that increasing practice size corresponded to increased technology infrastructure. Figure 2 shows that PMSs, the Internet/external websites or databases, and e-mail were used by 100%, 90% and 80% of practices respectively. However, when asked about their use of the same systems in the support of clinical decision making when caring for their patients, the percentage of practices found to use the systems in that way was smaller.

Table 1 –Practice use of technologies

Technology	% Practices using technology
Practice Management Systems (PMS)	100
Fax. Machine	100
Printer	100
PCs	100
Healthlink* connection	100
Word processing software	100
The Internet/external websites or databases	90
Internal messaging system	90
Spreadsheet	90
Extranet application (e.g. ACC logging)	80
e-mail	80

* Secure network for health sector electronic messaging

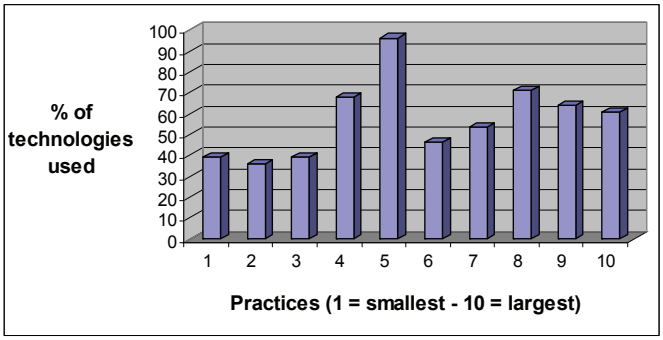

Figure 1- Individual PHO GP practice use of technologies supporting patient care

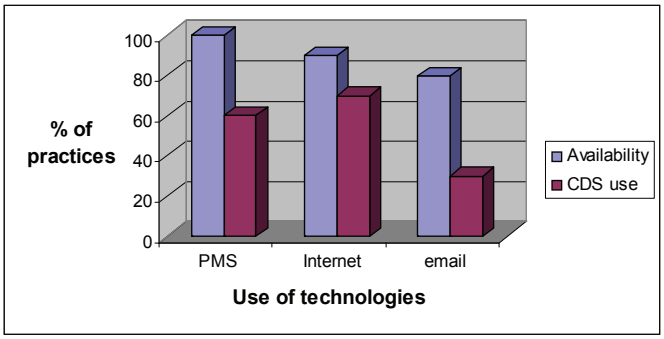

Figure 2- Practice use of three technologies

Discussion

This study shows that the respondent practices are using a wide range of available IT technologies. However, three of these technologies (the PMS, the Internet and e-mail) which were used by a high proportion of practices were found to be utilised by fewer practices for CDS. This suggests that beyond a certain point IT infrastructure ceases to have as much influence on systems use than other factors, i.e. once technology saturation is reached, other factors become responsible as barriers to adopting the technology for CDS. Such additional barriers may include resource and clinical issues such as time, cost, training, credibility, and skills in using CDS programmes, and less importantly, technical and systems considerations [6; 7; 8]. These findings are re-enforced by this study which also illustrates that actually having access to popular technologies within an organisation or even within one practice does not necessarily guarantee either their general use, or use for CDS.

Conclusions

The results demonstrate that within one organisation, GP practices can have similarly high levels of IT in some areas which should enable them to achieve similar levels of CDS to each other, by utilising available technologies. However, there is evidence to the contrary. In order for primary health care managers and practices to improve CDS a detailed knowledge of practice IT infrastructure and how it is used, together with a clarification of barriers to the use of available technologies for CDS, would be beneficial.

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