

General practitioners' use of computers during the consultation

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SUMMARY

This study documents the extent of reported computer use by general practitioners (GPs) in consultations with patients, and identifies barriers to their use. There was a 65% response rate from a random sample of 600 GPs in the South and West National Health Service (NHS) region who were sent a questionnaire. Ninety-one per cent (357) had a desktop computer terminal in their consulting rooms. Of these, 98% used the computer to look up information or prescribe medication, 75% entered details about selected problems presented by patients, and 36% entered information about the patient's presenting problem at every consultation. Only 18% used computers to access reference information. Use of the computer for anything other than looking up patient information or prescribing was positively associated with fundholding status and use of a personal computer at home, and was independent of number of years in practice. Sixty-five per cent of responders had positive attitudes to the inclusion of management guidelines on the computer software, and 45% of responders held positive views towards the idea of integrating management guidelines with the patient's personal computerized medical record. Consideration should be given to targeting training at those GPs who appear to be reluctant to use computers during the consultation.

Keywords: computer use; consultation; general practice; information technology.

Introduction

COMPUTERIZATION in general practice has increased rapidly, from 10% of practices in England and Wales in 1987 to over 79% in 1993.¹ Advantages put forward to support computer use in general practice are that computers improve both administration and patient care.^{2,3} While arguments supporting the use of computers in general practice for administrative purposes and to undertake clinical audit are relatively uncontroversial, the justification for their use in the consulting room is more finely balanced.⁴ Theoretically, the computer's chief value, over and above the use of paper records during the consultation, is to sup-

port the doctor in decisions about diagnosis and prescribing and to provide information for patients about the condition for which they have consulted.³ The main perceived disadvantage is that the attention of the general practitioner (GP) may be directed away from the concerns of the patient and towards the demands of the computer.⁵

One major deficit of previous studies^{1,2,4,5} is that they define computer use in terms of whether or not a computer is physically present in the practice, rather than how GPs use the computer during the consultation. There is increasing interest in the possibility of using computers in GP practices as a vehicle for providing up-to-date access to information during the consultation, including guidelines, as a way of improving the quality of care. This requires an understanding of how computers are used in practices during the consultation.

This study was part of a large survey of GPs in the South and West exploring attitudes to guideline use in general.

Method

A postal survey of a randomly selected sample of 600 practising GPs in the South and West National Health Service (NHS) Region was undertaken in November 1996. The questionnaire was developed from an earlier qualitative phase of the study⁶ and was piloted and refined on a further sample of 20 GPs. (A copy of the questionnaire is available from the authors.) The first section of the questionnaire asked GPs to indicate their agreement with a series of statements about guidelines, the second section asked about the responders' use of computers in general practice and at home, and the third section asked for demographic information about the responder. There were two mailings of the questionnaire with an enclosed reply-paid envelope. The data were coded and analysed using the statistical computer package SPSS for Windows (release 6.1, 1994).

Depending on their responses to questions on computer use, responders were categorized into two groups:

- *Computer 'limited users'*. Computer not used at all during consultations or only used during consultations with patients to look up patient details and to prescribe.
- *Computer 'extended users'*. In addition to looking up patient details and prescribing, computers are used to enter morbidity data, to access reference information, or to communicate with other members of the practice team.

A multiple logistic regression analysis was performed using the dichotomous variable of level of computer use as the outcome, as defined above. The predictor variables examined in the model were: years in general practice, number of partners, sex, fundholding status of practice, practice recognized for vocational training, use of personal computer at home, and keyboard skills.

Results

Characteristics of the sample

Responses were returned from 391 (65%) of the 600 GPs. Seventy-three per cent (285) of the responders were male, 44% (173) came from fundholding practices, and 50% (193) from

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training practices. The mean number of partners, excluding the responders, was 4.8 (SD = 2.3), and the mean number of years in practice was 14 (SD = 9.3). Those who responded did not differ significantly across a range of important variables (sex, fundholding status of practice, training practice status, number of partners, numbers in single-handed practice) when compared with all GPs in the South and West Region.⁷ GPs with surgery addresses with large city postcodes (Bristol, Southampton, and Portsmouth) were adequately represented among the responders.

Of the 391 responders, 357 (91%) had a computer terminal on their consulting room desks. Use of the computer during the consultation is shown in Table 1. When questioned about computer use at home, 202 (53%) replied 'routinely or occasionally', 26 (7%) 'seldom', and 155 (40%) 'never at all'. Forty (10%) responders described themselves as having 'hopelessly inadequate' computer skills.

Two hundred and fifty-three (65%) of the 391 responders to the questionnaire agreed or strongly agreed with the statement: 'I would like to have guidelines on a computer in my consulting room.' One hundred and eighty-four (45%) agreed or strongly agreed with the statement: 'Guideline information would be best if linked in with computerized patient records.'

The results of the multiple logistic regression analysis are shown in Table 2. Fundholding and use of a personal computer at home were significantly associated with extended use of computers during the consultation. The number of partners, the sex of the responder, and the number of years working in general practice were not significantly associated with computer use.

Discussion

General practice is characterized by the wide variety of problems that may be presented by patients during any one consultation and by the short duration of consultations. If information is to be provided to GPs to help them in their decision-making, then it needs to be readily available during the consultation, credible, up-to-date, and easily assimilated. A potentially attractive

method of mediating such information is via the desktop computer. This is used in the PRODIGY⁸ project (a large-scale project developing and evaluating a computerized decision support system to aid GP prescribing in the UK).

Our survey produced a 65% response rate of GPs: representative of all those practising in the region. In particular, there was no under-representation of those working in a single-handed practice or those in inner cities: factors that have, in the past, been associated with underuse of computers in practice.⁵ In this study, computer use during the consultation is generally high, although only 19% use the computer to access reference information.

General practitioners from fundholding practices are more likely to make more extensive use of the computer. Fundholding status may indicate a more structured approach to general practice, which may favour computer use in the consulting room by GPs. It is apparent from the data presented, that computer training in general practice could be appropriately targeted on non-fundholding practices where the GPs do not use a computer at home. The current low percentage of GPs using the computer to obtain information may change rapidly over the next few years and should enable much freer access to sources of information on the NHSnet, such as MEDLINE and the Cochrane Collaboration.

There is enthusiasm for providing guidelines on computers. Direct linkage of guidelines to prescribing or presenting symptoms might overcome some of the issues of awareness and accessibility during the consultation. As 98% of GPs with desktop terminals use them to prescribe for their patients, and 76% for recording presenting complaints, linking guideline information to data entry may increase access to, and possible use of, guidelines. Further development and research is needed in this area.

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Table 1. GPs' use of computers during the consultation.^a

Computer use	Number (%)
To look up information	323 (98)
To prescribe medication	325 (98)
To enter details about selected presenting problems	250 (76)
To enter details about all presenting problems	125 (36)
To communicate with members of the practice team	96 (29)
To gain access to reference information; e.g. electronic British National Formulary	63 (19)

^aGPs with computer terminals on their desks who make some use of it during consultations.

Table 2. Factors associated with computer proficiency.^a (Multiple logistic regression analysis.)

Predictor variables	Unadjusted		Adjusted	
	P-value	Odds ratio	P-value	Odds ratio
Fundholding status (non-fundholding versus fundholding)	0.003	0.49	0.03	0.47
Use of PC at home (never use versus routinely use)	0.0007	0.34	0.005	0.34
Number of partners (per partner increase)	0.11	1.09	0.40 ^b	1.05
Sex of responder (female versus male)	0.51	0.84	0.32 ^b	0.74
Number of years in practice (per year increase)	0.58	0.99	0.44 ^b	0.99

^aDefined as either computer 'limited users' (those who did not use the computer at all during the consultation, or who used their computers during their consultations with patients only for looking up patient details and prescribing), or as computer 'extended users' (those who, in addition to looking up patient details and prescribing, used their computers to enter morbidity data, to access reference information, or to communicate with other members of the practice team). ^bAdjusted for fundholding status and use of PC at home.

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