Paper 2 [Posted as supplied by the author]

The effect of a personalised computer-generated health record compared with a standard explanatory booklet on recruitment to heath checks in general practice

Objective. The aim of the study was to examine the effect of a personalised computer-generated health record (CHR) and/or an explanatory booklet on patients' attitudes, knowledge and behaviour concerning health promotion.

Method. Patients aged 25-65 years in a general practice were randomly assigned to receive by mail either a CHR plus booklet, CHR only, booklet only, or nothing. Attitudes to sharing information and pre- and post-intervention knowledge and behaviour concerning health promotion, were assessed using questionnaires.

Results. There was a 49% response rate to the baseline questionnaire. A sample of 414 patients was obtained. Patients receiving a CHR were significantly more likely to attend for a health check (P = 0.016). Those receiving both a booklet and CHR were more likely to keep (P = 0.014) and use (P = 0.029) the information. Those receiving a booklet as part of the package improved their knowledge of health promotion and became more aware of and more likely to change their life-style (P = 0.022).

Conclusions. The effectiveness of a personalised computer-generated health record and an explanatory booklet together is greater than either separately in changing patients' knowledge attitudes and behaviour concerning health promotion. A combination of documents should be used not only for improving health promotion but in other areas such as medication and chronic disease management.

Introduction

It is widely agreed that patients should be increasingly involved in managing and maintaining their own health. This is increasingly advocated by patients' societies and representatives, but it is also a key element in quality improvement methodologies.[1] A critical element in enabling this involvement to progress is making patients' records accessible to them.[2-4] A facility for patients to have increasing and ongoing access to their records is a cultural and educational issue which must be addressed by health professionals.[5-8]

We developed a standard explanatory booklet which contains a great deal of information concerning health promotion and has a pocket in the back cover which conveniently holds a personal computerised health record (CHR). Our aim was to test the effect of mailing to patients both types of document simultaneously, using the booklet to provide advice and general information and the computer record (CHR) to provide personal details. By mailing documents to the patients we were able to assess the effect of different types of document on recruitment to health checks.

Method

A randomised controlled trial was conducted in which patients were mailed either (i) the explanatory booklet; (ii) a print-out of the patient's computerized health record (CHR); (iii) both the booklet and CHR; and (iv) neither the booklet nor CHR.

To be suitable for recruitment the general practice in which the trial was conducted needed to have a computer system with a suitable health promotion template (including blood pressure, smoking habit, height, weight, body mass index, alcohol consumption, immunizations). The practice nurses needed to be undertaking health checks. A baseline questionnaire was designed

which enquired about patients' attitudes to access to their health records, their main sources of information concerning health promotion, and ten questions on their knowledge of health promotion. Three sociodemographic questions were also asked: sex, ethnic group and age at completion of full-time education.

Recruitment

A total of 1000 patients aged 25-65 were randomly selected from the practice age/sex listing. Since the invitation was to a health check, patients were only selected if they had not had a blood pressure recording within the previous three years. The patients were sent the questionnaire and an invitation to a health check within the following three months. When patients attended, they were randomly allocated, on the basis of their family name, to one of four groups to receive either a booklet; booklet plus CHR; CHR; or neither. The nurse conducted the health check according to her usual procedure. If they had a booklet (with or without a CHR), she referred to it where appropriate for education. If they had neither a booklet nor a CHR, she conducted the health check according to the practice's usual procedures. Patients with adverse risk factors were invited to make changes and received follow-up according to the practice's usual procedure.

Follow-up

Six months after the intervention the patients were mailed a follow-up questionnaire. They were asked whether they had attended a health check as a result of the invitation and the same ten knowledge questions about health promotion. Those that had received a booklet, a CHR or both were asked whether they had kept them and looked at them; whether their awareness of beneficial life-style changes had increased; and whether they had made any life-style changes.

Analysis

Responses to the patient questionnaires were analysed using EPI-INFO. Differences between groups were compared using the chi-square test and differences in level of knowledge compared using Wilcoxon's two-sample test.

Results

Recruitment and response

One hundred and fifty mailings were returned as 'gone away' and of the remaining 850 patients, 551 (65%) replied and were invited to a health check (Figure 1). After 6 months, 261 (63%) replied to the follow-up questionnaire (Table 1).

The mean age of respondents was 41 years, and 54% were female and 6% non-Caucasians. Those returning the questionnaire after receiving different records showed no significant differences in their characteristics.

Sources of information

For blood pressure and immunizations, 68% and 72% of respondents respectively said that their most important source of information was from their GP or practice nurse (Table 2). But for topics relating more to life-style – diet, alcohol, smoking and exercise – only 19-26% regarded doctors and nurses as their most important source, while 54-67% used the media or pamphlets.

Attitudes to sharing health information between patient and doctor

Only 30% of patients left all health issues to their doctor (Table 3), while 52% would have liked more information about their health. Almost half believed that to have a summary of their

medical record would be a good idea.

Response to receiving a computerised health record

Patients who were mailed only their computer record (CHR) were significantly more likely to attend for a health check, 48% attending ($P = 0.016$) (Table 4).

If patients received both the booklet and CHR, they were significantly more likely to keep and look at them, 96% ($P = 0.014$) keeping and 56% ($P = 0.029$) looking at them. Those who received the CHR alone were least likely to keep and look at it.

Those whose mailing included the booklet were significantly more likely to say that their awareness of beneficial life-style changes had increased, although this was not significant statistically. Those who received the CHR were less likely to report increasing awareness of life-style change, and were significantly more likely to say that they felt no need to change ($P = 0.022$).

A significant effect of the type of record on behaviour change was only reported for alcohol (not for smoking, exercise, diet or having a blood pressure check). Those receiving the booklet were significantly more likely to report drinking less alcohol, while those who received the CHR alone were less likely to report this change ($P = 0.026$).

Knowledge concerning health promotion

The number of questions answered correctly was compared before the intervention and after six months. There was no significant difference in knowledge score for the four different patient groups.

Discussion

This study took place in a period in which the funding of health promotion in general practice was being switched from payment for health promotion clinics to payment on the basis of obtaining target levels for the reporting of several risk factors. As a result most GPs were reluctant to encourage extended health checks by practice nurses because their concern had been shifted towards multi-risk factor recording by nurses in brief consultations. In addition, general practice morale was low and staff were very busy meeting statutory requirements and targets. The study was therefore conducted in an atmosphere hostile both to extra work and to health promotion.

Of the patients mailed the baseline questionnaire, 65% replied. This was a good response given that a criterion of recruitment was that the patient did not have a blood pressure recording on the computer within the past three years. This would tend to select both patients who prefer to keep away from doctors and patients who might have remained on the practice register but had really moved away. Indeed, on the basis of studies when non-attenders have been followed up, it is likely that the envelopes returned by the post office represented only a part of those who had gone away.[9]

The data are adequate to support the hypothesis that patients need both accessible data about themselves and general information in order to enhance their health promotion activity. Having both a CHR and the booklet was significantly associated with patients deciding to attend for a health check, in other words, with patients taking action and with keeping and looking at the records. The booklet was associated with realizing the need to change life-style to bring health benefits, and improved knowledge about health promotion. In other words the booklet appeared to be associated with the patient understanding why change is required and what to do. We

confined our analyses to the 414 patients who responded to the initial questionnaire as the non-responders were almost certainly not interested in having a health check.

The advent of extensive record keeping by primary care teams on computer opens the possibility of most GPs being able to provide patients with subsets of their notes, with minimal extra effort and renewable over a long period of time. This study suggests that to give patients such a printout without the enhancement of a booklet to help with interpretation of information will be to lose a major element of health benefit, whilst providing both the printout and an explanatory booklet significantly increases patients' likelihood of keeping and using the record.

We advocate the continued use of a booklet together with patient-held computer records. The booklet could be used for informing the patient about beneficial behaviours, as an aid during consultation, and for interpreting the computer health record. No double entry would be required, and up-to-date personal information could be obtained by requesting a further computer printout from the doctor. The use of booklets and personal computerised health records should be introduced in other areas of primary care, such as those with chronic diseases or on long term medication.

References

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Figure 1: Progress of patients through trial

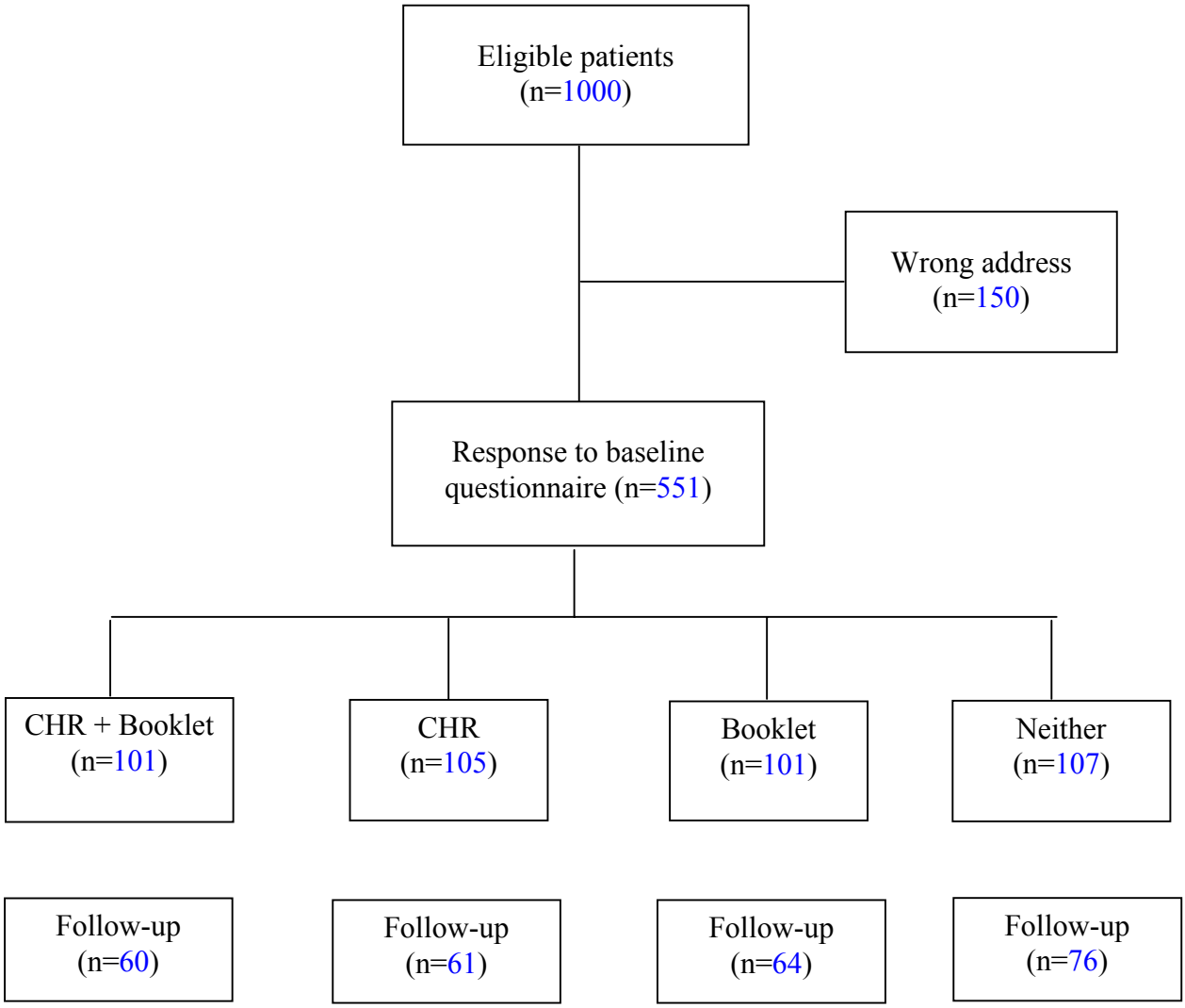

Table 1. Number of patients recruited to health checks and their response to a follow-up questionnaire after 6 months

	Booklet + CHR	Booklet	CHR	Neither	Total
Mail recruitment					
Invited to a health check	101	101	105	107	414
Replied to follow-up questionnaire	60	64	61	76	261

Table 2. Most important source of information reported by patients for various health promotion topics (%)

	Diet	Alcohol	Smoking	Exercise	Blood pressure	Immunizations
GP	20	20	22	13	57	54
Nurse	6	2	2	6	11	18
Family/friend	16	11	11	17	8	6
Radio/TV	7	19	20	13	3	2
Papers/magazines	38	32	30	35	14	12
Pamphlets	13	16	15	16	7	8
Sample size (n)	536	530	531	524	542	537

Table 3. Attitudes of patients to involvement in their health care (n=551)

I would like to see my health record	49%
Having a summary of my health record is a good idea	49%
I would like more information about my health	62%
My doctor involves me in decisions about my health care	56%
Regarding my health, I leave everything to my doctor	30%

Table 4. Number (percentage) of respondents receiving various types of health record

	Booklet + CHR	Booklet	CHR	Neither	P
Attended for a health check	16 (30)	12 (21)	28 (48)	19 (29)	0.016
Kept the record	79 (96)	61 (82)	54 (84)		0.014
Looked at the record	46 (56)	32 (43)	22 (34)		0.029
More aware of ways of staying healthy	57 (70)	51 (67)	40 (59)		0.367
Reduced alcohol intake	19 (24)	23 (33)	8 (13)		0.026
Felt no need to change	37 (53)	22 (35)	33 (59)		0.022