

**THE FEASIBILITY OF USING A COMPUTERISED HEALTH AND
LIFESTYLE SCREEN IN GENERAL PRACTICE RECEPTION
AREAS.**

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ABSTRACT

Aims:

Assess the acceptance and feasibility of using a computer assisted, self administered lifestyle assessment questionnaire in New Zealand general practice reception areas.

Methods:

Computers were installed for two weeks periods in nine Auckland general practices reception areas. Data was collected by means of computer retrieval, administration of written questionnaires to patients and staff, and by follow-up phone interviews with a sample of participants.

Results:

Results indicate a general low rate of computer use by patients, with uptake being higher in small-group practices. There was a consistently higher proportion of women and older age bracket users. There was a high rate of acceptance amongst those who used the computer, with participants responding positively with favourable comments. The positive responses and enthusiasm for the programme was reinforced in the follow-up phone interviews. Over half of the staff surveyed, indicated that the computer's presence disrupted practice routine, doctors and nurses being most concerned about 'hold-ups' in appointment times, while reception staff were concerned with time taken in assisting patients with using the computer.

Conclusion:

Need to integrate into larger functioning of practice.

There is no doubt that uptake and acceptance are directly influenced by having someone on hand to recruit and assist with computer use. Indications are that independent (unassisted) use might not be feasible in the general practice setting.

INTRODUCTION

With around 80% of patients consulting with the GPs at least once a year, general practice visits are a critical location for health education and advice (1). Patients are developing a more active role in seeking and expecting good quality health prevention advice from their GPs (2). Furthermore, research evidence is accumulating on the effectiveness of advice delivered by GPs in influencing a range of lifestyle behaviours including smoking (3), alcohol consumption. More recent attention has focused on the strategies and resources which might enhance the involvement of both doctors and patients in the delivery of preventive messages (4). To this end, computers with their high storage and interactive capacities, seem an ideal adjunct to disease prevention initiatives.

The use of computers as a self-help interactive device for providing health assessment and education has advantages over the more familiar methods (5^{6,7,8} such as personal interviews or written questionnaires (6). Computers offer a quick and efficient method of assessment, giving the patient immediate feedback and a calculation of health risk associated with lifestyle factors (7). They provide this anonymously without the fear of embarrassment and judgement from the practitioner. They can also offer the clinician a means to obtain baseline information on the health status of the practice population. Whilst some patients may initially describe computers as being impersonal and confusing (8), patients who try them out report increased acceptance with more use and enjoyment at being able to control the speed and direction of the interaction (9). Computer assessment is viewed not as a substitute for, but an adjunct to assessment by the clinician.

Although in a study of alcohol and drug use in a general practice unit, Bungey et al (10)¹⁰ found similar reported consumption levels in a comparison of computer assessment with face-to-face interview and paper and pencil questionnaire, other studies have shown that computer screening is more likely to elicit accurate information about sensitive or threatening issues, such as smoking and alcohol consumption.(11,12,13)^{7,8,17,18} Explanations for the computer interview's increased accuracy have been posited,⁷ these include: 1) the computer does not react to the responses (patients may modify their responses to avoid interviewer displeasure) 2) there are no expectations regarding time taken to answer questions - patient may reread questions without feeling pressure to answer 3) the computer is seen to preserve anonymity of response.

The following study examines the feasibility of using a self-help health screening and advice programme in general practice settings. *Healthcheck* is a computer assisted, self-administered lifestyle assessment questionnaire devised at Flinders University in Adelaide to be used independently by patients in general practice reception areas. The programme includes questions on modifiable risk factors such as alcohol consumption, cigarette smoking, diet stress, weight, blood pressure, cervical screening, breast examination, immunisation status and use of over-the-counter medications. Three development trials were conducted between 1988 and 1990 and changes evaluated as the instrument was improved (14,. Results from these studies indicated that patients found *Healthcheck* easy to complete and user-friendly, providing new information on a variety of health related areas. In each trials research assistants

have been available within practices to help with the running and a research assistant to recruit and assist, This has led to a high patient participation rate ranging from 74% to 83% across three studies. The questions the current study aims to address is whether such a resource will attract similar acceptance in New Zealand practices and whether it will be used when left unattended in practice reception areas.

METHOD

Nine Auckland general practices were selected on the basis of size and current use of computers. Practices were grouped into three types: large group practices (three or more full-time medical practitioners), small group practices and accident and emergency practices. GPs were contacted by letter then by phone introducing the study and inviting them to take part.

A personal computer with the *Healthcheck* software, was installed in each practice for a period of 2 weeks (10 working days) with the exception of two practices where the installation period was extended to 4 weeks. During installation a designated member of the practice staff was briefed by the researcher and received a two page outline of procedures. Early indications suggested that a longer installation period might allow patients and staff to become more familiar with the concept of computer assessment and hence promote a greater uptake. The computer keyboard was modified to minimise problems associated with software failures. The computer and printer were placed in or as close as possible to the reception area and were positioned so as to be visible upon entry. Patients were invited to participate by a poster strategically placed near the reception counter and some reception staff provided verbal invitations.

Every participant was given the option of having access to a printed synopsis of their responses and advice provided by the computer. They were also invited to receive further educational material mailed to them on topics covered in *Healthcheck*. The literature offered was standard patient information booklets from a variety of national health bodies such as the Department of Health, ALAC, The National Heart Foundation and the Cancer Society.

Data was collected in various forms. Information on patient responses was stored on the computer. On finishing the programme patients were asked to complete a brief questionnaire on their impressions of the programme and whether they would be willing to take part in a brief follow-up interview. Of those that agreed, a sample of 20 patients was selected at random and they participated in a semi-structured telephone interview asking what they remembered, their impressions of the programme and whether lifestyle changes had resulted. Practice staff views on disease prevention and the use of computers were assessed by a questionnaire that was administered both before the trial (pre-test) and at the end (post-test). Two weeks after the trial they were also asked to complete a feedback questionnaire on their likes and dislikes about the programme and whether they would consider future use.

RESULTS

Patient Responses

Combining the times in each practice, over the aggregated period of 22 weeks, 272 patients

started using the programme, of whom 195 (72 %) completed it. Table 1 presents the rates of use in each type of practice.

Table 1: Mean rates of patients completing Healthcheck per week and mean rates per 100 consultations

	Number of Practices	Mean Incomplete per Week	Mean Complete per Week	Mean Complete per 100 Consultations
Small Group Practices	4	4.1	11.3	7.95
Large Group Practices	4	3.0	9.3	1.71
Accident & Emergency	1	4.0	6.5	0.65
Combined	9	3.6	9.9	4.37

Small group practices attracted consistently heavier use than other types of practices. Although the study had initially planned for four accident and emergency clinics, only one was included because the response rates were less than seven per week, staff complained of disruptions and other clinics contacted expressed strong reluctance to be involved.

Before participating in the trial, practice staff were asked which age group they expected to use the computer. Three quarters indicated the probable age to be under 30 years. Figure 1 presents data on age as recorded by the programme and contrasts it with data from a 1992 study (WaiMedCa) of 12,000 general practice consultations in the Waikato region ().

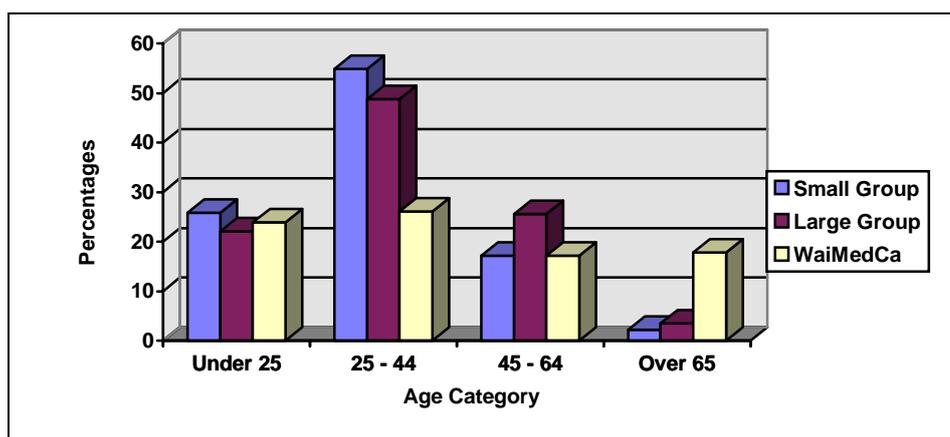


Figure 1: Percent of patents using Healthcheck in each age category and contrasted with expected patient age presentations from the WaiMedCa Study.

In comparison with WaiMedCa rates, considerably more patients used Healthcheck in the 25 to 44 age bracket and fewer using it in the over 65 age bracket. Differences between practice size were not significant. In comparing rates across gender, 68% of participants

were women (small group 68.2%; large group 71.5%) which is higher than the WaiMedCa average of 58% female.

Of the 195 patients who completed the computer programme, 101 (52 percent) returned completed questionnaires out of which half requested informational pamphlets. The most popular pamphlets were exercise (23% of requests), diet (21%), stress (19%) and smoking (9%). In asking what they liked about Healthcheck the most frequent comments were that it was easy (30% of comments), informative (24%) and fun (10%). Examples of comments include:

“It made we stop and think about things I take for granted” and “tells you what would help you to be healthier.”

When asked about dislikes, 70% stated they had no dislikes and a few individual criticisms such as “maybe a touch patronising” or “impersonal”. At the end of the programme, the computer automatically printed out a summary for the patients of their responses and the advice give. When asked what they planned to do with the printout, % stated they intended to keep and read it, % stated they intended to follow up or try to make lifestyle changes and % mentioned other responses.

Practice Staff Responses

Out of the 90 staff working at the nine practices, 66 (73%) completed the pre-test administration of the attitude questionnaire and 51 (57%) completed the post-test administration and the feedback questionnaire.

Table 2: Percent of practice staff indicating strong endorsement of health promotion and use of computers (rating 6 or 7 on 7-point scale)

	Pre-Test n = 66	Post-Test n = 51
See health promotion as very important in general practice	70	90
See computers as a very useful instrument in health education	47	41
Feel very comfortable with the use of computers	57	70

While the majority of practice staff viewed health promotion as important and felt comfortable with the use of computers, less than half saw the computer as a useful device to assist in health education. These negative responses were Negative reactions to the use of computers were

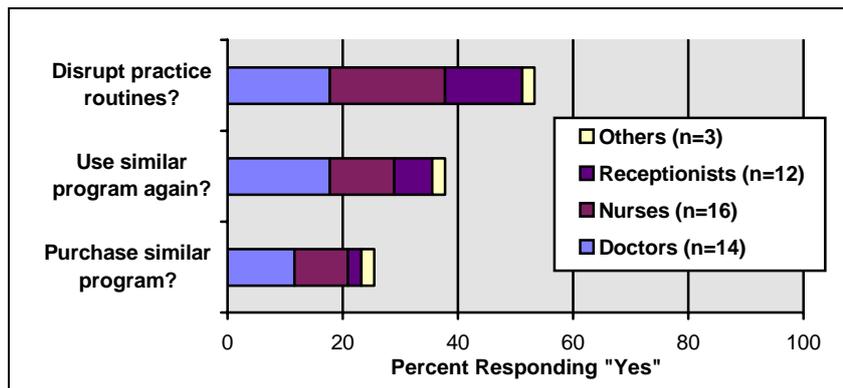


Figure 2: Practice staff feedback on *Healthcheck*

Although a quarter of staff indicated that their practice would consider purchasing such a programme, when asked how much they would spend, 15% indicated less than \$1000 and only one doctor was willing to consider any more.

Without exception reception/administrative staff stated they were overburdened with routine duties which left them little time or motivation to devote to the trial. The following is a quotation taken from dialogue between the researcher and a practice manager on day two of the trial:

Look we just haven't got time - and when you're the only person behind the desk the last thing you think about is the computer. I'll try today, but you know I anticipated this would happen!

Patient Follow-up Feedback

Of the 20 participants telephoned for feedback, 70% spontaneously recalled details of the programme and 25% indicated they had made lifestyle changes after using the programme. When asked what they liked about *Healthcheck* 75% expressed positive statements of which the following were typical:

“It made me feel that the practice was entering the 90s.” “Personally, I’d like to see it there all the time.” “It made you stop and think about your lifestyle.”

When asked for criticisms, none of those contacted expressed dislikes.

DISCUSSION

Low Rates of Patient Use

Although those patients who chose to use the programme expressed strong satisfaction at having done so, very few patients entering the reception areas approached the machine and used the programme. This low uptake occurred despite a prominently displayed invitation for patients to make use of it. In the 22 weeks the programme was available in practices, only 195 patients completed the programme (1.7 per day) and only 101 completed the feedback questionnaire. Some of the factors which appear to influence the low uptake were:

Types of users

The characteristics of patients choosing to use *Healthcheck* was consistent between the different types of practice. Consistently higher proportions of women and a higher proportions older patients (64% were over 30) used the programme. We had expected

proportionally more younger and male users. This has relevance in using the computer to target specific groups.

Ambivalence of Practice staff

These two obstacles appear in many ways inter-linked. For instance, patients are more likely to make use of the computer when they are encouraged by staff, and staff are more likely to promote its use when they see patients making good use of it and regularly reporting satisfaction.

Positive Response of Users

Patients who used *Healthcheck* tended to respond positively. They commented on it being easy to use, informative and interesting.

1. Availability of Staff for Recruitment and Assistance

But long-term applications of Healthcheck cannot be expected to rely on the presence of additional staff for patient recruitment and assistance. Such an arrangement would undermine its advantages as an efficient self-help information device. The programme was designed for independent use and this study focused on the feasibility of its use relying solely on practice staff to recruit and assist where necessary.

2. Practice Size

The three different types of practice investigated each responded in different ways:

The one A & E practice obtained low rates of use. But when approached, the clinics proved hard to recruit and, in the one location that was trialed, staff indicated little enthusiasm and patient uptake was very low. Problems mentioned included the unsuitability of their reception areas, the high work load of staff and the lack of familiarity of patients with the practice environment.

Large group practices also obtained relatively low rates of use (less than three per 100 consultations). Problems commented on included the high work load of reception staff, difficulties in servicing patients wishing to use the computer and disruptions to doctor appointment times.

In three of the four of small practices relatively high rates of use were recorded (over six per 100 consultations). These practices also recorded slightly higher positive ratings for attitudes on health promotion and alcohol problem prevention. Problems were similar to the other types of practice but perhaps because the reception environment was less busy and more familiar and personal patients tended to make more use of the computer.

CONCLUSIONS

The current pilot has helped clarify the potential of interactive health information systems finding applications in primary health care settings. But strategies for implementing such systems are in their early stages. Left unattended with the expectation that patients would access and, the computer attracted low rates of patient participation. Problems encountered in this study related more to procedures of use rather than issues with the device itself. Patients who used *Healthcheck* tended to like it, it was staff who expressed less enthusiasm. The introduction of a computer in an independent fashion into general practice reception

areas does not encourage the positive interest of staff. Staff came to regard it as an extra load, an unhelpful addition which could at times disrupt appointment times and distract the attention of busy reception staff.

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1 Statistics New Zealand and Ministry of Health, *A Picture of Health*. Ministry of Health 1993, Wellington.

2 Wallace PG, Brennan PJ, Haines AP. Are general practitioners doing enough to promote healthy lifestyle? *British Medical Journal*, 1987; 294: 940-2.

3 Richmond R., Webster I. Evaluation of general practitioners' use of a smoking intervention programme. *Int J Epid*, 1985; 14: 396-401

4

5 Duffy J.C., Waterton J.J. Under Reporting of Alcohol Consumption in Sample Surveys: The effect of Computer Interviewing in Fieldwork. *Br J of Addict*. 1984;799:303-308.

6 Skinner HA, Allen BA, McIntosh MC, Palmer WH. Lifestyle assessment: applying microcomputers in family practice. *British Medical Journal* 1985; 290: 212-14.

7 Skinner HA, Allen BA. Does the computer make a difference? Computerised versus face-to-face versus self-report assessment of alcohol, drug, and tobacco use. *J Consult Clin Psychol* 1983;51:267-275.

8 Cruickshank P.J. Computers in Medicine: patients attitudes. *J R Coll Gen Pract* 1984;34:77-80

9

10 Bungey J.B., Pols R.G., Mortimer K.P., Frank O.R., Skinner H.A. Screening Alcohol and Drug Use in a General Practice Unit: Comparison of Computerised and Traditional Methods. *Comm Health Studies* 1989;13(4):471-483.

11

12

13

14 Litt J. Unpublished reports on Healthcheck.