

A patient initiated computer program improved breast cancer screening practices in primary care

Williams RB, Boles M, Johnson RE. A patient-initiated system for preventive health care. A randomized trial in community-based primary care practices. *Arch Fam Med* 1998 Jul/Aug;7:338-45.

Question

Does a patient initiated, easy to use, computer program improve cancer screening rates (breast, cervix, colon, rectum, and oral cavity cancers)?

Design

Randomised controlled trial.

Setting

60 of 329 primary care practices (family practice, general practice, or general internal medicine) in south eastern USA.

Patients

Patients were >18 years of age, had visited a study practice in the previous year, and had been eligible for breast cancer screening (mammographies and clinical breast examinations for women ≥ 50 years), cervical cancer screening (Papanicolaou smears for women ≥ 18 years), colorectal cancer screening (digital rectal examinations for adults ≥ 40 years, and fecal occult blood tests and flexible sigmoidoscopy for adults ≥ 50 years), and oral cavity cancer screening (oral cavity examinations for adults ≥ 18 years).

Intervention

Randomisation was stratified based on degree of association with local medical schools and presence of malpractice insurance. 12 federally funded community health centres were also included. 30 clinics were allocated to each of the intervention and control groups, and 29 in each group completed the study. Intervention practices received the touch sensitive computer program that was designed to provide patient specific recommendations on cancer screening and to facilitate workflow in the practice. Patients used the computer in open areas and answered 20-25 questions on personal and

family medical history and lifestyle. The computer provided chart reminders, chart organisers, orders, and patient education materials that were used in the physician visit. Half day training was provided for practice personnel in the study groups. 3 registered nurses provided study support and liaison at all sites. Control practices received no additional services.

Main outcome measure

Average change in proportion of eligible patients who completed each cancer screening test in intervention and control practices.

Main results

9858 adults used the computers. Intervention practices had a greater average change in the proportion of women who had screening mammographies (difference 8%, $p \leq 0.05$) and clinical breast examinations (difference 8.3%, $p \leq 0.05$). All other rates of use of screening tests showed a positive difference in favour of the intervention practices, but none of these differences reached statistical significance. The direction of the results did not differ when the visits to practices were divided into visits for health maintenance examinations or problem specific visits. For patients in the intervention practices, those who used the computer system had higher rates of adherence with screening recommendations than patients who did not choose to use the computers.

Conclusion

An easy to use, patient initiated, computer program improved screening rates for breast cancer (mammographies and clinical breast examination) but not screening rates for other cancers.

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Commentary

Although many primary care sites are rich sources of health information (many family practices are awash with leaflets), little hard evidence supports information technology systems for consumers of primary care. With ever increasing demands on health services, it is vital to seize every opportunity to involve people in their own care. One can identify a redefinition of primary care towards a greater emphasis on health promotion activity, and this needs research and development support.

The study by Williams *et al* is a brave intervention attempt that shows a modest improvement in screening uptake with an easy to use computerised information service for primary care clients. The disappointing result is not supported by other work, including a systematic review

of interventions intended to improve primary care which showed clear improvements in many primary care processes (but not necessarily in outcomes) with such interventions.¹ This, together with the current results, makes it seem likely that any improved outcomes including reduced morbidity or mortality using this approach will not be large and will be extremely difficult to detect.

On the other hand, it would be helpful to obtain measures of knowledge gained using such systems. Williams *et al* did not assess knowledge gain. A full appreciation of the facts in some screening tests might actually mitigate against client uptake. In those circumstances, one could argue that the system had worked.

The results of this study are relevant to public health nurses and physicians

everywhere. The evidence shows that advanced information technology systems are not capable of much behaviour change in their current form. Although health researchers find computer systems useful, they need to know the reality of ineffective application of these costly systems to clients or patients. More efficient devices or incentives for increasing screening uptake are required.

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1 Yano EM, Fink A, Hirsch SH, *et al*. Helping practices reach primary care goals: lessons from the literature. *Arch Intern Med* 1995;155:1146-56.