Patient Dashboard: the use of a colour-coded computerised clinical reminder in Whanganui regional general practices

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ABSTRACT

INTRODUCTION: Clinical reminders have been shown to help general practice achieve an increase in some preventive care items, especially if they identify a patient's eligibility for the target item, prompt clinicians at the right time, provide a fast link to management tools and facilitate clinical recording. WRPHO has introduced the Patient Dashboard clinical reminder and monitored its impact on health targets.

AIM: This paper reports the impact of a computerised colour-coded clinical reminder on achieving agreed health targets in Whanganui regional practices.

METHODS: Patient Dashboard was developed from previous versions in Auckland and Northland and provided to Whanganui regional practices with Primary Health Organisation (PHO) support. The Dashboard was linked with existing and new clinical management tools which automatically updated clinical records. Data from practices was pooled by Whanganui Regional Primary Health Organisation and target achievement rates reported over 15 months.

RESULTS: Over the initial 15 months of Patient Dashboard use, recording of smoking status increased from 74% to 82% and of alcohol use from 15% to 47%. Screening for diabetes increased from 62% to 74%, cardiovascular risk assessment from 20% to 43%, cervical screening from 71% to 79%, and breast screening from 60% to 80%.

DISCUSSION: Patient Dashboard was associated with increased performance indicators both for those targets which were part of a PHO programme and for targets without additional support.

KEYWORDS: Reminder systems; quality indicators, health care; preventive health services; mass screening

Introduction

General practice has been tasked with improving clinical practice to achieve against performance indicators.[1] National health targets include immunisation, cardiovascular/diabetes screening and smoking rates,[2] and Primary Health Organisation (PHO) performance targets add breast and cervical screening.[1] A number of other preventive care items may be provided appropriately in general practice based on New Zealand (NZ) and international guidelines.[3] There are regional variations in achieving targets[4] and interest in innovations that can improve performance.[5] The use of reminders in general practice have been shown to improve the provision of some preventive services.[6] While systematic reviews report only modest gains generally with the use of reminders, larger benefits are reported in some studies.[7] Computerised reminders are considered to be most effective if they identify a patient's eligibility for the target item, prompt clinicians at the right time, provide a fast link to management tools and facilitate documentation.[8]

This paper describes, in the New Zealand general practice setting, the use of a computerised re-

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minder which includes these characteristics. The impact of Patient Dashboard on Whanganui Regional Primary Health Organisation (WRPHO) practice health targets is reported.

Methods

The items included in WRPHO Patient Dashboard were based on those in the regional patient health-check programme previously developed to apply national and international screening guidelines[9] and included the national and PHO performance health targets. The status of these items was presented as a series of coloured 'traffic lights' which show red for items requiring update, green when complete, and yellow for ongoing surveillance required (Figure 1). Each Patient Dashboard item linked directly to a specific software clinical tool that supported management.
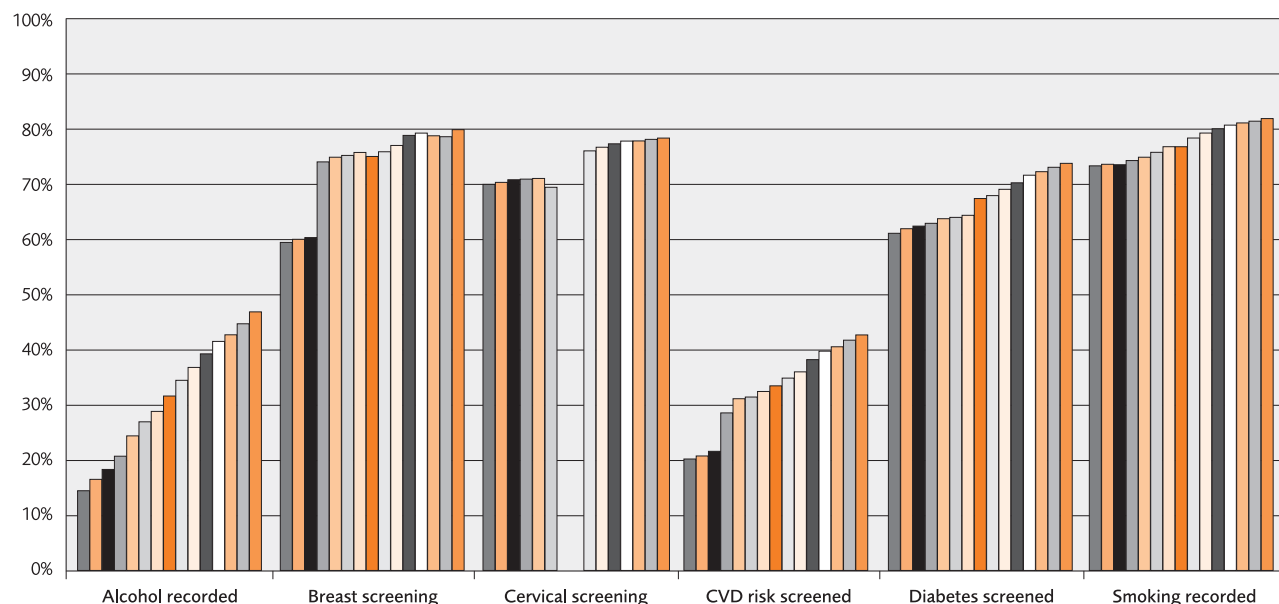
All 35 WRPHO practices except one used Medtech clinical software. Existing clinical management tools were linked to Patient Dashboard where possible, for example to the cardiovascular risk assessment tool. New management tools were developed as part of the WRPHO 'ABC Smoking' and 'ABC Alcohol' programmes. Data recorded using these linked tools were available for

searching at both practice level and as non-identifiable data at PHO level. WRPHO programmes which included patient subsidies were linked by Patient Dashboard to forms which automatically managed service invoicing.

Patient Dashboard was developed locally in 2009 by a clinical and information technology (IT) team based on previous versions used in Auckland and Northland. It was tested in several practices, presented at a regional education meeting by a clinical leader, and then rolled out as a managed project to all regional practices with training and support from WRPHO staff. The introductory version consisted of a display of patient status for smoking, cardiovascular risk, cervical and breast screening, and vaccination for children. Once practitioners gained experience with the use of Patient Dashboard, an updated version was made available which included status for diabetes and alcohol screening, a seasonal reminder for flu vaccination, adult tetanus, and Get Checked status for patients with diabetes.

Of the six screening items included, smoking, alcohol and breast screening were actively supported by a PHO-managed programme (ABC Smoking, ABC Alcohol, and Mobile Mammogra-

Table 1. Monthly screening rates from January 2010 to March 2011

phy), while diabetes, cardiovascular and cervical screening were promoted as targets without organised PHO support.

The impact of Dashboard was measured by the WRPHO audit processes using the Dr Info[10] data report which remotely searches practice software for recorded clinical information to report monthly on agreed targets. These data are reported back to practices for peer group review, and can be checked for accuracy within the practice by comparison with an internal data search.

Results

The impact of Dashboard in WRPHO practices is shown in Table 1. This demonstrates a consistent stepwise monthly increase in each screening item over the 15 months from January 2010. Smoking status increased from 74% to 82%, alcohol use recorded from 15% to 47%, diabetes screening from 62% to 74%, cardiovascular risk assessment from 20% to 43%, cervical screening from 71% to 79%, and breast screening from 60% to 80%.

The impact of PHO programme support is most evident in breast screening, with an increase from 61% to 75% over the two months the mobile mammography service was available, but the subsequent increase to 80% continued after this service finished.

Discussion

Since the introduction of Patient Dashboard, Whanganui regional practices have consistently increased screening for smoking, alcohol, diabetes, cardiovascular risk, and cervical and breast screening over the 15 months reported.

Previously, clinicians were required to identify the status of target items by actively reviewing screening information or recall lists. Alternatively, practices could set up a reminder message box alert for patients meeting specified criteria. This allowed a single-item reminder to flash onto the screen when the clinical notes were first opened. These alerts did not continue to display subsequently, were not linked to management tools or documentation, and required active removal once the item received attention. The development of

WHAT GAP THIS FILLS

What is already known: Clinical reminders in general practice have a modest impact on achieving health targets, with increased benefit likely if the reminder can identify a patient's eligibility for the target item, prompt clinicians at the right time, provide a fast link to management tools and facilitate recording of clinical records.

What this study adds: These characteristic were included in the colour-coded Patient Dashboard clinical reminder introduced into Whanganui Regional Primary Health Organisation practices. Patient Dashboard was associated with increased performance for all health targets.

Figure 1. Screen display example of Patient Dashboard

Patient Dashboard allowed for multiple targets to be reminded, each item being included only for the recommended target group. The status for each item was visually displayed as red, yellow or green throughout the consultation in a screen box which could be modified in size and position according to user preference. Linking the reminders to management tools pre-empted the need to search lists of clinical forms, while the completion of the linked tool resulted in an update of clinical progress notes, classifications and screening information as appropriate.

Three target items (diabetes, cardiovascular risk and cervical screening) received no additional PHO programme support and the increased screening is appropriately attributed to the

introduction of Patient Dashboard. Three other items on Patient Dashboard (smoking, alcohol and breast screening) were supported by PHO programmes (ABC Smoking, ABC Alcohol and Mobile Mammography). The impact of receiving PHO programme support is most evident in the increase in breast screening rates from 61% to 75% during the two-month period mobile mammography was available, although screening rates continued to increase subsequently. Smoking status had been relatively well recorded before the introduction of Patient Dashboard, having been addressed already as a PHO project. Many practices had used the message alert system to remind about smoking and the increase from 74% to 82% reflected the additional gain with Patient Dashboard which also linked to a management tool that automatically updated smoking classification and supported the provision of brief advice and cessation. There had been very little formal recording of alcohol status before the introduction of Patient Dashboard, and the associated Alcohol ABC management tool together with the use of the reminder and the programme support, increased recording of alcohol use from 15% to 47%.

The impact of Patient Dashboard on clinical workload was most associated with the smoking, alcohol and cardiovascular targets. Although recording smoking and alcohol was straightforward, addressing the clinical issues raised took extra time. Completion of a clinical form was needed to change the cardiovascular reminder from red to green. Even with pre-population of items in the form, the process of cardiovascular risk assessment and management took additional time. Previous analysis has shown practices vary in how they manage the increased workload, with some clinicians addressing the target items within consultations, and others in planned health checks.[9] The implementation of Patient Dashboard was supported by the widespread use of a single provider software (Medtech) throughout the Whanganui region, by IT consultancy and support for the introduction and development of Patient Dashboard and the linked smoking and alcohol advanced forms, by the use of PHO practice facilitators to introduce the software to practices, and programme management for the smoking, alcohol and breast screening.

The increased achievement of targets indicates the value of Patient Dashboard as a reminder in general practice. This tool is now an integral part of clinical practice in the Whanganui region, reminding practitioners which items require attention for the individual patient, and is associated with improvements in achieving health targets.

References

1. PHO Performance Management Programme. Summary information for PHOs. [Cited 2011 Apr 30]. Available from: http://www.maorihealth.govt.nz/moh.nsf/pagesmh/5817/$File/PHOperfmagmtsummaryinfo.pdf
2. Ministry of Health. The health targets. [Cited 2011 Apr 30]. Available from: http://www.moh.govt.nz/moh.nsf/indexmh/healthtargets-targets
3. RNZCGP. Preventive care and screening. A systems approach to improving preventive care and screening in general practice. Wellington: RNZCGP; 2001.
4. PHO Performance Results. [Cited 2011 Apr 30]. Available from: http://www.dhbnz.org.nz/Site/Current-Issues/Performance-Results.aspx
5. Health Information & Innovations Resource Centre. [Cited 2011 Apr 30]. Available from: http://www.hiirc.org.nz
6. Frank O, Litt J, Beilby J. .Opportunistic electronic reminders. Improving performance of preventive care in general practice. Aust Fam Physician. 2004;33(1–2):87–90.
7. Shojania KG, Jennings A, Mayhew A, Ramsay C, Eccles M, Grimshaw J. Effect of point-of-care computer reminders on physician behaviour: a systematic review. CMAJ. 2010;182(5):E216–25.
8. Dexheimer JW, Talbot TR, Sanders DL, Rosenbloom ST, Aronsky D. Prompting clinicians about preventive care measures: a systematic review of randomized controlled trials. J Am Med Inform Assoc. 2008;15(3):311–20.
9. McMenamin JP, Handley J. Targeted health checks by nurses in general practice: are they feasible? NZ Fam Phys 2005; 32:382–388.
10. Dr Info. [Cited 2011 Apr 30]. Available from: http://www.drinfo.co.nz