Four clinical guidelines – their use and usefulness to GPs

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ABSTRACT

Background

Barriers to the implementation of clinical guidelines by general practitioners (GPs) include clinical preference, physician misunderstanding, health care system inefficiencies, practice setting and patient expectations. Evidence indicates that locally developed guidelines accompanied by educational programmes, academic detailing and audit are likely to have improved implementation.

Aims

The aim of our study was to determine New Zealand GPs' reported use and perceived usefulness of four national guidelines on the management of dyslipidaemia; hypertension; heavy menstrual bleeding and depression respectively.

Methods

A national self-administered survey of randomly selected GPs surveying their reported use and perceived usefulness of the four target guidelines.

Results

A total of 378 of 459 eligible GPs returned completed questionnaires (82% response rate). The highest ranking for both use and usefulness was the dyslipidaemia then hypertension then menstrual bleeding and then depression guidelines. Male GPs were equal users of guidelines (considered alone) but less likely to be high users of heavy menstrual bleeding and/or lipid guidelines than female GPs when all other factors were controlled (OR 1.72, 95% CI 1.26, 5.8).

Conclusions

The guideline ranking order was determined neither by duration of their availability to GPs nor electronic accessibility. Educational sessions following dissemination of guidelines and the availability to GPs of the recommended resources (such as medication and psychological services) may influence the use and value of guidelines.

Key words

Practice guidelines, guideline adherence, evidence-based medicine, family practice, physician's practice patterns

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Introduction

Clinical practice guidelines are being developed to improve the process and outcomes of health care and to optimise use of resources. There has been a huge proliferation of these, with over 1 800 medical practice guidelines catalogued in the United States alone.[1] There is also a wide range of what constitutes a 'guideline', most being an amalgam of research evidence, clinical experience and expert opinion. Many draw heavily on systematic reviews of primary research.[2] Recently, increasing numbers of studies have been conducted to evaluate the implementation of clinical guidelines in general practice.[3]

While there has been a recent enthusiasm for the development of scientific clinical practice guidelines, similar energy and resources have not been devoted to their evaluation, including the effectiveness of their dissemination and implementation.[4,5]

Locally developed and agreed upon guidelines increased the likelihood of implementation.[6-8] GPs surveyed in the UK thought that the most appropriate way to move towards evidence-based general practice was to use guidelines or proposals developed by colleagues.[9] However, producing guidelines locally runs the risk of their proliferation and unnecessary duplication. One study in the UK identified forty-five depression guidelines and the authors emphasised that local considerations should not compromise the basic premise that guidelines be evidence-based.[10]

GP knowledge of existing guidelines and assessment of their value is clearly a first step towards implementation. The aim of our study was to

determine NZ GPs' use of four New Zealand guidelines and how they rated these guidelines with respect to their usefulness. The four guidelines were the National Heart Foundation of New Zealand Dyslipidaemia guidelines (NHFdyslip); the National Health Committee Blood Pressure guidelines (NHCBP); the National Health Committee Heavy Menstrual Bleeding guidelines (NHCHMB) and the National Health Committee Depression guidelines (NHCdepress).

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Copies of the guidelines had been mailed to all GPs at the time of production. The NHFdyslip is available to GPs in several formats. The original guideline was published in the *New Zealand Medical Journal* in 1996[11] and a five-page summary is available at the back of the *New Ethicals Catalogue* published biannually and distributed to New Zealand doctors to provide basic prescribing information on available pharmaceutical products.

Methods

Four hundred and ninety-nine general practitioners selected randomly from Medimedia, a commercial GP database company, were mailed or faxed a questionnaire about their knowledge of four New Zealand guidelines, how they rated these and whether they had used them. Non-respondents were sent two reminders and then telephoned to maximise response rate. The survey was carried out from November 1999 to February 2000. Respondents also completed standard demographic questions about GP and practice characteristics.

Actual use of the guidelines was established by self-report of the number of times a respondent had calculated the absolute risk of cardiovascular event (for the dyslipidaemia and blood pressure guidelines) or estimated the risk of endometrial hyperplasia (for the heavy menstrual bleeding guidelines) within the last year. The measure for utilisation of the depression guideline was the reported use of the Diagnostic and Statistical Manual (DSM-IV) criteria or the CES-D Major Depressive Disorder Scale, the Hamilton Major Depressive Disorder Rating Scale, or the Edinburgh Postnatal Major Depressive Disorder Scale contained in the guidelines.

Proportions and 95% confidence intervals were calculated using SPSS (version 10) and CIA (1.1 1991). Perception of usefulness of the guidelines was examined using Wilcoxon ranked sign to establish the 'most useful' guideline. Personal and practice characteristics were compared between those aware of all four guidelines (coded 0) and those unaware of one or more (coded 1) using chiquare statistic and Wilcoxon ranked sign depending on the distribution of the data. A logistic regression examined the influence of all variables on the awareness outcome and a measure of use of the lipid and heavy menstrual bleeding guideline. The dependent variable for awareness was constructed as those who were completely unaware of one or more of the four guidelines. Use of the guideline was established by self report of: the frequency of calculation of the absolute risk for the lipid guideline (scale of 1-4, never more than twice monthly); and the frequency of calculation of estimation of risk of endometrial hyperplasia for the heavy menstrual bleeding guideline.

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The University of Auckland Ethics Committee approved this survey.

Results

Of the 499 randomly selected GPs who were mailed or faxed a questionnaire, 40 were not eligible (22 were not at the stated address, three were retired and 15 not in general practice). Of the remaining 459, 378 returned completed surveys (82% response rate).

Of the 378 doctors completing the GP information section of the survey, 73% (277) were male and 76% (289) were in full-time practice. Seventy-two per cent (272) were in urban practice, 25% (93) were solo practitioners, and the average number of patients seen per week was 117 (Standard Deviation (SD) 48.6). The mean age of the GPs was 45.7 years (SD 8.6) and they reported being in general practice for an average of 15.7 years (SD 8.8 years).

The form of the NHFdyslip used was virtually split with 164 GPs using the original form from 1996; 161 using the table in the back of *New Ethicals* and 39 replying to 'other'. The usefulness ratings by the GPs of the four nationally developed guidelines is shown in Table 1.

The same order of ranking of usefulness was maintained with GPs stating that they were not aware of a guideline (number not aware/number who rated the guideline): National Heart Foundation Dyslipidaemia 2.5% (9/368); National Health Committee Blood Pressure guideline 5% (18/356); National Health Committee Heavy Menstrual Bleeding guidelines 10% (34/335) and the National Health Committee Depression guidelines 20% (60/305). The reported calculation of absolute risk (for either NHFdyslip or NHCBP) is shown in Table 2.

Table 1. General practitioner responses to a survey of four nationally developed guidelines

GUIDELINE		USEFULNESS									
		Extremely		Very		Somewhat		A little		Not at all	
	N	%	N	%	N	%	N	%	N	%	N
NHFdysli	368	15	52	52	192	25	92	7	27	1	5
NHCHMB	335	8	26	33	112	35	117	17	57	7	23
NHCBP	356	4	13	27	97	40	144	22	78	7	24
NHCdepress	305	3	10	22	68	38	115	23	71	14	41

NHFdysli = National Heart Foundation of New Zealand Dyslipidaemia guidelines
NHCHMB = National Health Committee Heavy Menstrual Bleeding guidelines
NHCBP = National Health Committee Blood Pressure guidelines
NHCdepress = National Health Committee Depression guidelines

Wilcoxon ranked sign tests of the four guidelines
NHFdysli > NHCBP p<0.0001;
NHFdysli > NHCHMB p< 0.0001;
NHFdysli > NHCdepress p< 0.0001;
NHCBP > NHCHMB P<0.001;
NHCHMB > NHCdepress p<0.0001

Awareness of guidelines was high with only 21% (80/376) GPs being unaware of one or more guideline. At the univariate level, fewer urban GPs (18%, 50/271) were unaware of one or more of these guidelines compared with rural GPs (28%, 29/105) (Chi Square 3.8, df 1 P< 0.05). No other personal or practice characteristic predicted awareness of guidelines. Adjusting for all other variables using logistic regression, rural GPs showed a trend towards being less aware of one or more of the guidelines (Odds Ratio (OR) 1.71 95% Confidence Interval (CI) 0.99, 2.99).

Self reported utilisation of the guidelines is reported in Table 2. Of the 378 respondents, 76% (286) reported using either the lipid and blood pressure guidelines to calculate absolute risk of cardiovascular event more than once a month, or the heavy menstrual bleeding guidelines at least once in a year. These GPs are termed high users. Female GPs were more likely to be high users than male GPs, with 88% (88/100) of female and 71% (198/277) of male GPs being high users respectively (Chi Square 10.9 df 1 p<0.001). High users were younger (mean 44.9 years sd 8.1) than less frequent users (mean 48.1 yrs sd 9.4, Wilcoxon ranked sign test p < 0.008), and had been in general practice on average four years less than less frequent users (Wilcoxon ranked sign test p<0.005).

Adjusting for all other variables (except years in general practice, see below) using a multivariate logistic regression model, the dependent variable being high user, female GPs were more likely to be high users (OR 1.72, 95% CI 1.26, 5.8). Age and years in general practice were highly correlated (Pearson correlation coefficient 0.899, p<0.01) so years in general practice was not entered into the multivariate model. Older GPs were less likely to be high users of the guidelines (OR 0.96, 95%CI 0.93, 0.99). However, when the analysis was repeated by re-categorising a high-user as only one who used the lipid guidelines more than once per month, there were no demographic features that distinguished high users from lower users.

Access to behavioural cognitive therapy for patients (suggested in the depression guidelines) was reported by 47% (175/372) of responding GPs. Thirty-four per cent (128/372) had no access and 20% (74/372) were unsure whether they had access or not.

One longitudinal study of GP implementation of guidelines...found that compliance with the guidelines resulted in no major changes in disease status indicators

Discussion

There is growing evidence that the publication of guidelines per se effects little change in clinical practice and/or health outcome.[12,13] One longitudinal study of GP implementation of guidelines for the management of hypertension, diabetes mellitus, chronic ischaemic heart disease, chronic respiratory disease, and osteoarthritis found that compliance with the guidelines resulted in no major changes in disease status indicators.[14] Another study found that practice guidelines on hypertension and hypercholesterolaemia did not have the desired impact on GPs' reported practice.[15]

Some suggest an incentive-based payment system for guideline implementation providing rewards for doctors who follow practice guidelines.[16] However one Australian study found that a fee-for-service remuneration system was highly associated with a negative view by GPs towards guidelines.[17]

Effective use of guidelines requires addressing barriers to their implementation.[18,19] Some studies indicate that

the publication and distribution of guidelines must be embedded in a comprehensive package of interventions reaching doctors in their local practice site, in order to change physician performance and health outcomes.[20,21] Specific education programmes may be an effective method of practice guideline dissemination to GPs.[22] Practice-based training plus support telephone calls was found to be the most effective and cost-effective strategy to encourage implementation of screening and brief alcohol intervention by GPs.[23] Interventions such as audit and methods of feeding back information on current practice targeted to specific providers and delivered by peers; reminder systems and academic detailing have been shown to improve implementation.[24, 25]

A strength of our study was the high response rate (82%). In addition, awareness and perceived usefulness of the guidelines was supplemented with a self-report measure of utilisation of the guidelines. Audit of practice was beyond the scope of this study, but reported utilisation complements the GPs' reported awareness and usefulness of the guidelines.

The order of awareness and value of the four guidelines, from greatest to least, was the NHFdysli, followed by the NHCBP followed by the NHCHMB and finally the NHCdepress. This order is not explained by the duration of their availability to GPs. The hypertensive guideline was in fact the first to be introduced in 1992, and updated later in 1995.[26] The lipid guideline was introduced in 1996.[11] The guidelines on the management of depression[27] and heavy menstrual bleeding[28] were both introduced in 1998.

In a self-report questionnaire mailed to a random sample of 300 GPs and 165 gynaecologists in New Zealand six weeks after the HMB guidelines had been distributed, 81% claimed to have read at least part of the guidelines and 51% to have used them in practice.[29] These were significantly more likely to be gynaecologists than GPs. Our study suggests that there has been limited use of these guidelines by GPs.

Gender, age and practice type or location did not differentiate frequency of use of the lipid guidelines. However male GPs and older GPs were less likely to frequently use the heavy menstrual bleeding guidelines. This is most likely because of patient population profiles attending those GPs. It is interesting that in the same group, male GPs and younger GPs were more likely to be users of the Internet for patient care purposes.[30] Female GPs may prefer written forms of information to electronic ones. Rural GPs may be less aware of guidelines in this instance. This was not a factor identified for other forms of evidence-based medicine use and awareness in the same survey.[30]

Effective use of guidelines requires addressing barriers to their implementation

The electronic availability of the guidelines did not determine the order assigned them by GPs. The lipid guideline was reported as the most implemented, but this is the only one not electronically accessible. An updated version of the blood pressure guidelines is available on the New Zealand Guidelines Group website (http://www.nzgg.org.nz/library.cfm) and electronic versions of the depression and menstrual bleeding guidelines can also be accessed from there. It should be noted that the cardiovascular risk colour charts used

Table 2. Self-reported utilisation of guidelines by New Zealand GPs

REPORTED USE OF GUIDELINE	LEVEL OF UTILISATION (TIMES PER MONTH)							
	>2		1-2		<1		never	
	%	N	%	N	%	N	%	N
Used lipid and BP guidelines to calculate absolute risk of cardiovascular event. N=374	31	114	24	91	39	147	6	22
Used CES-D, Hamilton or Edinburgh depression rating scale in depression guideline to check for depression. N=370	4	16	6	22	36	132	54	200
Used DSM IV criteria in depression guideline to check for depression. N=369	3	12	9	32	35	129	53	196
Used heavy menstrual bleeding guideline to estimate endometrial hyperplasia. N=374	2	6	9	34	46	171	44	163

DSM-IV = Diagnostic and Statistical Manual (of mental disorders) Version Four
CES-D = Centre for Epidemiological studies – Depression Screen

in the lipid guidelines are available electronically in the hypertension guidelines. This may be used to determine patients' eligibility to obtain statin drugs.

Implementation was probably greatest for the cholesterol guidelines as the NHF and pharmaceutical industry organised many educational groups throughout the country *(R Jackson, personal communication)*. A smaller number of training sessions were organised on the hypertensive guidelines. The lipid guideline is published at the back of the *New Ethicals* catalogue, and this incorporated the cardiovascular risk charts originally developed for the hypertension guidelines. In contrast, there were no training sessions on either the heavy menstrual bleeding or depression guidelines. This is possibly reflected in the lower level of use and perception of usefulness reported in this study for the heavy menstrual bleeding and depression guidelines.

A study at an Auckland hospital looked specifically at whether the management of dyslipidaemia changed following the publication of the National Heart Foundation guidelines.[31] The researchers followed patients at high absolute risk of coronary events discharged from hospital and found that the patients' management of dyslipidaemia did not result in improvement in lipid levels. This was published in 1996. Removal of the restrictions on prescription of lipid modifying agents by GPs and improved interchange between general practitioners and specialists should improve these outcomes.

In 1997 Pharmac released their Statin prescribing criteria. Patients with demonstrable vascular disease and/or total cholesterol >9mmol/l with varying absolute cardiovascular risk levels can obtain these drugs through an application by their GP. This requires the GP to consult the guidelines to assess the patient's eligibility and is a likely explanation as to why this guideline is the one the GPs knew of and used most often. Ironically, although requested on the application form, the absolute risk is not necessary for GPs to obtain statin drugs as their patients have to either have documented vascular disease or a total cholesterol >9.0 mmol/l, irrespective of their absolute risk.

A British postal survey found GPs were largely receptive to guideline initiatives and were of the opinion that methods of implementation involving them in educational events and discussion with colleagues were most likely to have an impact on them.[32] However, others have found that educational interventions resulted in no change in practice[18,33] and even with near-optimal situations, for example with documentation of the care provided, education, feedback on compliance and peer review, GP compliance with guidelines was less than desired.[34] The high levels of awareness and use of the lipid guideline in this study suggests the success of implementation educational meetings in New Zealand and the 'need' to use this information to obtain rationed medication.

Guideline implementation strategies need to take into account the varied forces that can influence doctors' decision making

A number of barriers exist to guideline uptake including clinical preference, physician misunderstanding, health care system inefficiencies, practice setting and patient expectations.[35–40] This study did not survey practice efficiencies or GP attitudes. Male GPs and rural GPs were less likely to be aware of, or actively using, guidelines. Special strategies are needed to facilitate guideline use by these groups as was found with use of the Internet for patient care.[30]

Key points

- Four national guidelines on the management of dyslipidaemia, hypertension; heavy menstrual bleeding and depression were evaluated.
- The highest ranking for both use and usefulness was the dyslipidaemia, then hypertension, then menstrual bleeding and then depression guidelines.
- Awareness of guidelines was high, with only 21% (80/376) of GPs being unaware of one or more guideline.
- Male GPs and rural GPs were less likely to be aware of, or actively using, guidelines.
- Locally developed and agreed upon guidelines increase the likelihood of implementation.

Guideline implementation strategies need to take into account the varied forces that can influence doctors' decision making. While doctors may consider clinical guidelines as effective educational tools that should improve the quality of patient care, they may be concerned about their potential regulatory intrusion into practice.[41,42] They are more likely to have a positive attitude towards guidelines developed within their profession than those developed externally, for example by insurance companies or state health departments.[43] Traditionally, practice guidelines have been developed by doctors to improve quality of care, providing practitioners with valuable medical information and improved objectivity in medical decision making. However, guideline development by non-clinicians is on the increase with aims such as decreasing costs and reducing liability risk. This raises potential ethical issues with the possibility of guideline misuse.[44] GPs are unlikely to implement guidelines whose primary motive they see as

cost containment rather than quality improvement.[10]

We hypothesise that GPs may believe they already know how to treat depression adequately, but may not get patients up to the high dose levels of anti-depressants thought necessary by psychiatrists. The drug treatment for depression recommended in the depression guidelines may differ significantly from what is common practice (especially for high doses of tricyclic antidepressants) and hence not thought to be very relevant. The guidelines emphasise that appropriate psychological treatment of depression is effective, but these modalities are primarily Cognitive-Behavioural Therapy (CBT) and Interpersonal Psychotherapy (IPT), and the majority of GPs do not have access to practitioners trained in these therapies. Although the DSM-IV criteria for the diagnosis of depression and other depression inventories are available at the back of the guideline, these are time-consuming to administer – for example, the CES-D contains 20 questions and the Hamilton scale has 17. This makes them unsuitable for use during the average GP consultation.

The heavy menstrual bleeding guideline developers had hoped that tranexamic acid and levonorgesterol intrauterine system might obtain government funding but this did not eventuate and may explain the lower 'value' of these guidelines. In contrast, statin drugs have been available to GPs since 1997 and this has probably influenced their appreciation of this guideline.

GPs are unlikely to implement guidelines whose primary motive they see as cost containment rather than quality improvement

In summary, it would appear that guidelines for New Zealand GPs are considered more valuable if they are introduced with a combination of seminars for GPs and resources such as the recommended medications and non-medical therapy available to them. The lack of access to medications and psychological services have almost certainly resulted in the lower ratings for the heavy menstrual bleeding guidelines and the depression guidelines. The question needs to be asked: should the availability of resources be taken into account by the guideline developers, or be the responsibility of the relevant government agencies? Our answer to this is if the benefits, harms and costs of the resources are documented, then the responsibility lies with the government agencies.

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