SYSTEMATIC REVIEW

Clinicians' attitudes to clinical practice guidelines: a systematic review

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ABSTRACT

Objective: To systematically review surveys of clinicians' attitudes to clinical practice guidelines.

Data sources: MEDLINE, HealthStar, Embase and CINAHL were searched electronically for English-only surveys published from 1990 to 2000.

Study selection: We included surveys with responses to one or more of seven propositions (see below). Studies were excluded if they had fewer than 100 respondents or if the response rate was less than 60%.

Results: Thirty studies included responses to one or more of the seven items, giving a total of 11 611 responses. The response rate for the included studies was 72% (95% confidence interval [CI], 69%–75%). Clinicians agreed that guidelines were helpful sources of advice (weighted mean, 75%; 66%–83%), good educational tools (71%; 63%–79%) and intended to improve quality (70%; 60%–80%). However, clinicians also considered guidelines impractical and too rigid to apply to individual patients (30%; 23%–36%), that they reduced physician autonomy and oversimplified medicine (34%; 22%–47%), would increase litigation (41%; 32%–49%) and were intended to cut healthcare costs (52.8%; 39%–66%).

Conclusions: Surveys of healthcare providers consistently report high satisfaction with clinical practice guidelines and a belief that they will improve quality, but there are concerns about the practicality of guidelines, their role in cost-cutting and their potential for increasing litigation.

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CLINICAL PRACTICE GUIDELINES (CPGs) are defined as "systematically developed statements to assist practitioner and patient decisions about appropriate healthcare for specific clinical circumstances."[1] They are tools used by healthcare professionals to assist in clinical decision-making and to improve healthcare for patients. Medical clinicians have used treatment recommendations, immunisation schedules, algorithms, textbooks and practice bulletins to guide practice for many years,[2] but the difference over the past decade has been the increasing focus on summarising research to develop evidence-based recommendations. This more rigorous approach to the development of guidelines involves a multidisciplinary team representing various stakeholders and working with explicitly described methods.[3-5]

The motivation behind CPGs is to improve the quality of healthcare and outcomes for patients.[5] One simple definition of quality in healthcare is providing the right care, at the right time, for the right person in the right way.[6] CPGs should improve healthcare quality both at a clinical level and by influencing policies that promote efficient allocation of resources and better delivery systems.[7]

Producers of clinical practice guidelines are encouraged to base guidelines on research evidence, validity, reliability, and clinical applicability, as these characteristics are associated with better adherence to the recommendations within the guidelines.[8,9] However, in spite of the considerable efforts of many healthcare organisations over the past 20 years, there is limited evidence of the impact of CPGs on clinical practice or health outcomes. Although some studies have shown that guidelines have improved the quality and consistency of healthcare,[10-12] there is concern that guidelines have not always delivered the predicted improvements in clinical care.[13-15]

It is widely perceived that CPGs are not popular with clinicians. CPGs have been variously described as anti-intellectual, standardising practice around the average, preventing discretion in individual cases, cost-cutting, limiting innovation and clinical freedom and encouraging litigation.[16,17] These attitudinal barriers have the potential to limit implementation.

In this study, we systematically reviewed surveys of clinicians' attitudes to CPGs to find out just how high these attitudinal barriers might be.

METHODS

Data sources

Articles published in English from 1990 to 2000 were sought using Medline, HealthSTAR, Embase and CINAHL electronic databases.

The keywords located in the title, abstract, or subject used to select articles, were "clinical practice guidelines," "clinical practice guideline survey," "clinical guideline surveys," "guideline adherence," "CPG — knowledge, attitudes, practice, evidence-based medi-

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1: Surveys of attitudes to guidelines included in this systematic review

Year	First author	Affiliation	Clinicians	Country	Guideline focus	Respondents	Response rate
1990	Grol[19]	Nederlands Huisartsen Genootschap	Primary care doctors	Netherlands	Diabetes care	453	70%
1990	ACS[20]*	American Cancer Society	Primary care doctors	US	Cancer preventive services	1029	74%
1992	Nowells[21]	HMO	HMO doctors	UK	No specific guideline	194	86%
1993	Madhok[22]	None	Senior house officers	UK	Head injuries	140	80%
1994	Tunis[18]	American College of Physicians	Internists	US	No specific guideline	1513	60%
1995	Shye[23]	HMO	HMO primary care doctors	US	No specific guideline	168	80%
1995	Mansfield[24]	None	Hospital specialists	US	No specific guideline	268	66%
1996	Hornbrey[25]	None	Senior house officers	UK	No specific guideline	164	71%
1996	Grilli[26]	None	Physicians	Italy	No specific guideline	216	72%
1996	Ferrier[27]	None	Family physicians	Canada	No specific guideline	395	70%
1996	Pathman[28]	None	Family physicians/ paediatricians	US	Vaccine recommendations	1421	66%
1997	Hayward[29]	None	Primary care doctors/ specialists	Canada	No specific guideline	1513	60%
1997	Gupta[30]	None	Primary care doctors	Australia	General practice	286	77%
1997	Salem-schatz[31]	HMO	HMO physicians	US	HMO guidelines	203	77%
1997	Alston[32]	None	Anaesthetists	UK	No specific guideline	144	64%
1997	Dodek[33]	None	Healthcare professionals	Canada	Arterial blood gas measurement	107	90%
1997	Olesen[34]	College of General Practice	Primary care doctors	Denmark	Diabetes	293	79%
1998	Wolff[35]	None	Family physicians	US	No specific guideline	205	65%
1998	Carrick[36]	National Breast Cancer Centre	Surgeons	Australia	Early breast cancer	150	64%
1998	Browman[37]	Cancer Care Ontario	Oncologists	Canada	Cancer practice guidelines	304	72%
1999	Halm[38]	None	Hospital specialists	US	Pneumonia	140	89%
1999	Girgis[39]	None	Primary care doctors	Australia	Prostate cancer	145	65%
1999	Grilli[40]	AIOM/SIOG†	Gynaecological oncologists	Italy	No specific guideline	120	70%
1999	Cotton[41]	None	Nurses/general practitioners	UK	Scottish Intercollegiate Guideline Network guidelines	437	74%
1999	Shah[42]	None	Cardiologists/cardiac surgeons	Australia	NHMRC‡ cardiac guidelines	110	63%
1999	Constantini[43]	None	Hospital staff	US	No specific guideline	254	67%
2000	Harris[44]	ACOEM§	Mixed healthcare providers	US	Occupational and environmental medicine	238	63%
2000	Dye[45]	None	Obstetricians/gynaecologists	Ireland	No specific guideline	114	67%
2000	Graham[46]	Cancer Care Ontario	Oncologists	Canada	Cancer Practice Guidelines	584	73%
2000	Vinker[47]	None	Family physicians	Israel	Diabetes guidelines	293	83%
					Total responses	11611	
					Weighted mean response rate (95% CI)		72% (69%–75%)

* American Cancer Society. †*Associazione Italiana di Oncologia Medica* and *Societa Italiana di Oncologia Ginecologica*. ‡National Health and Medical Research Council. §American College of Occupational and Environmental Medicine.

2: Aggregated survey responses to clinical practice guidelines

Proposition	Number of surveys	Weighted mean positive response	Weighted 95% confidence interval	Weighted median positive response	Interquartile range
Guidelines are a helpful source of advice	24	75%	66%–83%	80%	69%–88%
Guidelines are good educational tools	14	71%	63%–79%	72%	60%–80%
Guidelines are intended to improve quality of care	16	70%	60%–80%	75%	59%–84%
Guidelines are intended to cut health care costs	13	53%	39%–66%	46%	39%–53%
Guidelines will increase litigation or disciplinary action	15	41%	32%–49%	40%	26%–52%
Guidelines reduce physician autonomy and are oversimplified or "cookbook" medicine	12	34%	22%–47%	32%	21%–42%
Guidelines are impractical and too rigid to apply to individual patients	19	30%	23%–36%	26%	20%–35%

cine — survey — physician," "medical practice guidelines — survey," and "attitudes — practice guideline recommendations." In addition, the references listed in articles found in the database search were searched by hand. Consensus statements were considered to be guidelines.

In an attempt to access the unpublished literature, members of an electronic mailing list on evidence-based medicine (evidence-based-health@jiscmail.ac.uk) were sent the list of identified studies and asked about unpublished surveys or other surveys that had not been identified by our search strategy.

Articles were included if they included survey data on medical or allied health clinicians' attitudes to CPGs in general. Exclusion criteria were articles written before 1990 (the definition of clinical practice guidelines was published by the Institute of Medicine in 1990[1]); editorials about CPGs; published CPGs; surveys that dealt with attitudes to specific guidelines only; studies that did not provide suitable data for abstraction; surveys of managers or representatives of professional organisations; surveys with a response rate below 60%; and surveys with fewer than 100 respondents.

Each abstract was reviewed by two authors (E K, C F) and, where uncertainty existed about including particular articles, the full-text article was requested, and a consensus about inclusion reached. Full-text copies of all included articles were obtained. A list of the excluded studies is available from the authors.

Data extraction and analysis

The following data were collected from each report: year, author, organisation affiliation, country of origin, guideline focus, health practitioner surveyed, type of survey, number of surveys (sent and returned), rate of responses to items on attitudes. The percentage of positive responses to seven propositions was sought from each survey. These seven propositions were common to many of the surveys and evolved from one of the earliest surveys.[18] These were that guidelines:

- were a helpful source of advice
- were good educational tools
- were intended to improve quality of care
- were impractical and too rigid to apply to individual patients
- reduced physician autonomy and were an oversimplification of medicine or "cookbook" medicine
- will increase litigation or disciplinary action
- were intended to cut healthcare costs.

In some surveys only the mean Likert scale was given and therefore the data were not suitable for extracting. Attitudes to many other propositions about CPGs were surveyed, but not in a consistent way that could be reliably extracted from each survey.

We calculated means (weighted by the number of respondents for each survey), and pooled confidence intervals. The influence of response rate was explored by calculating weighted mean responses for surveys with a $\geq 75\%$ response rate for the seven items and comparing these with the weighted means for the total sample ($\geq 60\%$ response rate). Responses from the United States were compared with responses from the other countries. Differences in the response rates were explored by comparing weighted mean responses between groups. To assess differences over time in the response to individual items, weighted means were calculated for three time intervals (1990–1994, 1995–1997, 1998–2000). Statistical differences between weighted means were assessed by *t*-tests. All analyses and statistical tests were performed with SAS software (Cory, NC).

RESULTS

We found 153 surveys of attitudes toward CPGs, and 30 (20%) met the inclusion criteria. Eighteen surveys were excluded because of a response rate less than 60% and seven because they had fewer than 100 respondents. The total number of respondents in the included surveys was 11 611.

Box 1 summarises the surveys included in the study.[18-47] Nine were surveys of primary care doctors, general practitioners or family physicians, 14 of hospital doctors, three of health maintenance organisation doctors and four of a mixed group of healthcare professionals. Ten surveys were from the United States, five from Canada, five from the United Kingdom, four from Australia, two from Italy and one each from Israel, Denmark, the Netherlands and Ireland.

The weighted mean response rate of the surveys included in the study was

72% (95% confidence interval [CI], 69%–75%). Sixty-seven percent of the surveys had two or more follow-ups, either by telephone or additional mailings. Financial incentives were only offered in three surveys.

The responses to the seven propositions about CPGs are presented in Box 2. Most respondents agreed that guidelines were helpful sources of advice (weighted mean, 75%), good educational tools (weighted mean, 71%) and intended to improve quality (weighted mean, 70%). Just over half (weighted mean, 53%) thought that guidelines were intended to cut healthcare costs. Sizeable minorities thought that guidelines were impractical and too rigid to apply to individual patients (weighted mean, 30%); reduced physician autonomy and were oversimplified or "cookbook" medicine (weighted mean, 34%); or would increase litigation (weighted mean, 41%).

There were no significant differences in the responses for any of the seven items between those surveys with a response rate of $\geq 60\%$ and those with a response rate of $\geq 75\%$; between United States surveys and surveys elsewhere; or between the three time categories (1990–1994, 1995–1997, 1998–2000).

DISCUSSION

We sought to review clinician attitudes to clinical practice guidelines as shown in studies from diverse settings. Most clinicians in the surveys included in this report were supportive of CPGs, finding them to be useful, educational and likely to improve quality. Less frequent responses were that clinical practice guidelines were impractical, unable to be used for individual patients, limited clinician autonomy, increased the likelihood of litigation or disciplinary action and were used to cut costs.

Our approach of reviewing surveys from multiple sources has obvious limitations. Few of the surveys were planned to be compared with others. Because of differences in the context and wording of the surveys, our combined data should be interpreted cautiously. However, as the number of surveys and the total number of respondents was large, some insight into clinician attitudes is provided.

Many of the surveys initially identified had a poor response rate, which might raise doubts about bias in the response. Eighteen studies were excluded from the review for this reason. Only three surveys used incentives to increase response rate. Consideration could be given in future to offering incentives to increase the response rate. A recent systematic review has suggested that continuing medical education credits can significantly improve survey response rates.[48]

The strength of this review is the number of surveys with respondents from a variety of backgrounds, and the consistency of responses across these differing settings and countries. Although only four of the 36 surveys were Australian, this consistency suggests that the results of this review could be generalised to the Australian context.

Our chief finding is that, contrary to popular belief, negative clinician attitudes are not the major barrier to implementation of CPGs. There has been some concern that guidelines have failed to change practice and to reduce variations in practice.[10-14,16] Clinician intransigence is often suggested as the cause,[17,49-52] but this review does not bear the theory out.

There are some areas of concern for clinicians that should not be overlooked. For example, nearly half of all respondents considered that CPGs increased the chances of litigation or disciplinary action, although there is little evidence that guidelines have actually been used in this way.[53,54] In the US, where CPGs have perhaps proliferated the most, guidelines played "a relevant or pivotal role in the proof of negligence" in less than 7% of medicolegal cases.[55]

Underlying the medicolegal concerns may be a concern that CPGs will be used to set standards or develop regulations. In the UK, the National Health Service has agreed that, even when CPGs are produced by a professional body or endorsed by the NHS, they are only aids to decision making, and cannot be used in a regulatory fashion.[56] In the US, the standard of care against which malpractice liability is measured is defined informally as "what a similar doctor would do under similar circumstances". If there is evidence that most clinicians agree with a CPG, then it will serve as a standard against which conduct will be measured. However, if a guideline is ignored then it is unlikely to be used as a standard in the courts.[57] As "good medicine is good law" there may in fact be some protection for clinicians who adhere to guidelines.

Another major concern among survey respondents was that CPGs are aimed at reducing healthcare costs. In fact, although healthcare savings are an often-expressed hope when introducing CPGs, there is only limited evidence that guidelines have reduced costs, except where misuse of a procedure or medication was widespread.[58,59] If an effective treatment or intervention has been underused, the implementation of CPGs can actually increase costs.

Does it matter that clinicians actually like CPGs? The finding that most respondents agreed that CPGs are useful, educational and likely to improve quality does not necessarily translate into practice changes. The nature of modern healthcare makes it improbable that individual clinicians could make significant changes without some educational, organisational and structural changes in the healthcare system at either local or regional level.[60] There have been several initiatives, both in the US and Australia, to support efforts to implement evidence from research into everyday clinical settings.[61,62] Focusing on what we can do better in healthcare is the way forward for guideline development and implementation and has the potential for success, given that practitioner attitudes to guidelines are, for the most part, positive. Guideline development and implementation programs should be encouraged by these findings, but should also recognise that addressing clinicians' concerns is necessary if their programs are to succeed.

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COMPETING INTERESTS

None identified.

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