

Family Physicians' Attitudes About and Use of Clinical Practice Guidelines

Paul A. James, MD; Timothy M. Cowan, MSPH; Robin P. Graham, PhD;
and Barbara A. Majeroni, MD
Buffalo, New York

BACKGROUND. The use of clinical guidelines is one strategy intended to improve health care quality, rein in costs, and standardize medical practice. Clinical guideline development has been prodigious, while less effort has been expended on the guidelines' dissemination and implementation. This study examines family physician attitudes toward and perceived uses of clinical guidelines in practice.

METHODS. A survey questionnaire was sent to 978 family physicians in Upstate New York to assess their confidence in clinical guidelines developed or endorsed by organizations and the perceived usefulness of such guidelines in practice. Descriptive analyses, chi-square tests, and comparison of means (one-way ANOVA) were conducted.

RESULTS. After two mailings, the response rate was 43%. Most respondents perceived clinical guidelines as effective educational tools that should improve the quality of patient care, but were concerned about their potential regulatory intrusion into practice. Solo practitioners expressed more negative attitudes regarding clinical guidelines than physicians in non-solo practices. Respondents had greater confidence in clinical guidelines developed or endorsed by their professional society, the Centers for Disease Control and Prevention, the United States Preventive Services Task Force, and the National Institutes of Health, but less in those by insurance companies or state health departments. The reported adoption rate of clinical guidelines was low. The most preferred methods for adoption were continuing medical education and practice interventions.

CONCLUSIONS. Family physicians found clinical guidelines to be valuable educational tools but were divided on their potential regulatory role. If clinical guidelines are to improve quality in practice, they must be more effectively disseminated and implemented. To broaden physicians' adoption of clinical guidelines, further research into dissemination and implementation methods is warranted, along with wider endorsement of guidelines by those whom family physicians trust.

KEY WORDS. Physicians, family; practice guidelines; knowledge, attitudes, practice; quality of health care. (*J Fam Pract* 1997; 45:341-447)

Clinical guidelines are being developed to improve quality, standardize clinical practice, and possibly reduce costs.^{1,2} However, all guidelines are not created equally.³ Professional societies, government agencies, and insurance companies have distinct goals that can influence guideline development and create conflicts in recommendations.⁴

Submitted, revised, July 22, 1997.

From the Department of Family Medicine, State University of New York at Buffalo. Requests for reprints should be addressed to Paul A. James, MD, SUNY Office of Rural Health, Erie County Medical Center, 462 Grider St, Buffalo, NY 14215.

This has led to the emergence of more rigorous evidence-based clinical guidelines.

While the development of clinical guidelines continues, their role in the evolving health care system is uncertain. The Institute of Medicine suggests that guidelines serve as educational tools,⁵ but they are also becoming the foundation for the measurement of quality in clinical practice.⁶ Remarkably, little attention has focused on dissemination, use, or evaluation of guidelines.^{3,7-9} Clinical guidelines have predominantly focused on inpatient and highly technical care but are expanding to primary care services, such as dis-

ease management and preventive practices.^{10,11} The measurement and evaluation of physician adherence to clinical guidelines is complex and imprecise owing to the nature of primary care.¹² Despite all the promise of guidelines, their effectiveness in improving clinical practice remains unknown.¹³

For clinical guidelines to be effective, they must influence physician behavior and demonstrate measurable improvement in patient outcomes. Assessing physicians' attitudes toward guidelines is critical to improve their dissemination and implementation as well as to refine their role in evaluating health care quality. Physicians have expressed concerns about the adaptability of population-based clinical guidelines to individual patients, and about the potential regulatory intrusion guidelines may cause in the practice of medicine.¹⁴⁻¹⁹

We surveyed family physicians in Upstate New York to explore their opinions about the usefulness and potential effects of clinical guidelines and their confidence in existing guidelines endorsed by various organizations. Additionally, we assessed the level of dissemination and utilization of clinical guidelines, with emphasis on the guideline on heart failure supported by the Agency for Health Care Policy and Research (AHCPR).²⁰

METHODS

QUESTIONNAIRE

In part 1 of the 6-page self-administered survey, three questions measured (1) physicians' agreement (using a 4-point Likert-type scale) with eight descriptions of clinical guidelines as educational tools and patient management guides, (2) physicians' predictions about the impact of guidelines (increase, no effect, or decrease) on six characteristics of the health care environment, and (3) physicians' confidence (using a 5-point scale) in clinical guidelines that are developed or supported by nine organizations. These agencies were the American Medical Association (AMA), "your professional organization (eg, American Academy of Family Physicians)," "organizations affiliated with the medical field that the clinical guideline addresses," the Centers for Disease Control and Prevention (CDC), US Preventive Services Task Force (USPSTF), National Institutes of Health (NIH) Consensus Panels, Agency for Health Care

Policy and Research (AHCPR), New York State Department of Health and Human Services, and "local HMO or third-party payer."

In part 2 of the survey, physicians were asked whether any medical practices had changed in the past year as a result of adopting a published guideline. As an indirect measure of dissemination, we inquired whether physicians were aware of the AHCPR guideline on heart failure and if so, how they had learned about it. Next, each respondent ranked six activities in order of their effectiveness for helping adopt guidelines; respondents were asked to assume these activities were equally available. The final section solicited descriptive physician and practice information. Two pretests were conducted in convenience samples of family physicians, with revisions made after each.

SAMPLE

The questionnaire was sent to all members of the New York State Academy of Family Physicians residing in Upstate New York (New York City and surrounding counties were excluded). After removing retired physicians and names with incorrect addresses, the sample size was 978. A second survey was mailed to all nonresponders, followed by a reminder post card 1 week later.

ANALYSES

Descriptive statistics were completed to examine physician characteristics, physicians' opinions about clinical guidelines, their reported adoption of clinical guidelines, and their awareness of the AHCPR heart failure guideline. In addition to the descriptive analyses, chi-square analyses were conducted to compare opinions about clinical guidelines between two pairs of groups: (1) physicians who graduated from medical school in the last 14 years as compared with those who graduated 15 or more years ago, and (2) physicians in solo as opposed to non-solo practices. We hypothesized that those educated more recently, when clinical guidelines were more likely to be used in medical school education, would be more comfortable with guidelines than those who graduated earlier. Solo physicians were expected to be more negative about clinical guidelines, because previous research has found these physicians to be less receptive to anything they perceive as a threat to their autonomy and independence.²¹ To control for

TABLE 1

Characteristics of the Respondents in the Preterm Labor Treatment Survey

Characteristic	Frequency, % (n=419)
Board certified	96
Not board certified	4
Female	20
Male	80
Type of practice	
Solo	23
Partnership	18
Single specialty group/ academic or residency practice	24
Multispecialty group	8
Community health center	8
Staff HMO	8
Hospital/emergency department/other	11
Practice community	
Small rural town (< 5,000)	24
Large or mid-sized rural town (5,001-25,000)	27
Community within 25 miles of city	11
Metropolitan area, or suburb	37
Years in practice	
<15	44
15-29	42
30 +	14

NOTE: Percents provided are valid percents, excluding missing values.

an amplified response bias caused by different rates of surveys returned among different groups, an alpha $\leq .01$ was used for the chi-square test. Finally, analysis of variance (ANOVA) tests were run to compare the average confidence ratings in the nine organizations and the mean effectiveness rankings of the six activities for improving guideline adoption. In each ANOVA, Tukey's-B correction was used to maintain a significance level of alpha $\leq .05$ for the multiple comparisons.

RESULTS

The response rate after two mailings was 43%. Respondents were evenly distributed across the geographic regions. The characteristics of these family physicians are presented in Table 1. Nearly all respondents were board certified, the majority were male, and most were in either solo practice, partnerships, or single specialty groups. One half of the sample stated that they practiced in small, mid-sized, or large rural towns.

ROLE OF CLINICAL GUIDELINES: EDUCATIONAL VS REGULATORY

Physician opinions about guideline characteristics are presented in Table 2. Most family physicians believed that clinical guidelines were practical. Overwhelming majorities agreed that clinical guidelines were effective strategies for educating

TABLE 2

Physicians' Opinions of Descriptions of Clinical Practice Guidelines, on a 4-Point Likert-type Scale

Description	Frequency of Respondents' Answers, % (n=419)			
	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>In general, practice guidelines are</i>				
Good tools for . . .				
Physician CME	2	10	64	24
Educating students and residents	2	4	58	39
Patient education	5	31	50	14
Oversimplified or "cookbook" medicine	2	55	29	14
Too rigid to apply to individual patients	4	58	30	9
Likely to be used to credential and/or reimburse physicians	3	15	60	22
A challenge to physician autonomy	3	37	43	17
Not practical	10	72	14	4

TABLE 3

Family Physicians' Predictions About Clinical Practice Guidelines' Impact on Medical Practice (n=419)

Practice Aspect	Response Categories		
	Decrease, %	No Effect, %	Increase, %
Quality of care	9.7	29.4	60.9
Physician satisfaction	49.1	31.9	19.0
Reimbursement	40.6	51.5	7.9
Defensive medical practice	23.9	24.9	51.2
Cost of medical care	30.4	31.6	38.0
Malpractice suits	18.7	40.8	40.5

physicians, family practice residents, and students. A smaller majority of family physicians, however, considered them useful for educating patients.

In comparison with educational purposes, there was less agreement expressed about the applica-

tion of clinical practice guidelines for regulatory purposes. The majority of physicians agreed that guidelines challenged physician autonomy and would likely be used for credentialing and reimbursement. Somewhat less than a majority believed guidelines were "cookbook" medicine, and fewer still, although a significant minority, believed clinical guidelines were too rigid for use with individual patients.

Because of possible response bias, only differences with a confidence level of 99% ($P < .01$) were considered significant for the chi-square tests. There were no significant differences in opinion between the physicians who graduated ≥ 15 years ago and recent graduates. Solo practitioners, however,

were more critical of clinical guidelines than physicians in other practice settings. Significantly more physicians in solo practice agreed or strongly agreed that clinical guidelines were cookbook medicine (58% vs 39% among non-solo physicians), were too rigid to apply to individual patients (59% vs 33%), and a challenge to physician autonomy (78% vs 54%, respectively); all three differences were significant ($P < .001$).

TABLE 4

Family Physicians' Confidence in Clinical Practice Guidelines, by Organizations Developing or Supporting Them

Organizations, by Statistical Group	Mean (95% CI)
Group 1 Your professional organization (AAFP)	3.88 (3.80-3.97)
Group 2 The Centers for Disease Control and Prevention US Preventive Services Task Force National Institutes of Health Consensus Panels	3.57 (3.43-3.71) 3.60 (3.45-3.74) 3.34 (3.20-3.47)
Group 3 Organization affiliated with the medical field guideline Agency for Health Care Policy and Research American Medical Association	3.07 (2.97-3.17) 3.02 (2.86-3.18) 2.97 (2.88-3.07)
Group 4 New York State Department of Health and Human Services	2.41 (2.27-2.56)
Group 5 Local HMO or third-party payer	2.02 (1.92-2.11)

Confidence scale: 1=not confident, to 5=very confident.

The groups presented were significantly different at $\alpha \leq .05$, (adjusted using Tukey's-B correction) in the analysis of variance model.

PREDICTED EFFECTS OF CLINICAL GUIDELINES ON THE HEALTH CARE SYSTEM

An interesting finding is that a majority of family physicians predicted an improvement in the quality of care delivered if clinical guidelines were utilized (Table 3). However, almost one half of the respondents predicted reduced professional satisfaction, perhaps associated with their predictions of increasing defensive medical practices, malpractice litigation, and reduced reimbursement for services. The respondents were equally divided on their predictions of the impact of clinical guidelines on [effected changes in] the cost of medical care.

Significantly fewer physicians in solo practices than those in non-solo practices predicted that clinical guidelines would increase quality of care (42% vs 67%). Furthermore, solo practitioners were more

likely to believe that reimbursement would decrease (56% vs 36% of non-solo physicians) while costs (58% vs 32%) and the number of malpractice suits (57% vs 36%) would increase.

CLINICAL GUIDELINE DEVELOPMENT: IMPORTANCE OF THE SPONSOR

Five significantly different statistical groups were determined in the one-way ANOVA analysis (the model F statistic = 123.26; $P < .01$) by comparing the average confidence rates physicians reported for clinical guidelines from the nine organizations. The mean confidence ratings and confidence intervals are presented in Table 4. The mean rating for guidelines developed or supported by the AAFP was significantly ($P < .05$) higher than the rates for all other organizations. The average confidence ratings in clinical guidelines from the CDC, USPSTF, and NIH Consensus Panels were significantly higher than those for the remaining five organizations. There was only moderate confidence for the AHCPR, the AMA, and subspecialty organizations, while physicians had less confidence in clinical guidelines affiliated with the state health department and the least confidence in those associated with local insurance companies.

USE OF CLINICAL GUIDELINES AND PREFERENCES FOR ADOPTION METHODS

Only 119 (28%) of the 419 physicians reported changing a medical practice by adopting at least one guideline within the past year; one half of these physicians listed two to four guidelines (19% of the 119 physicians listed no guidelines). While family practitioners in the entire sample had only moderate confidence in evidence-based clinical guidelines published by AHCPR, over one quarter (26%) of the clinical guidelines listed by those who adopted a guideline were developed by this organization. Regarding the indirect measure of guideline dissemination, 133 respondents reported being aware of the AHCPR Heart Failure clinical guideline. Of these, 40 physicians (approximately 10% of total sample) learned about it through a journal article,²² whereas 50 physicians (12% of total sample) read the guideline booklet or quick reference guide published by AHCPR.

TABLE 5

Perceived Effectiveness of Activities for Improving Adoption of Clinical Practice Guidelines

Activity, by Statistical Group	Mean (95% CI)
Group 1	
Completing CME meetings or home study programs	4.48 (4.35-4.61)
Reading guidelines in journals or booklets	4.22 (4.09-4.36)
Group 2	
Asking advice from peers	3.79 (3.63-3.95)
Participating in an intervention with practice-based system for enhancing compliance	3.77 (3.61-3.93)
Group 3	
Accessing computer information services	2.78 (2.63-2.94)
Participating in an intervention with financial rewards or penalties for adherence rate	2.66 (2.41-2.91)

Effectiveness ranking scale: 1=most effective, to 6=least effective.

The groups presented were significantly different at alpha $\leq .05$, (adjusted using Tukey's-B correction) in the analysis of variance model.

Regarding the perceived effectiveness of six possible adoption activities, three significantly different pairs were determined in the one-way ANOVA procedure (Table 5). Physicians ranked CME and reading published literature as the most effective dissemination methods. The second pair of methods included interventions involving new support structures in practices and asking peer advice. Accessing guidelines through the Internet and using interventions with financial rewards or penalties were ranked as the least effective methods to promote clinical guideline adoption.

DISCUSSION

A major impetus for developing clinical practice guidelines is to improve the quality of care provided to patients. Our findings suggest that most family physicians in the study support this objective through their acceptance of clinical guidelines as educational tools. Further, the majority of physicians predicted that using clinical guidelines would improve quality of care. However, few physicians reported adopting a clinical guideline within the past year. Limited dissemination and concerns about the limits of implementing clinical guidelines appropriately may be barriers to adoption and acceptance.

Compared with other studies, more family

physicians, especially solo practitioners, described clinical guidelines as too rigid, too oversimplified, and a challenge to autonomy.^{19,23} It is unclear how much these differences, and those regarding guidelines as educational tools, were created by the use of a 4-point Likert-type scale, as opposed to 5-point scales in the other studies. Nevertheless, the concerns are emphasized by the finding that 82% of respondents believed that clinical guidelines would likely be used for credentialing or reimbursement. Interestingly, physicians rated such potentially punitive interventions as the least effective methods for encouraging adoption of clinical guidelines.

Many of the poorly rated descriptions of clinical guidelines are similar to known criticisms of managed care systems. It may be that physicians linked clinical guidelines with managed care, so that the opinions measured may be contaminated by negative attitudes toward managed care.²¹ The family physicians in our study did express less support for the use of clinical guidelines as a regulatory tool than did those studied in a managed care organization.²⁴

The confidence in clinical guidelines of family physicians, like that of internists,¹⁹ was associated more with the disseminating organization's stature within the medical community than with the guideline development process used. Family physicians had greater confidence in guidelines from the NIH and CDC, which depend on expert opinion, while they had less trust in the evidence-based process of AHCPR guidelines. Even if insurers and state health departments use evidence-based clinical guidelines, stigmas attached to these organizations may outweigh their endorsements.

Despite the significant effort expended on clinical guideline development, dissemination strategies appear to be poorly orchestrated. Respondents reported that methods such as publishing guidelines in medical journals, especially those received as part of a membership in a medical society, were relatively successful by physician self-report; one third of physicians who were aware of AHCPR's Heart Failure guideline reviewed it in the AAFP publication *American Family Physician*.²⁰ Awareness of this clinical guideline, however, still represents a significant minority of family physicians. Collaborative endorsements of evidence-based guidelines by

multiple professional organizations and summaries of these guidelines in popular journals may help encourage physician awareness and increase utilization.

Continuing medical education was considered the best method to increase the adoption of clinical guidelines. Since other research has demonstrated that traditional CME is not often effective in changing behavior,²⁵ especially over time, practice-based interventions that focus on system changes may be a more successful strategy. Such programs could involve feedback and physician self-reflection about barriers to adoption, thus encouraging ownership in developing specific improvement strategies. Such in-depth exploration might also increase the knowledge base about factors influencing clinical guideline adherence. Finally, awarding CME credit when improved adoption is demonstrated could link patient outcomes to physician education, thus gaining physician support for such programs.²⁶

There are limitations to this research. First, while the sample's demographics are similar to analogous statewide statistics of family physicians,²⁷ the respondents may not be representative of these family physicians regarding attitudes about clinical guidelines. Considering the low response rate, we suspect that respondents have stronger opinions, whether positive or negative, about clinical guidelines than nonresponders do. The influence of this bias may be strongest in the bivariate comparisons. Second, the degree to which this sample is generalizable to family physicians in other locales is unknown. Third, we are unable to answer many supplemental questions raised from our findings because of the preliminary, descriptive nature of the survey. For example, having no information about physicians' experiences with the six adoption methods they ranked, we cannot determine whether physicians who utilize Internet technology or those who have participated in practice-based interventions in the past ranked these respective methods as more effective than other physicians did.

Even after considering the response bias, the overall positive responses toward clinical guidelines as educational tools indicate a supportive group of physicians. Thus, the low reported rate of the dissemination and adoption may be more limited than our study indicates. Organizations that

develop clinical guidelines have not made efforts to maximize their dissemination nor invested resources to evaluate them.^{8,29} These agencies need to develop implementation strategies that enable physicians to distill guidelines' broad and generic clinical information into a tool adaptable for individual patients. Second, policymakers, health administrators, and physicians need to collaboratively define the role clinical guidelines should play in medical practice. A consistent message by insurers, government, and professional organizations would allay apprehensions about guidelines' eventual utilization.

On the basis of this work, we believe specific areas of clinical guideline research should be pursued. Studies of methods for dissemination and implementation of guidelines should be undertaken. The application of clinical guidelines as a measurement tool of physician and patient performance should be examined as a strategy to improve patient outcomes. Finally, studies of clinical guideline effectiveness should be done with diverse populations, such as those represented by practice-based research networks. Only then will analysis of clinical guideline effectiveness have real meaning.

ACKNOWLEDGMENTS

Support for this study was provided by the Adherence to Practice Guidelines for Congestive Heart Failure Among Primary Care Practices: Intervention and Outcomes Assessment Grant (TF-042), which is funded through the New York State Department of Health, Office of Quality Improvement.

The authors wish to thank Vito Grasso, MPA, as well as his staff, and members of the New York State Academy of Family Physicians for their assistance with this project. Special thanks to Erin Cleary for her clerical assistance, and to Marianne Cowan for her editorial assistance in preparation of the manuscript.

REFERENCES

1. Woolf SH. Practice guidelines: what the family physician should know. *Am Fam Physician* 1995; 51:1455-63.
2. Grimshaw J, Hutchinson A. Clinical practice guidelines—do they enhance value for money in health care? *Br Med Bull* 1995; 51:927-40.
3. Berg AO. Clinical practice policies. Believe only some of what you read. *Fam Pract Manage* 1996; 3(4):58-70.
4. Lewis S. Paradox, process and perception: the role of organizations in clinical practice guidelines development. *Can Med Assoc J* 1995; 153:1073-7.
5. Field MJ, Lohr KN, eds. Institute of Medicine (IOM), Committee on Clinical Practice Guidelines. *Clinical practice guidelines: directions for a new program*. Washington, DC: National Academy Press, 1990.
6. Schoenbaum SC, Sundewall DN, Bergman D, Buckle JM,

- Chernov A, George J, et al. *Using clinical practice guide lines to evaluate quality of care*. Volume 1. Rockville, Md: US Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, AHCPR publication No. 95-004S, 1995.
7. Grol R, Thomas S, Roberts R. Development and implementation of guidelines for family practice: lessons from the Netherlands. *J Fam Pract* 1995; 40:435-9.
8. Carter AO, Battista RN, Hodge MJ, Lewis S, Basinski A, Davis D. Report on activities and attitudes of organizations active in the clinical practice guidelines field. *Can Med Assoc J* 1995; 153:901-7.
9. Thomson R, Lavender M, Madhok R. How to ensure that guidelines are effective. *BMJ* 1995; 311:237-42.
10. US Preventive Services Task Force. *Guide to clinical preventive services*. 2nd ed. Baltimore, Md: Williams & Wilkins, 1996.
11. Lohr KN. Guidelines for clinical practice: applications for primary care. *Int J Qual Health Care* 1994; 6:17-25.
12. James PA, Cowan TM, Graham RP, Majeroni B, Fox C, Jaén CR. Using a clinical practice guideline to measure physician practice: translating a guideline for the management of heart failure. *J Am Board Fam Pract* 1997; 10:206-12.
13. Conroy M, Shannon W. Clinical guidelines: their implementation in general practice. *Br J Gen Pract* 1995; 45:371-5.
14. Asch DA, Hershey JC. Why some health policies don't make sense at the bedside. *Ann Intern Med* 1995; 122:846-50.
15. Brook RH. Practice guidelines and practicing medicine. *JAMA* 1989; 262:3027-30.
16. McCormick J. The place of judgement in medicine. *Br J Gen Pract* 1994; 44:50-1.
17. Parmley WW. Clinical practice guidelines. Does the cookbook have enough recipes? *JAMA* 1994; 272:1374-5.
18. Worrall G, Chaulk P. Hope or experience? Clinical practice guidelines in family practice. *J Fam Pract* 1996; 42:353-4.
19. Tunis SR, Hayward RS, Wilson MC, Rubin HR, Bass EB, Johnston M, et al. Internists' attitudes about clinical practice guidelines. *Ann Intern Med* 1994; 120:956-63.
20. Konstam M, Dracup K, Baker D, Borttorff MB, Brooks NH, Dacey RA, et al. Heart failure: evaluation and care of patients with left-ventricular systolic dysfunction. Rockville, Md: US Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, AHCPR publication No. 11, 1994.
21. Ellsbury KE, Montano DE. Attitudes of Washington State primary care physicians toward capitation-based insurance plans. *J Fam Pract* 1990; 30:89-94.
22. Brooks NH. Five points from the AHCPR guideline on heart failure. *Am Fam Physician* 1994; 50:531-616.
23. Ferrier BM, Woodward CA, Cohen M, Williams AP. Clinical practice guidelines: new-to-practice family physicians' attitudes. *Can Fam Physician* 1996; 42:453-68.
24. Shye D, Betz-Brown J. Primary care HMO clinicians' opinions about clinical practice guidelines. *HMO Pract* 1995; 9:111-15.
25. Davis DA, Thomson MA, Oxman AD, Haynes RB. Evidence for the effectiveness of CME: a review of 50 randomized controlled trials. *JAMA* 1992; 268:1111-17.
26. Felch WC, Scanlon DM. Bridging the gap between research and practice. The role of continuing education. *JAMA* 1997; 277:155-6.
27. American Academy of Family Physicians. *Facts about family practice*. Kansas City, Mo: American Academy of Family Physicians, 1995.
28. Kimura S, Pacala JT. Pressure ulcers in adults: family physicians' knowledge, attitudes, practice preferences, and awareness of AHCPR guidelines. *J Fam Pract* 1997; 44:361-8.