BRIEF REPORT

Use of Clinical Practice Guidelines in Managed Care Physician Groups

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There is increasing interest in the use of clinical guidelines as a tool to improve the quality and cost-effectiveness of health care. Yet, relatively little data are available regarding the use of guidelines by health care provider organizations. We developed a written descriptive survey investigating the development, implementation, and evaluation of clinical guidelines that was administered to medical directors or their designees from physician medical groups and independent practice associations. Eighty-seven percent of physician organizations were reported to be developing or implementing clinical guidelines. The reasons most often cited for developing clinical guidelines were quality improvement and cost containment. Local expert opinion or judgment was rated as the most important influence in the development of clinical guidelines, followed by medical and scientific literature and externally developed guidelines. Feedback of information was the most popular method of increasing compliance with clinical guidelines, although 19% of physician organizations reported imposing sanctions on physicians who did not use guidelines. Most of the physician organizations surveyed have embraced clinical guidelines. Local development or adaptation of clinical guidelines may be common. There has been disproportionately little attention paid to guideline implementation and to evaluation of guideline effects relative to their development. *Arch Fam Med. 1996;5:528-531*

The term *clinical practice guideline* has been defined as "systematically developed statements that can be used to assess the appropriateness of specific health care decisions, services, and outcomes."[1] In the past few years, there has been tremendous growth in interest in clinical guidelines in the United States. It is widely believed that guidelines may have a positive effect on health care by improving quality and outcomes, reducing inappropriate care (both overuse and underuse), controlling for escalating costs, reducing practice variation, and facilitating clinical application of burgeoning scientific knowledge and increasingly complex technology.[2-8]

The long list of the US organizations involved with clinical guidelines includes federal agencies, most notably the Agency for Health Care Policy and Research (AHCPR), dozens of medical specialty societies, academic centers, independent research centers, hospitals, health care insurers, and managed care groups.[1,3-6,9]

The growth of managed care may be a major factor underlying increased interest in guidelines. Perhaps half of all managed care plans are using guidelines, and managed care groups may be leaders in applying guidelines and tracking physician adherence.[9] However, efforts to develop, implement, and evaluate clinical guidelines among managed care organizations are not well documented. We surveyed physician medical groups (PMGs) and independent practice associations (IPAs)

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MATERIALS AND METHODS

Because no validated instruments to assess clinical guideline activity among physician organizations were available in the literature, we developed a new written survey to be administered to medical directors or their designees. A review of the English literature and discussions with personnel, some with experience in managed care settings and in working with guidelines, helped identify relevant issues regarding the development, implementation, and evaluation of clinical guidelines. The content and form of our descriptive survey were reviewed by these experts.

The survey was distributed to attendees of a July 1993 conference of medical directors from 71 PMGs and IPAs with full or partial capitation contracts with one of the largest California HMOs. The network-model HMO is representative of many California HMOs for physician reimbursement and quality improvement initiatives. Surveys were distributed during the conference and collected on-site or returned to the investigators by mail.

under contract with a large California health maintenance organization (HMO) to assess their involvement in the development, implementation, and improvement of clinical guidelines.

RESULTS

Of the 71 PMGs and IPAs represented at the conference, representatives from 38 different physician organizations (54%) returned surveys; respondents included 36 medical directors (95%), 1 utilization management chairman (2.5%), and 1 board of directors member (2.5%). Respondents from 33 of the physician organizations (87%) indicated that their organizations were planning, developing, or have completed work on clinical guidelines. The data presented in this article are from those 33 PMG or IPA representatives (32 medical directors and 1 utilization management chairman) or from a subset that provided answers to the individual survey questions.

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The 33 physician organizations reportedly were involved with a combined total of 59 different clinical guidelines for various clinical problems and procedures, with the most common guidelines addressing obstetrical and gynecological issues (15 organizations), prostate cancer and prostate-specific antigen (10 organizations), back pain (7 organizations), cardiac evaluation and procedures (7 organizations), and breast cancer and mammography (5 organizations).

Based on responses from 30 physician organization representatives, the mean±SD ratings of the importance (with a rate of 1 indicating least important and a rate of 5, most important) among various factors in the motivation of the physician organizations to develop guidelines were as follows:

Motivation Factor	Rate, Mean±SD
Quality improvement	4.5±0.7
Cost containment	4.2±0.8
Reduce practice variation	4.0±0.9
Improve patient satisfaction	3.8±1.0
Reduce risk of liability	3.6±1.1
Respond to payers	3.2±1.1
Respond to employer groups	2.8±1.2
Meet accreditation criteria	2.8±1.2

The mean±SD ratings of the importance of various factors in influencing development of clinical guidelines (received from 28 responding physician organization representatives) were as follows:

Influence Factor	Rate, Mean±SD
Local expert opinion or judgement	3.9±1.0
Medical or scientific literature	3.8±0.8
Clinical guidelines previously developed by others	3.7±0.9
National data	3.3±1.0
Local data	3.2±1.2

More than 16 different external sources of guidelines were listed by the physician organizations.

Physicians and nurses were involved in developing clinical guidelines in most of the physician organizations, 100% and 74%, respectively (**Table**). Comparatively, an average of 4.5 physicians each spent 8.2 hours per guideline while 1.3 nurses each spent 9.6 hours per guideline. Although efforts to develop guidelines were multidisciplinary, the number of physicians involved in each guideline was at least 3 times that of the other types of personnel.

Twelve respondents provided estimates of the cost of guideline development, reporting per guideline costs ranging from $100 to $5000; the greatest amount a physician organization expended to develop all of its guidelines was $40 000 (greatest of 7 responses).

Intended users of clinical guidelines (as listed by 29 responding physician organization representatives) included physicians (29 [100% of respondents]), quality management personnel (19 [66%]), nurses (16 [55%]), patients (4 [14%]), and ancillary departments (4 [14%]).

Based on responses from 29 physician organization representatives, the most common methods of disseminating guidelines to the health care personnel were as shown in the following tabulation:

Method	No. (%) of Organizations
Peer review meetings	20 (69)
Memorandums	16 (55)
Organization meetings	15 (52)
Utilization review	15 (52)
Lectures	11 (38)
Addition to patient's medical chart	4 (14)
Pamphlets	3 (10)
Telephone consultations	2 (7)
Computer programs	1 (3)
Videotapes	0 (0)

Personnel Involved in the Development of Clinical Guidelines and the Amount of Time Spent*

Personnel	No. (%) of Organizations	No. of Individuals per Guideline, Mean±SD (Range)	No. of Hours per Individual, Mean±SD (Range)
Physicians	27 (100)	4.5±2.5 (2-12)	8.2±5.3 (1-20)
Nurses	20 (74)	1.3±1.1 (0-4)	9.6±13.1 (1-50)
Organization administrators	14 (52)	0.7±0.8 (0-3)	9.1±15.6 (1-50)
Quality assurance coordinators	11 (41)	0.8±1.9 (0-10)	4.8±4.8 (1-10)
Utilization management coordinators	8 (30)	0.3±0.5 (0-1)	5.3±3.4 (2-10)
Third-party payers	2 (7)	0.1±0.5 (0-2)	...
Attorneys	1 (4)	0.04±0.2 (0-1)	...

*Responses from 28 physician organization representatives. Ellipses indicate data not available.

Based on responses from 26 physician organization representatives, feedback of information was the most frequently (69%) chosen method of ensuring compliance. Frequencies for other approaches were as follows: incentives (31%), removal of disincentives (19%), and use of sanctions for noncompliance (19%). Although 16 physician organizations were reported to have developed or used methods to measure compliance, only 8 organization representatives detailed the means of assessment. The most common methods (5 of 14 responses) were concurrent and/or retrospective clinical or medical chart reviews; other options included audits, data reports, and profiles, each listed by 1 organization.

Nineteen of the physician organizations (58%) plan to review their guidelines every 3, 6, or 12 months. Twenty-four of the organizations reported that formal mechanisms were in place to review guidelines by incorporating new information (19 organizations [79%]), new technology (17 organizations [71%]), and the results of guideline evaluation (14 organizations [58%]).

Responses from 17 physician organization representatives regarding outcome measures used to evaluate the effects of clinical guidelines are shown in the following tabulation:

Outcome Measures	No. (%) of Organizations
Cost (savings or losses)	13 (76)
Patient outcome (morbidity or mortality)	11 (65)
Patient satisfaction	8 (47)
Other (decreased utilization)	1 (6)

Five of the physician organization representatives provided information about the evaluation methods that were used.

Asked whether they had heard of the AHCPR guidelines, 45% of the respondents (13 of 29 responses) indicated yes, 24% (7 organizations) were not sure, and 31% (9 organizations) answered no. Asked whether the representatives thought AHCPR guidelines would be useful, 50% (14/28 responses) answered yes, 46% (13 organizations) were not sure, and 4% (1 organization) indicated no.

COMMENT

Most (87%) of the PMG and IPA representatives surveyed in California indicated that their physician organizations were involved in clinical guideline activity. The clinical guidelines planned, under development, or completed encompassed a wide range of clinical activities. Guidelines addressing obstetrical and gynecological issues were the most common, followed by guidelines dealing with prostate cancer, back pain, cardiac evaluation and procedures, and breast cancer.

The respondents noted that quality improvement and cost containment were the 2 most important influences in the PMGs' and IPAs' decisions to develop and use clinical guidelines. It would seem appropriate then that cost and patient outcome and satisfaction were the primary outcome measures assessed. Of the 30 physician organization representatives rating the significance of various influences, only 17 indicated which outcome parameters would be assessed, and only 5 specified methods for appraisal of those outcomes. Evaluation of the influence of the clinical guidelines produced by the physician organizations seems to have received disproportionately little attention relative to the concern with their development, a pattern that has been observed in clinical guideline development in other types of organizations.[5,10,11]

The wide variety of sources used by the PMGs and IPAs in developing their own guidelines shows considerable diversity. The federal government, through AHCPR, had released 6 guidelines as of the survey date, but almost one third of the representatives were unaware of AHCPR guidelines and almost half were unsure if AHCPR guidelines would be useful. The lack of familiarity of many of the physician organization representatives with AHCPR guidelines suggests possible shortcomings in their dissemination at that time, although familiarity may have increased significantly subsequent to the date of our survey.

The importance of local expert opinion or judgment in the development of clinical guidelines and the numerous external guidelines listed as sources suggest that local adaptation of existing guidelines is common. Although details about the guidelines produced by the surveyed PMGs and IPAs are unknown, it has been observed that, when locally developed or adapted, guidelines may be different in content and quality.[12-14] Implementation of such guidelines may standardize clinical practice within an organization, but it also might strengthen differences in practice between physician organizations. The validity and quality of the guidelines may also vary with the methods used to develop them.[14-17] However, conflicts between nationally available guidelines and corresponding locally adapted guidelines may not be substantial and differences in outcomes are yet unknown.[18]

Only a few physician organization representatives provided estimates of the cost of clinical guideline development, and such figures are undoubtedly difficult to determine accurately. Yet, while individual physician organizations may have spent small amounts of money on each clinical guideline, the high proportion of PMGs and IPAs engaged in guideline activity and the vast number of guidelines being developed suggest that, in aggregate, significant amounts of resources may have been devoted to clinical guideline development efforts.

Physicians played the greatest role in the development of clinical guidelines and were also the primary intended users. The involvement of physicians in guideline efforts has been thought to be critical to effective translation of guidelines into clinical practice.[18-20] For implementation, the most common methods of disseminating guidelines were meetings (peer review and organizational and utilization review) and memorandums. Merely distributing guidelines may be ineffective in affecting physician attitudes and changing clinical practice, but newer methods based on findings from the social and behavioral sciences seem more promising in their potential to increase the use of clinical guidelines among clinicians.[10,11,13,19,21] Feedback of information was by far the most popular method chosen to increase compliance with clinical guidelines, although sanctions against noncompliant personnel were used in almost one fifth of the physician organizations. Information about the measures used to assess compliance with clinical guidelines was provided for less than one fourth of the 33 physician organizations involved in guideline development, suggesting that this part of the guideline effort may be relatively underdeveloped.

Once established, guidelines must be updated and validated to preserve their clinical usefulness. More than half the 33 physician organizations involved in clinical guideline development activity planned to review their guidelines at least annually, and most reported mechanisms to incorporate new medical information and technology and information about the effects of their guidelines into the revised guidelines.

This survey describes clinical guideline activities among a small number of PMGs and IPAs under contract with 1 California network-model HMO. The results are self-reported, and it is possible that the information provided by the representatives may not accurately reflect what is actually taking place within the physician organizations. The survey was conducted during July 1993, and today clinical guideline activity among the managed care groups surveyed may be different from the activity then.

Further research is needed to examine details of the process of clinical guideline development or adaptation and to identity methods to produce the highest-quality guidelines. Differences between clinical guidelines developed nationally and locally need to be more closely investigated. Methods of implementation need to be assessed to determine which are most effective in affecting clinical practice. It is essential that the effects of clinical guidelines on various outcome parameters be evaluated, not only to determine which guidelines are the most beneficial, but also to prevent the institutionalization of low-quality guidelines, particularly if sanctions are employed to enforce use of those guidelines. The belief that clinical guidelines can improve the quality, value, and effectiveness of medical care has resulted in the proliferation of clinical guideline efforts, but much more research needs to be conducted to determine whether or not that hope is being fulfilled.

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REFERENCES

1. Institute of Medicine. *Guidelines for Clinical Practice: From Development to Use.* Washington, DC: National Academy Press; 1992.
2. Brook RH. Practice guidelines and practicing medicine: are they compatible? *JAMA.* 1989;262:3027-3030.
3. Eddy DM. Practice policies: what are they? *JAMA.* 1990;263:877-880.
4. Woolf SH. Practice guidelines: a new reality in medicine, I: recent developments. *Arch Intern Med.* 1990;150:1811-1818.
5. Audet AM, Greenfield S, Field M. Medical practice guidelines: current activities and future directions. *Ann Intern Med.* 1990;113:709-714.
6. Linton AL, Peachey DK. Guidelines for medical practice: the reasons why. *Can Med Assoc J.* 1990;143:485-490.
7. Wennberg JE, Gittelsohn A. Small-area variation in health care delivery. *Science.* 1973;182:1102-1108.
8. Chassin MR, Kosecoff J, Park RR, et al. Does inappropriate use explain geographic variations in the use of health care services? a study of three procedures. *JAMA.* 1987;258:2533-2537.
9. Sandrick K. Out in front: managed care helps push clinical guidelines forward. *Hospitals.* 1993;67:30-31.
10. Weingarten S, Ellrodt AG. The case for intensive dissemination: adoption of practice guidelines in the coronary care unit. *Qual Rev Bull.* 1992;18:449-455.
11. Conroy M, Shannon W. Clinical guidelines: their implementation in general practice. *Br J Gen Pract.* 1995;45:371-375.
12. McGuire LB. A long run for a short jump: understanding clinical guidelines. *Ann Intern Med.* 1990;113:705-708.
13. Woolf SH. Practice guidelines, a new reality in medicine, III: impact on patient care. *Arch Intern Med.* 1993;152:2646-2655.
14. Eddy DM. Practice policies: guidelines for methods. *JAMA.* 1990;263:1839-1841.
15. Eddy DM. Practice policies: where do they come from? *JAMA.* 1990;263:1265-1275.
16. Eddy DM. Guidelines for policy statements: the explicit approach. *JAMA.* 1990; 263:2239-2243.
17. Woolf SH. Practice guidelines, a new reality in medicine, II: methods of developing guidelines. *Arch Intern Med.* 1992;152:946-952.
18. Brown JB, Shye D, McFarland B. The paradox of guideline implementation: how AHCPR's depression guideline was adapted at Kaiser Permanente northwest region. *Jt Comm J Qual Improv.* 1995;21:5-21.
19. Kaegi L. Dissemination and testing of clinical practice guidelines move to top of meeting agendas for AHCPR and Society for Medical Decision Making. *Qual Rev Bull.* 1991;17:402-412.
20. Onion CWR, Walley T. Clinical guidelines: developments, implementation, and effectiveness. *Postgrad Med J.* 1995;71:3-9.
21. Browman GP, Levine MN, Mohide EA, et al. The practice guidelines development cycle: a conceptual tool for practice guidelines development and implementation. *J Clin Oncol.* 1995;13:502-512.