

Original Article

Modifying Community Practice Styles: The Back Pain Outcome Assessment Team Information Dissemination Effort

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Abstract: *The Back Pain Outcome Assessment Team's information dissemination effort aims to provide a professional model for translating research findings into more consistent patterns of low back pain care and improved patient outcomes. The model's effectiveness will be evaluated in a randomized community-based trial. Intervention activities have been implemented in five Washington state communities. Strategies included a regional study group of surgeon opinion leaders, local hospital administrator small group meetings, traditional continuing medical education lectures, generalist academic detailing, an interactive videodisc (shared decision-making program) for patients who are surgical candidates, a prospective outcomes tracking system, and the distribution of national practice guidelines. This report describes the study design, methods for involving communities in the change process, the development and implementation of intervention activities, and an evaluation of the process.*

Key Words: Clinical practice patterns, community-based interventions, low back pain, patient outcomes, physician education approaches

Back symptoms are the most common reason for visits to orthopedists and neurosurgeons, and the second leading symptomatic cause for all physician

visits.¹ A recent estimate of the national cost of direct personal medical care for low back pain was \$24 billion.² However, evidence for the effectiveness of many diagnostic and therapeutic approaches to back problems is limited, and controversy exists regarding the appropriate clinical

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Modifying Community Practice Styles

management of back pain patients.^{3,4} This lack of consensus is reflected by wide international-, regional-, and community-level variations in both spinal surgery and low back nonsurgical hospitalization rates.⁵⁻¹⁰ Our research team has previously documented wide variations in surgical and hospitalization rates for spine problems among small areas within Washington state.^{9,11} We sought to modify local community practices regarding low back pain management toward a more consistent and evidence-based approach.

The Back Pain Outcome Assessment Team was one of the first four Patient Outcomes Research Teams (PORTS) funded by the Agency for Health Care Policy and Research.¹² Project goals were to characterize geographic variations in low back pain management, describe the content and outcomes of back pain care (especially surgery and hospitalization), examine the value and sequencing of diagnostic tests for low back problems, and modify clinical practice styles through information dissemination. The first three objectives have been met through analyses of automated databases, systematic literature syntheses, and a prospective cohort study.^{12,13} For the dissemination effort, we are promoting a professional (rather than regulatory or reimbursement-based) model for translating research findings into more consistent patterns of care and improved patient outcomes in five Washington state communities. We are evaluating the model's effectiveness in a randomized community-based trial.¹⁴

The rationale for our information dissemination approach was based on the community organization and physician behavior change literature.¹⁵⁻²² Key assumptions were that voluntary change in health care is more likely when communities actively participate in the process, multifaceted interventions are more powerful in effecting change than are single interventions, and physicians will respond to state-of-the-art information and comparative feedback about practice styles. Outcome evaluation will be based on average community rates for measures of inpatient

low back pain management that are subject to geographic variation (e.g., operation rates).^{5,7-10} This report describes the study design, our methods for involving communities in the change process, the development and implementation of intervention activities, and an evaluation of the process.

Study Design

Community Selection

Hospital market areas, which are groups of zip codes with one or more hospitals providing inpatient care to a plurality of local residents, were used to define "communities."^{7,23} We enumerated single hospital market areas and contiguous hospital market area clusters in western and central Washington state that had low back operation rates above the national average (158 per 100,000 in 1990).⁸ To allow sufficient numbers for outcome evaluation purposes, we eliminated communities where less than 100 residents received a low back operation annually. Also, because of limited resources, we excluded communities located more than 150 miles from the project office. This resulted in the identification of 10 communities that were then stratified on the basis of adult population and distance from the major medical center in Washington state (Seattle) into five pairs (one urban, three suburban, and one rural). Communities within each pair were then randomly assigned to intervention or control status.

Outcome Evaluation

The Washington state automated hospital discharge registry (Comprehensive Hospital Abstract Reporting System) will be used for outcome evaluation of the community trial. There is widespread opinion that lumbar spinal surgery is performed too frequently in the United States, and that geographic variations in operation rates are hard to rationalize.^{5,7,24} Therefore, one outcome

Table 1 Characteristics of the Experimental Communities*

Characteristic	Community				
	Urban	Suburban			Rural
		A	B	C	
Adult population [†]	259,000	93,000	55,000	79,000	40,000
aged ≥18 (n)	(220,000)	(64,000)	(97,000)	(109,000)	(38,000)
Adult population [†]	15	13	21	17	20
aged ≥65 (%)	(13)	(13)	(16)	(15)	(21)
White race (%) [†]	81	96	94	93	93
	(86)	(91)	(92)	(90)	(96)
Household income [†]	34,000	39,000	37,000	36,000	32,000
(mean \$)	(41,000)	(42,000)	(36,000)	(36,000)	(30,000)
Physicians (n) [‡]					
Family/general practitioners	120	37	35	46	25
General internists	49	6	12	22	19
Neurosurgeons	4	1	0	3	1
Orthopedists	36	7	9	11	9
Rehabilitation medicine specialists	10	1	1	2	1
Major hospitals (n) [‡]	2	1	1	1	1
Large multispecialty clinic [‡]	No	No	Yes	No	Yes
Health maintenance organization facility [‡]	Yes	No	No	No	No
Bed occupancy (%) [§]	53	66	44	53	55

*Selected matched control community data are shown in italics.

[†]1990 census data; [‡]1991 data from the state medical society and hospital association; [§]1989 data from the state health department.

of interest will be lumbar spine operation rates (per 100,000 residents). We will also examine the use of fusion surgery (i.e., the proportions of all low back operations involving fusion) for which the indications are particularly controversial, and which is associated with relatively high costs and complication rates.²⁵⁻²⁷ Because repeat surgery is generally regarded as an undesirable outcome (and is often reported as an outcome measure in surgical case series), we will examine reoperation rates (i.e., the proportions of all low back operations that are associated with subsequent surgeries) as one crude indicator of quality of care. Finally, we will assess nonsurgical hospitalization rates (per 100,000 residents) for back pain, inpatient charges (in dollars), and lengths of hospital stay (in days). Trends over time in the intervention communities will be compared with those in the control communities and Washington state as a whole.

Community Analysis and Mobilization

Successful implementation of community-based programs requires a thorough understanding of the community.^{28,29} To gain knowledge about the intervention communities, we first analyzed available secondary data sources. These included census data, Washington state hospital discharge data, medical society listings, and hospital association publications. The communities were described in terms of population, demographics, physicians, health care facilities (Table 1), and low back pain hospitalizations (Table 2).

Entry by our research team into the intervention communities was facilitated by advice and assistance from the Foundation for Health Care Quality (which includes representation from state and regional hospital and medical associations and the Health Care Purchasers Association). Each intervention community was approached through

Modifying Community Practice Styles

Table 2 Low Back Pain Hospitalizations: 1990*

Variable	Community				
	Urban	Suburban			Rural
		A	B	C	
Surgical					
Operation rate [†] (per 100,000 adults)	250 (224)	320 (272)	254 (219)	265 (224)	258 (275)
Fusion performed (%)	17 (4)	17 (6)	6 (22)	7 (3)	15 (15)
Inpatient charges (mean \$)	5800 (4700)	7000 (4900)	6500 (7800)	6100 (3300)	3500 (8100)
Length of stay (mean days)	4.2 (4.3)	4.5 (4.7)	5.1 (5.7)	4.4 (4.0)	4.1 (5.6)
1-year reoperation [‡] rate (%)	7 (3)	8 (3)	3 (5)	7 (5)	4 (5)
Nonsurgical					
Admission rate [†] (per 100,000 adults)	52 (69)	77 (90)	70 (65)	23 (46)	51 (56)
Inpatient charges (mean \$)	3400 (3300)	3900 (3900)	4100 (3200)	2800 (3500)	2500 (4100)
Length of stay (mean days)	4.9 (3.9)	4.7 (4.6)	4.3 (3.9)	3.0 (5.7)	3.9 (5.0)

*Matched control community data are shown in italics. All data are for individuals aged 18 and older. Operation rates and admission rates are based on community of residence; all other data are based on community of hospitalization.

[†]Age- and sex-adjusted to the Washington state population; [‡]based on data for 1989 through 1990.

letters to chief executive officers of major hospitals; these were followed by informational meetings with hospital administrative personnel. The project also sent introductory mailings to all community physicians practicing in relevant specialties (family practice, general internal medicine, neurosurgery, orthopedic surgery, and rehabilitation medicine). Presidents of professional societies (the state medical and hospital associations) signed the initial communications.

We then conducted in-person, semistructured interviews with community members. These interviews were designed to inform the research team about the communities, identify key individuals, address concerns, and solicit support for the project. Questions addressed current quality assurance efforts; local medical organizations, meetings, and newsletters (i.e., possible information dissemination channels); health care

sector relationships (i.e., potential barriers to a community-based program); and physicians who were influential in the community or had a particular interest in back problems. Interviewees were identified using both "positional" (e.g., hospital medical directors and quality improvement personnel) and "reputational" approaches.²⁹ Physicians who were selected for interview based on "reputation" included surgeons and primary care physicians who were leaders in their medical community (and would be expected to influence the behavior of other health care providers), as well as high-volume spinal surgeons (who have a direct impact on community operation rates).

At the request of community representatives, a physician member of the research team also presented the project to surgical groups in all five areas during the mobilization phase. Finally,

community members and project personnel established an ongoing planning process within each community (Fig. 1). In the urban intervention community (with an adult population of 259,000 and two major hospitals), a formal planning group was established with administrative and surgical representation from each hospital. Planning in the other four communities was achieved through informal contact with a hospital representative and two surgeon opinion leaders (individuals identified during the interviews as being leaders in their medical community).

Intervention Activities Proposed by the Research Team

We developed a “menu” of potential activities targeting surgeons, primary care physicians, hospital administrators, and low back pain patients that was based on existing evidence of effectiveness. This list included a surgeon “study group,” continuing medical education lectures, “academic detailing,” administrator small group presentations, and a patient educational videodisc (which is based on a model of shared decision making between physicians and their patients). Community planning group members were asked to consider interventions from this list (which could be tailored to each community) and also suggest other activities that they believed would be useful locally. All the community representatives thought that outcomes management should be included in the project. Therefore, such an effort was added as a core activity. The proposed activities presented by the research team are briefly described below.

Surgeons

Physician study groups, addressing small-area variations in medical care, have been shown to change behavior.⁷ They are based on the premise that physician decision making contributes strongly to geographic variations, that many physicians are unaware of such differences, and that feedback

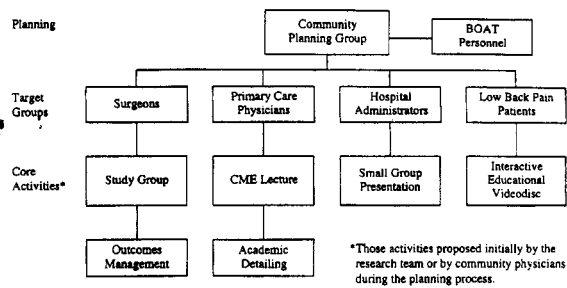


Figure 1 Intervention overview.

results in voluntary change. We organized a study group for orthopedic and neurosurgeons who performed back surgery in the intervention communities. Two half-day sessions focusing on the wide variations among Washington counties with respect to low back pain hospitalizations were developed. Figure 2 shows an example of the Washington state data, which are described in more detail elsewhere.³⁰

Primary Care Physicians

Two complementary interventions targeting primary care physicians were proposed. Since continuing medical education can be effective when directed at objectively identified deficiencies, a short program was developed.^{18,31} The continuing medical education included three central messages: the benefits of low back diagnostic imaging rarely outweigh the costs prior to a trial of conservative medical therapy, an effective conservative regimen should avoid bed rest, and

Proportion of Low Back Operations Involving Fusion — Selected Counties: 1990*

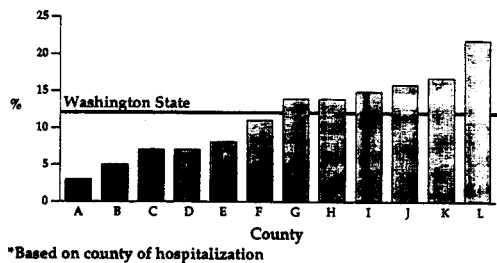


Figure 2 Example of study group data.

Modifying Community Practice Styles

Table 3 Process Evaluation of Interventions Involving Surgeons*

Variable	Community				
	Urban	Suburban			Rural
		A	B	C	
Surgeon study group					
Participating surgeons	3	2	2	3	2
Surgeons who declined to participate	1	0	0	0	0
Initial meeting attendees	3	1	2	3	2
Follow-up meeting attendees	2	2	1	1	2
Outcomes management					
Surgeons participating in instrument development	2	2	2	3	2
Surgeons enrolling patients	0	2	1	4 [†]	2
Patients enrolled	0	70	4	51	42
Videodisc					
Surgeons referring patients	7	2	4	5	*†
Patients referred	33	117	10	87	*†

*All numbers are as of December 1994.

[†]The partner of one surgeon study group member in suburban community C has enrolled patients.

*Results are not provided because the videodisc was not placed in this community until December 1994.

members who were involved in the planning process, leading primary care physicians in each community (identified during the interviews and by planning group members) were asked to sign cover letters for the mailings and to distribute the sheets at local primary care meetings. All of these physicians agreed to assist with the project and to support the education points in the course of normal interactions with professional colleagues.

Hospital administrators who were involved in the planning process hosted the small group presentations for hospital personnel and identified the appropriate participants. Small group presentations to administrators were made at all six major hospitals located in the five intervention areas and were attended by up to 10 individuals.

The patient interactive videodisc was initially placed at five sites in three intervention communities. At first, surgeons in the remaining two communities were skeptical about the video program. However, after receiving positive feedback about the videodisc from surgeons in other intervention communities (at the second surgeon study group meeting), they requested equipment for their local health care facilities. Video sites and

methods of promoting the program were selected by community members. Sites included physical therapy departments, a hospital medical library, an ambulatory care clinic, a multispecialty clinic, and a neurosurgery group practice and promotion variously included presentations, newsletter articles, mailings, posters for health care facilities, and the distribution of physician referral pads. By the end of 1994, 18 surgeons had referred 247 patients to the videodisc program.

Implementation of Other Activities

As a result of the project, communities initiated other quality improvement activities targeting low back pain management. Surgeons from one suburban community systematically reviewed the medical records of patients who had received reoperations at their local hospital. Following the continuing medical education program, the hospital in another suburban community placed educational videotapes addressing the primary care management of back pain in the medical library. Finally, after the administrator small group presentations, one hospital initiated a quality

Table 4 Patient Evaluations of the Videodisc

Question and Responses	N	(%)
Overall, how would you rate how easy the program was to understand?		
Fair	3	(1)
Good	34	(15)
Very good or excellent	197	(84)
How would you rate the amount of information in the program?		
More than needed	24	(10)
About right	180	(76)
Less than needed	32	(14)
How would you rate how well the program held your interest?		
Fair	17	(7)
Good	67	(29)
Very good or excellent	151	(64)
How would you rate the balance between surgery and nonsurgical therapy?		
Slanted toward surgery	58	(25)
Completely balanced	130	(56)
Slanted toward nonsurgical therapy	43	(19)

improvement effort addressing spinal surgery complications, and another examined reasons for low back reoperations. When surveyed by the research team in early 1995, two of the intervention hospitals reported ongoing continuous quality improvement efforts targeting low back pain management.

As described previously, community surgeons identified a need for better patient outcomes data during the planning process. This led to the design and implementation of an "outcomes management effort."³⁸ The project personnel and community surgeons collaboratively developed several data collection instruments: self-administered baseline and follow-up patient questionnaires (to measure outcomes in terms of symptom relief, return to work, and daily functioning), a clinical assessment form (with items pertaining to clinical exam findings and diagnostic tests), and a surgical treatment form (with items addressing operative procedures and complications of surgery). This collaborative process involved review of

existing questionnaires for back pain outcomes, prioritizing various outcome items by their perceived importance, and selection of a parsimonious set of questions based on the assigned priorities.

All of the data collection instruments were designed to be practical in the community setting and are now being used for an outcomes management study that is centrally coordinated by the research team. The individual surgeons and their office staffs identify patients who are scheduled for surgery, elicit their consent, and provide baseline questionnaires. The project staff receive the returned questionnaires, mail follow-up questionnaires at 4 to 6 months postsurgery, computerize the data, and generate analytic data summaries. Peer comparison information is periodically mailed to the participating surgeons. At the end of 1994, nine surgeons had enrolled 167 patients in the outcomes management program.

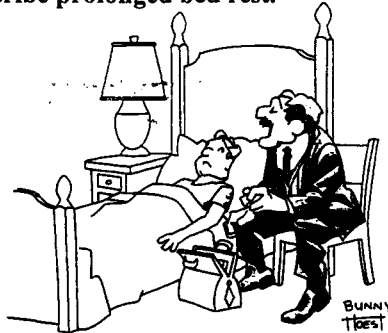
The communities are also assisting the research team by collecting evaluation data from patients who watch the videodisc program. Patients are routinely asked to complete a brief questionnaire that addresses issues such as the program's balance and understandability. This information is routinely forwarded to the project personnel by health care facility staff. Summary data indicate that the videodisc program is well received by patients. Results from the first 247 patients to complete rating forms are summarized in Table 4. (Eleven of the 247 patients who watched the video before the end of 1994 did not complete an evaluation form.) In general, these patients felt that the program is easy to understand, has about the right amount of information, held their interest well, and provides balanced information.

Finally, the Agency for Health Care Policy and Research released national guidelines for the management of low back pain in December 1994. At the request of the Back Pain Outcome Assessment Team, the agency mailed these guidelines to all family practitioners, general internists, orthopedists, rehabilitation medicine specialists, and neurosurgeons practicing in the intervention communities.

Modifying Community Practice Styles

Want to keep your patients with acute low back pain from returning to work?

Prescribe prolonged bed rest.




"You called me just in time. Another day or two, and you would have been up and around."

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A trial which randomly assigned patients without neuromotor deficits to either 7 or 2 days of bed rest found that those in the prolonged bed-rest group missed 81% more days of work without any difference in reported pain or satisfaction with care.

An effective regimen of conservative medical therapy should:

- Reassure that recovery is the norm
- Avoid prolonged bed rest
- Avoid labels implying "injury"
- Employ NSAIDs or acetaminophen



Back Pain
Outcome
Assessment
Team

This information, prepared by the Back Pain Outcome Assessment Team, is funded by the Agency for Health Care Policy and Research, and is endorsed by:

- Washington State Medical Association
- Washington Association of Neurological Surgeons
- Washington State Orthopedic Association
- Washington Academy of Family Physicians
- Washington State Society of Physical Medicine and Rehabilitation

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Figure 3 Front of academic detailing sheet.

the key to successful surgical treatment is appropriate patient selection. The presentation also included community-level data on surgical and nonsurgical hospitalization rates for back pain. Finally, each presentation included handing out patient education brochures developed by the research team and wall charts suitable for office use (to illustrate for patients the limited value of spinal x-rays).

Academic detailing is a promising educational method, modeled on marketing techniques, used by the pharmaceutical industry to influence

prescribing behavior.^{32,33} Three academic detailing sheets, reinforcing the key continuing medical education points, were developed for a mailing to family practitioners and general internists in the intervention communities. (One-on-one education with primary care physicians, often regarded as an important aspect of academic detailing, was not proposed due to limited financial and personnel resources.³²) Consistent with academic detailing principles, these sheets established credibility through a respected organizational identity (they were endorsed by the Washington State Medical

Association as well as four specialty groups), referenced unbiased and authoritative sources of information, used pictorial and graphical displays, and highlighted essential messages.^{32,33} They were in each case limited to a single page (front and back), with an eye-catching headline and cartoon on the front and detailed information with references on the back. The front of one of the detailing sheets is shown in Figure 3.

Hospital Administrators

In the present era of increasing health care costs, it is important that administrators and clinicians work collaboratively to improve the quality and appropriateness of care.²⁰ Therefore, we prepared a small group presentation for hospital administrative staff focusing on their own hospital data in comparison to statewide data on surgical rates, use of spinal fusions, low back reoperation rates, inpatient charges, and lengths of stay.

Patients

Because low back surgery is almost always elective, patient preferences should be an important factor in the decision to operate.¹² However, to be meaningfully involved in decision making, patients require accurate and understandable information on their treatment options and the expected outcomes of each. Video presentation of relevant medical information has been shown to increase the knowledge of diverse patient groups and can save physician time that might otherwise be devoted to patient education.³⁴⁻³⁶ In collaboration with the Dartmouth-based Foundation for Informed Medical Decision-Making, we therefore developed a computer-based interactive videodisc, with accompanying booklets for both patients and providers. This interactive program allows prospective surgical candidates to view interviews with patients who have made different decisions regarding surgery and have experienced either favorable or unfavorable outcomes of their treatment choices. In addition, it provides individualized probabilities (based on the patient's age and diagnosis) of various outcome conditions. The videodisc also

allows patients to watch optional segments covering more detailed material (e.g., diagnostic tests and work disability). Communities were offered the videodisc program for placement in local health care facilities.

Implementation Results

Participation in Proposed Activities

All of the five core activities proposed by the research team were adopted by four of the five intervention areas over a period of about 2 years (October 1992 through December 1994). The fifth community adopted all but the continuing medical education for primary care physicians.

The study group was attended by 12 surgeons (four neurosurgeons and eight orthopedists) from the intervention communities (Table 3). (To promote discussion, three surgeons from areas of Washington state with relatively low back operation rates were also invited.) These surgeons were all opinion leaders in their local communities and/or high-volume spinal surgeons. Following the initial study group meeting, a community-based outcomes management effort was initiated (see below). The group met a second time (about 1 1/2 years after the first meeting) to review updated trend and variation data and discuss the outcomes program.

Five continuing medical education presentations were given by project physicians: one in each of the suburban communities and two in the urban community. Appropriate forums were identified by planning group members and variously included hospital grand rounds, a regular primary care physician meeting, and an annual 2-day continuing medical education program. Attendance ranged from about 20 physicians (suburban community C) to over 100 physicians (one of the urban community presentations).

Detailing sheets were distributed to primary care physicians by local physician opinion leaders. The use of opinion leaders ("educational influentials") to deliver interventions aimed at physicians may enhance the success of educational programs.³⁷ At the suggestion of community

community members and project personnel established an ongoing planning process within each community (Fig. 1). In the urban intervention community (with an adult population of 259,000 and two major hospitals), a formal planning group was established with administrative and surgical representation from each hospital. Planning in the other four communities was achieved through informal contact with a hospital representative and two surgeon opinion leaders (individuals identified during the interviews as being leaders in their medical community).

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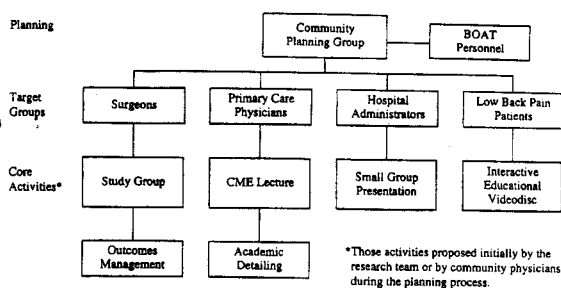


Figure 1 Intervention overview.

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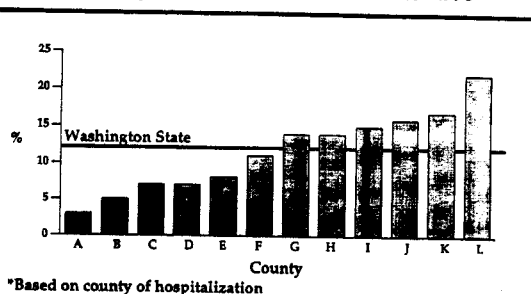


Figure 2 Example of study group data.

patients' participation in their choices of medical care. Our project, which involved a multidisciplinary team from the University of Washington, state-level organizations, local hospitals, and community physicians, could potentially provide a model for such regional foundations.

We deliberately designed our study to evaluate the synergy of multiple interventions. While our methodology permits an assessment of overall intervention effects, it precludes evaluation of the independent and interactive effects of the individual components. However, when data for relevant years become available, we will evaluate the overall effect of our information dissemination effort using the Washington state hospital discharge registry. If found to be effective, our effort will lend important support to the underlying belief of the PORT initiative that the health care community can indeed act on the basis of good information to alter practice and improve outcomes.

Acknowledgment

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Modifying Community Practice Styles

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