WHAT VA PROVIDERS REALLY THINK ABOUT CLINICAL PRACTICE GUIDELINES

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The VA mandates the use of clinical practice guidelines as a means of standardizing care in accordance with best evidence. But how do these guidelines resonate with VA providers?

The evidence base for medical care is expanding at an exponential rate. More than 4,600 biomedical journals are indexed in MEDLINE and approximately 2,000 citations are added daily.[1] Despite the large body of evidence, studies indicate that effective treatments are frequently underutilized. There is a large gap between the dissemination of research and its use in practice with resultant improved patient outcomes.[2–12] In addition, sizeable geographic variations in treatment utilization rates underscore the considerable effect of "usual medical practice."[13] Increasing public and governmental concerns about such variability have prompted practitioners to assume greater accountability for the care they provide.[14,15]

Like other health care systems, the VA has invested major resources to better the quality, consistency, and predictability of the health care it provides and to ensure that improvements are rapid, measurable, and sustainable. Since 1996, the VA has mandated the use of clinical practice guidelines (CPGs) as a primary strategy for standardizing care in accordance with best evidence and advancing patient participation in decision making.[16] The VA has now adopted or developed CPGs for treating numerous conditions and has set up an external, independent peer review program to monitor CPG compliance through medical record reviews.

The external reviews have revealed enormous progress within the VA on measures based on CPGs. Between 1995 and 2000, pneumococcal vaccination rates for individuals with chronic lung disease skyrocketed from 26% to 81% and influenza vaccination rates shot from 28% to 78%, exceeding both public and private sector benchmarks.[17] For diabetes, annual glycosylated hemoglobin (HbA_{1C}) measurement jumped from 59% to 94%, while the percentage of patients with an HbA_{1C} level of less than 9.5 rose from 72% to 85%.[17] Annual retinal exams and annual foot exams increased from 44% to 67% and from 77% to 96%, respectively.[17] The VA now exceeds both teaching and nonteaching private sector hospitals in

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providing such pharmacologic therapies as beta-blockers, aspirin, and ACE inhibitors to patients with heart problems.[18]

But what do VA providers really think of CPGs? Do they find CPGs helpful? Are CPGs applicable to the patients these providers serve? And how valuable do the providers find the feedback they receive on their practice relative to CPG recommendations?

To determine the answers to these and other questions, the Implementation and Education Subcommittee of the VA's National Clinical Practice Guideline Council—with the methodological support of the Veterans Evidence-based Research, Dissemination, and Implementation Center (VERDICT)—surveyed a random sample of VA providers in May 1999. The survey included questions regarding participants' beliefs about and awareness of CPGs that had been disseminated in the VA, preferences about CPG formats, and perceived barriers to day-to-day use.

This survey yielded some encouraging findings as well as some surprises. In this article, we'll describe the survey methods, the results, and the points we feel are most important to take away from this research.

SURVEY METHODS

We used a database of all VA employees to generate a systematic sample by profession and, from each of the targeted professions, chose every 10th employee outside of Puerto Rico. Ultimately, we sent surveys to 1,320 physicians, 660 nurses (in this study, the term "nurses" referred specifically to registered nurses and licensed practical nurses), 660 physician as-

sistants, 660 nurse practitioners, 220 pharmacists, 88 quality managers, 88 social workers, and 88 dietitians. We used a sample size that was large enough to allow us to compare physicians and midlevel providers (physician assistants and nurse practitioners) between veterans integrated service networks (VISNs) and to analyze all other providers at the national level only.

We mailed out 3,784 surveys on May 3, 1999. A single reminder letter was mailed to the nonrespondents on May 20, 1999.

We used SAS software (SAS Institute, Cary, NC) to conduct statistical analyses that were primarily descriptive in nature. We tested the significance of the relationship between categorical variables using the chi-square test. A significant chi-square value indicates that there is a difference between groups, but it does not reveal which categories are different. When a chi-square value for a table was significant, we conducted further analyses to determine the extent of the differences between groups using binary logistic regression.

SURVEY RESPONDENTS

The overall response rate was 37% (1,415 of 3,784), with nurses responding the least (31%) and professionals categorized as "others" (social workers, dietitians, pharmacists, and quality managers) responding the most (44%) (Table 1). Physician respondents were slightly older than other providers, with a mean age of 50 compared to 47 for midlevel providers, 48 for nurses, and 47 for other professionals. Both nurses and other professionals had worked at the VA for an average of 13.9 years compared to 12.8 years for physicians and 11.7 years for

midlevel providers. Physicians had held their professional degrees longer than other professionals, with a mean of 19.3 years compared to 16.7 for midlevel providers, 18.8 for nurses, and 18 for other professionals. A t test showed no significant difference in any of these parameters.

ADEQUACY OF CPG DISSEMINATION

This survey queried respondents about four VA CPGs that had been available for a minimum of 18 months—those on: chronic obstructive pulmonary disease (COPD)/asthma, issued November 1997; ischemic heart disease (IHD), issued September 1996; major depressive disorder (MDD), issued January 1997; and diabetes mellitus (DM), issued March 1997.

For each of the four CPGs, awareness that it existed among the respondents ranged from 61% to 70% (Table 2). The diabetes CPG generated the highest awareness level. The reading of the four CPGs by respondents varied more widely, with the depression CPG being read by the smallest percentage of respondents (32%) and the diabetes CPG being read by the largest (50%).

Awareness did not differ substantially on the basis of respondents' professional category for three of the four CPGs: DM, COPD/asthma, and IHD. By contrast, the MDD CPG generated significantly greater awareness among physicians (66%) and others (65%) than among midlevel providers (57%) or nurses (57%).

Midlevel providers were significantly more likely than all other professionals to have read the COPD/asthma CPG (57% versus 49% for physicians, 51% for nurses,

Table 1. Demographic characteristics of sample surveyed					
	Physicians	**Midlevel providers***	**Nurses**	**Others†**	**All**
Surveys sent	1,320	1,320	660	484	3,784
Surveys returned	432	561	207	215	1,415
Response rate (%)‡	33	43	31	44	37
Mean age (years)§	50.0	47.0	48.0	47.0	48.5
Mean years since professional degree§	19.3	16.7	18.8	18.0	18.0
Mean years worked in VA§	12.8	11.7	13.9	13.9	12.7

*Midlevel providers include physician assistants and nurse practitioners. †Others include social workers, dietitians, pharmacists, and quality managers. ‡Physicians' and nurses' response rates differed significantly from midlevel providers and other professionals ($P < .05$) but not from each other. §Differences between professional categories were not significant.

Table 2. Awareness, readership, and helpfulness of VA clinical practice guidelines				
	COPD*/asthma	**IHD†**	**Depression**	**Diabetes**
Aware	63% (864/1,362)	63% (845/1,350)	61% (836/1,371)	70% (941/1,349)
Read Overall	40% (547/1,362)	38% (519/1,350)	32% (443/1,371)	50% (669/1,349)
Of those aware	63% (547/864)	61% (519/845)	52% (433/836)	71% (669/941)
Helpful (of those who read)	82%(451/547)	84% (435/519)	78% (337/433)	88% (588/669)

*COPD = chronic obstructive pulmonary disease. †IHD = ischemic heart disease.

and 46% for others). Readership of the other three CPGs did not differ significantly among the professional groups, though a higher proportion of midlevel providers had read both the IHD and DM CPGs. There was no significant association between respondents' age and their awareness, readership, or opinion of the CPGs.

BELIEFS ABOUT VA CPGs
Providers were asked about their beliefs regarding CPGs in general, including how valid they believe the VA's CPGs are, to what degree they feel that the VA's CPGs are applicable to their patients, whether they find the VA's CPGs to be helpful, and how important feedback on CPG compliance is to them.

For each CPG, an overwhelming majority of those who had read it said it was helpful. Midlevel providers, nurses, and other professionals who had read the CPGs were significantly more likely than physicians who had read them to have found them helpful (Figure 1).

The other three questions used a five-point scale with possible answers ranging from "valid" to "not

valid," "apply to most of my patients" to "do not apply to most of my patients," or "very important" to "not important at all" (Figure 2). The majority of providers felt that CPGs were valid (63%) and applied to their patients (60%), with midlevel providers and other professionals being CPGs' biggest proponents (Table 3).

Physicians were less likely than midlevel providers, nurses, and other professionals to feel that the CPGs are applicable to their patients. Even so, a simple majority of physicians agreed that CPGs are valid (57%), that CPGs are applicable to their patients (51%), and that feedback on CPG compliance is important (50%).

The majority of the sample (62%) felt that feedback on their own practices relative to CPG recommendations was important, though physicians were significantly less likely than the other three professional categories to judge it as such (50% versus 63% to 75%). Similarly, physicians were less likely than the other three professional categories to value the availability of CPGs at the time of the patient visit (44% versus 59% to 64%).

CPG FORMAT

Most VA CPGs are displayed in an algorithmic format. Each box in the algorithm is annotated with explanatory text as well as the level of evidence supporting that discussion point. At the time of the study, two printed copies of the CPGs (which are often more than 50 pages) were distributed in three-ring binders to all VA chiefs of staff. (Now the VA disseminates CPGs exclusively through its Office of Quality and Performance web site, but this site was not fully operational until 2001.)
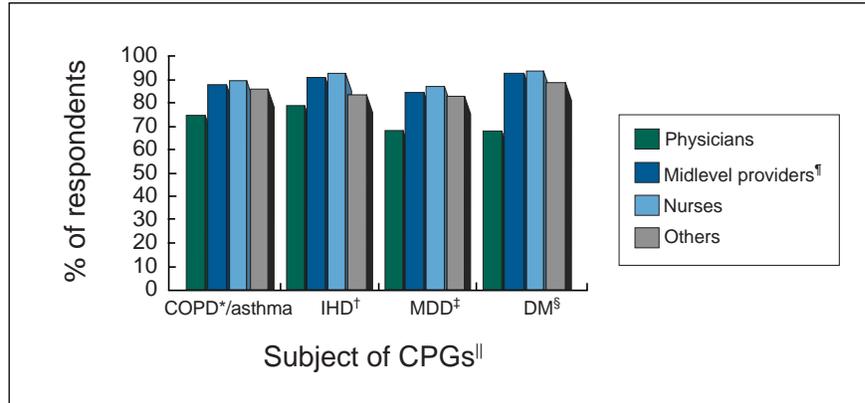

Figure 1. Helpfulness of CPGs as indicated by different types of health care providers. In all cases, nonphysician providers were significantly more likely than physicians to have found the CPGs helpful ($P < .05$). *COPD = chronic obstructive pulmonary disease. †IHD = ischemic heart disease. ‡MDD = major depressive disorder. §DM = diabetes mellitus. ‖CPGs = clinical practice guidelines. ¶Midlevel providers include physician assistants and nurse practitioners.
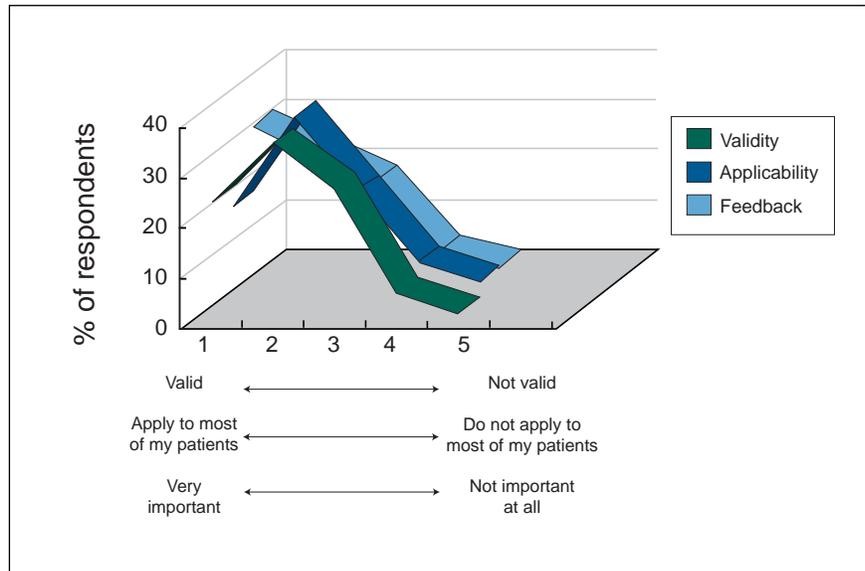

Figure 2. Respondents' beliefs about clinical practice guidelines (CPGs) in terms of validity, applicability, and importance of feedback on practice relative to CPG recommendations.

Our survey asked respondents their opinions of the typical VA CPG format: Is it too detailed, too brief, just right, or is there some other problem with it? In the case of all four CPGs, respondents who answered the format question and had actually read the CPG were most likely to describe its format as being "just right" (Table 4). Only a handful of respondents who had read the VA CPGs thought that they were too brief. A slightly larger percentage described them as having "other problems." The write-in responses detailing the

Table 3. Positive responses* to clinical practice guidelines (CPGs) by professional category				
	Physicians	**Midlevel providers**	**Nurses**	**Others**
VA CPGs valid	57% (210/366)	67%[†] (317/475)	58%[‡] (95/163)	67%[†] (116/174)
VA CPGs applicable to my patients	51% (194/378)	65%[†] (321/492)	58%[‡] (100/171)	66%[†] (115/175)
Feedback regarding practices relative to CPG recommendations important	50% (201/399)	63%[†] (322/508)	75%[†] (137/182)	72%[†] (137/190)
Access to CPGs during patient visit important	44% (184/422)	64%[†] (349/543)	59%[†] (116/196)	63%[†] (132/209)

*Proportions of respondents represented as having positive responses judged CPGs to be either 1 or 2 on a five-point scale, in which 1 signified valid, applicable to most of my patients, or very important, depending on the question. [†]Responses differed significantly from that of physicians ($P < .05$). [‡]Responses did not differ significantly from that of physicians.

"other problems" included such barriers as CPGs being unavailable in the examination rooms; being too general; or inadequately addressing the problems of comorbidities, age, and mental status—all potential barriers mentioned elsewhere in the survey. Respondents overwhelmingly said that algorithmic formats were easier to understand than narrative formats (78%).

Respondents also were asked their preference among the following types of CPG formats: complete (usually a referenced document of 50 or more pages); brief (one to three pages including an algorithm, key points, and defined measured elements); pocket card; electronic; print; or other. Respondents could choose as many different formats as they preferred.

The majority of survey respondents indicated that they wanted more than one form of CPG display or format: 64% selected two or more formats and 9% selected four or more formats. Only 11% wanted the complete CPG; 60%, pocket cards; 69%, the brief form; 49%, on CD-ROM; and 78%, available on the computer terminals in the clinic.

Although 68% of our respondents said they had access to the internet, only 22% said they use it to obtain CPGs. Of those who did not have internet access at the time of the survey, 57% thought that they would have it in a year, and 82% said that, if they had it, they would use it to access CPGs.

ACCESSIBILITY OF CPGs AND RELATED RESOURCES

Local availability was an important predictor of whether or not respondents had read CPGs. If respondents knew where to find a CPG within their facility, they were significantly ($P < .05$) more likely to have read it than if they did not know where to find a copy: Of respondents who knew where to locate the CPGs for COPD/asthma, IHD, MDD, and DM within their facility, 70%, 69%, 57%, and 79%, respectively, had read the CPG in question. By comparison, of those who did not know where to find copies within their facility, 28%, 25%, 21%, and 38%, respectively, had read the CPG in question.

While midlevel providers were most likely to try to access guidelines while seeing patients (28% versus 15% of physicians, 26% of nurses, and 22% of other providers), they were the professional group least likely to know where the guidelines were located in the facility (46% versus 58% of physicians, 58% of nurses, and 54% of other providers). At the time of the survey, VA guidelines were not routinely available by way of the VA intranet as they are today.

Respondents demonstrated very low levels of awareness of videotapes and printed materials produced by the VA to assist the medical centers' CPG implementation efforts. Of all videotapes produced, respondents were most aware of one showing the under secretary for health making a speech about the VA Guideline Initiative (27% of respondents indicated awareness, compared to 5% to 10% for all other VA videos).

Table 4. Opinion about current format among providers who read specific guidelines				
Opinion	**Guideline topic**			
	COPD*/asthma (n = 507)	**IHD† (n = 487)**	**MDD‡ (n = 403)**	**DM§ (n = 614)**
Too detailed	35% (179)	37% (180)	39% (157)	36% (222)
Too brief	2% (9)	2% (11)	3% (11)	3% (16)
Just right	50% (253)	49% (238)	46% (187)	49% (302)
Other problems	13% (66)	12% (58)	12% (48)	12% (74)
*COPD = chronic obstructive pulmonary disease. †IHD = ischemic heart disease. ‡MDD = major depressive disorder. §DM = diabetes mellitus.				

Respondents were asked to check the educational formats that they would find most helpful for learning about guideline content. They could choose as many as they liked. At least 25% of physicians, midlevel providers, and other professional groups chose videotapes, local clinical champions, independent study of written materials, and interactive computer programs on CD-ROM. Nurses preferred videotapes overwhelmingly (52%) as well as local clinical champions and service meeting discussions. Categories for which no professional group had at least 25% preference were: audiotapes, national clinical champions, academic detailing, and storyboards in clinic areas.

BARRIERS TO FOLLOWING CPG RECOMMENDATIONS
The survey included the following open-ended question: "Think of your day-to-day clinic visit routine and list the biggest barriers you experience in following guideline recommendations in that setting." Responses were grouped into nine broad categories (Table 5). The barrier cited most often was time constraints, followed by lack of resources and difficulty with either access to CPGs or characteristics of the CPGs.

When probed specifically about the degree to which teamwork is a part of CPG implementation at their facility, only about one third of respondents (478 of 1,436) rated teamwork at their facility as being excellent; the remaining two thirds rated it as being neutral or poor.

IMPLICATIONS FOR ACTION
Traditionally, health care culture has emphasized the professionalism and self-learning of the physician as the preferred method of keeping current. Two forces that challenge that tradition are now converging: the explosion of available medical evidence[1] and the move within health care to dispense preventive medicine to and manage chronic disease within entire patient populations.[19,20] In this context, the VA is committed to providing increasingly more evidence-based health care. CPGs represent one visible commitment to this endeavor.

Enormous effort has gone into the creation of evidence-based CPGs by the VA, bringing together VA and non-VA experts. Yet this effort has produced relatively low levels of CPG awareness by VA providers (60%). Previous studies have demonstrated that lack of awareness of a guideline is a significant barrier to its use.[21] Our survey results suggest that the VA needs to attend to some basic principles of marketing and learning in the context of CPGs. The VA's 1999 CPG distribution system (disseminating printed materials to chiefs of staff, librarians, and other administrative staff) did not necessarily result in frontline providers seeing the guidelines or related videotapes. When providers knew where to find guidelines in their own facility, however, they were much more likely to have read them and to have found them helpful. Direct marketing to providers—putting CPGs in the hands of those who will use them—may be appropriate.

While clinicians who read the guidelines in the current format (50 to 100 pages with references) found them helpful, respondents overall

Table 5. Barriers to following clinical practice guideline (CPG) recommendations		
Category	% of responses in category (n = 1,640)	Examples of answers in category
Time	32% (531)	Time allowed per patient; busy schedules; overbooks; no time— already working nine- to 10-hour days; documentation requirements; too many responsibilities
Resources	19% (306)	Inadequate clerical support; computers are down a lot; short staffing; not enough nurses to assist with implementation; ineffective or nonworking equipment; inadequate patient education materials; lack of access to specialists; no documentation tools
CPG access and characteristics	15% (253)	Don't have CPGs; not on computer; can't find CPGs; awkward to reference in front of patient; too detailed, complex, or numerous
Provider knowledge	7% (117)	Lack of awareness of guidelines or knowledge of guideline material
Patient problem	6% (94)	Demands of the patient; patient non-adherence; limited patient comprehension; patients' lack of motivation
Patient comorbidity	4% (63)	Multisystem diseases; multiple medications; medically complex patients
Opposition to "cookbook medicine"	4% (72)	Cookbook type approach with guidelines; they don't explain "why" thereby leading to recipe/cookbook treatment; rigidity of the guidelines; guidelines viewed as "required"; some don't make sense; need guidelines updated more often; aversion to "being forced to order something that is not in the patient's best interest—this is unethical"
Other	10% (166)	Patient doesn't fit guideline; lack of feedback on performance; barriers are "cultural"

appear to prefer multiple, shorter formats including pocket cards and brief guideline summaries. Additionally, electronic access was overwhelmingly preferred (by 78% of respondents). Providers (especially midlevel providers) believe that access to CPGs is important during a clinic visit, but that such access is useful only if it is in a format that is easily integrated into the mechanics of the patient care visit. Since time and access to CPGs together make up nearly one half of the cited barriers to guideline implementation, it is not surprising that very few survey respondents actually try to access full format CPGs during patient visits.

The majority of survey respondents indicated that guidelines were both valid and applicable. This may be part of a larger trend toward evidence-based medicine.[21] But barriers to implementation exist, with lack of time being cited most frequently and described as perhaps the most difficult barrier to overcome. Lack of resources and lack of access to VA CPGs also were cited as barriers by a majority (more than 60%) of respondents.

Incorporating patient specific reminders of best-evidence practice into the VA's computerized medical records may be one means of addressing the time barrier. We could, for example, electronically prompt providers to prescribe aspirin and a beta-blocker for patients who have been diagnosed with coronary artery disease. More explicit role assignment and team development also may lead to more efficient delivery of care. Lack of resources may be more difficult to address, though some of the resource needs (for example, equipment maintenance, documentation tools, and adequate patient education materi-

als) may be under the control of the facilities, relatively inexpensive, and likely to have a large impact on improvement efforts. Local leadership plays a critical role in this area since the needs expressed by providers vary widely.

Our findings confirmed that providers have multiple learning styles and preferences that need to be considered when planning educational interventions. Informational and summary documents related to guidelines must be developed in a variety of formats to reach all learners. Although there is a need for the system to review the evidence thoroughly before recommending a course of decision-making, the majority of providers appear to want only a summary of that evidence, with more emphasis on the specifics of guideline recommendations and their related performance measures. While satellite broadcasts (and their corresponding videotapes) were a widely desired educational format, few respondents were aware of videotapes that were already available—a fact that, again, points to the need for improved marketing and distribution of developed materials.

The majority of medical literature on CPGs has focused on their acceptance by physicians and whether or not they change physician behavior. Our study is unique in that it looks at attitudes of all health care professionals in a single health care system. We found that midlevel providers in particular find guidelines helpful and believe it is important to have easy access to CPGs during a patient visit. One important, emerging strategy for CPG implementation in the VA is the reassignment of aspects of care to team members other than physicians in accordance with CPGs. It's

encouraging to see that nonphysician team members are developing an awareness of the CPGs and have positive attitudes towards them. The next step may be engaging the patients more proactively—perhaps by directing CPG content toward them and encouraging them to prompt their health care providers to deliver concordant care.

We were surprised by the level of importance placed on feedback concerning whether or not performance was in accordance with CPGs, demonstrating an important shift in culture from such feedback being perceived as punitive to it being perceived as useful for improving patient care. The challenge for our system is to create procedures that generate such feedback easily, inexpensively, and accurately.

STUDY LIMITATIONS

The primary limitation of our study is the low response rate (37%). Cabana and colleagues reviewed 76 published studies of barriers to CPG adherence and found that response rates varied from a low of 26% in some studies to a high of 98% in others, with the majority of studies generating a response rate within the range of 50% to 60%.[21] It's possible that respondents may be more favorably disposed toward guidelines than nonrespondents.

A second limitation of our study is that it's not necessarily accurate to generalize from our data to non-VA health care systems. Nevertheless, barriers identified in published surveys regarding non-VA guidelines reflect many of the same concerns found in ours. Comparisons of performance data from the VA and private sector reveal that the private sector, like the VA, is work-

ing to improve quality of care and that the VA is the leader on a number of quality improvement measures.[14,17] Perhaps it's time for the private sector to ask how the VA achieved its successes—in particular, how it created a culture in which providers value quality of care, appreciate feedback on performance, and increasingly use teamwork to accomplish goals. ●

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