Physician Perceptions of a National Formulary

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Objective: To assess the perceptions of US Department of Veterans Affairs (VA) physicians regarding effects of a National Formulary (NF) on patient care, access to drugs, physician workload, and resident training approximately 1 year after it was implemented.

Study Design: Cross-sectional survey.

Methods: A questionnaire was sent to attending physicians working within the VA healthcare system. Participants included general internists (n = 2824), neurologists (n = 238), psychiatrists (n = 997), general surgeons (n = 429), and urologists (n = 152). The response rate was 45%.

Results: Most physicians (63%) thought that they could prescribe needed drugs; 65% agreed that patients could obtain needed nonformulary drugs. One third disagreed that access to prescription pharmaceuticals had increased; 29% stated the NF impinged on providing quality care to their own patients, and 21% thought it did so to patients from other VA facilities. Thirty eight percent of physicians perceived the NF to be more restrictive than private sector formularies; 16% thought that the NF diminished the ability to train residents for managed care. Forty percent thought that the NF added to workload. Generalists more often perceived that the NF improved their ability to provide care compared with neurologists (27% vs 18%, $P = .046$), psychiatrists (27% vs 22%, $P = .027$), and internal medicine subspecialists (27% vs 18%, $P = .001$). Physicians with more clinic time were more likely to perceive that the NF increased workload.

Conclusion: Although differences of opinions among physicians were noted, most responding VA physicians did not perceive that the NF adversely affected patient care, access to pharmaceuticals, physician workload, or resident training.

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In 1995, the Under Secretary for Health of the US Department of Veterans Affairs (VA) and the chief executive officer of the VA healthcare system directed the Veterans Health Administration (VHA) to develop a VA National Formulary (NF). The primary objective in developing a comprehensive, standardized package of pharmaceuticals was to improve equity of access to drugs across the VA healthcare system. A secondary objective was to optimize pharmaceutical utilization.

As a first step, the VA's 22 regional healthcare networks (Veterans Integrated Service Networks or VISNs) adopted network formularies in April 1996.[1-5] Prior to this, formulary decisions were independently determined by individual facilities, and there were

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substantial differences in access to and expenditures for pharmaceutical products among the more than 170 VA hospitals. In May 1997, the NF was formally implemented throughout the VA healthcare system.

To facilitate the transition to the NF, the VA established a Pharmacy Benefits Management Strategic Healthcare Group (PBM). The PBM includes administrators, clinical pharmacists, and VA physicians, the latter known as the Medical Advisory Panel. The initial NF was based on combined input from the VISN pharmacy and therapeutics (P&T) leaders and from the PBM. This combined group has acted, in essence, as the national-level P&T committee for the VHA. Additions and deletions to the NF are coordinated by the PBM and may be requested by VISN P&T leaders, various panels of experts within VA, and by the PBM itself. As well as engaging in formulary decisions, the PBM develops and assists other clinical groups within the VA in developing pharmaceutical management guidelines (available at http://www.vapbm.org/PBM/treatment.htm).

The NF details a core group of products that *must* be available for veterans throughout the VA nationwide. It focuses primarily on outpatient products and comprises prescription drugs, over-the-counter medications, and selected medical-surgical supplies. In general, pharmaceuticals must be approved by the Food and Drug Administration and on the market for at least 1 year before inclusion on the NF. To allow for local flexibility in pharmaceutical prescribing, and in order to serve the specific needs of a regional population, individual VISN P&T committees may provide access to pharmaceuticals and supplies not covered by the NF via regional (VISN) formularies.

VISN P&T committees work directly with the P&T committees of the individual VA medical centers within a region to add products to the VISN formulary, to implement pharmacy-based guidelines (national or local), to monitor pharmaceutical use, and to develop nonformulary policies. Clinicians and/or local P&T committees from within the VISN are generally responsible for requesting new products. The interactive process among local, regional, and national groups is designed to encourage local tailoring of policies, as needed, within the framework of the NF. Overall, VISN formularies (hence individual medical center formularies) tend to be somewhat more expansive than the NF regarding the number of pharmaceuticals that are available to patients. From a practical point of view, clinicians practice under the guidance of local and VISN P&T committees.

One exception to this policy is for selected "closed" drug classes, in which case contracting is arranged at the national level for specified pharmaceuticals. For example, by the end of 1997, 6 drug classes had had national contracts established (specified further below). Each closed class has between 1 and 3 preferred drug(s) available. Patients who fail to respond to or who cannot tolerate formulary agents may obtain other pharmaceuticals within these drug classes, as per local nonformulary procedures.

Along with VHA, more than 90% of health maintenance organizations (HMOs) utilize a formulary system, with nearly half of those organizations using closed drug lists.[6] Yet, even with such widespread implementation, few studies have systematically assessed the effects of formularies on health outcomes or on healthcare systems.[7-9] The results of these studies remain controversial, in part due to difficulty in isolating the effects of the formulary (ie, a pharmaceutical benefits package) from the range of formulary activities designed to optimize pharmaceutical use[10,11] and in part due to the dynamic nature of formulary management. These issues, along with differences in the way various healthcare systems approach formulary issues,[12] create practical and methodological problems when evaluating patient-level effects of formularies.

Given these difficulties, it is surprising that few, if any, studies have attempted to gain insight into the impact of formulary policies by exploring physicians' perceptions. Some researchers have assessed general attitudes toward drug cost-containment strategies,[13,14] but to our knowledge there are no published studies designed to assess clinicians' perspectives about specific formulary decisions within any healthcare system (private or public) in the United States. We believe that such perspectives can assist managed care systems in assessing and improving formulary policies. Furthermore, directly involving clinicians in the formulary process may lead to greater physician satisfaction and, consequently, greater adherence to formulary management plans.

In that light, the VA's PBM, in cooperation with the RAND Survey Research Group, surveyed physicians 1 year after implementation of the VA's NF. The study's primary goal was to survey clinicians' perceptions about access to pharmaceuticals, quality of patient care, and physician work efficiency. It was not intended to independently validate or refute those perceptions. We present the survey results below.

··· METHODS ···

Survey Development and Implementation

The survey questionnaire was developed as a collaborative effort between the RAND Survey Research Group and the VA PBM. No previously tested survey questionnaires were found in the medical or pharmacy literature. The VA questionnaire was designed to elicit physicians' perceptions regarding 2 primary content areas: (1) the effects of the NF on access to pharmaceuticals and on quality of care, resident training, and physician workload; and (2) the effects on patient care of choosing specific drugs within 6 drug classes. The 6 drug classes (with generic names of formulary agents listed in parentheses) included histamine type 2 blockers (cimetidine and famotidine) and proton pump inhibitors (lansoprazole) for peptic ulcer disease and dyspepsia; 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase inhibitors (lovastatin and simvastatin) for cholesterol lowering; luteinizing hormone-releasing hormone analogues (goserelin) for prostate cancer; α-antagonists (terazosin and prazosin) for benign prostatic hyperplasia; and angiotensin-converting enzyme inhibitors (captopril, lisinopril, and fosinopril) for hypertension and congestive heart failure.

To assess the perceived effects of the NF on access to pharmaceuticals and on quality of care, resident training, and physician workload (the 9 individual statements are listed later) we asked respondents: "The NF was created approximately 1 year ago. Its intent was to provide equal access to pharmaceuticals for VA patients nationwide. To help us understand how the NF has affected you and your patients, please indicate how strongly you agree or disagree with each of the following statements." To assess the perceived effects on patient care of choosing specific drugs (the 6 individual statements are listed later) we asked respondents: "In developing the NF, drugs within selected pharmaceutical classes were chosen for inclusion. Please indicate the degree to which each of the following choices has affected care provided to patients in your practice."

Responses to individual questions were scored on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree" for questions concerning access, quality, workload, and training and from "very positive effect" to "very negative effect" for questions on drug class selections. Respondents also were asked to provide demographic and practice information.

A draft survey was reviewed and completed by the 9 physician-members of the Medical Advisory Panel of the PBM. Based on their input, modifications to the instrument were made to improve clarity. The survey was then pilot-tested on a convenience sample of physicians (n = 7) from the West Los Angeles Veterans Affairs Medical Center. This

Table 1. Self-Reported Characteristics of Responding Physicians*

Demographic Variable	Total (%) (n = 2052)
Male	1474 (73)
Primary specialty	
General internal medicine	891 (43)
Internal medicine subspecialty	316 (15)
Neurology	98 (5)
Psychiatry	458 (22)
General surgery	110 (5)
Urology	71 (4)
Other surgical subspecialty	29 (1)
Other	79 (4)
Employee status	
Full-time	1461 (73)
Part-time	549 (27)
Mean age (y)	48.9
Mean number of years in VA service	10.9
Mean number of half-day outpatient clinics per week	4.9
Member of VISN or local P&T committee	273 (13)
Practicing in system with formulary, apart from VA	402 (20)

P&T = pharmacy and therapeutics; VA = Department of Veterans Affairs; VISN = Veterans Integrated Service Network.
*Percentages indicate valid percentages of responses by category. Percentages were rounded and may not total to 100%. Respondent answers may not tally to 2052 due to missing responses.

testing allowed for further modification before finalization. The final 2-page survey (27 items) is available on request from the corresponding author.

The survey was mailed to all physicians in the sample population (see below); nonresponding physicians were sent a second survey approximately 1 month after the first mailing. All responses were confidential. Data collection and preliminary data assessment were completed by the RAND Survey Research Group. Transfer of data to VA did not include unique participant identifiers, apart from demographic and practice information. This protocol was approved by RAND's Human Subjects Protection Committee.

Sample Population

The sample population (n = 4640) was based on the circulation files of *The Veterans Health System Journal.* That database, updated annually from VA's computerized physician employment files, contains addresses and specialty information for all salaried attending-level VA physicians. For our study, we chose all listed general internists (n = 2824) and convenience samples of listed neurologists (n = 238),

Table 2. Physicians' Perceptions of the National Formulary: Access, Training, and Workload*

	Percentage					
Response	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
Over the past year, access to prescription drugs has increased at my facility.	7	27	28	22	10	6
Over the past year, access to over-the-counter products has increased at my facility.	2	8	35	27	14	15
In general, I can prescribe the drugs that I consider are needed for my patients.	9	54	11	18	7	0
In general, my patients can obtain nonformulary drugs when medically justified.	10	55	14	14	5	2
The VA's National Formulary is more restrictive than formularies in the private sector.	12	26	22	11	2	27
The National Formulary enhances my ability to provide quality care to my patients.	2	14	40	21	8	15
The National Formulary enhances my ability to provide quality care to patients from other VAs.	3	20	38	15	6	19
Being exposed to standardized formularies will diminish the ability of the VA-trained physicians to work in managed care after they leave the VA.	3	13	25	38	10	11
Switching my patients' medications to conform with the National Formulary has added substantially to my workload.	8	26	33	24	3	7

VA = Department of Veterans Affairs.
*Participants answered the following question for each of the above responses: "The National Formulary was created approximately 1 year ago. Its intent was to provide equal access to pharmaceuticals for VA patients nationwide. To help us understand how the National Formulary has affected you and your patients, please indicate how strongly you agree or disagree with each of the following statements." Percentages indicate valid percentages of responses by category. Percentages were rounded and may not total to 100%.

psychiatrists (n = 997), general surgeons (n = 429), and urologists (n = 152). We included all general internists because these physicians are principally responsible for providing primary care within the VA. Other physician groups represented a broad spectrum of providers that would likely be affected by NF decisions and/or contracting awards. Sampling of general surgeons, neurologists, psychiatrists, and urologists was done by choosing every other name (or every third name in the case of urologists) on the circulation list, with a coin toss governing whether to proceed from the first or second name on the list.

Of the 4640 physicians initially sent surveys, 94 were declared ineligible due to retirement (n = 11), death (n = 4), or no longer working in the VA (n = 79). Ten other responses were also declared ineligible because the participant was not an attending physician or because he or she had participated in NF decision making. Thus, the final eligible sample population was 4536 physicians.

For individual physician groups, the response rates were as follows: internists 46.4% (1278/2754); neurologists 40.3% (95/236); psychiatrists 48% (468/975); general surgeons 34.9% (147/421); and urologists 46.7% (70/150). Six physicians were dropped for various reasons (eg, unusable responses), leaving an overall response rate of 2052/4536 (45.2%) based on the specialty designation within our sampling frame. We noted that 316 internists described themselves as internal medicine specialists, even though they were originally listed as general internists. Differences in self-reported primary specialty were found for other physicians as well (**Table 1**).

Practice demographics, aggregated across all respondents, indicated that physicians were all attending-level, had an average age of 49 years and 11 years of VA service, and averaged 5 half-day outpatient clinics per week; 73% were full-time employees; 20% practiced in other health systems with formularies; and 13% were on local or regional VA P&T committees. (Table 1).

Data Analysis

Valid percentages were used for presenting respondent perceptions. Comparisons between physician groups were by chi-square analysis.

A population-averaged ordinal logistic model was used to assess the difference in perceptions concerning how the NF affected the following:

- Ability of physicians to provide quality care (2 items subcategorized by patient type [mine or other]);
- Access to pharmaceuticals (4 items subcategorized by drug type [prescription, over the counter, needed for patient, nonformulary drug]); and
- Physician efficiency (2 items subcategorized by time frame [current or future]).

Table 3. Summary of Regression Results for Physicians' Opinions*

Response Variable	Ability to Provide Quality Care		Access to Pharmaceuticals		Physician Efficiency	
Variable	β	***P***	β	***P***	β	***P***
Specialty: compared with GIM						
Internal medicine subspecialty	.440	**.001**	.206	**.039**	-.014	NS
Neurology	.473	**.046**	-.222	NS	.399	**.014**
General surgery	.358	.081	-.119	NS	.195	NS
Urology	.479	.067	.489	**.006**	-.196	NS
Other surgical subspecialty	.680	.073	.015	NS	.034	NS
Psychiatry	.265	**.027**	-.044	NS	.464	**< .0005**
Other	.009	NS	.131	NS	-.192	NS
Employee status (full-time, part-time)	-.184	.095	-.098	NS	-.066	NS
Sex (male, female)	.079	NS	-.048	NS	.108	NS
Age (y)	-.010	**.035**	-.001	NS	.0001	NS
Days/week in clinics	-.004	NS	.012	NS	-.058	**< .0005**

GIM = general internal medicine; NS = not significant.
*Results were derived using a logistic model (see text for details); β refers to the regression coefficient; intercepts and indicator terms from the model have been omitted for simplicity of presentation (available on request from the corresponding author); statistically significant results are in bold-faced type.

Each analysis was fit with specialty categories, an item indicator as specified above (eg, drug type), and demographics (employee status, sex, age, and days per week spent in outpatient clinics) as possible predictors of opinions. All models were fit using robust estimates of variance calculated by clustering on physicians over the responses.[15-17] In addition, ordinal logistic regression was used to assess specialty differences regarding the effects of formulary medications on patient care.

These models were fit for the 5-category response option (eg, based on 5-point Likert scale responses, ranging from "strongly agree" to "strongly disagree") and for a condensed 3-category response option (eg, agree, neutral, disagree). Both excluded "I don't know" responses. Coefficient estimates were compared and found to be essentially the same across the models. Thus, the data presented are from the 3-category models.

··· RESULTS ···

Table 2 summarizes the responses to general questions about the NF. Approximately 82% of respondents stated that they were aware of the NF, although only 32% had referred to it (data not shown in Table). Overall, the majority of clinicians (63%) either agreed or strongly agreed that they could prescribe the drugs needed for their patients. Similarly, most (65%) thought that their patients could obtain nonformulary drugs when medically justified. In terms of access to prescription drugs, respondents were split in their perceptions. For example, 34% thought that access had increased, 28% were neutral, and 32% felt access had not increased. With regard to over-the-counter drugs, 41% thought access had not increased, with 35% neutral, and only 10% agreeing that access had increased.

Thirty-eight percent of respondents thought that the NF was more restrictive than formularies in the

Table 4. Drug Selection and Perceived Effect on Patient Care*

Choice	Percentage						
	Very Positive Effect	Positive Effect	No Effect	Negative Effect	Very Negative Effect	NA/ Don't Know	Overall Mean†
The choice of cimetidine and famotidine as formulary histamine type 2 blockers	3	19	49	16	2	12	2.9
The choice of lovastatin and simvastatin as formulary HMG-CoA reductase inhibitors	5	24	46	7	1	17	2.7
The choice of terazosin as formulary α-antagonist	3	21	48	8	1	18	2.8
The choice of lansoprazole as formulary proton pump inhibitor	5	21	46	10	2	17	2.8
The choice of goserelin as formulary luteinizing hormone-releasing hormone agonist	2	8	42	2	1	45	2.8
The choice of lisinopril and fosinopril as formulary angiotensin-converting enzyme inhibitors	4	21	51	6	1	17	2.7

HMG-CoA = 3-hydroxy-3-methylglutaryl coenzyme A; NA = not applicable.
*Respondents answered the following question for each of the above drug classes: "In developing the National Formulary, drugs within selected pharmaceutical classes were chosen for inclusion. Please indicate the degree to which each of the following choices has affected care provided to patients in your practice." Percentages indicate valid percentages of responses by category. Percentages were rounded and may not total to 100%.
†The overall mean refers to the mean Likert scale score, range 1 (very positive effect) to 5 (very negative effect), excluding "I don't know" responses.

private sector, but only 16% agreed or strongly agreed that exposure to the formulary would diminish the ability of VA-trained physicians to work in managed care. Twenty-nine percent disagreed with the statement that the NF enhanced ability to provide quality care to their own patients, while 21% felt similarly in regards to patients from other VA facilities. There was a near-even split among physicians as to the effect on workload, with 34% agreeing, 33% neutral, and 27% disagreeing that conversion to NF drugs added substantially to workload (Table 2).

Physicians who had referred to the NF were more likely to report that access to pharmaceuticals had increased or stayed the same (68% vs 64%; P = .039) and that they could prescribe necessary drugs (78% vs 73%; P = .006). They were less likely to agree that the NF was more restrictive than private sector formularies (53% vs 46%; P = .01) but more likely to report that it added substantially to physician workload (40% vs 34%; P = .006). Physicians having experience with non-VA formularies were less likely to agree that the NF was more restrictive than private sector formularies (44% vs 53%; P = .002), that the NF interfered with resident training (18% vs 20%; P < .001), and that the NF had added substantially to workload (28% vs 38%; P <. 001).

Further statistical analysis included demographic and practice variables and was performed for physician perceptions concerning quality of care, access to pharmaceuticals, and workload. A summary of regression results is given in **Table 3**. Specifically, in regards to physicians' ability to provide quality care, only age was a significant, though nominal, predictor, indicating that older physicians were more likely to agree that the formulary had increased their ability to provide quality care (P = .035). For example, the model predicted that 21% of the youngest quintile of physicians agreed that the NF increased their ability to provide quality care compared with 25% of the oldest quintile. Among all physician groups, generalists were more likely to agree that the formulary increased their ability to provide quality of care

Table 5. Specialty Differences for Drug Classes*

Medication†	Specialty	Percentage			*P*
		Positive Effect	No Effect	Negative Effect	
Gastrointestinal	General internal medicine	27	56	18	
	Internal medicine subspecialty	21	56	22	.019
Cholesterol-lowering	General internal medicine				
	Internal medicine subspecialty	44	50	6	
		26	61	12	<.0005
Prostate enlargement	General internal medicine	36	56	8	
	Internal medicine subspecialty	25	62	13	<.0005
	Urology	28	61	11	NS
Prostate cancer	General internal medicine	24	74	2	
	Internal medicine subspecialty	15	81	4	.009
	Urology	28	70	2	NS
Hypertension	General internal medicine	35	59	6	
	Internal medicine subspecialty	22	66	11	<.0005

NS = not significant.

*Respondents answered the following question for each of the above drug classes: "In developing the National Formulary, drugs within selected pharmaceutical classes were chosen for inclusion. Please indicate the degree to which each of the following choices has affected care provided to patients in your practice." Comparisons across specialty groups are to general internal medicine respondents. "I don't know" answers were excluded from analysis. Predicted probabilities (expressed for convenience as percentages) were based on an ordinal logistic model and indicate the probability that a physician would choose a positive effect, negative effect, or no effect on patient care for drug choices within each medication class. Percentages were rounded and may not total to 100.

†Gastrointestinal refers to histamine type 2 antagonists (selected agents: cimetidine and famotidine) and proton pump inhibitors (selected agent: lansoprazole); cholesterol-lowering refers to 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors (selected agents: lovastatin and simvastatin); prostate enlargement refers to α-antagonists (selected agent: terazosin); prostate cancer refers to luteinizing hormone-releasing hormone analogues (selected agent: goserelin); and hypertension refers to angiotensin-converting enzyme inhibitors (selected agents: lisinopril and fosinopril) for hypertension and congestive heart failure.

compared to internal medicine subspecialists (27% vs 18%; P =.001), neurologists (27% vs 18%; P = .046), and psychiatrists (27% vs 22%; P = .027) (data not shown in Table).

Regarding availability of medications, none of the demographic variables were significant predictors of access to pharmaceuticals (Table 3). However, internal medicine specialists and urologists were less likely to agree that access had increased compared with generalists (Table 3). The statistical model also indicated that a higher percentage of respondents perceived that access to needed drugs had increased relative to prescription drugs (60% vs 36%; P < .005; data not shown in Table 3).

Opinions about the effects of the formulary on work efficiency were significantly associated with time spent in outpatient clinics, indicating that physicians who spent more time in clinics were more likely to perceive that the formulary had increased workload (P < .0005). For example, 23% of physicians who spent 1 half-day in clinic agreed that the NF increased workload compared with 33% of physicians who spent 10 half-days in clinic. Increases in workload were perceived to be more the case for current workload (37% vs 18%; P < .0005) rather than future workload (data not shown), meaning that physicians thought that the NF affected current activities more than future capabilities in a managed care environment. Finally, compared with generalists, neurologists and psychiatrists were less likely to perceive that the NF had negatively affected work efficiency (Table 3).

In regard to specific drug class selections, as can be seen in Table 4, the mean response scores (range = 2.7 to 2.9) suggested that formulary choices had no effect or, possibly, a weakly positive effect on patient care (Table 4). Among physician groups, predicted probabilities indicated that general internists were significantly more likely to report a positive effect due to the choice of gastrointestinal, cholesterol-lowering, and prostate medications (**Table 5**) compared with self-described internal medicine specialists. There was no significant difference between urologists and general internists in the perceived effect of prostate medication choices.

··· DISCUSSION ···

Several previous studies have attempted to look at formulary issues from a broad perspective, but a definitive answer about how formularies impact healthcare remains elusive. For example, Kozma and colleagues evaluated healthcare utilization occurring concurrently with increased drug coverage for South Carolina Medicaid patients in the mid 1980s.[7] Their longitudinal study found that while all outpatient utilization variables increased, there was a negative association between increased drug coverage and inpatient admissions. However, this mirrored a national trend toward less inpatient care, making any conclusions about formulary effects tentative, at best.

More recently, Horn and colleagues published 2 studies as part of the Managed Care Outcomes Project, which included 6 HMOs, 3 each in the eastern and western United States. Both studies suggested that HMOs with restrictive formularies had higher overall healthcare costs.[8,9] While thought provoking, the evaluations could not control for preexisting differences among the 6 participating HMOs, causing potential confounding issues. The studies also had poor ability to model outcomes.[18-20] Thus, as with the study by Kozma et al, definitive conclusions about the overall effect of formularies could not be made.

A number of more focused evaluations have suggested that formulary polices may improve overall pharmaceutical use patterns either by lowering cost or by increasing quality. For example, Foulke and Siepler showed that formulary management of antiulcer drugs improved cost efficiency without impinging on quality of care.[21] Similar results have been found in other studies concerning antihypertensive medications,[22-24] cholesterol-lowering drugs,[25,26] antibiotics,[27,28] nonsteroidal anti-inflammatory drugs,[29] and glucose monitoring strips.[30] In addition to improving cost effectiveness of drug utilization, formulary policies may have other tangible effects such as more rational drug use policies,[31,32] safer prescribing for elderly patients,[33,34] and reduction of antibiotic resistance in selected instances.[35] These studies, while collectively affirming a positive role for formulary management, do not and cannot answer the questions concerning the overall impact of formularies on patient care.

Given the difficulties of objectively assessing how formularies affect patient care, we believe new tools must be utilized to provide timely and relevant information to pharmacy benefits managers. The present study is the first published study to systematically survey physicians from a large healthcare organization about the perceived effects of specific formulary policies and drug choices. While our methodology has limitations, discussed further below, it does provide a means for formulary decision makers to assess

the perceptions of clinicians who ultimately influence the success or failure of those decisions. Moreover, this type of survey study allows a more complete understanding about how pharmacy benefit policies might affect those clinicians in terms of perceived workload and access to pharmaceuticals.

The NF was intended to establish a more uniform and equitable pharmacy benefits package across the VA healthcare system. The results of our survey, completed approximately 1 year after NF implementation, suggest that most responding attending-level physicians perceived that access to needed drugs had increased or stayed the same and that the NF had a neutral or positive effect on provision of healthcare. Most physicians did not perceive that it diminished the ability to train residents for managed care. We also found that VA physicians who also work in non-VA healthcare settings were less likely to agree with their VA counterparts that the NF was more restrictive than private sector formularies. Overall, the results provide some measure of assurance that the VA's NF is not overly restrictive and that policy decisions have not had an adverse impact on drug selection, patient care, or residency training.

On the other hand, negative perceptions were reported by a number of physicians. For example, approximately one third of physicians disagreed that access to pharmaceuticals had increased, and 41% disagreed that access to over-the-counter medications had increased. Further analysis indicated that much of the concern about access to pharmaceuticals was from specialists rather than generalists. The reason for these differences is not clear, but it may be a consequence of simultaneously reducing drug costs and drug choice within a drug class (eg, choosing 2 HMG-CoA reductase inhibitors out of 5 possible agents). In other words, NF policy may have improved access to and/or ease of obtaining some pharmaceuticals for certain physician groups that previously had restrictions (eg, generalists) but limited choice for other groups that previously had few restrictions (eg, specialists).

Of greater concern was the small but significant percentage of physicians who disagreed that they could prescribe drugs considered necessary for patients (25%) or that they could obtain nonformulary medications when medically justified (19%). The NF rarely imposes practice restrictions but rather allows for local tailoring of drug usage criteria.[36] Thus, some of the discontent noted in the survey likely reflected a response to local rather than national policies. Nonetheless, this is an area that requires further investigation, including objective assessment of whether the NF has increased or decreased access to pharmaceuticals and whether site-specific (or VISN-specific) differences exist regarding access to selected pharmaceutical products.

Physicians were split on how they perceived the effect on workload. In part, this is because some physicians were less affected than others because of drug selection. In other words, patients of certain physicians already may have been on the chosen drugs and switching was therefore not an issue. Nonetheless, physicians who spent more time in clinics were more likely to report that the NF affected their efficiency, and it is certainly possible that formulary decisions regarding contracting for selected pharmaceuticals may have shifted workload onto front-line providers, rather than onto specialty providers. The possible differences are currently being addressed further in PBM research studies designed to assess how specific formulary changes (eg, switching drugs within a class) affect healthcare utilization.

Some of the negative beliefs may be perceptual rather than experiential. As a general rule, physicians dislike management strategies that impinge on autonomy.[37-41] The little information available on formulary policy supports this perception. For example, in 1993 Schectman et al found that 58% of physicians in a network HMO and 30% of physicians in a group HMO felt that restricted formularies were an inappropriate way to help control costs.[14] Donelan and colleagues noted that 31% of approximately 2000 physicians surveyed in 1995 reported having issues with limitations on prescribing drugs.[13] More recently, Hasty and colleagues found that emergency room physicians substantially overestimated restrictions placed by formularies on their antibiotic prescribing.[42] Such underlying views make it difficult to separate physicians' actual practice experience from negative perceptions about formularies and managed care. In our study, physicians who had not referred to the NF had a less favorable view of it than those who were familiar with its contents, suggesting that negative perceptions did play some role in how some physicians responded to the questionnaire.

Our study was cross-sectional, and it is difficult to put these negative perceptions into a larger context because no comparative information was available from other healthcare systems or from within the VA before implementation of the NF. Therefore, we cannot be certain that we are doing better or worse than before implementation of the NF. Nor can we be sure that we are doing better or worse compared with other healthcare systems.

There are other important limitations to our study. First, although 45% is a respectable response rate for these types of surveys, it was less than hoped for and could have introduced bias. Due to database limitations, we were unable to compare responders' and nonresponders' demographic and practice characteristics for further evaluation of the potential bias. For example, we could not determine whether older physicians, who might have different opinions on formulary management than younger physicians, were more or less likely to respond. Second, we have an interest in the study results and may have inadvertently introduced bias into the methodology, analysis, or data interpretation. This is less likely because the study was done in cooperation with and under the auspices of the RAND Survey Research Group, but potential for bias should always be considered in this situation. Finally, it is important to note that this study was not designed to address whether formularies are good or bad in terms of effects on cost-effective pharmaceutical use or patient outcomes. Rather, the study was designed to assess physician perceptions in order to better understand the impact of formulary decision making.

It is important to recognize that we had several objectives in doing this survey. First, as a federally funded program, the VA must have public accountability. Our survey was designed in part to answer specific questions raised by Congress in relation to how the NF affected VA providers. Congress has since mandated 2 studies of the VA PBM: 1 by the Institute of Medicine and 1 by the General Accounting Office. Each of these evaluations has used results from our provider survey to focus on certain issues. For instance, the General Accounting Office is currently evaluating specific issues related to obtaining formulary and nonformulary medications. The Institute of Medicine is studying how the VA's NF compares with formularies in other healthcare systems, including the private sector and Medicaid.

Second, we sought to find a means to assess baseline attitudes and perceptions of physicians toward the NF, with a plan to repeat surveys over time. This is particularly important because the present survey was broad-based in its approach and did not allow for an in-depth assessment of other issues that govern prescribing at the local and regional level. For example, in our second survey, scheduled for completion in late 2000, we are focusing on local and regional policies that might affect physician access to restricted and nonformulary drugs. Furthermore, the first survey highlighted possible obstacles to obtaining formulary medications, and the PBM is currently looking at variances in the use of certain types and classes of drugs across the VA healthcare system.

Finally, by surveying physicians we hoped to involve them in NF decision making. The PBM wants to increase provider participation in formulary management and to increase credibility with providers by making the process as open and transparent as possible. The PBM has also requested provider feedback on pharmaceutical management guidelines and drug class review. By asking VA physicians to help identify both successes and concerns regarding the VA's pharmacy benefit package, we believe that we can more rapidly and more cooperatively improve the formulary process over time. Some important issues are presently being addressed by independent evaluations, as noted above, and the results of those evaluations will lead to changes. Ultimately, however, we think that healthcare systems with formularies must involve affected physicians in order to identify and address their concerns.

··· CONCLUSION ···

In conclusion, pharmacy benefits management is likely to intensify in all healthcare sectors as healthcare systems struggle to provide access to new drugs while limiting drug cost inflation. Pressure to do so will only increase because pharmaceutical expenditures are expected to rise at a greater rate (15% to 20% per year) than overall medical inflation (about 2% to 2.5% per year).[43] As formulary efforts are expected to continue, the decision-making process must be predicated on scientific evidence and therapeutic principles,[44] while taking into consideration a covered population's needs.

As yet, no one has developed a means to reliably assess the effect of those formulary decisions. Our exploratory study suggests that a physician survey can provide important and relevant information about how formulary policies potentially impact quality of patient care, access to pharmaceuticals, and work efficiency. The lack of comparative data indicates the need for further studies.

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