IMPROVING ACCESS

PRIMARY CARE PANELS IN THE VA

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The VA has refined its definition of primary care panels to increase quality and satisfaction as well as efficiency. Here's an overview of the history and rationale behind the new VHA directive.

In recent years, the VA has shifted its focus from episodic inpatient care to comprehensive, longitudinal care managed by primary care providers (PCPs). Under the Veterans Equitable Resource Allocation System, it has moved from reimbursing individual facilities for the cost of workload performed to a network-based, capitated system. In doing so, the VA has established objective standards to measure performance, covering quality of care (through the External Peer Review Program [EPRP]), access to care (through measurement of waiting times), and patient satisfaction (through the Survey Health Experiences of Patients [SHEP]). Subsequently, VA managers have been tasked with designing systems that balance cost and efficiency against standards for quality, access, and patient and provider satisfaction.

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For such a system to be successful, it must provide a means of determining the optimal number of patients under the care, or within the "panel," of a given PCP. Furthermore, it must incorporate an accurate, fair, and consistent means of measuring the level and quality of care provided to that panel of patients.

In this article, we discuss how the VA has refined the definition of primary care panels over the years to accomplish these goals. We describe the various ways in which panel size has been determined within the VA historically and explain the rationale behind the recently published directive on the subject. Finally, we suggest several related areas that provide fertile ground for further research.

DEFINING THE TERMS

In response to the Institute of Medicine's interim report on primary care,[1] the VA defined such care as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community."[2] Within the VA, therefore, the primary care panel is defined as the group or population of patients for whose primary care a specific provider is responsible.

By this definition, a critical criterion for inclusion in a primary care panel is the ongoing or developing patient-provider relationship (a "sustained partnership" in the words of VA policy). As obvious as this idea may seem, prior to its application, the VA's emphasis on primary care had prompted several VA medical centers to assign a PCP to each and every enrolled patient—despite the fact that many of these patients never had and never would establish any kind of relationship with their assigned PCP.

For example, some patients enrolled in the VA chose not to receive health care services there. Others came to VA medical centers only for compensation and pension

exams but not for ongoing medical care. Some were long-term nursing home residents or patients referred to a particular VA medical center from another VA medical center for secondary or tertiary services. When the provider assignment approach was used, individual PCPs often developed panels of patients numbering in the thousands, many of whom represented no workload whatsoever for the provider. Furthermore, since the degree to which such patients might be included in a panel varied from institution to institution, it was impossible to establish a fair standard for comparison across different sites and different networks.

The refined definition of a primary care panel with its requirement for a sustained relationship provides a sound conceptual foundation on which to develop measurements of panel size. This definition also allows the VA to hold PCPs or primary care teams accountable for their patients' quality of care—including preventive and chronic disease care (and thus EPRP measures), access to care (including appointment times and clinic waiting times), costs (as measured by the VA's cost accounting system, the Decision Support System [DSS]), care management (as reflected in such measures as frequency of emergency department visits, medication costs, laboratory costs, and frequency of consultation), and patient satisfaction (as measured by the SHEP).

MEASURING PANEL SIZE

In the past, the VA commonly measured panel size using the Patient Appointment Statistics (PAS) report in the Ambulatory Care Reporting Project menu of the Veterans Health Information Systems and Technology Architecture (VISTA). This method equated panel size with the number of unique patients who had visited or who had scheduled a future appointment with a given provider or primary care clinic over a specified time period.

A second approach, which is in current use by the VA, employs the Primary Care Management Module (PCMM), developed by the VA specifically to address issues related to primary care panels. Under this system, each patient is assigned to a primary care team comprised of one and only one PCP and various supportive positions. A major advantage of the PCMM is that it's linked to VISTA and the computerized patient record system (CPRS) and, therefore, can generate a variety of reports on any given panel. Not only can it measure total panel size, average visit frequency, and no-show rate, but it also can run reports on medication utilization, laboratory test results, and clinical reminder completion.

Both look-forward and look-back temporal decision rules have strengths and weaknesses, which are analogous to the concepts of sensitivity and specificity.

THE IMPORTANCE OF DECISION RULES

With both approaches to measuring panel size (PAS and PCMM) the decision rule that determines the specified time frame for data capture—and, thereby the point at which patients are considered inactive and removed from a provider's panel—profoundly affects panel size. The time frame is usually between one and three years and may include both past and future appointments. Generally, the longer the specified time frame, the larger the measured panel.

The effect of temporal decision rules on panel size is illustrated in an analysis we conducted in 2001. We applied a variety of decision rules to a number of primary care practices in VISN 1 (Table 1). The first part of the analysis surveyed the three primary care practices affiliated with the Manchester VA Medical Center in Manchester, NH. Certain analyses were then repeated for all the primary care practices in VISN 1 and summarized by station. The different panel sizes reported were obtained from the same practices; it was simply the definitions of panel size that changed—based on the temporal decision rule applied.

Both look-forward and look-back temporal decision rules have strengths and weaknesses, which are analogous to the concepts of sensitivity and specificity (Table 2). A highly specific diagnostic test produces few false positives: It indicates with near certainty that a patient has the disease in question. If it's not also highly sensitive, how-

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Table 1. The effects of temporal decision rules on primary care panel size

Facility*	Temporal decision rule (total no./ratio†)				
	One year forward	One year past	Two years past	Three years past	One year forward and two years past
Manchester, NH facilities					
VA medical center	6,044/1.00	6,321/1.05	7,381/1.22	8,281/1.37	8,348/1.38
Community-based outpatient clinic (CBOC) 1	1,638/1.00	1,863/1.14	2,074/1.27	2,187/1.34	2,287/1.40
CBOC 2	926/1.00	999/1.08	1,129/1.22	1,241/1.34	1,253/1.35
Manchester total	**8,608/1.00**	**9,183/1.07**	**10,584/1.23**	**11,709/1.36**	**1,888/1.38**
All other VISN 1 facilities					
Bedford, MA clinics	7,276/1.00	7,989/1.10			10,519/1.45
Boston, MA clinics	23,007/1.00	27,991/1.22			35,181/1.53
Northampton, MA clinics	7,073/1.00	8,370/1.18			11,049/1.56
Providence, RI clinics	16,071/1.00	17,972/1.12			22,110/1.38
Togus, ME clinics	15,614/1.00	16,793/1.08			20,548/1.32
Connecticut clinics	25,712/1.00	26,996/1.05			34,035/1.32
White River Junction, VT clinics	12,911/1.00	13,915/1.08			15,534/1.20
VISN 1 total	**116,272/1.00**	**129,209/1.11**			**160,864/1.38**

*Only primary care sites that had been open at least a full two years were included. †The total number of patients included in the primary care panel/the ratio comparing that number with the number obtained using a one-year forward temporal decision rule.

ever, it may produce false negatives—that is, fail to identify some patients with the disease. By the same token, look-forward temporal decision rules are highly specific. They practically guarantee that all patients included in a panel are truly primary care patients of the identified provider (produce few false positives). Unfortunately, their sensitivity is variable, and they may fail to include all of a provider's primary care patients (produce false negatives). Look-back temporal decision rules, on the other hand, may be reasonably sensitive (produce few false negatives)—depending on the backlog of patients waiting for a first appointment. They are, however, less specific and may include many patients who are not truly primary care patients of the identified provider (false positives). An ideal test has perfect sensitivity and specificity, but in practice, there's generally a trade-off between the two. The same can be said of look-forward and look-back temporal decision rules.

PAST PRACTICES FOR DETERMINING PANEL SIZE

The 1999 VHA Survey of Primary Care Practices sought to determine the number of patients followed per half-day clinic at each primary care site in 1999.[3] Among the 219 sites responding, the mean was 92.45. Assuming eight to 10 half-day clinic sessions per week, these findings suggest that in 1999 the average VA primary care panel included roughly 740 to 925 patients. This survey, however, collected only estimates; no standardized ap-

Table 2. Sensitivity and specificity of look-forward versus look-back temporal decision rules

Type of temporal decision rule	Sensitivity*	Specificity†
Look-forward (identifying patients with future appointments)	Variable Potential areas of error: 1. Some clinics do not make routine future appointments for all patients. This is particularly true of resident teaching clinics (because resident schedules may not be known in advance), of facilities with high numbers of patients who are away for part of the year, and of facilities that use telephone callbacks instead of scheduling appointments to reduce no-shows. 2. Patients who fail to show up for an appointment, but have not yet rescheduled a follow-up will not be included.	Excellent Potential areas of error: 1. Since some primary care providers work in teams and provide cross coverage for each other, patients requiring urgent care may be booked into covering providers' clinics.
Look-back (identifying patients who have been seen in the past)	Good Potential areas of error: 1. Since new patients with first appointments would not be included, sensitivity depends on the backlog of patients waiting for a first appointment. 2. Patients reassigned from another provider (due to a provider leaving or a patient moving to a new clinic) would not be included.	Variable Potential areas of error: 1. Patients who have died would still be counted. 2. Patients who have changed to a different primary care provider would still be included. 3. Patients who have left the VA would still be included. 4. Patients who have moved away from the area would still be included. 5. Patients of another provider who were seen in cross coverage for an urgent care visit would be included.

*Includes all patients who are actually primary care patients of identified provider †All patients included are truly primary care patients of identified provider.

proach to calculation was provided.

In March 2001, we surveyed primary care leadership from each VISN to establish whether a formal policy on determining panel size existed within each VISN. We asked about the method used to measure panel size and the current expectations for panel size. Our findings demonstrate that, at the time, there was considerable variation in both measurement approach and panel size expectation across the VA (Table 3).

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Table 3. VISN policies on primary care panels in 2001

VISN	VISN standard	Definition	Size expectation	Notes
1	Yes	Future appointments	MD, 100 per half-day in clinic* (800–1,000 total); MLP,† 60–80 per half-day in clinic (600–800 total)	Consultants from ABT Associates Inc. recommended MD, 800–1,000; MLP, 600–800
2	Yes	Future appointments ("active panel")	MD, 100 per 0.1 FTEE‡; MLP, 75 per 0.1 FTEE	Also measure "total panel"—all patients enrolled in PCMM§
3	Yes	18-month rule (12 months back, six months forward)	MD, 100 per half-day in clinic; MLP, 50–75 per half-day in clinic	
4	Yes	PCMM with 30-month rule (18 months back, 12 forward)	MD, 1,000–1,100; MLP, 800–880	Panel size decreased when certain infrastructure supports are absent
5	Yes	Future appointments	MD, 1,000; MLP, 800	
6	Yes	36-month rule (24 months back, 12 months forward)	MD, 1,200; MLP, 850	
7	Yes	PCMM with 36-month rule (24 months back, 12 months forward)	MD, 120 per half-day in clinic; MLP, 80 per half-day in clinic	
8	No			
9	Yes‖	Prefer future appointments but standard policy not defined	MD, 1,200; MLP, 600	
10	Yes	PCMM enrollment	MD, 1,250; MLP, 750	PCMM not updated and hence inaccurate
11	Yes	PCMM with 24-month rule (12 months back, 12 months forward)	100 unique patients per half-day in clinic	
12	No		Varies from site to site	Survey of individual sites in VISN 12: MD, 1,000–1,250; MLP, 600–800

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Because of this variation, the VA recognized that it was critical to develop standard business rules. Without them, it would be unable to measure primary care capacity and workload in a standardized, comparable way. The continued influx of patients to the VA and the ensuing need to adjust staffing and funding appropriately made this a priority issue. In 2002, the VA agreed that the PCMM would be used to measure panel size. To count active patients and measure provider resources, task forces de-

Table 3. VISN policies on primary care panels in 2001 *continued*

VISN	VISN standard	Definition	Size expectation	Notes
13	Yes	PCMM with 24-month rule (12 months back 12 months forward)	Currently 800 per full-time provider (23 per hour of clinic)	Hope to increase to 945 per full-time employee (35 per hour of clinic)
14	Yes	PCMM enrollment	MD, 20–40 per hour of clinic; MLP, 13–25 per hour of clinic	Panel size decreased when certain infrastructure supports are absent
15	No			
16	Yes	PCMM with 24-month rule (12 months back, 12 months forward)	MD, 1,200; MLP, 960	Panel size decreased when certain infrastructure supports are absent
17	Yes	PCMM and seen in current or past two fiscal years	MD, 900–1,500; MLP, 500–900	
18	No			
19	Yes	PCMM enrollment	100–125 per half-day in clinic	PCMM panels not maintained uniformly
20	Yes	24-month rule (12 months back, 12 months forward)	MD, 25 per hour of clinic (800–1,000 total); MLP, 800 total	
21	No			
22	Yes‖	No standard definition	MD, 100 per half-day in clinic; MLP, 60+ per half-day depending on experience	PCMM panels not maintained uniformly

*Half-day in clinic is generally considered equivalent to four hours of clinic, or 0.1 full-time employee equivalency. †MLP = midlevel provider. ‡FTEE = full-time employee equivalency. §PCMM = the Primary Care Management Module. ‖ For panel size only.

veloped standard business rules that were, subsequently, the subject of two directives published in 2003.

The first directive, *Active Patients in PCMM*,[4] stipulates the following rules for counting active patients: (1) All patients receiving primary care services are to be assigned in the PCMM to a PCP. (2) Patient should have only one PCP in a given network, and generally, only one within the VHA. (Exceptions are allowed for patients whose place of residence is split between two locations and who spend significant amounts of time in both). (3) Patients are inactivated if they die, if they have not had an encounter with their PCP for 24 months, or if they are not seen by a new PCP within 12 months of assignment.

The second directive, *Primary Care Direct Patient Care Time*[5] provided directions for measuring the time each PCP and associate provider in the PCMM has "to prepare, provide for, and follow-up on the clinical care needs of outpatient primary care patients," expressed as a portion of a full-time employee equivalency (FTEE). It includes not only face-to-face time with patients in the clinic (sometimes known as "bookable hours") but also time spent reviewing patient data, discussing care with colleagues, reviewing medical literature, and contacting

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the patient or caregivers to discuss patient needs. In other words, it encompasses all the time spent providing comprehensive primary care to a panel of patients. The inclusion of these activities is consistent with the business rules the VHA uses to map personnel time in the DSS. It also supports the principles of advanced clinic access, in which a team approach and the use of face-to-face alternatives are encouraged.

The PCMM was modified so that this information could be entered for each provider, thereby allowing a meaningful national count of provider resources dedicated to primary care. This, together with the standardized rules on counting patients, allowed the VA to determine for the first time average panel size in the VA, the degree to which panel size varied, and the factors that played a role in that variation.

WHAT PANEL SIZE IS APPROPRIATE?

One approach to determining appropriate panel size is to calculate the number of appointment slots available with an individual provider (capacity) and the number of patient appointments needed (demand). Critical to any analysis of these factors is the realization that there is a dynamic tension between the need for efficiency (as measured in panel size) and the needs for quality of care, access, patient satisfaction, and provider satisfaction. In the quest for efficiency, we must not compromise these other variables. The point is not simply to maximize panel size but to have a balanced system in which excellent care is readily accessible, delivered with efficiency, and provided at a reasonable cost.

After a certain point, a larger panel is not necessarily better. Indeed smaller panel sizes may signify a well-run organization that values excellent access and quality of care. On these points, the VA itself has set the following goals: that new patients be seen within 30 days, that patients be seen by a provider within 20 minutes of their scheduled appointment, and that patients be able to schedule follow-up appointments with their PCP within 30 days.[6]

Capacity

Annual capacity can be determined by three factors: number of workweeks per year, clinic hours per week, and duration of clinic visits. VA providers most commonly work 44 weeks per year (52 weeks per year, less two weeks for federal holidays, less four weeks annual leave, less two weeks sick or educational leave).

The most common practice is to assign full-time clinical staff 32 hours per week of direct patient contact (bookable hours). The remaining eight are used in various clinic activities that require no direct patient contact, such as reviewing laboratory results returning telephone calls, completing forms, attending staff or committee meetings or mandatory staff education programs, and obtaining CME credits. In some practices "down time" during clinic hours, due to no-shows or uncomplicated patient visits that are briefer than scheduled, can be used to address many of these clinic activities. Thus, under certain circumstances, it might be possible to increase bookable hours to as many as 36 per week. If appointment length is shortened or the no-show rate is reduced, however, it will be necessary to set aside increased amounts of time specifically for clinic activities, and the schedule will lose almost all flexibility.

A number of studies have been performed on duration of physician visits (Table 4).[3,7] In reviewing the resulting data, it's important to remember that face-to-face time with patients constitutes only part of the work involved in every visit. Nonbookable hours spent reviewing the chart before seeing the patient, entering notes, looking up information, arranging consultations, or discussing the case with consultants may be substantial. In fact, studies have shown that in evaluation and management services (such as primary care), 33% of the providers' time is spent in preservice and postservice work, that is, outside of the time actually spent with the patient.[7,8]

It can be difficult, therefore, to compare schedules at different sites since, at some, preservice and postservice work may be accomplished within the slotted appointment times and, at others, it may be scheduled between visits. Although the VHA survey on primary care demonstrated that the most common time allotment for patient visits with physicians was 20 minutes,[3] rarely does a half-day clinic consist of 12 consecutive 20-minute appointments over a period of four hours. Instead, while 20-minute appointments may be scheduled, substantial amounts of time are left free before, during, or after appointments, commonly allowing only eight appointments to be scheduled per half-day clinic.

Examining the total number of visits over the course of a day, month, or year is an approach that better accounts for the preservice and postservice work that is part of

Table 4. Results of studies on duration of physician visit[3,7]

Study	Comments	Mean visit duration (minutes)
1998 Socioeconomic Monitoring System of AMA[7]	Includes only the time the physician spent in face-to-face contact with patient	21.5
1998 National Ambulatory Medical Care Survey[7]	Includes only the time the physician spent in face-to-face contact with patient	18.3
1999 VHA Survey of Primary Care Practices[3] (219 sites reporting)	MD minutes usually allotted for follow-up appointments	22.2 (6%, 15; 66%, 20; 1%, 25; 26%, 30; 1%, 40)
	NP and PA minutes usually allotted for follow-up appointments	26.4; (3%, 15; 37%, 20; 2%, 25; 55%, 30; 3%, 40; 1%, 60)
	MD minutes usually allotted for new patient appointments	40 (1%, 15; 7%, 20; 18%, 30; 51%, 40; 10%, 45; 16%, 60)
	NP and PA minutes usually allotted for new patient appointments	46.3 (4%, 20; 18%, 30; 32%, 40; 5%, 45; 42%, 60)

each visit. The Medical Group Management Association (MGMA) collects this information for a large number of practices throughout the country. Their surveys[9,10] show primary care practices with median annual ambulatory care visits per clinical FTEE ranging from about 2,100 to 3,500 depending on the type of practice: general internal medicine (physician), 3,512; academic internal medicine (physician), 2,361; geriatrics (physician), 2,722; and general internal medicine (nurse practitioner), 2,122. These figures provide a valuable benchmark of productivity that incorporates all the work involved in preservice, postservice, and face-to-face clinic time.

Within the VA, primary care appointments currently range from a low of 15 minutes to a high of 30 minutes. The 30-minute appointment is becoming increasingly common due to the need to enter data into the CPRS and to comply with multiple EPRP indicators and documentation standards for third-party billing. The advanced age, prevalence of multiple chronic diseases and mental health diagnoses, frequent need for social support, and virtual absence of routine checkups among VA patients add to the demands on VA providers. That in conjunction with the expectation that patients will wait no more than 20 minutes after their scheduled appointment to be seen would make it extremely difficult to maintain a continuous stream of 20-minute visits in VA primary care.

Shortening visit duration is, nonetheless, one of the most powerful ways to increase capacity and efficiency without affecting quality of care. Excellent levels of support staff, use of a team approach with many tasks handled by team members other than the PCP, polished and efficient patient flow processes, multiple rooms per provider (with separate rooms for support staff, all containing necessary computer equipment), well stocked and well organized exam rooms, and means for rapid data entry (such as dictation or voice transcription) can facilitate the provision of good care in less time.[11]

Unfortunately, while such resources may be valued, they're often unavailable at practice sites, which can be expected to affect visit length and, thus, capacity. Although it may be possible to measure this effect and factor it into

panel size calculations, both observational and experimental data are lacking in this area, and any models developed to collect such data would have to be empiric in nature.

Demand

Demand is affected by many factors, including revisit interval, no-show rate, additional time for new patients, and the need to accommodate variation in demand.

The optimal revisit rate for patients with specific characteristics is a largely unstudied issue, and so recommendations must be made on empiric grounds. Reduction of revisit interval is a powerful approach to reducing demand. All of the following steps may be effective in this regard: telephone follow-up; use of nursing or other staff for blood pressure, diabetes, or anticoagulation follow-up; group visits; and, for patients whose conditions are stable, lengthening the interval between visits—though not to the point that quality care is compromised.

By its very nature, primary care is comprehensive. A greater number of annual primary care visits may result in a reduction in visits to urgent care clinics or emergency departments. Reducing follow-up at specialty clinics for patients with stable conditions may increase the need for primary care visits. We can't assume that less is necessarily better.

Nationally, in fiscal year 2003, the VA averaged 3.04 visits per unique patient in primary care[12]—a level with which most experienced internists would feel comfortable. Midlevel providers (such as nurse practitioners or physician assistants) or less experienced providers (such as resident physicians) may wish to see patients more frequently, but this number provides a reasonable starting point for a model within which we can incorporate variation.

No-shows must be taken into account when building a model for a primary care panel. The number of no-shows thus must be included in the total number of appointment slots available each year. In fiscal year 2003, the rate of no-shows for primary care clinics in the VA was 10.5%.[12] Clearly, reducing no-show rates is an effective approach to reducing the need for appointment slots, and through such practices as calling patients before appointments, calling or notifying patients by mail after no-shows, and eliminating automatically rebooked appointments, VA practitioners may be able to reduce this number significantly.

New patients require more extensive evaluation than repeat patients and generally are given longer appointments (usually double slots). In our experience, turnover is between 10% and 15% per year—even among well-established providers—and for the purposes of our model, we estimated it at 10%. For providers with a panel of 1,000 patients, this amounts to 100 new patients per year, requiring 100 double slots. Assuming three visits per patient per year, this represents an additional demand of 3.3%. In a new and rapidly growing practice, new patients can be a particularly important factor.

The initial tendency is to develop a model that assumes 100% of appointment slots will be used, but that would be incompatible with the VA's goals of providing access and good primary care practice that gives patients the opportunity to see providers for urgent problems on short notice. Naturally, there is variation in the day-to-day demand for visits. To accommodate this variation, we factored in reserve capacity, estimating the size and variation of this reserve. The actual reserve needed to maintain excellent access may be significantly larger than we estimated and is worthy of further study.

Different models have been used to illustrate the effect that all these determinants of capacity and demand have on anticipated panel size (Table 5). Depending on the assumptions used and the particulars of the situation, panel size can be expected to vary from a most conservative estimate of 637 to a maximum of 1,661. The various factors can be adjusted to build a model that best represents the experience, style, and preferences of a given practice. The intermediate model, which produces a panel of 1,116, represents an efficient yet feasible approach that balances the need for quality, access, and service. Since these estimates are based on the behavior of clinicians in full-time clinical practice, adjustments would need to be made for clinicians whose time is divided between that and specialty care, inpatient care, major teaching, research, or administrative responsibilities. In order to allow midlevel practitioners time for physician consultation and longer patient visits, it's been suggested that they should either have smaller panels or have panels comprised of patients with less complicated medical conditions.

VHA GUIDANCE ON PRIMARY CARE PANEL SIZE

In January 2003, the deputy under secretaries for health appointed an advisory group on VHA physician

productivity and staffing. The primary care subcommittee of this advisory group submitted its report in June 2003.[13]

Working closely with the health care economists of the VA's Management Sciences Group, the subcommittee performed an extensive analysis of the published literature on physician productivity, reviewed data on productivity from non-VHA health care organizations, and analyzed current VHA experience with panel sizes. Key findings were that physician productivity is consistently affected by the amount of clinic support staff and space, as well as the approach used to determine physician reimbursement. In addition, current VHA primary care productivity was found to be similar to that of other health care organizations. This finding was based on a study of the U.S. Army's staffing model, published research studies, and data from AMA and MGMA surveys that compared relative value unit (RVU) output, visits, panel size, and visits per hour.

With the directives establishing standard business rules for counting active patients and measuring provider resources, the group was able, for the first time, to measure and analyze current VA practice across the country. In July 2003, the mean panel size was found to be 1,100 for physicians and 879 for midlevel providers.[13] There was no difference in panel size between full-time and part-time VA employees. Of all primary care patients enrolled in the PCMM, 93.2% were cared for by PCPs practicing in primary care clinics and 6.8% by specialists practicing in specialty clinics. Specialized panels were smaller, averaging approximately 600 patients each.

The subcommittee also surveyed all primary care clinics in the VA to determine the amount of support staff, rooms, and other forms of clinic support available to the providers. Their findings revealed an average of three clinic rooms (interview and exam rooms) assigned to the clinic for every provider FTEE. This count included rooms used by clinical support staff and does not represent exam rooms reserved for each provider. Each provider had an av-

Table 5. Conservative, intermediate, and aggressive models for determining panel size based on various determinants of capacity and demand

Determinant of capacity or demand	Conservative model (lower limit for size)	Intermediate model	Aggressive model (theoretical limit to maximum panel size)
Workweeks per year	44	44	44
Bookable hours per week	32	34	36
Appointment length	30 minutes (eight visits) per four-hour clinic)	25 minutes (10 visits per four-hour clinic)	20 minutes (12 visits per four-hour clinic)
Total capacity	2,816 appointments	3,740 appointments	4,752 appointments
No-show rate*	12%	10%	8%
Reserve capacity	10%	5%	5%
Need for new patient appointments		3.3% (94 additional slots per year)	
Available appointments	2,230	3,126	4,153
Annual visits/patient*	3.5	2.8	2.5
Panel size	637	1,116	1,661

*In fiscal year 2003, primary care clinics in the VA had a mean no-show rate of 10.5% and a mean annual visit/patient rate of 3.04.[12]

erage support staff of 2.17 FTEEs. Analyses revealed that the number of rooms and support staff correlated with panel size: Sites with more rooms and support staff per provider had larger panels.

Finally the subcommittee created multiple regression models to examine the relationships between patient characteristics and the use of primary care services—more specifically, the use of primary care RVUs, primary care visits, and panel sizes. Findings for all three indicators were similar.

Patient diagnoses, as reflected in diagnostic cost groups, had the greatest correlation with use of primary care services. Age, priority group, and lack of insurance were other factors that significantly affected use. Overall, the model was able to explain only about 25% of the variation in visit rates between patients, which suggests that many additional factors besides those identified affect the need for primary care services. Some of these may be patient-related, but some may be related to such provider characteristics as practice style and implementation of advanced clinic access principles.

This information served as the basis for a third VHA directive, *Guidance on Primary Care Panel Size*.[14] According to this directive, a maximum panel size will be identified for each PCP and associate provider in the PCMM, representing the maximum number of patients to whom this provider should deliver primary care. The precise number for each provider is to be determined and entered into the PCMM locally, but the determinations are to be based on the guidance in the directive. The guidance includes an expectation that, for sites with a patient population reflecting the norms for disease severity and reliance on the VA, as well as the support staff and clinic rooms reflective of current norms, the expected panel would be 1,200 for a full-time, established primary care physician. Adjustments would be made for a variety of other factors (Table 6), after which expected panels would generally fall into the range of 1,000 to 1,400 patients.[14] Designated VISN representatives can update information

Table 6. Factors used to adjust panel size in accordance with the VHA directive *Guidance on Primary Care Panel Size*[14]

Factor	Adjustment
Support staff*	From –10% to +10% depending on level of support staff at site
Clinic rooms*	From –5% to +5%
Primary care intensity score* (patient characteristics)	From –10% to +10%
Time in primary care	When staff supports nonprimary care clinics or functions in addition to primary care, panel size is prorated based on portion of provider time dedicated to providing primary care to his or her panel of patients
Midlevel provider versus physician	A midlevel panel is 75% of physician panel
New provider establishing new panel	12 to 15 months allowed to develop a full panel
New provider assuming an established panel	Panel set at 75% of established provider panel for nine months
Specialized panel	Target panel of 1,200 does not apply; panels are generally smaller
Education	Local adjustment, depending on size and structure of teaching programs
Best practices	Local adjustment, if excellent quality, access, cost, and patient and staff satisfaction are documented

*Business rules for counting support staff and rooms and for obtaining measurement of primary care intensity are available in the directive.

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about support staff and rooms—and interested providers can access current data on panel size, capacity, and adjustments—on the homepage of the VISN Support Service Center (KlFmenu.va.gov /primarycarestaffing/pcreporting.asp).

FUTURE DIRECTIONS

It wasn't long ago that primary care was still an innovation for the VA, but much progress has been made since that time. The meaningful definition and measurement of primary care panels represents a key step in the journey toward establishing primary care as the cornerstone of VA care. It also opens up a variety of areas for fruitful health services research.

Green and colleagues explored the "ecology" of medical care, identifying the number of individuals with health-related symptoms in a given population in a given month and, of these, the number visiting physicians, alternative care practitioners, or emergency rooms and the number requiring hospitalization.[15] It might be useful to explore the ecology of medical care in the older population served by the VA.

If a VA primary care team really wished to provide comprehensive care, including urgent care and chronic disease management, how many visits would patients require? What is the optimal revisit rate for patients with certain conditions? What is the effect of appointment length on quality of care, patient satisfaction, provider satisfaction, or educational environment? What effect does panel size have on quality of care, access, cost, and patient and staff satisfaction? Just as the volume of surgery performed by an individual surgeon affects surgical outcomes,[16] does the proportion of time a PCP spends delivering primary care influence quality? Investigating these questions could contribute to a better understanding of optimal panel size and further the primary care panel's usefulness as a tool in the delivery of quality health care. ●

The opinions expressed herein are those of the authors and do not necessarily reflect those of Federal Practitioner, *Quadrant HealthCom Inc., the U.S. government, or any of its agencies. This article may discuss unlabeled or investigational use of certain drugs. Please review complete prescribing information for specific drugs or drug combinations—including indications, contraindications, warnings, and adverse effects—before administering pharmacologic therapy to patients.*

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IN THE WINNER'S CIRCLE

Unfortunately there were no winners for June's Seek & Decode game.

The hidden message was:

Cheers for the sailors that fought on the wave for it,
Cheers for the soldiers that always were brave for it,
Tears for the men that went down to the grave for it,
Here comes the flag!

Look for July's winner in the September issue of *Federal Practitioner*.