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TESTIMONY

Gauging Future Demand for Veterans' Health Care

Does the VA Have the Forecasting Tools It Needs?

KATHERINE M. HARRIS

CT-327

April 2009

Testimony presented before the House Veterans' Affairs Committee on April 29, 2009

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Gauging Future Demand for Veterans' Health Care
Does the VA Have the Forecasting Tools It Needs?[2]

Before the Committee on Veterans' Affairs
United States House of Representatives

April 29, 2009

Mr. Chairman and distinguished members of the Committee, thank you for inviting me to testify today. It is an honor and pleasure to be here. I will discuss the findings from RAND's recent evaluation of the VA's Enrollee Healthcare Project Model as it relates to the topic of your hearing today. More specifically, my testimony will briefly review the findings from our evaluation, discuss the model's utility to support the proposed advance appropriation of the VA budget, and discuss recommendations for improving the model.

Background

In 1996, the mission of the Veterans Administration (VA) broadened dramatically. The Veterans' Health Care Eligibility Reform Act of 1996 transformed the VA from an episodic provider of inpatient care for veterans to a comprehensive health care provider responsible for all the medical needs of veterans who enroll. To support budgeting and planning for this broader mission, the VA relies on a complex model known as the Enrollee Health Care Projection Model (EHCPM). This model predicts future demand for veterans' health care needs. The VA asked RAND (in conjunction with an independent actuary) to evaluate the model, which was developed and is operated by an actuarial consulting firm.

The RAND team reviewed how the model works and addressed three main questions in its evaluation:

- Does the modeling approach support long-term budget planning and policy analysis?
- Does it accurately project VA service demand and costs?
- Is the design and operation of the model transparent to users and outside parties?

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[2] This testimony is available for free download at http://www.rand.org/pubs/testimonies/CT327/.

Overall, RAND's evaluation found that the EHCPM is useful for short-term budget planning, but is less useful for longer-range planning, especially in a dynamic policy environment. Fortunately, the model is structured in a way that would allow modifications to support longer-term policy and planning applications without disrupting its usefulness for near-term budget planning.

How Does the Model Work?

The EHCPM estimates the use of VA services in a base year for each service category (e.g., inpatient care, office visits), using proprietary benchmarks derived from utilization in commercial health plans. The costs associated with the estimated use of each service are derived from data provided by the VA's cost accounting system. In the next step, the EHCPM estimates budget-year service use and the unit cost of services. These estimates are based on anticipated changes in demand for VA care, the efficiency and intensity of care provided by the VA system, and overall projected medical inflation in the United States. In any given year, the VA forecasts expenditures for each service by multiplying expected enrollment, forecast utilization, and forecast unit costs.

Does the Model Support Budgeting and Policy Analysis?

The RAND evaluation found that the EHCPM supports VA's short-term budget planning and monitoring in a stable policy and practice environment. The model identifies factors that drive specific types of spending or spending for specific types of enrollees and can adjust those factors as needed. Model results can also help the VA to develop more informed strategies for managing expenditures. In addition, the current model allows the VA to monitor budget execution and performance relative to pre-established benchmarks. Assuming there are no short-term "shocks" to the system, only the accuracy and timeliness of VA data systems—not the model's structure—limit the EHCPM's utility for short-term budget planning and monitoring.

However, for longer-term strategic planning and policy analysis, the model could yield misleading results because the model structure does not account for two things: key drivers of future demand for VA care and the costs of delivering it. Using the model to inform scenarios beyond the current policy and budgetary environment requires information about a wide range of factors, including the VA's future cost structure, how rapidly the VA can expand its capacity to meet demand, factors driving enrollment, and the relationships among enrollee health status, VA treatment capacity, and enrollees' preferences for treatment in VA facilities versus other facilities. In many cases, required information does not exist or was not available to model developers. In the absence of such information, model forecasts rely on a number of unrealistic assumptions. Thus,

substantial modifications to model subcomponents and enhancements of supporting data inputs would likely be required before the EHCPM could effectively support longer-range planning.

Is the Model Accurate?

The model's ability to accurately predict the level of resources needed by the VA in future years to meet projected demand is uncertain. The discretionary nature of the VA's budget complicates the comparison between model projections and actual expenditures. Under a discretionary budget, the VA does not have the authority to spend more than Congress appropriates. If demand for VA services cannot be satisfied under its appropriation, then actual expenditures will reflect the constraints inherent in the appropriation and not actual demand for VA services.

Model accuracy becomes less certain as it is used to project the impact of policy and budget scenarios farther from the status quo. The main source of this uncertainty stems from the fact that the EHCPM begins its expenditure projection with the VA's congressional budget allocation, rather than with an independent measure of resource needs. Past VA budgets are imbedded in expenditure projections through the derivation of the model's unit cost measure and through the calibration of utilization benchmarks to actual VA workload data. In other words, the accuracy of the model is uncertain because there exists no expenditure information independent of the VA appropriation with which to formulate a "gold" standard against which to compare model projections.

Is the Model Transparent?

It is important that large, complex policy models like the EHCPM be transparent. A lack of transparency can undermine the credibility of the model and make the model difficult to operate and manage. The overall structure of the model is relatively easy for users and outside evaluators to understand. However, the model's subcomponents are less transparent. Transparency of the model's subcomponents is limited by several factors: complicated algorithms that are used to set parameters of model subcomponents; uneven and often incomplete model documentation; reliance on data and clinical efficiency benchmarks that are proprietary to the contractor who operates EHCPM and therefore not available for outside review; and the lack of a standing process for obtaining independent review.

Does the Model Support Advanced Appropriation?

If enacted, the Veterans Health Care Budget Reform and Transparency Act of 2009 (HR1016) would give Congress the ability to appropriate funds. Advance appropriation would, in essence, lengthen the time horizon over which the model forecasts resource requirements from three years in the current model baseline to four years. Under the current system, for example, the VA plans the FY 2012 budget request using a version of the model with an FY 2009 baseline. Under advanced appropriations, the FY 2009 baseline would inform the FY 2013 budget request. Generally the farther out the forecast, the less accurate the projections.

Advance appropriations may serve to mitigate the challenges of operating a large, complex health care system posed by delayed enactment of the VA's annual budget. At the same time, the expanded time period between budget appropriation and the time spending actually occurs makes it even more imperative that the VA have robust budget planning tools at its disposal.

Again, our findings suggest that the model is useful for short-term budget planning to the extent that the VA's treatment capacity and the policy environment surrounding the VA remain stable. This is because model projections are tied to past VA budgets and not an independent measure of resource requirements. The longer the period of time between the baseline year and the budget planning year, the higher the risk that that past budgets do not reflect the resources required by the VA to achieve its mission. Both the conflicts in Iraq and Afghanistan and the impact of the current recession on the employment and private health insurance coverage of veterans raise concerns about the impact of a changing policy environment for the robustness of short-term model forecasts. Lengthening the forecasted time period under advanced appropriation amplifies these concerns.

Recommendations for Improving the EHCPM

Based on the results of our evaluation, we recommend that VA take a number of steps to increase the model's ability to generate budget forecasts that are robust to changes in the policy environment over longer periods of time.

Develop a Methodology for Estimating Demand-Based Resource Requirements

We recommend that the VA develop and apply a method to enhance the model's capacity to estimate resource requirements that reflect any unmet demand using VA data sources. Budget forecasts are not fully demand-based, because calibrating commercial utilization benchmarks to VA workload data imbeds constraints that arise from VA capacity constraints in the baseline

utilization estimates. Forecasting of resource requirements requires measures of demand that are responsive to changes in VA treatment capacity, benefit generosity, and case-mix. Estimating demand for VA health care for these purposes requires the development and application of methodologies for (1) estimating the utilization that would have occurred in the absence of constraints on VA's capacity to deliver care, (2) estimating the relationship between VA benefit generosity relative to other payors and demand for VA care, and (3) estimating the relationship between enrollee health status and demand for VA care.

These methodologies could be developed by combining VA workload data with data describing treatment capacity and various sources of data on enrollee reliance. Exploiting variation in VA capacity across locations and over time could allow modelers to infer demand for VA care in constrained markets from administrative workload data collected from unconstrained regions and time periods, controlling for case-mix. The ability to control for and measure enrollee's partial reliance on VA care will require additional data beyond VA workload and VA treatment capacity. As reflected in the current model, such information is likely to include Medicare claims data linked to VA workload and self-reported reliance from survey data.

To assure full exploration of the capabilities and limitations of VA administrative and survey data sources in estimating unconstrained demand for VA health care, we recommend the VA consult with a wide variety of independent experts including actuaries, economists, and in particular, individuals with experience aggregating VISN-level workload data to conduct national-level analyses.

Use Survey-Based Methods to Strengthen Demand Forecasting and Policy Analysis

We recommend the VA use survey-based methods to strengthen forecasting and policy analysis capabilities. The fact that veterans do not receive medical care exclusively from the VA makes it impossible to project future demand for VA health care from administrative data alone. For example, VA eligibility data does not contain information needed to measure the effect of changes in availability and generosity of employer-sponsored health insurance benefits on demand for enrollment and use of VA health care services. Likewise, it is not possible to distinguish the effect of reliance from veteran health status when using VA workload data to predict future demand.

The current survey of enrollees provides useful information in estimating demand for VA care by asking insurance status and source, anticipated use of VA health care, health and functional status, and use of VA and non-VA health care. However, the utility of the current survey could be greatly increased if the sample (for both respondents and non respondents) were designed to be

linkable to VA workload data, included non enrollees, and was stratified to ensure representation of veterans across VA markets identified as being supply constrained or having excess capacity. Likewise, the utility of the survey could be greatly increased if the questionnaire were modified to include screening questions regarding diagnosed health conditions, utilization of services in broad service categories, and more information about other health insurance coverage availability and costs.

We recommend that the VA consult a variety of sampling statisticians and survey design experts in making design changes to assure that modifications support to the greatest extent possible VA's objectives related to forecasting and policy analysis while minimizing respondent burden and cost to the VA.

Explore the Utility and Feasibility of Improving Unit Cost Measures Through Alternative Approaches

We recommend the VA consult with a variety of experts to improve its understanding of the likely biases resulting from the current costing methods, whether and how alternative approaches could improve unit cost estimates. We found that the method used to derive unit costs has the potential to produce biased expenditure projections. The potential for bias stems from the implicit assumption that per unit costs do not vary with changes over time in the number of treated patients. In essence, the model assumes that VA pays for care on a fee-for-service basis, similar to Medicare. Our analyses suggest that the potential for bias is greatest for services with large fixed cost components for both capacity constrained markets and markets with substantial excess capacity.

Alternative approaches may yield more valid and accurate expenditure projections that can be more readily related to the VA's actual expenditures. In particular, we recommend the VA explore whether it is feasible to implement a staffing model using VA's cost accounting system. A staffing model explicitly maps resources expended in a delivery system to anticipated demand based on cost histories of service for major expenditure components, such as diagnostic equipment, office supplies, purchased services, administration, salaries and benefits and rent.

We recommend that the VA consult actuaries, economists with expertise in costing methods, and individuals familiar with VA data systems to recommend a strategy for analyzing the problems associated with the current costing method and to assess whether a staffing model (or alternative costing method) is likely to result in improved accuracy and could be supported using the VA's current cost accounting system.

The implementation of a staffing model as a basis for forecasting VA resource requirements would be time-consuming and resource intensive. However, investing in the capacity to develop, implement, and maintain a staffing model would most likely produce returns beyond the ability to improve the quality of model-based expenditure projections. In particular, the development of a staffing model would inform the development and refinement of productivity benchmarks for physicians, physician support staff, and medical equipment and the accurate measurement of performance relative to these benchmarks. A staffing model can also help the VA to evaluate potential return from investments in cost saving or quality enhancing technology.

Consider Streamlining the Current Model for Short-Term Budget Planning

If model enhancements required to improve the model's capability to support long-term planning and analysis prove impractical, we recommend that the VA streamline the current model to provide more transparent support for short-term budget planning. Streamlining would entail discontinued use of commercial utilization benchmarks, the development of VA-specific utilization benchmarks, and the simplification of trend assumptions used to project base year utilization forward 3 years. We expect a streamlined model based on VA data would be close in structure to the current methodology used to project expenditures for non modeled services (e.g., outpatient mental health services, over-the-counter drugs and supplies). We expect that commercial benchmarks will prove useful in isolated instances in which VA data systems do not adequately capture utilization of covered services.

Because VA workload drives short-term expenditure projections under the current model through the calibration of estimated utilization to actual utilization using VA workload data, discontinuing use of commercial utilization benchmarks will substantially reduce complexity and increase transparency without substantially affecting the continuity of the VA's budget planning process. The VA is substantially larger than many large health insurers who use their own experience for budgeting and strategic planning purposes. For this reason, it should be feasible to use standard statistical methods and the aggregation of data across multiple time periods to develop assumptions regarding variation in VA utilization by age, priority-level, and geographic region, even when the volume of workload is low for a given service.

Use a Wide Range of Expertise to Enhance Validity, Accuracy, and Credibility

We recommend that the VA draw on a broader range of expertise than is currently being employed for the purpose of enhancing the validity, accuracy, and external credibility of the model. Our evaluation suggested that model development activities were staffed solely by actuaries with support from programmers with limited support from outside experts. However, many modeling tasks are well within the purview of other disciplines, including economics, statistics, health

services research, and epidemiology. Many individuals with backgrounds in these areas have relevant modeling experience and expertise in specialized analytic approaches needed to address model limitations identified in our evaluation. These approaches include cost measurement, estimating demand in supply constrained environments, and case-mix adjustment using administrative data.

Initiate Periodic External Review of the Model

We recommend that VA initiate periodic review of the model by independent experts recruited from outside the VA. Independent review helps to insure model credibility in the eyes of stakeholders who may not have the time or expertise to evaluate the model themselves. To our knowledge, the EHCPM model has not been subject to external review prior to our evaluation. Sponsors of other large scale forecasting models, such as the models used by the Social Security Administration and the Center for Medicare and Medicaid Services (CMS), periodically engage panels of experts to review modeling methodologies, key assumptions, and model outputs. Proceedings from these meetings could serve as models in establishing a review process.

Involve Technical Writers in Documentation Process

We recommend that the VA increase transparency and credibility through the use of technical writers to improve the quality of model documentation. As we note earlier in this report, any valid approach to projecting future VA health care expenditures under enrollment reform policies is likely to involve a very high degree of complexity. Given this complexity, it is crucial that model documentation be comprehensive, be clear, and meet the reviewers' expectations with respect to the appropriate level of detail. Technical writers have the skills and experience to assure that these goals are met through the use of unambiguous language and visual formatting.

Capture Institutional Knowledge through the Addition of Internal Analytic Staff

We recommend that the VA add internal analytic staff to participate in model development and related activities in order to accelerate institutional learning and increase the return on the VA's investment in the model. Our evaluation did not support conclusions one way or the other about the desirability of outsourcing model development and related activities. Our evaluation did, however, raise concerns about outsourcing the institutional knowledge that arises through day-to-day participation in model-related activities and interaction with other VA staff, both formal and informal. In our view, the capture of institutional knowledge is key to enhancing the VA's return on its investment in the model. Internal analytic staff would likely be familiar with the VA's strategic mission and have detailed knowledge of VA data systems. Thus, in addition to the general knowledge enhancement and related benefits achieved by the analytic staff, such individuals could also help to enhance the strategic value of the VA data systems.