

# FORUM *translating research into quality health care for veterans*

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VA Health Services Research & Development Service

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## The Challenges of Inpatient Flow in VA

By Mike Davies, M.D., FACP, University of South Dakota and VA Black Hills Health Care System

Knowledge has been limited by the rate of discovery in the past, but is now limited by the rate of implementation. Patient "flow" (the rate at which each needed service is provided) through hospital and health care systems falls squarely in this realm, offering implementation challenges and, at the same time, many research opportunities.

### Principles of Flow Systems

For years, we in health care acted as though "we were different" so the laws of supply and demand and the principles of flow systems didn't really apply since "each patient is unique" and the "industry is different." We are now discovering otherwise. For example, just like the telephone systems that Dr. Erlang studied more than 100 years ago, we know that any system that fully utilizes our services will create a waiting time for that service. Thinking of ourselves as a big system—one that has patients (not widgets) needing to get in, receive care, and move through one step to another—has been a journey too slow in starting.

VA estimates more than three billion dollars per year in resources have been spent buying care from non-VA organizations, much of it because "we're full." VA patients are more reliant on Medicare for hospitalization than on the VA system. And, VA has at least 120,000 more days of inpatient stay than comparable private sector benchmarks. Recognition that we are falling short in these areas is driving us to improve our systems.

How can we become the best in patient flow? The answer demands leadership, execution,

teamwork, measurement, and the capacity to change. We must reduce delays experienced by patients throughout the VA system. Consider, for example, the frequent experience of patients seeking colon cancer screening. The patient waits for an appointment in primary care, waits for lab results, waits for additional tests, waits for colonoscopy, waits for surgery (if necessary), and waits for the results. Together, these waiting times in VA facilities can result in a nearly one-year delay in the diagnosis of colon cancer.

Just as fast food pulled itself out of a slow, multi-step past through systems engineering, so too can VA eliminate unneeded delays. VA must balance demand for a service with the supply of the service. Eliminate backlogs. Decrease queues. Develop contingency plans. Manage demand and increase supply. Synchronize the flow of work. Predict and anticipate needs through effective communication. Optimize space, equipment, and staff, and, finally, manage constraints to flow within and between departments. The VA system includes a number of flow systems and we must realize that care can only go as fast as the slowest part of that system. Failure to leverage these principles can result in the entire emergency room, or operating room, coming to a halt because (unknowingly) everyone is waiting for something as simple as a transporter to move patients. Hospital discharge processes can slow to a crawl because the doctor is on the phone making appointments, something others could do. Outpatient appointment delays result in patients not receiving timely follow-up from hospital care. This delay can



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## Director's Letter

It has been a very busy spring for HSR&D. We have enhanced our data security procedures and training, and will continue to monitor and make improvements so that we can ensure we are doing everything possible to protect sensitive and private information of all the veterans we have the privilege to serve. In August, the Scientific Merit Review Board will review the 112 proposals received in the June submission cycle.

This summer we also are investigating the feasibility of developing several new initiatives. One possible initiative would develop an HSR&D component to the Office of Research and Development's (ORD's) VA Genomics Medicine Program. For example, HSR&D might focus on studying the organization and delivery of genomics medicine, and/or HSR&D investigators could evaluate the impact of genomics on health outcomes.

Another initiative might involve the partnering of researchers and informatics experts to enhance the application of natural language processing to best facilitate the translation of clinicians' written notes in patient records. This information could greatly expand our ability to study and improve the quality of VA health care, as well as patient safety and outcomes.

Additionally, we are working in collaboration with colleagues in ORD to explore the viability of an OIF/OEF twin registry. Similar to the Vietnam Twin Registry, an OIF/OEF twin registry would allow us to compare the effects of wartime service by studying pairs of twins, in which one twin was deployed to conflicts in Iraq and/or Afghanistan, and the other was not. All three of these possible initiatives would, of course, depend on the Fiscal Year 2008 budget, and we are hopeful.

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Director, HSR&D

cause a readmission. These are just a few examples.

Effectively applying these principles to flow systems is not something that can be done with a traditional management approach. It requires true system redesign! This "workplace of the future" requires that the people who do the work (not someone from the outside) redesign and continually improve their own work. These work teams must consist of the indispensable staff each provider interacts with on a day-to-day basis in order to carry out our mission. Teams are the engines that run the flow machine in health care as well as industry. These teams must regard each other as peers. They must know their aim, collect data to inform the day-to-day work, and make appropriate and effective change to continually improve outcomes. This teamwork may be a culture change (system redesign) that will not happen entirely within the confines of the offices of leaders, but through the leadership of every work unit in our system.

These systems changes represent a significant opportunity for research. Hundreds, if not thousands, of questions exist; questions that are at the heart of creating the effective, efficient, and satisfying system we all desire.

### Questions Pose Challenges

Many of these research questions center on variation. Variation in "natural" and "artificially" generated arrival rates can dangerously overfill hospitals, cause diversion, and overstress staff. What drives the variation? How can a hospital measure, predict, and respond to this? How do we determine, arrive at, and maintain the "sweet spot" for workload on any service? Are hospitalists the best way to deliver inpatient care? How should rounds be conducted? Should rounds be done twice daily? At what level should care occur on the weekend? Should every admission be reviewed by a senior clinician? What attitudes and behaviors are common in the highest performing teams? What aspects of nurse-physician communi-

cation are essential to perfect flow? How do departments communicate with each other and respond to these critical changes in demand? What types of information should connect departments together? And importantly, does delay for care result in patient morbidity and mortality?

"Research opportunities in the area of hospital flow are abundant and must be addressed. Developing and applying techniques to manage the VA inpatient hospital system better will benefit veterans in ways that other systems are not in a position to discover."

In addition, research shows nurse staffing levels and skills are related to LOS, morbidity, and mortality. What policies, practices, and levels of staffing drive safe care? Scheduling in the operating room, eliminating no-shows for elective procedures, and the presence of fast tracks in the emergency department add to the opportunity for systems improvements. What is the best way to achieve a fully activated and functioning workplace of the future?

Success in this research involves not only moving front line "improvement" efforts further along the continuum of using traditional research tools to analyze their data, but also moving researchers toward an interest in these practical, day-to-day problems. Research opportunities in the area of hospital flow are abundant and must be addressed. Developing and applying techniques to manage the VA inpatient hospital system better will benefit veterans in ways that other systems are not in a position to discover. This is a great opportunity for research knowledge and skill to be applied to improve the daily work we're involved in to provide high quality hospital care for veterans. ■

## Response to Commentary

# Improving Inpatient Flow and Efficiency in the VA Health Care System: Research Opportunities

By *Stephan D. Fihn, M.D., M.P.H., Director, HSR&D Center of Excellence, VA Puget Sound*

Two decades ago, the VA health care system was a loosely aggregated group of hospitals with only rudimentary facilities for outpatient care. Since then, VHA has transformed into a highly integrated system with a 40 percent reduction in hospital beds and a massive expansion of ambulatory care. Although twice as much is spent on outpatient services, the outlay for acute hospital care in VHA is about \$6 billion annually. In his provocative commentary, Dr. Davies cogently argues that hospital resources are being deployed inefficiently to the detriment of the entire system, patients included. He highlights the paradox that in order to embark upon the painstaking, incremental process of improvement, we must completely overhaul the organization and culture of medicine. As Dr. Davies notes, this will require a framework of genuine teamwork that supplants the present environment in which communication is fragmented and medical care is relatively uncoordinated, even within the narrow confines of the hospital.

### Need to Focus Research on Inpatient Settings

Many hospitals have aggressively undertaken efforts to enhance efficiency through use of care maps and pathways, process improvement, and other techniques. Available data indicate that in specific settings, such as joint replacement surgery or cardiac surgery, these efforts can reduce lengths of stay and cost without compromising outcomes, but most studies are seriously flawed by use of historical controls and insufficient follow-up.<sup>1</sup> Hospitals

have also embraced physicians whose primary site of practice is the inpatient ward, of whom there are now more than 15,000, with the expectation that this type of dedicated workforce would improve patient flow and efficiency. Research to date indicates that gains, though statistically significant, are relatively modest.<sup>2</sup>

Despite these changes in process and structure, questions about the most effective strategies for improving both efficiency and quality. Dr. Davies enumerates a litany of potential research topics. Hospital managers are now faced with the stark realization that their institutions are inefficient and need reengineering, but have no blueprints.

In our zeal to develop innovative programs for managing chronic illness in the expanded ambulatory setting, perhaps health services researchers, including those of us in VA, have neglected this important area of research. Although studies evaluating geriatric assessment units and programs to prevent falls or decubitus ulcers in elderly hospitalized patients have been conducted by VA investigators, relatively few studies have squarely addressed strategies to improve the flow and efficiency of inpatient care. Nationally, the average length of stay is 4.8 days, and even a casual observer recognizes that patients spend much of this time out of their rooms. More than half of all hospital admissions involve at least one procedure and patients often migrate through several hospital units during a single stay. Each of these transitions represents an opportunity for miscommunication, inefficiency, and error. It would seem a propitious time to focus some of our research energy on the inpatient setting.

### Improved Information Resources Needed

To effectively tackle such questions will require robust new data sources characterizing the dynamic inpatient environment and encompassing not only what resources are used but also the sequence and timing with which they are applied. In addition, there must be a roster of all professionals working in this environment, how they are deployed, and how they interact with one another. These data must, in turn, be linked to information about the clinical characteristics of patients and their outcomes. This unified data system would enable us to assess variations in how, when, where, and by whom patients are treated.

Constructing these information resources and evaluating strategies to improve inpatient care will necessitate partnerships between researchers and managers. One commendable example has been the creation of the Inpatient Evaluation Center (IPEC) by Dr. Peter Almenoff and Dr. Marta Render at the Cincinnati VA, who have aggregated data from ViSTA systems across VHA (see related article on page 6). This has enabled them to start examining patterns of patient flow within the hospital, e.g., medical ward to OR to ICU. They find that certain patterns appear to be markers for higher mortality. A more comprehensive data system would permit a more informative analysis.

In addition to developing new data sources, investigators must adopt more sophisticated approaches to assessing care. Hospitalizations are often viewed as episodes of care rather than only a segment in the overall process, which includes care received in other locations, e.g., outpatient clinics or procedure suites. Adapting conceptual models, research designs, and analytic procedures to consider hospital admissions as

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## Research Highlights

### Improving Inpatient Utilization in VHA

By Gary E. Rosenthal, M.D., Center for Research in the Implementation of Innovative Strategies in Practice (CRIISP), Iowa City VA Medical Center, and Barbara Manning, VHA Office of the Assistant Deputy Under Secretary for Health for Policy and Planning

VHA has undergone a remarkable transformation over the past decade and is now widely recognized as a national leader in chronic disease management. This transformation has also been associated with marked declines in inpatient utilization. Between 1996 and 2004, average daily inpatient census fell by 44 percent system wide and average length of stay (LOS) by 40 percent.<sup>1</sup> Nonetheless, LOS remains roughly two days higher in VHA than the private sector. Given that VHA spends nearly a third of its budget on inpatient care, this difference has significant cost implications.

#### Findings from Analysis of Utilization Patterns

In an effort to examine utilization patterns, VHA has implemented a number of complementary activities. The Inpatient Evaluation Center (IPEC) has identified marked differences in ICU admission practices for low severity patients and variations in ICU LOS.<sup>2</sup> In a related initiative, investigators at CRIISP are collaborating with IPEC to develop normative comparisons for patients admitted to medical and surgical services and to identify factors that may underlie differences in LOS. This effort has involved the development of risk-adjustment models using Patient Treatment File data and facility-level laboratory data.

Preliminary work in medical and surgical patients admitted to 20 VA facilities in VISNs 10, 15, and 23 during FY 2005 has revealed several interesting findings. First, the proportion of acute medicine patients admitted to observation beds ranged from

0 percent to 40 percent (median, 6 percent) at these facilities, while the proportion of patients with a LOS of less than 24 hours ranged from 5 percent to 32 percent (median, 12 percent). These data indicate substantial variation in facilities' strategies for initially assessing patients and pose challenges with regard to eliminating selection bias in comparing hospital LOS.

Second, using the VA Bedsection File, differences were found in the proportion of patients managed by one treating specialty, but housed on a different specialty unit—raising questions about the optimal way to aggregate and report data. Third, the analysis found variations in LOS, with differences in observed and predicted LOS for medical patients ranging from -0.7 to 1.3 days across facilities. Not surprisingly, the overall difference in observed and predicted LOS was 1.8 days for patients discharged to skilled care facilities. However, differences varied from -0.3 to 4.5 days across facilities, suggesting marked variation in the effectiveness of social services and/or availability of skilled care beds.

#### Milliman Data Analysis

A final effort to examine utilization has been conducted by Milliman, Inc. for the VHA Office of the Assistant Deputy Under Secretary for Health for Policy and Planning. This effort has involved the application to VA administrative data of proprietary diagnosis-specific LOS models that were developed using CMS Medpar files. For each diagnosis, Milliman has used Medicare claims data to identify a best prac-

tice benchmark. The Milliman method then determines the total number of hospital days, in excess of the benchmark, which are reported as "potentially avoidable days." These analyses for FY 2006 found that VA hospitals had a higher percentage of potentially avoidable days than the average private sector hospital for both medical (37 percent vs. 27 percent) and surgical patients (45 percent vs. 25 percent). For medical patients, differences ranged from 39 percent to 57 percent across individual VISNs. In addition to national and VISN summaries, Milliman provides profiles of individual VA facilities relative to private sector Medicare hospitals in the same market. While the Milliman data is subject to a number of potential methodological limitations, the data do provide snapshots of utilization patterns that may yield clues for more in-depth studies to discern the underlying sources of variation.

As VHA looks to monitor and improve the quality and efficiency of inpatient care, there will likely be an increasing emphasis on normative data. This emphasis holds tremendous opportunities for VA HSR&D investigators to develop new metrics for examining inpatient efficiency. These new metrics need, first, to improve upon the signal to noise ratio of current methods and, second, to serve as tools for identifying best practices within VA facilities that may be transferable to other settings. ■

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# Enhancing Patient Safety by Preventing Hospital-Acquired Infection

By Sanjay Saint, M.D., M.P.H., VA Ann Arbor Healthcare System, HSR&D Center for Practice Management & Outcomes Research and the University of Michigan Medical School

Hospital-acquired infections are common, costly, and potentially life threatening. Preventing hospital-acquired—also called nosocomial infection—is an important patient safety issue. The Centers for Disease Control and Prevention (CDC) estimates that hospital-acquired infections affect about 2 million patients hospitalized in acute care settings annually in the United States and cost over \$3.5 billion per year. Academic researchers estimate that at least 20 percent of all nosocomial infections can be prevented; over half of catheter-related infections are preventable. Given the high use of medical devices, the VA provides an appropriate setting to investigate methods for preventing hospital-acquired infection and for translating these research findings into everyday practice.

## Catheter-Related UTI

The most common hospital-acquired infection is urinary tract infection (UTI), which accounts for about 40 percent of all nosocomial infections. Urinary catheters are associated with the vast majority of nosocomial UTI. Almost 25 percent of patients will have a urinary catheter at some point during their hospital stay. Several studies have found that for about one-third of the days that a patient is catheterized, the catheter is unjustified and unnecessary. In a multicenter study, we found that about one-fourth of house staff and more than one-third of attending physicians were unaware that their own patients were catheterized. We believe that our findings explain, at least in part, why patients are catheterized for unjustified reasons: physicians are often

unaware that the catheter is in place and therefore do not write an order to have the catheter removed.

Few interventions have been found to decrease the incidence of catheter-related UTI. The best strategy to prevent nosocomial UTI is to avoid catheterization itself. In those patients who truly require catheterization, the use of proper insertion and maintenance techniques is paramount. In fact, the most important infection control advance in urinary catheter-related infection prevention was the introduction five decades ago of the closed catheter drainage system.

Proper aseptic technique, including aseptic insertion and maintenance of the catheter and drainage bag, remain essential in preventing catheter-related UTI. We have evaluated a novel urinary catheter “reminder” system in both a VA and non-VA hospital and found that this simple intervention significantly decreases urinary catheter use. One of our studies utilized the VA’s computerized order entry system to remind VA physicians to remove the catheter after three days. Alternatives to indwelling catheters should also be considered when appropriate.

## Central Venous Catheter-Related Infection Prevention

Intravascular catheters are the most common cause of nosocomial bacteremia, with catheter-related bloodstream infection (CR-BSI) affecting over 200,000 patients per year in the United States. CR-BSI is associated with an increased risk of death, and each episode of CR-BSI has an attributable cost of at least \$10,000.

Several evidence-based methods exist for preventing this common inpatient complication. Two of the most important practices are the use of maximum sterile barriers during catheter insertion (to avoid inadvertent contamination of the central line) and the use of chlorhexidine gluconate at the insertion site (rather than povidone-iodine). Additionally, avoiding both unnecessarily prolonged central venous catheterization and catheterization of the femoral vein are important methods of reducing infection rates. Assiduously adhering to proper hand hygiene and general infection control principles still remain crucial practices for preventing CR-BSI. A recent quasi-experimental collaborative study of Michigan hospitals reported dramatic reductions in CR-BSI rates using a bundled approach of practices, similar to the ones listed above.<sup>1</sup>

## Translating Research Into Practice

The VA Ann Arbor Healthcare System’s Center of Excellence is leading an HSR&D-funded project (“Translating Infection Prevention Evidence to Enhance Patient Safety”) that aims to better understand the adoption of infection prevention practices by individual VA and non-VA hospitals and the factors that potentially promote or inhibit effective implementation of these practices. Our ultimate objective is to develop strategies to optimize the successful implementation of key practices in the field of patient safety and nosocomial infection prevention. We look forward to sharing these findings with you in the future. ■

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## Research Highlights

### Creating a National Program for Transformative Practice

By Marta L. Render, M.D., VA Inpatient Evaluation Center, Cincinnati VAMC and University of Cincinnati, Division of Pulmonary Critical Care, and Peter Almenoff, M.D., VISN 15, University of Kansas, Division of Pulmonary Critical Care and VACO

National priorities for U.S. health care include reduction of injury to patients, implementation of practices that improve important outcomes, and more efficient use of the health care workforce and other resources. In 2005, VA launched the Inpatient Evaluation Center (IPEC) with the goals of: a) measuring and reporting risk adjusted mortality and LOS for patients in acute care, b) developing internal and external benchmarks, and c) implementing evidence-based practices (EBP) based on those metrics using the following operational principles.

**Use information systems to measure. Use people to create change.** The VA IPEC extracts data elements related to outcomes and processes for all acute care patients from each hospital in the VA on a quarterly basis. For outcomes, the IPEC calculates a predicted mortality and length of stay for each patient using validated methods.<sup>1</sup> Patients are assigned to diagnostic groups and source of admission (emergency department/outpatient clinic, ward, other hospital, nursing home, or operating room), comorbid diseases are determined, and abnormal vital signs are measured by examining the worst of 11 laboratory variables from the first 24 hours surrounding ICU admission. The predicted mortality risk and length of stay permits determination of standardized mortality ratio and observed minus expected length of stay calculated for each ICU, resulting in measurement of two dimensions of care. Process measures include mean glucose, and hospital acquired infection rates.

**Attention is a limited resource. Provide feedback that suggests change in practices.**

The most valuable resource in the VA is the time and attention of leadership at multiple levels. The VA IPEC designed its reporting approach so that leadership at the VISN and medical center level as well as clinicians leading intensive care units may access their reports on the IPEC Intranet website (<http://vawww1.va.gov/IPEC/>). The website reports provide graphic depiction of results and identify potential opportunities for changes in practice. Each reporting cycle concludes with a VISN-wide conference call with IPEC that discusses opportunities for change, likely new metrics, and annual goals. These calls also offer the opportunity for clinicians to ask questions and describe relevant operation issues.

**Create competition.** Transparency is an important tool to improve patient safety. The performance of each intensive care unit in a VISN is compared to the mean and highest (or lowest) performance for the metric in the VA nationally, and stratified by type of ICU. Performance results are visible to all the clinicians and hospital leaders in that VISN. Grouping results by type and level of ICU creates a sense of fairness. The argument that the data is wrong, patients are sicker, or it's a sampling error is easier to defuse when the sample is 100 percent of admissions, cases are risk adjusted, and the reference population is other similar VA hospitals. Since no one likes to be last, the open comparison is intended to stimulate practice change.

**Share learning.** VA hospitals vary from tightly affiliated medical centers with high-powered research universities to rural facilities. In each, talented clinicians develop strategies to advance evidence-based practice. This effort and expertise is captured and shared on the IPEC website in EBP toolboxes that highlight tools to streamline implementation of these practices (reduction in catheter-related blood stream infection and ventilator associated pneumonia, glycemic control, and improved hospital flow). IPEC promotes change in specific practices by offering web-based conference calls to initiate change, by conducting follow-up calls, and by providing mentoring.

**Report method limitations.** The measured outcomes in the IPEC—mortality and LOS—create what essentially is a mathematical model of ICU care, a model which cannot include every possible important element in survival or LOS. Recent challenges have been to develop strategies to identify when and if ICU performance falls beyond the normal range. Workgroups such as a clinicians' advisory group formed from ICU directors and nurses in the field, an oversight board representing national leadership, and a methodology workgroup provide grounding in interpretation and potential limitations of results.

In summary, the IPEC is a unique program within VA, providing continuous monitoring of outcomes and processes in acute care via extraction, analysis, and reporting of data. IPEC's activities are critical to implementation of national quality improvement projects as well as identification of unique medical center vulnerability that can be addressed with specific projects. ■

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# The Role of Hospitalists in VHA

By Peter J. Kaboli, M.D., M.S., *The Center for Research in the Implementation of Innovative Strategies in Practice (CRIISP), Iowa City VA Medical Center*

*Alan S. Perry, M.H.A., FACHE, Director, VA Central California Health Care System asked our author to discuss the VA experience and research with the hospitalist model of care, including the “hand-off” from primary care provider to hospitalist, patient satisfaction with hospitalists, their performance on clinical practice guidelines and other VHA measures, and their impact on residency and teaching programs.*

The term “hospitalist” was coined in 1996 and refers to a physician who spends all or the majority of his/her clinical, administrative, educational, or research activities in the care of hospitalized patients.<sup>1</sup> The growth of hospitalist models of care has been dramatic in the private sector with over 15,000 hospitalists in practice and projections of over 30,000 hospitalists by 2010. Only recently has this growth been appreciated in VHA. Based on a recent survey, 76 of 118 VAMCs (64 percent) employ an estimated 300 hospitalists who care for 67 percent of the general medical patients in those VAMCs with hospitalists.

In VHA and elsewhere, no two hospitalist programs are alike; programs are formed and evolve to meet the needs of the facility. These needs include, but are not limited to, direct patient care, teaching and trainee supervision, quality, efficiency, job satisfaction, committee membership, non-medicine consultation services, urgent care, and other inpatient, general medicine-related duties.

## Hospitalists Lead to Improvements

As hospitalist models of care grew in the 1990s, there was concern that the “hand-off” from primary care providers to hospi-

talists would erode the primary care relationship, result in discontinuity, and lead to poorer satisfaction and quality. Studies in non-VA settings have shown no evidence that this has happened and in fact show a consistent improvement in efficiency (e.g., 10-15 percent reduction in LOS and costs), improved or stable quality, and no adverse effect on patient satisfaction. In teaching settings, hospitalists have been shown to improve resident and student satisfaction with inpatient teaching.

The application of these non-VA studies and experiences to VA is an important question. Through the Office of Patient Care Services, a Hospitalist Field Advisory Committee (FAC) has been formed to address these and other issues and to identify potential benefits and pitfalls with this model of care in VHA. The FAC has developed a “VHA Hospitalist Handbook” to address the role of hospitalists in patient care, teaching, and quality improvement.

The concern about hand-offs and communication with primary care is important, yet prior research and experience suggest that hospitalists can improve the hand-off process. In VHA, the traditional model of care has been to have separate outpatient and inpatient physicians. With a fully integrated electronic medical record, the discontinuity effect of hospitalists should be minimized. To date, no studies have evaluated the impact of hospitalists in VHA on efficiency (e.g., LOS, costs) or quality. However, with many studies showing an improvement associated with hospitalists and none showing a harmful effect, it may be reasonable to extrapolate these findings to VHA.

## Hospitalists in VHA

While current inpatient physician staffing models in VHA are quite variable, our survey shows 95 percent of VHA hospitalists are VHA employed, with very few contract hospitalists. Hospitalist programs have on average 3.95 full time equivalents (FTEs) and 13 percent provide 24-hour inpatient coverage. In academic-affiliated VAMCs, hospitalists cover both resident “teaching” and staff only “non-teaching” inpatient services. When asked how reductions in residency work hours impacted hospitalist services, 42 percent of VAMCs were more likely to start or expand a hospitalist program, 33 percent were more likely to use non-teaching services, and 35 percent were more likely to use mid-level providers.

One of the primary challenges of inpatient medical services is optimizing efficiency while simultaneously improving quality. An important role for hospitalists to improve efficiency in VHA is working with the Flow Improvement Inpatient Initiative (FIX). As quality measures are being expanded for medical inpatients, hospitalists can play an important role in defining, documenting, and measuring inpatient quality. For both efficiency and quality measures, hospitalists should work closely with emergency departments, intensive care units, and non-medicine specialties in VHA. Future research in VHA should evaluate the impact of the organization of inpatient care, including hospitalists, on inpatient clinical practice guideline use and other VHA quality measures.

Another important challenge in the adoption of hospitalist models of care relates to work load, duty hours, and comparable pay. Currently, hospitalists are included with general internists in the most recent physician pay bill. However, hospitalist work hours in some VAMCs are more similar to emergency medicine specialists. Current

simply one component of a patient's care will lead to performance measures that are more practical and clinically relevant than those in current use.

In summary, we should heed Dr. Davies' challenge and join forces to better understand and improve the manner in which we provide care to patients in the hospital. ■

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private sector pay is, in general, higher than general internists in the same market. This has significant implications for the recruitment and retention of hospitalists in VHA.

In summary, hospitalist programs have expanded rapidly in VHA to mirror private sector growth. In VAMCs with hospitalists, hospitalists should be viewed as champions of inpatient quality, efficiency, and teaching. In facilities without hospitalists, a needs assessment should be undertaken to determine how to take advantage of the unique role hospitalists play in VHA. ■

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