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Improving Veteran Health Care With Regional Health Information Organizations

The VA has been a leader in developing and implementing health information technology; for example, its Computerized Patient Record System often has been cited as a model of excellence. Veterans often receive a portion of their health care at non-VA facilities, however, which can expose them to health risks associated with fragmented care.[1,2] Over the past 3 years, the James J. Peters VA Medical Center's (JJP VAMC) Geriatric Research, Education and Clinical Center (GRECC) in the Bronx, New York, has been collaborating with the JJP VAMC's Center for Research on Health Care Across Systems and Sites of Care (a part of the VA's Health Services Research and Development [HSR&D] Service) to improve the care of veterans who receive their health care at multiple sites, both VA and non-VA.

Recently, the JJP VAMC's GRECC also was awarded funding as part of the VA's Transformation-21 (T-21) Initiative. The T-21 Initiative was designed to transform the VHA into a 21st-century health care organization that embodies patient-centered care. Under the initiative, the JJP VAMC's GRECC is working to implement a care transition intervention, enhanced by the use of a Regional Health Information Organization (RHIO), to improve the outcomes of veterans who are discharged from non-VA facilities.

REGIONAL HEALTH INFORMATION ORGANIZATIONS

RHIOs are newly established entities that provide electronic medical record systems regionally, which may help bridge the information gap for veterans receiving non-VA care through real-time sharing of electronic medical data across various sites. Since 2004, the number of operational health information exchanges, of which RHIOs are a subset, have increased steadily, rising from 57 to 73 nationwide. Moreover, the number of states that house 2 or more operational RHIOs has grown from 9 in 2009 to 33 in 2010.[3] RHIOs can cover diverse areas, including metropolitan and rural locations, and can encompass a single community or an entire state, such as the Vermont RHIO.[4]

RHIOs have the potential to improve several areas of care across sites,[5,6] including reconciliation of medications to decrease errors, duplications, and potential interactions; sharing of information related to important clinical events, such as hospitalizations; and sharing of other clinical information, such as preventive care and laboratory test results.

In this article, we aim to share our rationale, perspectives, and strategies for utilizing the RHIO through our GRECC initiatives in our geographic area.

VA AND NON-VA PATTERNS OF CARE

According to a 2003 report from the VA Information Resource Center, among the 2.1 million veterans enrolled in fee-for-service Medicare, 42.6% used both VA and Medicare services.[7] Furthermore, 1 study of 1,240 veterans from 4 VAMCs found

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The VHA's Geriatric Research, Education and Clinical Centers (GRECCs) are designed for the advancement and integration of research, education, and clinical achievements in geriatrics and gerontology throughout the VA health care system. Each GRECC focuses on particular aspects of the care of aging veterans and is at the forefront of geriatric research and clinical care. For more information on the GRECC program, visit the Web site (http://www1.va.gov/grecc/). This column, which is contributed monthly by GRECC staff members, is coordinated and edited by Kenneth Shay, DDS, MS, director of geriatric programs for the VA Office of Geriatrics and Extended Care, VA Central Office, Washington, DC.

that approximately one-third of patients engaged in dual primary care use.[8] Among these veterans, non-VA care accounted for approximately half of their primary care visits. Liu and colleagues determined that 46.8% of patients with depression from 10 VA primary care practices also utilized non-VA care.[9]

Among patients who use both VA and non-VA care, transitions of care from non-VA hospitals often are managed by the non-VA facility only; VA providers often are not aware of acute events of their patients unless they are notified by outside providers, families, or the patients themselves. Because such clinical information is not readily available to VA providers, receiving care at both VA and non-VA sites exposes veterans to the risk of fragmentation of care. The issue of fragmentation is particularly relevant among patients with low health literacy, those with complex medical illnesses and complicated medication regimens and follow-up plans, and among the geriatric population, who may have increasing difficulty with self-care and medical management.

THE BRONX RHIO

The Bronx RHIO was established in 2005 as a not-for-profit clinical information data exchange, with funding from New York State. Its mission is to support and advance the use of health information technology and to develop and operate a secure clinical data information exchange, making it possible for patients' medical records to follow them wherever they go to receive health care in the Bronx. Participants of the Bronx RHIO include hospitals, health systems, ambulatory care centers, individual physician offices, long-term care facilities, and home care services.

The core technology used for data exchange is a messaging model, rather than creating a new, freestanding database. It employs clinical data repositories located behind the institutional firewalls of participating organizations as its source data. Credentialed and authorized clinicians access the data in real-time and at the point of care.

Data exchange among Bronx RHIO participants went live in 2008 and made available to users a core data set, including laboratory test results, medication information, diagnoses, procedures, encounters, and demographic information. As of the third quarter of 2010, several major medical centers, nursing facilities, the Visiting Nurse Service, and outpatient clinics in the Bronx were feeding data to the RHIO. Currently, the JJP VAMC participates "one way" by enrolling patients in the Bronx RHIO and viewing RHIO data, but not currently sharing its own data. A future goal of our facility involves approval to share VA patients' health information through the Bronx RHIO in order to increase collaboration and effectivness with local non-VA facilities, all of whom have a 2-way data share.

The issue of fragmentation is particularly relevant among the geriatric population, who may have increasing difficulty with self-care and medical management.

The use of the RHIO in our medical center has received much support from our local VA administration. Currently, we use the RHIO at point of care for patients who use non-VA services. Providers who have been trained in the use of RHIOs may access their patients' information in order to complete their list of medications or to check for outside encounters, such as emergency department visits or hospitalizations. Its use has been rather limited at the point of care, however, which likely is due to unfamiliarity with the system and the need for additional time for providers to learn how to navigate it. Furthermore, prior studies have shown that point-of-care use of electronic information exchange alone may not systematically improve veteran care. One prior HSR&D-funded GRECC study examined medication discrepancies and adverse drug events at the time of intersite transfer at the VA (with its advanced electronic health record), compared with non-VA sites (without such capabilities), and did not determine any significant difference in medical prescribing errors during patient handoffs.[10] Additionally, primary care providers, who already spend a considerable amount of time outside of office visits to care for patients with chronic illness,[11] are unlikely to be able to provide the level of care transition coordination needed to improve processes and patient outcomes without additional help. These considerations led to our designing of new methods to utilize the RHIO to enhance veteran care.

CARE TRANSITION INTERVENTION PROJECT

A potential use of the RHIO lies in the care transition of veterans who receive primary care at the VA but

utilize non-VA facilities for emergency department visits or hospitalizations. Even without the additional obstacle of navigating multiple health systems, care transition is a significant problem for the geriatric population. Studies have demonstrated that geriatric patients who transition from acute care to outpatient care are at risk for adverse events, such as rehospitalization and medication errors.[12–15] In fact, the rate of 30-day hospital readmission for elderly patients is estimated to be 22% to 38%.[16–19] Older adults, who often have multiple chronic diseases, numerous medications, and poorer health, are more prone to these adverse events.[15]

Care transition interventions—multicomponent interventions aimed at improving communication, medication reconciliation, and patient education—have been shown to be effective in improving care transition for hospitalized patients and in reducing rehospitalization rates by 25% to 45%.[16,19] Based on the intervention proposed by Coleman and colleagues,[19] and with the addition of the RHIO, we designed a care transition intervention for our veteran population.

When a veteran who agrees to participate in our program experiences an acute care event, such as hospitalization, a member of the care transition team receives an alert from the Bronx RHIO. Utilizing information available through the RHIO, the care transition coach then delivers a care transition intervention aimed at improving the patient's self-management skills in 4 areas: (1) medication reconciliation, (2) the use of a personal health record, (3) scheduling follow-up appointments, and (4) recognizing red flags that his or her condition may be worsening. A model of this design has the potential to be integrated into an already existing modality of care coordination in the VA, such as telehealth, or into other models of care, such as the patient-centered medical home.

MEDICATION RECONCILIATION PROJECT

Another of the JJP VAMC's GRECC and HSR&D projects targets medication reconciliation through the use of the RHIO. Veterans who receive care from non-VA providers and receive medications from non-VA pharmacies (approximately 25% to 47% of veterans[8,9,20]) often are not receiving the best possible care because such clinical data are not electronically captured by the VA's computerized health record. Additional information-related barriers to effective medication reconciliation are the unreliability of patients' self-reports regarding their medication use and incomplete patient/medication histories taken by the provider.

In our geriatrics clinic, we have compared RHIO medication data with medication information obtained by a "best possible" patient history, including a review of all prescription pill bottles, when available. Of particular importance for medication reconciliation by VA providers, we found that the RHIO is able to capture the majority of non-VA medications received by VA patients. In addition, the RHIO contains prescribing information for past non-VA medications that did not show in the VA records. Our experience supports the use of the RHIO for verifying non-VA medication information obtained through patient interview, for providing relatively complete non-VA medication information when patient report is suboptimal, and for discovering past non-VA medication use that might have implications for current or future care. Moreover, routine access to non-VA medication information through the use of the RHIO has the potential to prevent harmful drug-drug interactions and other adverse drug events in veterans. Thus, we propose a pharmacist-based intervention aimed at reducing medication errors using the RHIO as a tool for reconciliation.

IN SUMMARY

Currently, the goals of the JJP VAMC's GRECC in regard to RHIO usage include encouraging point-of-care use for relevant clinical information for veterans receiving non-VA care, introducing a new care transition intervention for veterans hospitalized in non-VA hospitals, and designing a medication reconciliation program to complete medication data. Our staff plans to conduct rigorous evaluations of these novel programs.

Improving patient care across sites and systems is an important goal both for our GRECC and the HSR&D. The potential for our RHIO-related projects to be integrated into existing systems of care, such as telehealth and the patient-aligned care teams, is exciting, as our guiding principles of delivering patient-centric coordinated care are fully aligned. We hope our projects at the JJP VAMC's GRECC help demonstrate how VA systems can adapt the use of RHIOs to benefit the veteran population.

Author disclosures

The authors report no actual or potential conflicts of interest with regard to this article.

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