

Reducing Unnecessary Hospitalizations of Nursing Home Residents through INTERACT: A Model of Successful Federal/Commercial Partnerships

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It's a common scenario: a 90-year-old resident of a U.S. nursing home - call her Ms. B. - has moderately advanced Alzheimer's disease, congestive heart failure with severe left-ventricular dysfunction, and chronic pain from degenerative joint disease. She develops a nonproductive cough and a fever of 100.4°F. The night nurse calls an on-call physician who is unfamiliar with Ms. B. Told that she has a cough and fever, the physician says to send her to the emergency room, where she's found to have normal vital signs except for the low-grade fever, a normal basic-chemistry panel and white-cell count, but a possible infiltrate on chest x-ray. She is admitted to the hospital and treated with intravenous fluids and antibiotics. During her second night in the hospital, Ms. B. becomes confused and agitated, climbs out of bed, and falls, fracturing her hip. One week after admission, she is discharged back to the nursing home with coverage under the Medicare Part A benefit. The episode results in about \$10,000 in Medicare expenditures, as well as discomfort and disability for Ms. B. There is an alternative scenario, however, in which, when the same symptoms develop, the night nurse evaluates Ms. B. using a standardized protocol and calls an on-call nurse practitioner (NP) who visits the nursing home daily. "Late this afternoon, the resident developed a nonproductive cough and a temperature of 100.4°F," the nurse reports. "Her other vital signs are normal, and her lungs sound clear. She isn't complaining of shortness of breath or chest pain, and there is no leg edema.

I think we can watch her and call back if something changes." The NP agrees and says she'll see Ms. B. in the morning, at which point she finds a persistent low-grade fever and crackles in the right posterior lung field. After consulting with Ms. B.'s daughter, who serves as her health care proxy, the NP orders an oral anti-biotic and increased oral fluid intake. Ms. B. recovers over the next several days. The episode costs Medicare about \$200 and results in no complications for Ms. B.

More than 1.6 million Americans live in nursing homes. Hospitalizations are common in this population; in 2006, 23.5% of the people admitted to a post-acute-care skilled-nursing facility were rehospitalized within 30 days. Several studies suggest that many of these hospitalizations are inappropriate, avoidable, or related to conditions that could be treated outside the hospital setting and they cost more than \$4 billion per year. Avoidable hospitalizations are also common among long-stay residents of nursing homes and are a terrific target for federal funding to create innovative public/private partnerships.

In many clinical situations, more nursing home residents with acute changes in their clinical condition could be cared for safely and effectively without having to be transferred to a hospital. But the causes of preventable hospitalizations in this population are complex. One fundamental problem is not clinical but financial, stemming from a misalignment of Medicare and Medicaid: state Medicaid programs do not benefit from savings that Medicare accrues from prevented hospitalizations of nursing home residents, even though the nursing home incurs expenses when managing changes in condition without hospital transfer. In addition, nursing homes have a financial incentive to hospitalize residents who have Medicaid

coverage, because after a 3-day inpatient stay, the resident may qualify for Medicare Part A payment for post-acute care in the nursing home at three to four times the daily rate paid by Medicaid.

Multifaceted strategies will be needed to address the current incentives for hospitalization if we are to improve nursing home care and prevent unnecessary hospitalizations, with their related complications and costs. Two caveats are critical. First, not all hospitalizations for conditions that can theoretically be managed outside an acute care hospital are preventable. Second, given fiscal constraints and the dearth of health care professionals trained in geriatrics and long-term care, not all nursing homes have the capacity to safely evaluate and manage changes in the condition of the clinically complex nursing home population. Setting unrealistic expectations and providing incentives to poorly prepared nursing homes to manage such care rather than transferring residents to a hospital could have unintended negative effects on the quality of care and health outcomes.

Interventions designed to reduce preventable hospitalizations should therefore be directed at facilities that have the infrastructure, leadership commitment, and culture of quality and safety necessary to undertake more acute care. Quality-assurance and performance-improvement programs required by the Affordable Care Act (ACA) will help focus nursing homes on efforts to reduce preventable transfers. Interventions to Reduce Acute Care Transfers, or INTERACT (<http://interact.fau.edu>), is one such program that has shown tremendous promise; it provides clinical practice tools, communication strategies, and documentation standards that enhance the nursing home's ability to identify, evaluate, and manage conditions before they become serious enough to necessitate hospital transfer. INTERACT was created and expanded through the work of Dr. Joseph Ouslander, Senior Associate Dean for Geriatric Programs, Professor of Clinical Biomedical Science along with his colleague Dr. Ruth Tappen, the Christine E. Lynn Eminent Scholar and Professor of Nursing at FAU. INTERACT addresses advance care planning that might result in a comfort care plan as an alternative to hospitalization for residents at the end of life, when the risks associated with hospital care may outweigh the benefits. Enhancing the role of palliative care in nursing homes will also help align decisions about hospitalization with the individual's overall goals of care.

INTERACT is a quality improvement program that has been adopted by many nursing homes throughout the United States, and is also being used in other countries, including Canada, the United Kingdom, and Singapore. Active implementation of the INTERACT program has been associated with up to a 24% reduction in all-cause hospitalizations of nursing home residents over a six-month period. A reduction of this magnitude would result in over \$100,000 in Medicare savings annually in each nursing home that could effectively implement and sustain the program.

INTERACT was first developed in a project supported by a Centers for Medicare & Medicaid Services (CMS) contract to the Georgia Medical Care Foundation, the Medicare Quality Improvement Organization in Georgia. A detailed analysis of the frequency, causes, and factors associated with hospitalizations of Georgia nursing home residents, and an expert panel process were used to develop a toolkit which was pilot tested in three nursing homes with high hospitalization rates. The toolkit implementation was well accepted, and with the regular guidance of a project nurse practitioner, was associated with a 50% reduction in hospitalization rates, as well as a 36% reduction in the proportion of hospitalizations rated as avoidable through systematic record review by an expert clinician panel. With additional support from The Commonwealth Fund, a private U.S. Foundation the INTERACT toolkit was

refined through review by experts nominated by several national organizations as well as input from focus groups of nursing home providers, and then tested in a collaborative quality improvement project involving 30 nursing homes in three states (Florida, New York, and Massachusetts). Among the 25 homes that completed the project and for which baseline and intervention hospitalization rate data were available, there was a 17 % reduction in all-cause hospitalizations; among the 17 homes rated by the project team (masked to hospitalization rates) as “engaged” the reduction was 24%. A similar but smaller project among nursing homes in New York City also demonstrated significant reductions in hospitalizations. These data must be interpreted with caution, because these studies were not randomized or controlled, environmental forces of health care reform were at work, and the nursing homes were volunteers who were probably motivated early adopters with relatively high baseline hospitalization rates. But, the data do provide evidence that the program, even in the absence of strong oversight or financial incentives is feasible to implement, and that more active program implementation is associated with higher reductions in hospitalization.

In 2012 the INTERACT project picked up momentum and following the earlier funding from CMS and the Commonwealth Fund, a National Institute of Nursing Research National Institutes of Health (NIH) R01 was established in April 2012 and a large \$7.3M Center for Medicare and Medicaid Innovation (CMMI) was awarded in September 2012 in partnership with Brookdale Senior Living, the U.S.’s leading owner/operator of senior living communities, the University of North Texas and LoopBack Analytics, an innovative software startup. This involves the large scale implementation of INTERACT within an integrated LTC provider’s system. This project is not yet completed, but the results have been encouraging and Brookdale Senior Living has embraced this opportunity.

Following both a “carrot and stick” model CMS in October 2012 imposed penalties on hospitals with significant hospital readmission rates due to “worse than expected” readmissions related to myocardial infarction, pneumonia, or heart failure. This “stick” created a strong impulse within the Long Term Care (LTC) industry to incorporate quality measures such as INTERACT into IT systems. As a result through 2013 and into 2014 over a dozen commercial contracts with LTC software vendors were established with FAU to incorporate INTERACT within their Electronic Health Record (EHR) systems. Over time this multi-software approach may form the basis for a unified systematic quality assurance platform for LTC.

Currently the INTERACT approach is undergoing rigorous evaluation in a randomized, controlled quality improvement implementation project involving approximately 250 nursing homes that is supported by the NIH R01 and the results of this project will be available in approximately 18-24 months. In the commercial realm the dozen LTC EHR vendors are rapidly working to integrate INTERACT and many will be fielding products with this functionality this summer. These findings are promising, but they would not have been possible if not for the federal funding which made this possible.

We can improve care and reduce unnecessary complications and expenditures on preventable hospitalizations of nursing home residents. But it will require a multifaceted approach; commitment of energy and resources from federal and commercial parterres; teamwork among health care funders, government regulators, health care professionals, nursing homes, and hospitals; and a true focus on resident-centered care.