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Original Study

## Successfully Reducing Hospitalizations of Nursing Home Residents: Results of the Missouri Quality Initiative



Marilyn J. Rantz PhD, RN, FAAN<sup>a,\*</sup>, Lori Popejoy PhD, APRN, GCNS-BC, FAAN<sup>a</sup>,  
 Amy Vogelsmeier PhD, RN, FAAN<sup>a</sup>, Colleen Galambos PhD<sup>b</sup>, Greg Alexander PhD, RN, FAAN<sup>a</sup>,  
 Marcia Flesner PhD, RN<sup>a</sup>, Charles Crecelius MD, PhD, CMD<sup>a</sup>, Bin Ge MD, MA<sup>c</sup>,  
 Gregory Petroski PhD<sup>c</sup>

<sup>a</sup> Sinclair School of Nursing, University of Missouri, Columbia, Missouri

<sup>b</sup> Department of Social Work, College of Human and Environmental Sciences, University of Missouri, Columbia, Missouri

<sup>c</sup> Office of Medical Research, School of Medicine, University of Missouri, Columbia, Missouri

### ABSTRACT

#### Keywords:

Nursing homes  
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 performance feedback reports

**Purpose:** The goals of the Missouri Quality Initiative (MOQI) for long-stay nursing home residents were to reduce the frequency of avoidable hospital admissions and readmissions, improve resident health outcomes, improve the process of transitioning between inpatient hospitals and nursing facilities, and reduce overall healthcare spending without restricting access to care or choice of providers. The MOQI was one of 7 program sites in the United States, with specific interventions unique to each site tested for the Centers for Medicaid and Medicare Services (CMS) Innovations Center.

**Design and methods:** A prospective, single group intervention design, the MOQI included an advanced practice registered nurse (APRN) embedded full-time within each nursing home (NH) to influence resident care outcomes. Data were collected continuously for more than 3 years from an average of 1750 long-stay Medicare, Medicaid, and private pay residents living each day in 16 participating nursing homes in urban, metro, and rural communities within 80 miles of a major Midwestern city in Missouri. Performance feedback reports were provided to each facility summarizing their all-cause hospitalizations and potentially avoidable hospitalizations as well as a support team of social work, health information technology, and INTERACT/Quality Improvement Coaches.

**Results:** The MOQI achieved a 30% reduction in all-cause hospitalizations and statistically significant reductions in 4 single quarters of the 2.75 years of full implementation of the intervention for long-stay nursing home residents.

**Implications:** As the population of older people explodes in upcoming decades, it is critical to find good solutions to deal with increasing costs of health care. APRNs, working with multidisciplinary support teams, are a good solution to improving care and reducing costs if all nursing home residents have access to APRNs nationwide.

By Melvin J. Ingber, Zhanlian Feng, Galina Khatutsky, Joyce M. Wang, Lawren E. Bercaw, Nan Tracy Zheng, Alison Vadnais, Nicole M. Coomer, and Micah Segelman

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AGING & HEALTH

# Initiative To Reduce Avoidable Hospitalizations Among Nursing Facility Residents Shows Promising Results

**ABSTRACT** Nursing facility residents are frequently admitted to the hospital, and these hospital stays are often potentially avoidable. Such hospitalizations are detrimental to patients and costly to Medicare and Medicaid. In 2012 the Centers for Medicare and Medicaid Services launched the Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents, using evidence-based clinical and educational interventions among long-stay residents in 143 facilities in seven states. In state-specific analyses, we estimated net reductions in 2015 of 2.2–9.3 percentage points in the probability of an all-cause hospitalization and 1.4–7.2 percentage points in the probability of a potentially avoidable hospitalization for participating facility residents, relative to comparison-group members. In that year, average per resident Medicare expenditures were reduced by \$60–\$2,248 for all-cause hospitalizations and by \$98–\$577 for potentially avoidable hospitalizations. The effects for over half of the outcomes in these analyses were significant. Variability in implementation and engagement across the nursing facilities and organizations that customized and implemented the initiative helps explain the variability in the estimated effects. Initiative models that included registered nurses or nurse practitioners who provided consistent clinical care for residents demonstrated higher staff engagement and more positive outcomes, compared to models providing only education or intermittent clinical care. These results provide promising evidence of an effective approach for reducing avoidable hospitalizations among nursing facility residents.

**Melvin J. Ingber** (mingber@rti.org) is a principal scientist at RTI International in Washington, D.C.

**Zhanlian Feng** is a senior research public health analyst at RTI International in Waltham, Massachusetts.

**Galina Khatutsky** is a senior research public health analyst and program manager at RTI International in Waltham.

**Joyce M. Wang** is a research public health analyst at RTI International in Waltham.

**Lawren E. Bercaw** is a research public health analyst at RTI International in Waltham.

**Nan Tracy Zheng** is a senior research public health analyst at RTI International in Waltham.

**Alison Vadnais** is a research public health analyst at RTI International in Waltham.

**Nicole M. Coomer** is a senior economist and program manager at RTI International in Research Triangle Park, North Carolina.

**Micah Segelman** is a research public health analyst at RTI

# Effects of an Intervention to Reduce Hospitalizations From Nursing Homes

## A Randomized Implementation Trial of the INTERACT Program

Robert L. Kane, MD; Peter Huckfeldt, PhD; Ruth Tappen, EdD, RN; Gabriella Engstrom, PhD, RN; Carolina Rojido, MD; David Newman, PhD; Zhlyou Yang, BS; Joseph G. Ouslander, MD

 Supplemental content

**IMPORTANCE** Medicare payment initiatives are spurring efforts to reduce potentially avoidable hospitalizations.

**OBJECTIVE** To determine whether training and support for implementation of a nursing home (NH) quality improvement program (Interventions to Reduce Acute Care Transfers [INTERACT]) reduced hospital admissions and emergency department (ED) visits.

**DESIGN, SETTING, AND PARTICIPANTS** This analysis compared changes in hospitalization and ED visit rates between the preintervention and postintervention periods for NHs randomly assigned to receive training and implementation support on INTERACT to changes in control NHs. The analysis focused on 85 NHs (36 717 NH residents) that reported no use of INTERACT during the preintervention period.

**INTERVENTIONS** The study team provided training and support for implementing INTERACT, which included tools that help NH staff identify and evaluate acute changes in NH resident condition and document communication between physicians; care paths to avoid hospitalization when safe and feasible; and advance care planning and quality improvement tools.

**MAIN OUTCOMES AND MEASURES** All-cause hospitalizations, hospitalizations considered potentially avoidable, 30-day hospital readmissions, and ED visits without admission. All-cause hospitalization rates were calculated for all resident-days, high-risk days (0-30 days after NH admission), and lower-risk days ( $\geq 31$  days after NH admission).

**RESULTS** We found that of 85 NHs, those that received implementation training and support exhibited statistically nonsignificant reductions in hospitalization rates compared with control NHs (net difference,  $-0.13$  per 1000 resident-days;  $P = .25$ ), hospitalizations during the first 30 days after NH admission (net difference,  $-0.37$  per 1000 resident-days;  $P = .48$ ), hospitalizations during periods more than 30 days after NH admission (net difference,  $-0.09$  per 1000 resident-days;  $P = .39$ ), 30-day readmission rates (net change in rate among hospital discharges,  $-0.01$ ;  $P = .36$ ), and ED visits without admission (net difference,  $0.02$  per 1000 resident-days;  $P = .83$ ). Intervention NHs exhibited a reduction in potentially avoidable hospitalizations overall (net difference,  $-0.18$  per 1000 resident-days,  $P = .01$ ); however, this effect was not robust to a Bonferroni correction for multiple comparisons.

**CONCLUSIONS AND RELEVANCE** Training and support for INTERACT implementation as carried out in this study had no effect on hospitalization or ED visit rates in the overall population of residents in participating NHs. The results have several important implications for implementing quality improvement initiatives in NHs.

**TRIAL REGISTRATION** [clinicaltrials.gov](https://clinicaltrials.gov) Identifier: NCT02177058

**Author Affiliations:** University of Minnesota School of Public Health, Minneapolis (Kane, Huckfeldt, Yang); Florida Atlantic University, Christine E. Lynn College of Nursing, Boca Raton (Tappen, Newman, Ouslander); Florida Atlantic University, Charles E. Schmidt College of Medicine, Boca Raton (Engstrom, Rojido, Ouslander).

**Corresponding Author:** Peter Huckfeldt, PhD, University of Minnesota School of Public Health, MMC 729, 420 Delaware St, SE, Minneapolis, MN 55455 ([huckfeldt@umn.edu](mailto:huckfeldt@umn.edu)).