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Identification and team-based interprofessional management of hospitalized vulnerable older adults

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ABSTRACT

Background: Extended hospital stays and complications are common among older adults and may lead to morbidity and loss of independence. Specialized geriatric units have been shown to improve outcomes but, with the growing numbers of older adults, may be difficult to scale to meet needs.

Purpose: The purpose was to evaluate a quality improvement initiative that redesigned unit-based workflow and trained interprofessional teams on general medical/surgical units to create care plans for vulnerable older adults using principles of comprehensive geriatric assessment and team management.

Method: The evaluation included a cluster randomized controlled trial of 10 medical/surgical units and intention-to-treat analysis of all patients meeting risk screening criteria.

Results: N = 1,384, median age = 80.9 years, and 53.5% female. Mean difference in observed vs. expected length of stay was 1.03 days shorter ($p = .006$); incidence of complications (odds ratio [OR] = 0.45; 95% confidence interval [CI] = 0.21–0.98) and transfer to intensive care (OR = 0.45; 95% CI = 0.25–0.79) lower among patients admitted to intervention units; incidence of discharge to institutional care was higher (OR = 1.43; 95% CI = 1.06–1.93). Mortality during hospitalization (OR = 0.64; 95% CI = 0.37–1.11) did not differ between groups.

Conclusion: Reorganizing general medical/surgical units to provide team-based interprofessional care can improve outcomes among hospitalized older adults.

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Introduction

In 2012, there were 11.2 million acute hospital discharges among Medicare beneficiaries (Centers for Medicare & Medicaid Services, 2015). The Department of Health and Human Services (DHHS) estimates that one in four (27%) hospitalizations of Medicare patients results in harm, at a projected cost of $4.4 billion annually. Half of these occurrences of harm meet criteria for an adverse event, and an estimated 44% are potentially preventable (DHHS, 2010). The sheer magnitude of this problem argues that significant changes to organizational structure and processes of care might be necessary to better address the needs of older adult patients (Lafont et al., 2011).

One potential strategy for improving outcomes and lowering health care costs among older adults is the greater adoption of hospital-based applications of comprehensive geriatric assessment (CGA; Ellis, Whitehead, O'Neill, Langhorne, & Robinson, 2011). The World Health Organization describes CGA as a model of care that includes multidimensional health assessment, often conducted by multiple disciplines, coupled with recommendations for self-management and interprofessional care plans (Parker, 2005). CGA is often supported by evidence-based standardized geriatric assessment tools.

In one CGA model, acute care for elders (ACE) units (Flood, MacLennan, McGrew, Green, Dodd, & Brown, 2013), inpatient care for older adults is provided in specialized geriatric units staffed by interprofessional teams who are trained in CGA and the recognition and management of common geriatric syndromes, such as delirium, deconditioning/falls, depression, and social isolation. Systematic reviews suggest ACE units have the potential to reduce the incidence of a wide range of inpatient adverse events, shorten length of stay (LOS), lower hospitalization costs, and decrease the incidence of 30-day readmissions (Baztán, Suárez-García, López-Arrieta, Rodríguez-Mañas, & Rodríguez-Artalejo, 2009; Ellis et al., 2011; Fox et al., 2012). However, in the United States, individuals ages 65 years and older account for most (58.8%) of days spent in acute care, nonfederal facilities (Centers for Disease Control and Prevention, 2013). Creating sufficient numbers of ACE units to meet the current growth of the older patients presents a daunting challenge.

An alternative to dedicated ACE units is the use of mobile ACE (MACE) teams to provide expert geriatric care at any location within an inpatient facility. Although this approach offers the potential for flexibility and scalability, studies of the impact of MACE teams on cost and quality outcomes have not shown consistent benefit (Baztán, Suárez-García, López-Arrieta et al., 2009; Deschodt, Flamaing, Haentjens, Boonen, & Milisen, 2013; Edmans, Bradshaw, Franklin, Gladman, & Conroy, 2013; Hung, Ross, Farber, & Siu, 2013). An early meta-evaluation of CGA suggested that CGA interventions are most effective when care is followed closely by the CGA providers (Stuck, Siu, Wieland, Adams, & Rubenstein, 1993).

The conditions that have been found to be associated with successful CGA interventions, unit-based interprofessional teams and close follow up on recommendations, can be achieved by adapting the typical nursing unit workflow and, in essence, creating a protocol that identifies at-risk older adults and directs them to a unit-based CGA interprofessional care approach to hospital care. The interprofessional, team-based approach is increasingly recognized as an important strategy for improving health care delivery, in general (O'Leary et al., 2011; Walke & Tinetti 2013). The 2012 Institute of Medicine report "*Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*" (Smith, Cassell, Ferguson, Jones, & Redberg, 2012) emphasizes the importance of team-based collaborative care in creating adaptive systems to facilitate incorporation of advances in health care into routine practice. Team-based care is a consistent feature of ACE units shown to improve outcomes in randomized controlled studies (Barnes, Palmer, Kresevic, Fortinsky, Kowal, Chren, & Landefeld, 2012), and team-based care, not directed to older adults, has been successfully implemented on general inpatient medical units.

In this implementation study, we applied a variant model of CGA by introducing interprofessional CGA, triggered by risk screening and completed by the usual care team on nursing units. We sought to evaluate the impact of restructuring routine workflows on general medical inpatient units, training, and organizing existing personnel into interprofessional teams with standardized CGA tools and on-unit team meetings. Our main outcome measures were length of hospital stay and incidence of complications and transfers to ICU among at-risk older adult inpatients.

Methods

Quality Improvement Overview

This investigation represented the evaluation component of a quality improvement (QI) effort within a large, academic medical center. The hospital is one of the largest not-for-profit medical centers in the western United States with 886 licensed beds, a Level 1 Trauma Center, and several specialized quaternary care programs. The QI goal was to redesign usual delivery of hospital care on general medical/surgical nursing units to improve the efficiency of care while maintaining or improving the quality of outcomes for hospitalized vulnerable older adults in a manner that was both scalable and sustainable. As described previously (Aronow, Borenstein, Haus, Braunstein, & Bolton, 2014; Borenstein, Aronow, Bolton, Choi, Bresee, & Braunstein, 2013), an interprofessional leadership workgroup was formed to identify evidence-based best practices and gaps in current knowledge. A prior