

Intervention in Acute Hospital Unit Reduces Delirium Incidence for Older Adults, Has No Effect on Length Of Stay, Other Complications

Mudge AM, McRae P, Banks M, et al. Effect of a ward-based program on hospital-associated complications and length of stay for older inpatients: the cluster randomized CHERISH Trial. *JAMA Intern Med.* 2022 Jan 10;e217556. doi:10.1001/jamainternmed.2021.7556

Study Overview

Objective: To examine the effect of the intervention “Eat Walk Engage,” which was designed to more consistently deliver age-friendly principles of care to older individuals in acute medical and surgical wards.

Design: This cluster randomized trial to examine the effect of an intervention in acute medical and surgical wards on older adults was conducted in 8 acute medical and surgical wards in 4 public hospitals in Australia from 2016 to 2017. To be eligible to participate in this trial, wards had to have the following: (1) a patient population with 50% of patients aged 65 years and older; perceived alignment with hospital priorities; and nurse manager agreement to participation. Randomization was stratified by hospital, resulting in 4 wards with the intervention (a general medicine ward, an orthopedic ward, a general surgery ward, and a respiratory medicine ward) and 4 control wards (2 general medicine wards, a respiratory medicine ward, and a general surgery ward). Participants were consecutive inpatients aged 65 years or older who were admitted to the ward for at least 3 consecutive days during the study time period. Exclusion criteria included terminal or criti-

cal illness, severe cognitive impairment without a surrogate decision-maker, non-English speaking, or previously enrolled in the trial. Of a total of 453 patients who were eligible from the intervention wards, 188 were excluded and 6 died, yielding 259 participants in the intervention group. There were 413 patients eligible from the control wards, with 139 excluded and 3 deaths, yielding 271 participants in the control group.

Intervention: The intervention, “Eat Walk Engage,” was developed to target older adults at risk for hospital-associated complications of delirium, functional decline, pressure injuries, falls, and incontinence, and aims to improve the care practices, environment, and culture to support age-friendly principles. The intervention is a ward-based program that delivers a structured improvement intervention through a site facilitator, who is a nurse or allied health professional. The site facilitator identified opportunities for improvement using structured assessments of context, patient experience interviews, and audits of care processes, and engaged an interdisciplinary working group from the intervention wards to conduct an hour-per-month meeting to develop plans for iterative improvements. Each

Outcomes Research in Review SECTION EDITORS

KATRINA F. MATEO, PHD, MPH
CUNY School of Public Health
New York, NY

DANIEL ISAAC, DO, MS
Michigan State University
East Lansing, MI

FRED KO, MD, MS
Icahn School of Medicine
at Mount Sinai
New York, NY

TAISHI HIRAI, MD
University of Missouri
Columbia, MO

WILLIAM W. HUNG, MD, MPH
Icahn School of Medicine
at Mount Sinai
New York, NY

site develops their intervention plan; examples of interventions include shifting priorities to enable staff to increase the proportion of patients sitting in a chair for meals; designating the patient lounge as a walking destination to increase the proportion of time patients spend mobile; and using orientation boards and small groups to engage older patients in meaningful activities.

Main outcome measures: Study outcome measures included hospital-associated complications for older people, which is a composite of hospital-associated delirium, hospital-associated disability, hospital-associated incontinence, and fall or pressure injury during hospitalization. Delirium was assessed using the 3-minute diagnostic interview for Confusion Assessment Method (3D-CAM); hospital-associated disability was defined as new disability at discharge when compared to 2 weeks prior to hospitalization. The primary outcome was defined as incidence of any complications and hospital length of stay. Secondary outcomes included incidence of individual complications, hospital discharge to facility, mortality at 6 months, and readmission for any cause at 6 months.

Main results: Patient characteristics for the intervention and control groups, respectively, were: 47% women with a mean age of 75.9 years (SD, 7.3), and 53% women with a mean age of 78.0 years (SD, 8.2). For the primary outcome, 46.4% of participants in the intervention group experienced any hospital complications compared with 51.8% in the control group (odds ratio [OR], 1.07; 95% CI, 0.71-1.61). The incidence of delirium was lower in the intervention group when compared with the control group (15.9% vs 31.4%; OR, 0.53; 95% CI, 0.31-0.90), while there were no other differences in the incidence rates of other complications. There was also no difference in the hospital length of stay; median length of stay in the intervention group was 6 days (interquartile range [IQR], 4-9 days) compared with 7 days in the control group (IQR, 5-10), with an estimated mean difference in length of stay of 0.16 days (95% CI, -0.43 to 0.78 days). There was also no significant difference in mortality or all-cause readmission at 6 months.

Conclusion: The intervention “Eat Walk Engage” did not reduce hospital-associated complications overall or hospital length of stay, but it did reduce incidence of hospital-associated delirium.

Commentary

Older adults, often with reduced physiologic reserve, when admitted to the hospital with an acute illness may be vulnerable to potential hazards of hospitalization, such as complications from prolonged periods of immobility, pressure injury, and delirium.¹ Models of care in the inpatient setting to reduce these hazards, including the Acute Care for the Elderly model and the Mobile Acute Care for the Elderly Team model, have been examined in clinical trials.^{2,3} Specifically, models of care to prevent and treat delirium have been developed and tested over the past decade.⁴ The effect of these models in improving function, reducing complications, and reducing delirium incidence has been well documented. This study adds to the current literature by testing a model that utilizes implementation science methods to take into account real-world settings. In contrast with prior models-of-care studies, the implementation of the intervention at each ward was not prescriptive, but rather was developed in each ward in an iterative manner with stakeholder input. The advantage of this approach is that engagement of stakeholders at each intervention ward obtains buy-in from staff, mobilizing staff in a way that a prescriptive model of care may not and which may ultimately lead to longer lasting change. The iterative approach also allows for the intervention to be adapted to conditions and settings over time. Other studies have taken this approach of using implementation science to drive change.⁵ Although the study failed to improve the primary outcome, a reduction in delirium incidence is a significant outcome, one that may confer significant benefits to older adults under the model's care.

A limitation of the intervention's approach is that, because of the variation of the interventions across sites, it is difficult to discern what elements drove the clinical outcomes. In addition, it would be challenging to consider what aspects of the intervention did not work should refinement or changes be needed. How one may measure fidelity to the intervention or how well a site implements the intervention and its relationship with clinical outcomes also will need to be examined further.

Application for Clinical Practice

Clinicians look to effective models of care to improve clinical outcomes for older adults in the hospital. The interven-

tion described in this study offers a real-world approach that may need less upfront investment than other recently studied models, such as the Acute Care for the Elderly model, which requires structural and staffing enhancements. Clinicians and health system leaders may consider implementing this model to improve the care delivered to

older adults in the hospital and may confer the benefits of reduction in delirium incidence among older adults that they serve.

—William W. Hung, MD, MPH

Disclosures: None.

doi:10.12788/jcom.0083

References

1. Creditor MC. Hazards of hospitalization of the elderly. *Ann Intern Med.* 1993;118(3):219-223. doi:10.7326/0003-4819-118-3-199302010-00011. PMID: 8417639.
2. Fox MT, Persaud M, Maimets I, et al. Effectiveness of acute geriatric unit care using acute care for elders components: a systematic review and meta-analysis. *J Am Geriatr Soc.* 2012;60(12):2237-2245. doi:10.1111/jgs.12028
3. Hung WW, Ross JS, Farber J, Siu AL. Evaluation of the Mobile Acute Care of the Elderly (MACE) service. *JAMA Intern Med.* 2013;173(11):990-996. doi:10.1001/jamainternmed.2013.478
4. Hshieh TT, Yang T, Gartaganis SL, Yue J, Inouye SK. Hospital Elder Life Program: systematic review and meta-analysis of effectiveness. *Am J Geriatr Psychiatry.* 2018;26(10):1015-1033. doi:10.1016/j.jagp.2018.06.007
5. Naughton C, Cummins H, de Foubert M, et al. Implementation of the Frailty Care Bundle (FCB) to promote mobilisation, nutrition and cognitive engagement in older people in acute care settings: protocol for an implementation science study. [version 1; peer review: 1 approved]. *HRB Open Res.* 2022;5:3. doi:10.12688/hrbopenres.134731