Managing Posthospital Care Transitions for Older Adults: Challenges and Opportunities

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In this issue of JAMA, Dhalla and colleagues report findings from a randomized trial comparing the effect of usual care vs a “virtual ward” model of posthospital care management for older adults on reducing the primary end point of 30-day hospital readmissions. The virtual ward focused on care coordination by telephone or e-mail contact as well as clinic or home visits for several weeks following hospital discharge. With Medicare hospital reimbursement increasingly tied to 30-day readmission rates, this study has potential clinical and financial implications.

The study by Dhalla et al was well designed and aimed to test the model described, had successful randomization, targeted a representative group of older patients at high risk of re-admission or death, and enrolled approximately 960 patients per group, sufficient to detect reduced hospitalization. The intervention was intended to be scalable using existing hospital resources without substantial investment, specialized training, or role-specific expertise, which was cited as a potential weakness of some published models. The average intervention lasted 35 days with multiple telephone or e-mail contacts (mean, 2.3 per patient), clinic visits (mean, 0.5), and home visits (mean, 2.8) by care coordinators (mean, 1.6), physicians (mean, 0.5), and pharmacists (mean, 0.75). One physician, in an alternating role, was the medical authority on the care team in which the core clinical personnel were care coordinators. It appears, based on the numbers of patients and teams, that a virtual ward had a momentary census of about 30 patients, modestly larger than a typical inpatient service. Despite the coordination by telephone or e-mail contact as well as clinic or home visits, there were no statistically significant differences between the virtual ward group vs the usual care group in the primary outcome of hospital admission or death within 30 days of discharge (21.2% in the virtual ward group; 24.6% in the usual care group) or in the secondary outcomes of nursing home admission or emergency department visits at 30 days, or in any of these outcomes at 90 days, 6 months, or 1 year.

How should these findings reported by Dhalla et al be interpreted in the context of the literature and clinical circumstance of complex patients being discharged from hospitals? Previous smaller randomized clinical trials have reported reductions in rehospitalization for specific groups of patients. In a study by Coleman et al that enrolled 370 per group in 2002 and had nurse practitioners as key agents in managing post-hospital care, 30-day readmissions in the intervention group (8.3%) were reduced by 30% relative to controls (11.9%) with hospital cost reductions of $488 per patient in 6 months. In a 1992 study that enrolled about 180 patients per group and involved patients with control group hospital costs of $5507 (compared with control group costs in the study by Coleman et al a decade later at $2546) and a more intensive model, Naylor et al reported that compared with usual care including home health care services in the control group, a 4-week intervention involving experienced nurse practitioner transition teams resulted in 10% readmissions within 6 weeks (17 of 177) compared with 25% (47 of 186) for controls, a 62% relative reduction, and reduced hospital costs by $3093 per patient in 6 months. In that study, nurse practitioner teams saw patients in the hospital, made initial home visits within 48 hours after discharge, and averaged 4.5 home visits, effectively substituting for some home health agency nursing visits provided to control patients.

Other clinical models also have reported beneficial outcomes. In 2002, Shaugnessy et al described outcomes from structured quality improvement using Medicare Part A home health care with 157,000 patients served by 54 intervention agencies in 27 states and 249,000 randomly selected control patients from those states. Risk-adjusted hospitalization was a required focus during 60-day care episodes by agencies. In 3 years, intervention agencies achieved approximately 25% improvement in hospitalization rates. These agencies described varied strategies, often involving interactions and communication with primary care physicians.

De Jonge et al recently reported findings from a matched case-control study of a longitudinal medically focused home-based primary care program with 721 patients who received about 15 home visits per year that demonstrated an association between receipt of the program with reduced hospital episodes (9%), emergency department visits (10%), and nursing home stays (27%), as well as increased use of home health care and hospice. Overall, Medicare costs were 17% lower over 2 years among patients who received the program than among those in the control group. Similar findings derive from the Veterans Affairs Home-based Primary Care (HVPC) team model, operating in more than 130 centers. Comparing preenrollment with postenrollment periods for 9425 beneficiaries in 2006, hospitalizations were 25% lower (11.7 vs 15.7 per 100 patient-months) and total costs per patient-year were lower by $6148 ($45 980 vs $39 796) or 13.4%. These longitudinal in-home care team care models typically incorporate transitional care, concentrating efforts at times when medical conditions are less stable including posthospital transitions. The in-home primary care team model for complex Medicare pa-
patients is now being tested in the national Independence at Home demonstration project.

The need for proactive involvement with high-risk patients immediately after hospital discharge is well recognized. Nearly two-thirds of 30-day readmissions for key conditions including heart failure, myocardial infarction, and pneumonia among others occur within 15 days. A 2014 systematic review by Leppin et al$^8$ of 42 studies included widely varied posthospital interventions, many of which were not intensive. In a 2011 review of 21 randomized trials of transitional care, Naylor et al$^9$ found that 10 of 21 trials had advance practice nurses in a lead role and that 6 of the 9 programs that reported significant reductions in hospitalization provided home visits for all patients. Clearly, several models can be effective, and highly complex, frail patients may require more robust and individualized approaches. Naylor et al$^9$ emphasized the importance of comprehensive discharge planning initiated in the hospital, a home-centered approach with follow-up home visits, and patient activation. Similar results are reported by a single institution$^{10}$ that has been replicating this model for 14 years. A trusting relationship among patient, family, and clinician is helpful when attempting to manage potentially serious problems at home. Trust comes from sequential meaningful interactions, expertise, capacity for prompt response (same day) to clinical changes, and ability to take appropriate actions such as performing tests and modifying care plans to match the circumstances.

The rigorously conducted trial by Dhalla et al adds important data that contribute to advancing the understanding of determining optimal approaches to improve postdischarge transitions for high-risk patients. Considering their intervention did not reduce the composite outcome of readmission or death at 30 days after hospital discharge for high-risk patients, the authors appropriately acknowledge that given the per-patient costs of their model, it is unlikely that the virtual ward model of care they implemented would represent an effective or efficient use of health care resources. An important aspect of their report, however, was that the authors identified real-world obstacles including incompatible electronic health records, clinician discontinuity, difficulties integrating with primary care, and lack of contact with patients in hospital. These observations may be useful in the development of future trials designed to improve care transitions and reduce readmissions. Moreover, it is still likely that in this era of exponential development of technologically supported solutions to complex problems, elements of the “virtual ward” may have a place, perhaps linked with more robust in-home care delivery.

For a generation, health policy experts have recommended longitudinal management of patients with significant chronic illness in a coherent, community-centered delivery system. However, meaningful change in communities and delivery systems has been slow. Concurrently, there has been wide, rapid deployment of intensive, expensive interventions such as hospitalist care, prompt cardiac angioplasty with drug-eluting stents for acute coronary ischemia, and extensive use of statins, sometimes without compelling evidence of overall benefit in the older, frail population. This history suggests that dissemination of more intensive solutions for coordinated management of complex patients may be more a matter of aligned incentives and momentum than of feasibility. At a time when “patient-centered care” is being emphasized, posthospital care processes are often far from patient-centered and clinicians and researchers are only starting to address the root causes. Successfully advancing the agenda to improve posthospitalization care transitions and longitudinal care of elderly patients at home will require resources, expertise, focus, and commitment.

**REFERENCES**


**ARTICLE INFORMATION**

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**Conflict of Interest Disclosures:** The author has completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and reported that he is involved with the Independence at Home Medicare demonstration project, which he helped design. His institution may receive Medicare funds as a result of the demonstration. He also reported that he received compensation as an invited expert speaker in relation to the Cleveland Clinic article related to home health care transitions cited herein, created a small company to disseminate and education platform using material that includes a component of transitional care, which is not yet operational and thus no revenue has been generated; received an educational foundation grant related to geriatric care for which he is the principal investigator and which served as the basis for the educational platform; has served as a voluntary nonpaid member on the boards of the American Academy of Home Care Medicine and Alliance for Home Health Care Quality and Innovation, both of which focus on some of these core issues; and received payment leading educational sessions from small grants awarded to these entities.