



## Care Transitions Program

This is a low-cost hospital discharge planning and home follow-up program for elderly patients, shown in two well-conducted randomized controlled trials to produce sizable reductions in likelihood of rehospitalization six months after discharge and – in the trial where it was measured – net savings of \$468 per patient in hospitalization costs.

The program is similar to the [Transitional Care Model](#), previously identified by our expert panel as meeting the highest (“Congressional Top Tier”) standard of evidence, but is less intensive – e.g., providing fewer post-discharge home visits. Both programs seek to address a significant and expensive problem in the U.S. health care system: older adults are discharged from U.S. hospitals 13 million times each year; more than one-third are rehospitalized within 90 days, generating major costs to Medicare.<sup>1</sup>

### **I. Description of the Intervention:**

The Care Transitions Program is designed to help elderly hospital patients (and their caregivers) to play a more active, effective role in their own health care. It is provided by a registered or advanced-practice nurse, who acts as a “transition coach.” The transition coach first visits patients in the hospital to arrange a post-discharge home visit and to provide them with a personal health record. The record, which patients are instructed to share with future health care providers, includes a list of their health problems, medications, allergies, and warning signs/symptoms to closely monitor (“red flags”).

During the home visit, which takes place 48-72 hours after hospital discharge, the transition coach (i) reviews the patient’s prescribed medications to confirm there are no dangerous interactions, and discusses the medication regimen with the patient; (ii) uses role playing to teach the patient how to effectively communicate his or her needs to health care professionals; and (iii) reviews the “red flags” in the patient’s health record, including how to manage them and when to contact a doctor. The transition coach follows the home visit with three telephone calls during the first four weeks after the patient’s hospital discharge to insure the patient has received necessary medical services, medications, and equipment, and to discuss and answer any questions the patient has about recent medical appointments.

The program is inexpensive, costing just \$125 per patient to implement in 2010 dollars.<sup>2</sup>

[Click here to go to the program’s website.](#)

### **II. Evidence of Effectiveness:**

Care Transitions has been evaluated in two well-conducted randomized controlled trials. The following summarizes the program’s effects on the main outcomes measured in these two studies, including any such outcomes for which no or adverse effects were found. All effects shown are statistically significant at the 0.05 level unless stated otherwise.

#### **Study 1 (One Colorado Hospital)**

This was a randomized controlled trial, conducted in 2002-2003, of 750 elderly hospital patients in a single Colorado hospital that is part of a large nonprofit health care delivery system. All patients were covered by Medicare Advantage<sup>3</sup> plans, and were (i) 65 years or older and English-speaking, (ii) previously diagnosed with 1 of 11 health problems – e.g., congestive heart failure, stroke,

diabetes, hip fracture – that made them likely candidates for post-hospital home care or placement in a skilled nursing facility, (iii) not suffering from dementia, (iv) living at home and not planning to enter hospice care, and (v) living close enough to the hospital for a home visit to be feasible.

Sample members were randomly assigned to either (i) the Care Transitions Program, or (ii) a control group that received the hospital's standard care. The sample was 50% male, 89% white, and averaged 76 years of age. 28% had been hospitalized at least one other time in the previous six months.

**Effects of the Care Transitions Program six months after patients' initial hospital discharge (compared to the control group):**

- 38% reduction in likelihood of being rehospitalized for the same health problem for which they were originally hospitalized (i.e., 8.6% of the Care Transitions group were rehospitalized for the same health problem versus 13.9% of the control group).
- 17% reduction in likelihood of being rehospitalized for any reason (25.6% versus 30.7%). *However, this effect was not statistically significant, and so could be due to chance (p=0.28).*
- \$593 (or 19%) reduction in non-elective hospitalization costs (\$2,502 vs. \$3,095). Taking into account the program's cost, the net cost savings per patient was \$468.
- There were no statistically-significant effects (nor any pattern of non-significant effects) on patient mortality. Other than mortality, patients' health outcomes were not directly measured.

**Discussion of Study Quality:**

- The study had very low sample attrition: Health care utilization and cost data were collected for 95% of the program group and 95% of the control group at the six-month follow-up.
- The Care Transitions and control groups were highly similar in observable pre-program characteristics (e.g., demographics, health, prior health care utilization).
- The study appropriately measured outcomes for all sample members assigned to the Care Transitions Program group, regardless of whether or how long they received program services (i.e., the study used an "intention-to-treat" analysis).
- The study measured health care utilization and costs using patients' medical records, rather than self-reports.
- Study limitations:
  - The program was implemented in only one hospital – perhaps by just one Transition Coach – suggesting the need for replication in other hospitals.
  - The study only had a six-month post hospital discharge follow-up. Longer-term follow-up is needed to rule out the possibility that the initial reductions in patient hospitalizations and health care costs will be offset by later increases.
  - The study measured patients' health care utilization outcomes, but not their health outcomes (other than mortality).

## **Study 2 (One Colorado Hospital – possibly the same hospital as in Study 1)**

This was a randomized controlled trial of 98 elderly hospital patients in a single Colorado hospital. In contrast to patients in Study 1, these patients were covered by traditional fee-for-service Medicare (not Medicare Advantage). The study was carried out during 2002-2003. All sample members were: (i) 65 years or older and English-speaking; (ii) previously diagnosed with 1 of 11 health problems (e.g., congestive heart failure, stroke, diabetes, hip fracture) that made them likely candidates for post-hospital home care or placement in a skilled nursing facility; (iii) not suffering from dementia; (iv) living at home and not planning to enter hospice care; and (v) living close enough to the hospital for a home visit to be feasible.

Sample members were randomly assigned to (i) the Care Transitions Program, or (ii) a control group that received the hospital's standard discharge planning, which did not include post-hospitalization outreach. The sample was 68% female, 89% white, and averaged 81 years of age. Approximately 40% had been hospitalized at least one other time in the previous six months.

### **Effects of the Care Transitions Program six months after patients' initial hospital discharge (compared to the control group):**

- 90% reduction in the likelihood of being rehospitalized for the same health problem for which they were originally hospitalized (2.4% of the Care Transitions group were rehospitalized for the same health problem versus 23.8% of the control group).
- 45% reduction in the likelihood of being rehospitalized for any reason (20.9% versus 38.1%). This effect was statistically significant at the 0.08 level, but not the 0.05 level.
- There were no statistically-significant effects (nor any pattern of non-significant effects) on patient mortality. Other than mortality, patients' health outcomes were not directly measured.
- This study did not measure Care Transitions' effect on health care costs.

### **Discussion of Study Quality:**

- The study had low sample attrition: Health care utilization and cost data were collected for 88% of sample members at the six-month follow-up, and follow-up rates were similar for the program versus control group (90% vs. 86%).
- The study appropriately measured outcomes for all sample members assigned to the Care Transitions Program group, regardless of whether or how long they received program services (i.e., the study used an "intention-to-treat" analysis).
- The study measured health care utilization using data from the Centers for Medicare and Medicaid Services, rather than self-reports.
- Study limitations:
  - The program appears to have been implemented in only one hospital – possibly by just one Transition Coach – suggesting the need for replication elsewhere. Study 1 may provide such replication if it was conducted in a different hospital, but it's not clear that is the case.

- There were a few sizable – although not statistically-significant – differences between the Care Transitions and control groups in their observable pre-program characteristics. Specifically, the Care Transitions group was more likely to be female (76% vs. 61%) and to have visited an emergency room in the prior six months (60% vs. 49%), and less likely to have a college degree (29% vs. 45%) and to have been hospitalized in the prior six months (31% vs. 49%). Such pre-program differences are not uncommon in studies like this with a relatively small sample; nevertheless, they raise the possibility that these or other (unobservable) differences between the two groups, rather than the program, caused the superior outcomes for the Care Transitions group.
- The study only had a six-month post hospital discharge follow-up. Longer-term follow-up is needed to rule out the possibility that the initial reductions in patient hospitalizations and health care costs will be offset by later increases.
- The study measured patients’ health care utilization outcomes, but not their health outcomes (other than mortality).

**Thoughts on what more is needed to build strong evidence:**

An additional randomized controlled trial, carried out in another setting, with longer-term follow-up (e.g., one year) and measurement of patient health outcomes (not just health care utilization). The purpose would be: (i) to rule out the possibility that the initial reductions in patient hospitalizations and health care costs will be offset by later increases; (ii) to confirm whether the findings generalize to other hospitals where this program might normally be implemented; and (iii ) to confirm that the reduction in hospitalizations does not come at the expense of patients’ health.

### III. References

**Study 1:** Coleman, Eric A., Carla Parry, Sandra Chalmers, and Sung-joon Min. “The Care Transitions Intervention: Results of a Randomized Controlled Trial.” *Archives of Internal Medicine*, 2006, vol. 166, pp. 1822-1828.

**Study 2:** Parry, Carla, Sung-Joon Min, Amita Chugh, Sandra Chalmers, and Eric A. Coleman. “Further Application of the Care Transitions Intervention: Results of a Randomized Controlled Trial Conducted in a Fee-For-Service Setting.” *Home Health Care Services Quarterly*, 2009, vol. 28, pp. 84-99.

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<sup>1</sup> Stephen Jencks, Mark Williams, and Eric Coleman. “Rehospitalization Among Patients in Medicare Fee-For-Service Program,” *New England Journal of Medicine*, 2009, vol. 360, no. 14, pp. 1418–1428. K. Levitt, L. Weir, E. Strangest, K. Ryan, and A. Eli Hauser, *HCUP Facts and Figures: Statistics on Hospital-based Care in the United States*, 2007. Rockville, MD: Agency for Healthcare Research and Quality, 2009.

<sup>2</sup> All dollar amounts in this summary are presented in 2010 dollars. They were calculated using an approximate annual Medicare cost inflation rate of 5% between 2006 and 2010, based on December 2010 data from Standard & Poor’s Healthcare Economic Medicare Index: <http://www.standardandpoors.com/indices/sp-healthcare-economic-indices/en/us/?indexId=sp-healthcare-economic-indices>.

<sup>3</sup> Medicare Advantage plans cover more services and require lower out-of-pocket expenses than regular Medicare plans, but typically provide less choice in health care providers.