Preliminary Data on a Care Coordination Program for Home Care Recipients

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Home care recipients are often hospitalized for potentially avoidable reasons. A pilot program (Intervention in Home Care to Improve Health Outcomes (In-Home)) was designed to help home care providers identify acute clinical changes in condition and then manage the condition in the home and thereby avoid a costly hospitalization. Caregivers answer simple questions about the care recipient's condition during a telephone-based "clock-out" at the end of each shift. Responses are electronically captured in the agency management software that caregivers use to "clock-in," manage care, and "clock-out" on every shift. These are transmitted to the agency's care manager, who follows up on the change in condition and escalates appropriately. A description of the In-Home model is presented, and pilot data from 22 home care offices are reported. In the pilot, caregivers reported a change in condition after 2% of all shifts, representing an average of 1.9 changes per care recipient in a 6-month period. Changes in behavior and skin condition were the most frequently recorded domains. Interviews with participating caregivers and care managers suggested positive attitudes regarding the intervention; challenges included resistance to change on the part of home care staff and difficulties in applying a uniform intervention to individuals with varying needs in home care offices with varying capacities. In an ongoing randomized trial, the success of the overall program will be measured primarily according to the potential reduction in avoidable hospitalizations of home care recipients and the effect this potential reduction has on spending and healthcare outcomes. **J Am Geriatr Soc 2016.**

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Millions of elderly Americans with physical or cognitive impairment receive nonmedical, nonskilled supportive home care services each year.[1] Although most home care recipients pay out of pocket for their care, they often generate significant Medicare expenditures for potentially avoidable medical services such as hospitalizations for dehydration, urinary tract infections, hypoglycemia, and other avoidable acute medical conditions.[2,3] One potential cause of the high rate of avoidable hospitalizations is the fragmented delivery of home care and medical services.[4]

Home care providers have not historically shared in any of the savings if an unnecessary Medicare hospitalization is avoided. As such, home care providers have not typically invested in the infrastructure to manage changes in condition in the home safely. When a home care recipient experiences a change in condition, the home care provider would not typically track or otherwise have the capacity to manage the change on a real-time basis. Advances in technology[5,6] and changing healthcare payment dynamics[7,8] are converging to improve the ability and the imperative to track and manage changes of condition in the home.

This article outlines the opportunities and challenges associated with the implementation of a pilot program: Intervention in Home Care to Improve Health Outcomes (In-Home).

METHODS

Study Setting

Right at Home (RAH) is a home care company with more than 310 offices in 45 states. Local RAH offices are independently owned and operated as franchises and directly employ and supervise caregiving aides. Twenty-four RAH offices were invited to participate in the In-Home pilot program to assist in the development and early assessment of the program. RAH offices typically offer three levels of care: companion (e.g., laundry, cooking, transportation), personal (e.g., dressing, bathing, toileting), and skilled care

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(e.g., visiting nurses, medication assistance, wound care). The data below are from 22 offices because two offices withdrew from the pilot. Pilot offices implemented the program at four staggered dates in early 2015. For this study, data were analyzed through August 2015.

In 2014, RAH began using the ClearCare web-based software platform for caregiver visit scheduling, integrated telephony for point-of-care reporting, two-way caregiver messaging, and other features to help manage and oversee care. As described below, the intervention was introduced on the ClearCare platform to allow home care staff to identify acute clinical changes in condition, manage the condition in the home or, if needed, triage care to a higher level, and track and report changes over time.

The institutional review board at Harvard Medical School approved the study.

Intervention

Each caregiver is required to "clock-in" to the ClearCare system at the beginning of their shift and "clock-out" at the end for payroll purposes. The In-Home intervention tool is a checklist of questions that was devised according to consensus of the study authors and their colleagues at RAH and ClearCare in fall 2014. The checklist is administered telephonically to caregivers when they perform their telephone- or mobile-based clock-out at the end of each caregiving shift, which means the caregiver cannot bypass the checklist.

During the clock-out call, caregivers receive the following message: "Does the client seem different than usual? Has there been a change in mobility, eating or drinking, toileting, skin condition or increase in swelling? Press 1 for yes, 2 for no." If they press 2, the checklist is completed and the caregiver can proceed with his or her clock-out. If the caregiver affirms that the care recipient seems different by pressing 1, she or he receives additional questions in five domains regarding changes in behavior, mobility, eating or drinking, toileting, and skin conditions. (See Table 1 for the full checklist.)

When a caregiver reports a change in condition, the ClearCare system automatically generates a task on the system dashboard of the office's care manager, who manages the change in condition. The care manager uses information from the checklist and may also speak with the caregiver, when he or she is available, for more information. Once a task is generated, the potential actions for the care manager are to await the next caregiver visit and checklist report; schedule a visit with the care recipient and a RAH health care professional (e.g., registered nurse); notify family member(s); notify another healthcare professional (e.g., home health nurse, primary care physician), and call 911 to initiate emergency department visit. These actions are not mutually exclusive; the care manager could, for example, visit the care recipient and notify a family member. Once the change in condition has been resolved, the care manager closes the task in the ClearCare system.

Training

Before beginning the intervention, each pilot office received training through RAH's proprietary online platform, Right at Home University. A week after training, the RAH corporate staff audited each site to ensure that more than half of the staff had completed the required training. Follow-up telephone calls to noncompliant offices were conducted until the pilot office owner certified that the majority of staff had undergone the training modules.

Separate 1-hour training modules were developed for caregivers and care managers. Caregiver training focused on how to identify a change in condition and provided several hypothetical narratives and the corresponding answers to each checklist question. Each training module included a short quiz. The care manager training also reviewed the checklist but emphasized the escalation pathway for potential changes in condition that caregivers reported. Care manager training also reviewed changes to the ClearCare dashboard, in which care managers check care recipient status, schedule caregivers daily, and track hospitalizations.

Table 1. Pilot Intervention in Home Care to Improve Health Outcomes Program: Change in Condition Clock-Out Checklist

"Does the client seem different than usual? Has there been a change in mobility, eating or drinking, toileting, skin condition or increase in swelling?" Press 1 for yes, 2 for no.
Does the client seem different than usual? Y/N
Does client show any reduced talking or alertness? (Y/N)
Is client newly agitated, confused, or sleepy? (Y/N)
Does the client show any signs of pain? (Y/N)
Has there been a change in mobility? Y/N
Has there been a change in the ability to stand or walk? (Y/N)
Has there been an observed or unobserved fall or slip? (Y/N)
Has there been a change in eating or drinking? Y/N
Has there been a change in toileting? Y/N
Has there been any discomfort, smell, or change in frequency associated with urination?(Y/N)
Has the client had diarrhea or constipation?(Y/N)
Has there been any change in skin condition or increase in swelling? Y/N
Have there been any new skin rashes or wounds? (Y/N)

Data Analyses

Data were collected from the ClearCare system from the 22 pilot offices on the number of changed in condition and hospitalization tasks recorded for the 6-month pilot period. Data were also collected on the number of caregiver shifts and unique care recipients. Distribution of change in condition tasks across the five domains of the In-Home checklist was also examined.

Qualitative Interviews

After the introduction of the pilot program, qualitative interviews were conducted with seven participating offices, two in person and the rest in conference calls. The interviews included office owners, care managers, and caregivers. The conversations with the owners focused on general information about the office and the potential financial implications of the In-Home program. The interviews with the care managers focused on methods for managing changes in condition and tracking hospitalizations before and after the intervention. Finally, two to four

caregivers from each office were interviewed. The caregivers were compensated with $25 Wal-Mart gift cards. Questions to caregivers focused on their experiences with the intervention checklist.

QUANTITATIVE RESULTS

Sample Characteristics

The 22 pilot offices had been in operation for an average of 7.6 years. They cared for an average of 110 care recipients at a time (range 7–896). The 22 offices employed a total of 1,748 caregivers, with an average of 79.5 caregivers per office. They were located around the United States, including the northeast (5 offices), southeast (3), midwest (7), northwest (5), and southwest (2) regions. The highest level of nursing certification at the offices varied, with 13 sites employing a registered nurse, one site employing a licensed practical nurse, and eight offices employing certified nursing assistants.

In terms of the nature of the care, 38% of care recipients received companion care, 52% received personal care, and 10% received skilled nursing care. Ninety-three percent of care recipients required some assistance with activities of daily living. Sixty-eight percent of care recipients at the pilot offices were female, and the average age of recipients was 81. Forty-nine percent paid for their care out of pocket or through private insurance; Medicaid (55%), Department of Veterans Affairs (8%), and private or public grants and donations (2%) were additional sources of coverage. Sixteen percent of care recipients had care coverage from multiple payment sources. The number of Medicaid recipients was higher than in a typical sample of RAH care recipients because two large pilot offices cared for a large number of Medicaid recipients.

Change in Condition and Hospitalization Tasks

Over the 6-month (2/15–8/15) study period, the 22 pilot offices cared for 2,391 unique individuals over 273,278 caregiver shifts. They reported 4,541 changes in condition, suggesting that caregivers reported a change after 2% of all shifts. Of these 4,541 changes in condition, 40% related to the care recipient seeming different (e.g., reduced talking or alertness), 20% were for mobility changes (e.g., changes in ability to stand or walk), 16% were skin condition changes (e.g., skin rash or wound), 10% were toileting changes (e.g., discomfort when urinating), and 14% were for eating and drinking changes (Table 2).

The 22 pilot offices reported 402 hospitalizations over the 6-month study period. Thus, the offices experienced 18 hospitalizations on average (range 1–83). Three hundred thirty recipients (14%) were hospitalized during the pilot period.

Table 2. Pilot Intervention in Home Care to Improve Health Outcomes Program: Distribution of Change in Condition Tasks (n = 4,451) over 6-Month Period

Task	%
Care recipient seems different	17.1
Reduced talking or alertness	6.9
Agitated, sleepy, confused	8.8
Signs of pain	7.2
Change in mobility (general)	8.8
Change in ability to stand or walk	9.1
Observed or unobserved fall or slip	2.5
Change in eating or drinking	14.0
Change in toileting (general)	4.5
Discomfort, smell, change on urination	1.8
Diarrhea or constipation	3.3
Change in skin condition (general)	8.0
Skin rash or wound	7.9

Caregiving aides generated change-in-condition tasks at the end of their shift "clock-out" using telephone- and mobile-based technology.

LESSONS FROM INTERVIEWS WITH STUDY PARTICIPANTS

Gains

The majority of RAH interviewees reported that the In-Home intervention improved quality of care. Most interviewees suggested that changes in condition would not have been reported without the In-Home checklist. They also reported relatively few "false positives" in that they felt that most of the tasks warranted attention.

The caregivers were generally enthusiastic about the intervention. They reported that it did not add much time to their "clock-out" process, and many suggested that it gave them a larger role in overall care. One important area of improvement was the development of a feedback loop that enabled caregivers to learn about the outcome of the changes in conditions they reported. Care managers valued having these changes readily visible as a reminder to manage the care of the care recipients. Several care managers also noted improved relationships with care recipients' families because of the intervention. Office owners also appreciated the business case for preventing unnecessary hospitalizations and keeping paying care recipients in their homes. Owners reported that the In-Home hospitalization task improved their ability to track hospitalized care recipients daily and increased retention of these individuals upon hospital discharge.

One office owner described an individual with diabetes mellitus whose caregiver reported a minor foot injury through the In-Home checklist. Before the intervention, this injury would not have been reported in real time and instead would have been relayed at the end of the week. Because the caregiver reported the change in condition through In-Home, the care manager was able to reach out to the care recipient's nurse, who initiated treatment quickly. One week later, the wound had healed, preventing a potential trip to the hospital.

Concerns

Certain care managers expressed concern that they already had systems in place to track changes in condition and hospitalizations and questioned the need for the In-Home intervention. One care manager explained that, before the In-Home pilot, caregivers would call the office to report a change in an individual's condition. Thus, she felt that the

In-Home program was somewhat redundant. Another care manager from a small office had a hospitalization tracking board in her office that she updated every day and thus did not see the benefit of tracking hospitalizations on the ClearCare system.

Right at Home staff also questioned the appropriateness of the checklist for tracking individuals with a chronic condition that flared up occasionally. These caregivers noted the importance of reporting a chronic condition flare-up but also believed that the In-Home checklist was not the appropriate mechanism, because a predicable flare-up does not represent a true change in condition.

CONCLUSION

By using a telephone-based checklist, caregivers in the In-Home pilot identified changes in condition in a number of domains, which can potentially be managed in the home to prevent costly hospitalizations. As a possible limitation, the program could lead to higher medical costs such as more 911 calls or physician visits. A randomized trial of the In-Home program is currently being conducted to evaluate whether this intervention affects healthcare use and outcomes of care. In the meantime, the pilot demonstrated the opportunities and challenges inherent in innovating in a new and little-studied space.

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