The INTERACT Institute: Observations on Dissemination of the INTERACT Quality Improvement Program Using Certified INTERACT Trainers

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Practice Concepts

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Abstract

Unnecessary hospitalizations of vulnerable nursing home (NH) residents can lead to hospital-acquired conditions, morbidity, mortality, and excess health care expenditures. Previous research has shown that a substantial percentage of these hospitalizations are preventable. Interventions to reduce acute care transfers (INTERACT) is a quality improvement program that has been adopted by many NHs throughout the United States. The original INTERACT toolkit was first created in a project supported by the Centers for Medicare and Medicaid Services. The toolkit was further refined and tested in a collaborative quality improvement project involving 30 NHs in 3 states, which resulted in a 17% reduction in all-cause hospitalizations. This study was limited because it was not randomized or controlled. Nevertheless, the data provide evidence that the program, even in the absence of strong regulatory oversight or financial incentives, is feasible to implement and that more active program engagement is associated with higher reductions in hospitalization. This paper describes dissemination of the INTERACT program using a pragmatic and relatively low cost model to prepare certified INTERACT Trainers in collaboration with several professional organizations.

Key Words: Nursing home, INTERACT, Hospitalizations

Background

Unnecessary hospitalizations of vulnerable nursing home (NH) residents can lead to hospital-acquired conditions, morbidity, mortality, and excess health care expenditures. Previous research suggests that a substantial percentage of these hospitalizations are preventable and, if prevented,
would result in billions of dollars in Medicare and Medicaid savings over the next several years (Ouslander & Maslow, 2012; Walsh et al., 2012; Spector et al., 2013). Some of these savings could be shared with NHs to further improve care through programs such as the provision of nurse practitioners or other primary care providers (Ouslander & Berenson, 2011; Schroeder & Frist, 2013). Health care professionals who work in long term care (LTC) are especially well-positioned to improve systems that deliver person-centered care, provide leadership in enhanced assessment and interprofessional models of care (Colon-Emeric et al., 2014; Corazzini et al., 2014), and benefit from shared cost savings. The Center for Medicare and Medicaid Innovation has funded a major initiative that is based on this principle, supporting seven sites and close to 150 NHs to improve quality and reduce preventable hospitalizations (Centers for Medicare and Medicaid Services, Medicare and Medicaid Coordination Office, & Center for Medicare and Medicaid Innovation, 2012).

Interventions to reduce acute care transfers (INTERACT) is a quality improvement program that has been adopted by many NHs throughout the United States and has been associated with a 17% reduction in all-cause hospitalizations of NH residents over a six-month period (Ouslander et al., 2011; Ouslander et al., 2014). This could result in over $100,000 in Medicare savings annually in each NH that could effectively implement and sustain the program and generate smaller savings to Medicaid programs as well.

The effective implementation of the INTERACT program requires support of the inter-professional leadership team, including directors of nursing, administrators, and medical directors, as well as commitment from primary care clinicians (including physicians, nurse practitioners, and physician assistants) in order to be maximally effective. Additionally, all nursing and social work staff, as well as residents, families, and ancillary staff need to be trained in the use of INTERACT tools and actively engaged in using them. Graham's Knowledge to Action Process (2006) provided the theoretical framework for our implementation and dissemination of the INTERACT program in this study (see Figure 1). This model highlights the steps that were followed from knowledge creation through implementation and evaluation/dissemination.

The original INTERACT toolkit was created in Centers for Medicare and Medicaid Services (CMS) special study through a contract to the Georgia medical care foundation (the quality improvement organization [QIO] for Georgia). The implementation of this original toolkit was associated with a 50% reduction in overall hospitalization rates, as well as a 36% reduction in hospitalizations that were rated as avoidable in three NHs with high hospitalization rates (Ouslander et al., 2009). The toolkit was further refined and tested in a collaborative quality improvement project with the support of the Commonwealth Fund, involving 30 NHs in three states, which resulted in a 17% reduction in all-cause hospitalizations and reductions up to 24% in highly engaged homes (Ouslander et al., 2011). This study was limited because it was not randomized or controlled. In addition, the results might not be generalizable, because the NHs that participated in this project were volunteers who were, for the most part, highly motivated early adopters with relatively high baseline hospitalization rates. Nevertheless, the data provide evidence that the program, even in the absence of strong regulatory oversight or financial incentives, is feasible to implement and that more active program engagement is associated with higher reductions in hospitalization.

With input from direct care staff and experts in the field, INTERACT has been updated from a “toolkit” to a comprehensive quality improvement program that focuses on improving the clinical and organizational management of acute changes in condition. As a result, hospitalizations are avoided in situations that can be safely managed in the NH. INTERACT includes principles of quality improvement such as tracking and benchmarking clearly defined outcomes, root cause analyses with continuous learning and modification of care processes, early identification of changes in condition, management of common changes in condition, improved advance care planning, and improved inter-professional communication and documentation. As a quality improvement program, INTERACT can also assist NHs in preparing to meet the new federal requirements outlined in the affordable care act for quality assurance and performance improvement (QAPI) (http://go.cms.gov/Nhqapi).

**Purpose**

The goal of this project was to disseminate the INTERACT program utilizing a pragmatic and relatively low cost model to prepare certified INTERACT trainers in collaboration with several professional organizations.

The INTERACT Institute was a one-time, two and a half day conference held in Boca Raton, Florida in January 2013 designed to train and certify INTERACT educators. It was unique in at least three respects: (a) the institute required participants to report back and submit data on additional training and mentoring activities that they provided over the 12 months following the conference; (b) the program was evaluated using extensive qualitative, as well as quantitative data; (c) the focus was on care transitions and involved participants from multiple provider types, care settings, and public and private organizations.

**Methods**

Participants paid a registration fee for the Institute conference and their own travel expenses. We worked with
our collaborating national organizations, the Advancing Excellence Campaign, and other professional organizations (e.g., the National Association of Directors of Nursing Administration, the American Geriatrics Society, American Health Care Association, American Medical Directors Association, LeadingAge and others) to identify and recruit regional, state, and local leaders who would be interested in attending the Institute. Potential candidates completed an online application that included questions about their ability to train and mentor at least three facilities in the 12 months following the Institute (this was a prerequisite for acceptance to the Institute). Upon completion of the two and a half day conference, participants were required to return to their own institution or affiliated institutions and to provide training and mentoring on how to implement the INTERACT quality improvement program for at least three facilities. A final online training report detailing completion of these activities was required from each attendee at the time of completion or by December 13, 2013, in order to receive certification as an INTERACT educator.

Because training and mentoring for a program as comprehensive as the INTERACT program should take several months and because training and education schedules for most organizations requires coordination with leadership and direct care staff, participants were allowed 12 months following the Institute to complete the training and mentoring requirements. Those who attended the Institute program and mentored and trained at least three other facilities received a certificate from Florida Atlantic University.

Expert faculty led sessions on all of the tools in the INTERACT program, overall tenets of quality improvement, and background on the issue of hospital readmissions (see Supplementary appendix A, INTERACT Institute Agenda).

INTERACT Institute participants were asked to recruit NHs in their states and regions, including facilities in which they worked or supervised staff, and provide training in the implementation of the INTERACT program over the 12 months following the Institute. We believed that this strategy would maximize the impact of the INTERACT Institute by engaging participants not only in recruiting NHs, but by becoming active members of the INTERACT team for this and future national dissemination efforts.

**Results**

Altogether, 255 individuals attended the Institute. Several participants were already involved in CMS-supported and
other projects that involved INTERACT implementation or were industry representatives, and were not expected to submit training reports. Of the 255 total attendees, 230 were expected to submit reports for certification; of those, 155 (67%) actually submitted reports of their post-Institute activities.

The largest cohort was comprised of corporate level representatives of NH groups (37%). NH consultants were the next largest group (24%) followed by members of various QIOs (15%) and state affiliates (10%). There were smaller numbers of representatives of hospitals (4%) or NHs (2%). There were also a small number of government officials (1%) and medical providers (1%) (Table 1). Within the group that did not submit training reports, a larger proportion were regional NH representatives and a smaller proportion were consultants (Table 2).

Participants were asked to report the amount and type of INTERACT training they did for purposes of determining eligibility for certification and evaluating the impact of the Institute. The trainers provided an average of 13 training hours \((M = 13.67, SD = 16.09, \text{median} 10)\) to an average of 123 individuals \((M = 123.6, SD = 123.69, \text{median} 93\) individuals). The number of facilities (NHs) with whom the trainers were involved likewise varied considerably with a mean of 45 \((M = 45.29, SD = 59, \text{median} 25)\). Overall, an estimated 1,930 total training hours were provided to over 2,150 NHs by trainers over 1–5 sessions.

There was considerable variety in the training strategies reported. Most (76%) conducted training sessions that included representatives from multiple facilities but many (60%) also conducted sessions for single facilities. Fewer used webinars (18%) or conference calls (2.5%) but 28% did have calls with individual facilities and 16% made presentations at conferences. In terms of follow-up after the original session, 62% provided mentoring at individual NHs (see Table 3).

Prior to registering, participants were informed of the expectation to train and mentor at least three facilities after attending the Institute. However, the actual training/mentoring requirements were somewhat broad in an effort to encourage individualization to meet the needs and capabilities of each facility. In addition, some individuals attending the Institute were not expected to train additional facilities (e.g., some were

| Table 1. Participant Affiliation or Role of Participants Submitting Training Reports |
|---------------------------------|-------------|-------------|
| Affiliation/role of participants | Number of trainers (N) | Percentage of trainers (%) |
| Regional NH representative | 57 | 37 |
| NH consultant | 37 | 24 |
| Quality improvement organization | 24 | 15 |
| State affiliate | 15 | 10 |
| Hospital representative | 6 | 4 |
| Special invitation | 6 | 4 |
| Other | 4 | 2 |
| Single NH | 3 | 2 |
| Government official | 2 | 1 |
| Medical provider NP/MD | 1 | 1 |
| Medical director | 0 | 0 |
| Total | 155 | 100 |

Note: MD = medical doctor; NH = nursing home; NP = nurse practitioner; PA = physician’s assistant.

| Table 2. Participant Affiliation or Role of Participants Who Did Not Submit Training Reports |
|---------------------------------|-------------|-------------|
| Affiliation/role of participant | Number of trainers (N) | Percentage of trainers (%) |
| Regional NH representative | 39 | 39 |
| NH consultant | 19 | 19 |
| Special invitation | 12 | 12 |
| State affiliate | 9 | 9 |
| Quality improvement organization | 6 | 6 |
| Single NH | 6 | 6 |
| Medical director | 5 | 5 |
| Other | 3 | 3 |
| Medical provider NP/PA/MD | 1 | 1 |
| Hospital representative | 0 | 0 |
| Government official | 0 | 0 |
| Total | 100 | 100 |

Note: MD = medical doctor; NH = nursing home; NP = nurse practitioner; PA = physician’s assistant.

| Table 3. Type of Training and Mentoring Provided by Institute Participants Seeking Certification Initial Training |
|-----------------|-------------|-------------|
| Training strategy | Number of trainers (N) | Percentage of trainers (%) |
| Multiple facilities-in person | 118 | 76 |
| Single facility-onsite | 93 | 60 |
| Webinar | 28 | 18 |
| Conference presentation | 25 | 16 |
| Conference call | 4 | 2.5 |
| Follow-up mentoring | | |
| Training strategy | Number of trainers (N) | Percentage of trainers (%) |
| Single facility-onsite | 97 | 62 |
| Single facility-call | 43 | 28 |
| Multiple facility-onsite | 54 | 35 |
| Multiple facility-call | 49 | 32 |
part of a QIO or similar organization, and therefore were obtaining INTERACT training as part of their current role).

Despite explicit expectations on the application for the Institute which were reinforced at the Institute itself, obtaining the training reports was challenging. Many participants reported competing demands on their time as a barrier to their being able to submit the reports in a timely manner. A substantial number of participants required several telephone reminders and emails about submitting the training reports.

In the reports, we also asked the participants who applied for certification to report the training strategies they used and also to describe creative and successful strategies, as well as the barriers they encountered in training and facilitating INTERACT implementation.

Facilitators and Creative Approaches
Although most of the training was done using traditional classroom approaches, a few reports highlighted creative training strategies, including the use of word search and other puzzles, having staff work together on skits and writing newsletter articles. The use of interactive training, such as the INTERACT small group exercise and others, was also reported. A number of participants found that case-based learning and the use of case studies really “drove the points home.” However, no quantifiable trends emerged from the data. Based on our experience in other projects, which was shared at the Institute, there were some missed opportunities for more creative training techniques and for greater use of webinars, follow-up conference calls, on site implementation assistance, and other strategies.

Barriers
Several barriers to training and implementation were noted by participants. The most common barrier cited was “lack of time” and a sense that NH staff is already overwhelmed with their current workload. Quotes by individuals who cited barriers in the qualitative data are presented below and summarized in Figure 2.

“The greatest barrier I encountered was, quite simply, the facilities being distracted from implementation due to the everyday tasks of caring for residents. There are so many “moving parts” to the operation of a nursing facility that it is very difficult to introduce anything new that requires many steps to implementation.”

There was a sense from some facilities that staff could not work on “one more thing,” and that there were already many demands to work on other quality improvement initiatives.

Corporate-wide or facility conversion to an electronic health record (EHR) system was noted to be “all-consuming” by some respondents and prevented or slowed other quality improvement activities. Additionally, INTERACT tools had not yet been incorporated in most EHRs.

“The biggest barrier for this group of facilities in implementing INTERACT is the fact that they have complete EHRs in place but are not yet able to integrate the [INTERACT] tools into the software.”

Staff turnover was mentioned by several participants as a limitation, as was lack of “buy in” from NH leadership.

“[A major challenge was] staff turnover at the NHs. In several places I began to assist with implementation, either the nursing home administrator, DON, or both changed within the first couple of months.”

“Barriers included obtaining ‘Buy-In’ of professional staff, families, physicians, and all concerned. Families were sometimes slow to move to our goals. Family tends to want to send their loved one out when it may not be necessary. We also had to do extra training with the physicians and nurse practitioners (NPs). Sometimes it is easier for them to give orders to send out than to allow us to do a good assessment.”

Trainers also expressed concern with maintaining intervention fidelity over time. Several reports addressed ways that participants followed up with the facilities that they had trained to monitor progress and to ensure that the facility was using all components of INTERACT. A number of trainers focused on empowering Certified Nursing Assistants to be more proactive in communicating and documenting resident changes in condition. Trainers made it clear that they wanted to ensure sustainability of the INTERACT program. While desiring to maintain coherency of the program through structured use of the INTERACT tools in the program together (not using just one or two tools in a non-integrated fashion), trainers also raised the question of whether customizing the tools (e.g., adding a nursing assessment module or otherwise adapting the tools to meet the specific needs of individual facilities) would dilute the fidelity and effectiveness of the program.

Feedback From Individual Facilities That Received Training From an Institute-prepared Trainer
We attempted to obtain feedback on the quality and impact of training from NHs that Institute attendees reported training using a structured survey sent via an email. This was quite challenging, as there was no incentive for these
facilities to take the time to complete the short survey. Of the estimated 2,150 NHs that received training by Institute participants, we obtained contact information for 639 facilities; of those, a total of 110 facilities (17%) returned the survey. Several of the surveys returned had missing data. Common themes noted by respondents were that INTERACT implementation had led to improvements in assessment, communication, and documentation. Consistent with the reports of the trainers, the most common barrier mentioned was time; and to a lesser extent, staff turnover and need to integrate INTERACT into EHR (see Figure 3).

Cost of Preparing a Cadre of INTERACT Trainers

The total cost per participant of training INTERACT trainers (excluding participants’ own travel and lodging) was approximately $495. This included development costs for the materials, production costs, hotel venue/food/associated costs, speakers, and their travel. For this program, average travel and lodging costs for participants were estimated at $1,000 per participant. Most of the 255 attendees paid a registration fee of $500, which included two meals per day (sponsors received complimentary registration). Additional costs, which we could not accurately estimate included the

![Figure 2. Barriers to INTERACT success reported by facilities.](https://academic.oup.com/gerontologist/article-abstract/55/6/1050/2605461)

![Figure 3. Percentage of facilities reporting changes following INTERACT training.](https://academic.oup.com/gerontologist/article-abstract/55/6/1050/2605461)
time of Institute participants for training staff in NHs and
trainer travel (if they were not part of facility staff), course
materials, and NH staff time to cover so that appropriate
staff could attend educational sessions.

Discussion

Overall, the INTERACT Institute and follow-up activities
succeeded in disseminating the INTERACT program to
several hundred NHs nationally, suggesting that a train-the-
trainer model is not only feasible but also effective in achiev-
ing widespread dissemination. Institute participants were
highly engaged, networking and sharing ideas and best prac-
tices. While not all participants sent in training reports, in
some cases those individuals had indicated from the begin-
ning that they did not plan to conduct training outside their
own facilities. The majority of attendees were regional and
corporate staff from multi-facility organizations, consult-
ants, and QIO staff. We purposely targeted these individuals
to leverage the training for wide dissemination, and also to
influence LTC leaders who could provide critical support for
quality improvement and INTERACT implementation.

The perceived barriers to training and implementation
encountered in this project, including lack of staff time,
leadership support, and staff turnover are common barri-
ers to implementation in virtually all quality improvement
initiatives, and have been voiced in all of our INTERACT
implementation projects. We might have done a better
job of proactively addressing these barriers in this train-
the-trainer project. The perception that the INTERACT
program and other similar quality improvement programs
“take more time” must be addressed. The INTERACT pro-
gram focuses on evaluation of acute changes in condition
and provides tools to make good geriatric care of complex
geriatric patients available at the bedside. Similar to QAPI
principles, INTERACT care processes should be used in
every day care, not perceived as an add-on to it. While we
did try to emphasize this issue in our training, we need to
think of better and more creative ways of making this point.
Incorporation of components of the INTERACT program
into EHRs is now available. Embedding INTERACT into
EHRs will make the INTERACT program much more
available during the course of routine care than with paper
implementation.

Despite our intensive efforts to engage medical care pro-
viders, we were disappointed in the low enrollment of med-
ical directors in the Institute. We have subsequently done
training specifically for medical care providers at annual
meetings of relevant organizations and other venues.

Staff turnover plagues many NHs in the United States.
(Thomas et al., 2013). Stable staff is obviously essential for
training in a comprehensive quality improvement program
to be effective. We believe that some of the elements of
INTERACT and its implementation can help with staff turn-
over. Examples include: implementation of a program using
an interdisciplinary team; providing a tool that values the
input of nursing assistants; providing tools that enhance the
clinical decision-making and documentation skills of licensed
nurses; tools that enhance nurses’ ability to effectively com-
municate clinical information to medical care providers.

A more prescriptive approach to the Institute structure
could be useful for future dissemination. While we did ask
participants to identify facilities that they would be tar-
geting for additional training and mentoring before they
attended the Institute, future programs could require more
structure about how many hours should be included in
each of those trainings and what the content would include.
We also learned that while the expected customization of
materials such as preparation of slides by individual train-
ers may be advantageous, the vast majority of participants
wanted a “plug and play” set of curriculum materials to use
in future trainings. Providing a set of slides to participants
in future Institute programs may be worthwhile to enhance
the consistency of the content and strategies discussed.

Limitations

This project had some limitations. We did not obtain sal-
ary information for trainers, nor data on the types of health
care professionals from the interprofessional team who
attended trainings in the facilities, or the length of time of
each training. Therefore we were not able to calculate a
detailed cost analysis of INTERACT facility-based training
by the Institute trainers. Institute participants were not rand-
omized; therefore the degree of implementation and dissemi-
nation in these homes may not be generalizable to all NHs.

Conclusion

There is a great deal of emphasis on federal and state incen-
tive programs to reduce unnecessary hospitalizations. States
may be interested in supporting widespread adoption and
dissemination of proven programs such as INTERACT.
Entities such as the CMS Partnership for Patients, the
National Partnership to Improve Dementia Care and the
Advancing Excellence in America’s Nursing Homes cam-
paign provide opportunities for statewide as well as national
dissemination of quality improvement programs. Given the
modest costs of training the trainers (with the potential
for greater efficiencies with certain modifications recom-
mended here), and the effectiveness of this approach in get-
ting additional NHs to implement INTERACT, statewide
train-the-trainer programs for INTERACT implementation
may be cost effective in terms of reduced hospitalizations.
Incorporation of INTERACT and other quality improvement programs into EHRs will enhance implementation. Using the EHR to document care process and outcome measures will enable health systems and accountable care organizations to monitor, recognize, and value the services of NHs that are involved in their patients’ care.

**Supplementary Material**

Supplementary material can be found at: [http://gerontologist.oxfordjournals.org](http://gerontologist.oxfordjournals.org).

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