Do Palliative Care Teams in Nursing Homes Improve the Quality of End-of-Life Care for Nursing Home Residents?

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ABSTRACT

Background: Deficits in end-of-life (EOL) care in nursing homes (NHs) have been reported, but the impact of NH-based palliative care teams (PCTeams) has been unstudied and untested.

Objective: To assess the effectiveness of NH PCTeams on resident outcomes and care processes.

Methods: The study team enrolled 31 NHs in upper New York State (NYS) in a cluster randomized controlled trial (RCT). The intervention components included team development, staff training in EOL care, and PCTeam activation and rounding with a nurse interventionist. Using the Minimum Data Set and Vital Status files, we developed 4 risk-adjusted outcome measures: place of death, number of hospitalizations, self-reported moderate-to-severe pain, and depressive symptoms, all within 90 days of death. Staff surveys measured care processes. Surveys with family members of decedent residents assessed satisfaction with care. To understand any challenges that staff may have experienced during the intervention, we conducted in-depth interviews in all treatment-arm NHs.

For each outcome a difference-in-difference model compared the preintervention and postintervention periods using logistic and Poisson regressions with random effects to account for patient clustering. The analyses included 2 control groups: facilities recruited for the RCT and randomized to the control arm, and all other NYS facilities that did not participate in the study. We also conducted a sensitivity analysis comparing treatment arm NHs in which PCTeams were or were not consistently employed (referred to as working or nonworking teams, respectively). We classified teams as working or not based on analysis of in-depth interviews with staff in the treatment arm NHs. We compared facilities with working and nonworking teams with each other and with the randomized and nonrandomized controls on all outcomes. We employed a generalized linear model with facility random effects.

Results: In total, 14 treatment and 11 control NHs completed the RCT. The analytical sample included 5830 decedents from the RCT-participating homes and 119 486 from all other facilities (n = 609) in NYS. We obtained preintervention surveys from 1018 staff in all participating NHs. We completed in-depth interviews with 41 staff in treatment homes after the intervention. These interviews revealed that only 6 of the 14 facilities had consistently working PCTeams throughout the study period. These working teams were characterized by a clear and shared mission, a sense that the team influenced residents' care, and a perception of continued team sustainability. In the main analysis we found no statistically significant effect of the intervention; however, based on the sensitivity analyses, decedents in homes with working teams had significant reductions in the odds of in-hospital death compared with homes with nonworking teams (odds ratio [OR], 0.400; $P < .001$), control (OR, 0.482; $P < .05$), and nonrandomized control NHs (0.581; $P < .01$). Decedents in these NHs had reduced rates of depressive symptoms (OR, 0.191; $P < .05$), but not pain or hospitalizations. We did not evaluate care processes and satisfaction with care among family members due to insufficient data.

Conclusions: Overall, we found no statistically significant impact of the intervention on patient outcomes; however, sensitivity analysis suggests that some treatment-arm homes may have been at least partially successful in influencing EOL care quality.

Limitations: Some NHs may have been better equipped to implement PCTeams than others from the beginning. We were not able to identify this difference at baseline.

BACKGROUND

The 2014 Institute of Medicine (now known as the National Academy of Medicine) report on end-of-life care identified communication skills, interprofessional collaboration, and symptom management to be key palliative care (PC) competencies required of providers caring for individuals with advanced illness.[1] Nursing homes (NHs), which care for frail and severely ill residents, and where more than 30% of Americans die,[2,3] largely underperform on these competencies.[4,5] Studies attest to insufficient management of symptoms including pain,[6,7] frequent and often unnecessary hospitalizations,[8,9] shortcomings in teamwork and communication,[10-12] and inadequate PC knowledge and skills among NH staff.[13,14]

At the same time, research focusing on health care teams has demonstrated that skills such as communication and interprofessional collaboration are the hallmark of effective teams, driving both quality and improved patient outcomes. Studies of NHs have shown that better teamwork among staff and improved communication between staff and residents/family members were associated with higher overall quality of care[12,15] and better patient outcomes,[16] including those at the end of life (EOL).[11,17]

To date, several models for EOL care delivery in NHs have been employed, including the use of hospice, which cares for EOL patients in specialized PC units, and the use of PC consulting services.[18] Hospice enrollment has been shown to reduce the likelihood of terminal hospitalizations[19] and is associated with better pain management—but not always with better management of other symptoms.[20] The research team's own research in this regard, based on >2 million NH decedents in more than 16 000 NHs (years 2003-2007) has shown that the use of hospice in the last 30 days of life lowers the odds of in-hospital death by 95% (CI, 0.050-0.052).[21] However, integration of hospice into NHs has been very difficult, due to conflicting financial incentives and barriers to referral, which are often exacerbated by poor recognition of terminal illness by the NH staff.[22,23] Furthermore, hospice benefit payments require an assumption of life expectancy shorter than 6 months and an agreement to forgo curative treatment for the terminal condition; thus, perhaps, it is not surprising that hospice still plays a limited role in the care of patients living in NHs. Although 80% of NHs report having contracts

with hospice providers,[24] fewer than a third of NH decedents receive hospice care in the last 30 days of life, and most of this care is received just days before death.[25]

There are only a few examples of PC units in US NHs, and evidence of their effectiveness has been very limited.[26] The presence of PC teams (PCTeams) in NHs has been reported as having a positive impact on hospice enrollment, advance care planning discussions, and pain assessment; however, these findings are based on a single study of 7 facilities, and several serious study limitations make the results unreliable.[27] A meta-analysis of 19 studies from the United Kingdom demonstrated that patients with serious, life-limiting illness who receive care from home and hospital-based PCTeams have significantly better outcomes for pain and other symptom management.[28] Similar evidence for the impact of hospital-based PCTeams in the United States also exists.[29-38] However, to our knowledge, there have been no comparative randomized controlled trials (RCTs) of PCTeams in NHs—in the United States or elsewhere. PC provision, either through contractual arrangements with external teams or through facility-based PCTeams, is only sporadically available.[39,40] Thus, to date, the impact of PCTeams on EOL outcomes among NH residents has been largely unstudied and untested.

Several educational interventions designed to improve care at the EOL in NHs have been previously implemented and evaluated.[41] Interventions that focused on educational programs to improve staff knowledge in EOL care have reported positive results in staff competency but have not examined the effect of the intervention on residents' outcomes.[42] Other quasi-experimental, educational interventions demonstrated significantly greater control of pain and dyspnea in the intervention homes compared with the controls.[43,44] A large RCT of quality improvement interventions in 113 NHs, not focusing specifically on palliative or EOL care, demonstrated that simply providing staff education is not enough to bring about measurable improvements in quality of care.[45] Overall, evaluations of the impact of educational materials have suggested that when such materials are used alone, they do not appear to impact patient outcomes compared with no intervention, but when introduced as part of practice change they are effective.[46,47]

To address these gaps in the literature and in NH practice, we implemented an intervention (rooted in the conceptual model presented in Section 3.2, below) titled Improving Palliative Care Through Teamwork (IMPACTT), which, to our knowledge, was the first NH-level RCT sufficiently powered and designed to evaluate the impact of NH-based PCTeams. Specifically, we proposed to test the following hypotheses:

H1. Decedent residents in NHs with PCTeams, compared with residents who receive standard care, have better EOL risk-adjusted outcomes and care processes regarding:

- Pain

- Depression

- In-hospital deaths

- Hospitalizations

- Advance directives

H2. Direct care staff in NHs with PCTeams, compared with those involved in standard care, achieve better EOL processes and outcomes, measured by the following:

- Perceived PC competency (EOL-specific domains of assessment, delivery, communication with residents/families)

- Communication/coordination among providers

- Teamwork effectiveness

- Staff satisfaction

H3. Family caregivers of deceased residents in the intervention NHs, compared with those in the control, report receiving more patient- and family-centered care, as measured by higher levels of satisfaction with the following:

- Shared decision making between providers, the patient, and the family

- Care that is respectful of the patient wishes and dignity

- Attention to the emotional and spiritual needs of the family

PARTICIPATION OF PATIENTS AND OTHER STAKEHOLDERS

Existing literature on palliative/EOL care has commented on the discrepancies in perceptions between NH leaders, who believe they are delivering high-quality care, and the experiences reported by residents and family members. Through the involvement of multiple stakeholders, with whom we exchanged ideas and expectations about the goals of care and the best ways to reach these goals, we aimed to create shared understanding of the key dimensions of high-quality EOL care. We achieved this by involving NH residents, their family members, clinicians who care for them (physicians, nurses, licensed practical nurses [LPNs], certified nursing assistants [CNAs], and social workers), local/regional health system planners, representatives of state NH associations, and policy experts.

In Table 1, we identify all stakeholders, the methods used to recruit them, and the numbers of stakeholders participating in each group throughout the study period. Methods for stakeholder involvement are described below.

NH Residents and Family Caregivers

We invited residents and family caregivers to participate in semistructured interviews (conducted before active intervention phase), through which we elicited their expectations for high-quality PC, and what was important to them, and identified additional areas for improvements in care delivery processes and outcomes. Residents and their family members were approached by NH staff, usually the social worker, and asked if they would like to speak to a member of our research team. The semistructured interview questions used in this phase of stakeholder engagement are presented in Appendices 9.2 and 9.3. Residents and family members were largely unfamiliar with the term *palliative care* but clearly identified aspects of care delivery that were palliative in nature and were aligned with their values and expectations for care, including an emphasis on care that honored their individuality and personal achievements, care preferences, and preferred communication frequency and style. We used findings from these interviews to inform the intervention.[48]

Table 1. Stakeholder Engagement by Type: Identification, Engagement Type, and Number

Stakeholder group	Method of identification or recruitment	Engagement type	No. of group members
NH residents	Through social workers in participating NHs	In-depth interviews and narratives	12
Family caregivers	Through social workers in participating NHs	In-depth interviews and narratives	16
Facility-based physicians or nurse practitioners	Through site's project liaison	Delphi survey	3
Directors of nursing	Through site's project liaison		9
Nursing staff (includes RNs and LPNs)	Through site's project liaison		11
Social workers	Through site's project liaison		11
Administrators	Through site's project liaison		7
CNAs/others	Through site's project liaison		3
Local advocates: center for disability rights, health system agency, hospice agencies	Through a letter of invitation and introduction to the project	Consultation and participation in stakeholder engagement meetings	4
NYS NH associations	Through a letter of invitation and introduction to the project	Consultation and participation in stakeholder engagement meetings	3
State and national palliative care, TeamSTEPPS, and policy experts	Organizations and individuals known to the research team	Consultation and participation in stakeholder engagement meetings	4

Abbreviations: CNA, certified nurse assistant; LPN, licensed practical nurse; NYS NHs, New York State nursing homes; RN, registered nurse; STEPPS, Strategies and Tools to Enhance Performance and Patient Safety.

NH Clinical Staff

Before the intervention began, we employed 2 rounds of a Delphi process involving clinical and administrative staff from the treatment homes. We did this to arrive at a consensus in determining PC and EOL best practice standards to be used across all intervention facilities and to serve as the template for how to implement PC in the NH setting. Specifically requesting the input of clinicians, we invited 48 NH leaders to review the importance (10-point Likert scale)

and the feasibility (5-point Likert scale) of these potential standards and practices. Overall, these 48 NH leaders converged on 17 PC best practice standards that were identified for use by NH PCTeams as being both important and feasible in the long-term care setting. These best practices were distributed over 7 domains of care: structure and process, physical, psychosocial and psychiatric, social, cultural, EOL, and ethical and legal. In addition, several standards for NH PCTeam structure and operations were also defined, including team referrals and screening, frequency of rounding, communication with residents and other staff members, staff education, and bereavement and grief support. Five disciplines (social work, certified nurse assistant, nurse, physician, and nurse practitioner or physician assistant) were identified as comprising an ideal core team, and 3 other disciplines were proposed as extended or ad hoc members (therapists, chaplains, and dietary staff). We then used these 17 best practices as a template for practical direction to guide PCTeam processes and operations specific to this care setting (see Appendix 9.6 for a complete list of these Preferred Palliative Care Practices for Nursing Homes.)[40] This process helped ensure transparency of the project, increased the likelihood that the resulting operational recommendations were relevant, and improved the project's chances of being adopted into practice.

Stakeholder Advisory and Validation Group

The Stakeholder Advisory and Validation Group (SA&VG) consisted of invited local patient advocates: representatives of hospice agencies; an advocacy group for disability rights; staff from a local Health System Agency; members of a statewide NH association; and recognized state and national experts in PC, EOL care, and Strategies & Tools to Enhance Performance and Patient Safety (TeamSTEPPS). The SA&VG met 4 times during the project: (1) twice in person with members of our research team and stakeholders from our treatment facilities and (2) twice through webinars. We solicited their thoughts and feedback for implementing the intervention as well as supporting the developing PCTeams. Their feedback affirmed the importance of this study and its objectives; to an extent, it also predicted the overall finding that some facilities would be more successful at launching and sustaining a PCTeam than others. Specifically, our SA&VG suggested that the key critical resources would

include time, especially time for staff to learn to work as a team; leadership support and a clear

vision that PC is a priority; and staffing issues, including managing turnover.

METHODS

Study Overview

We launched an intervention study to examine the effectiveness of NH PC best practices, implemented through integrated NH PCTeams, in improving the quality of care processes and outcomes for residents at the EOL. We used a facility-level (ie, cluster) RCT design and a difference-in-difference (DID) analytic approach to test our outcome measures. Following facility-level PCTeam building and palliative/EOL staff educational sessions (preintervention), we implemented in each treatment facility a 2-month active intervention phase (team rounding with a nurse interventionist), immediately followed by an 8- to 10-month passive intervention phase, when PC experts were available for consultation as needed, on demand. We employed the DID analytical approach to determine the impact of the intervention on patient outcomes (resident death in hospital, hospitalizations in the past 6 months of life, self-reported pain, and self-reported depression). We also conducted staff surveys to assess the impact of the intervention on care processes, and postbereavement surveys with family members to assess the impact on patient-centered care. Furthermore, to understand how elements of the intervention were conducted in each facility, we conducted semistructured interviews with treatment NH staff at the end of the passive intervention phase.

The study was registered at ClinicalTrials.gov (identifier NCT01990742), and it was reviewed and approved by the IRB at the University of Rochester.

Study Design, Cohort, and Setting

We designed a facility-level multicomponent intervention strategy that included building NH-based PCTeams, providing existing NH staff with palliative and EOL geriatric training, and team activation and rounding with a nurse interventionist.

The conceptual framework on which the intervention is based (Figure 1) integrates 3 domains: (1) organizational capacity (eg, readiness for change, facility resources); (2) care processes (eg, teamwork), and (3) resident and staff outcomes (eg, adverse symptoms, staff satisfaction).

Figure 1. Conceptual Framework and Study Design
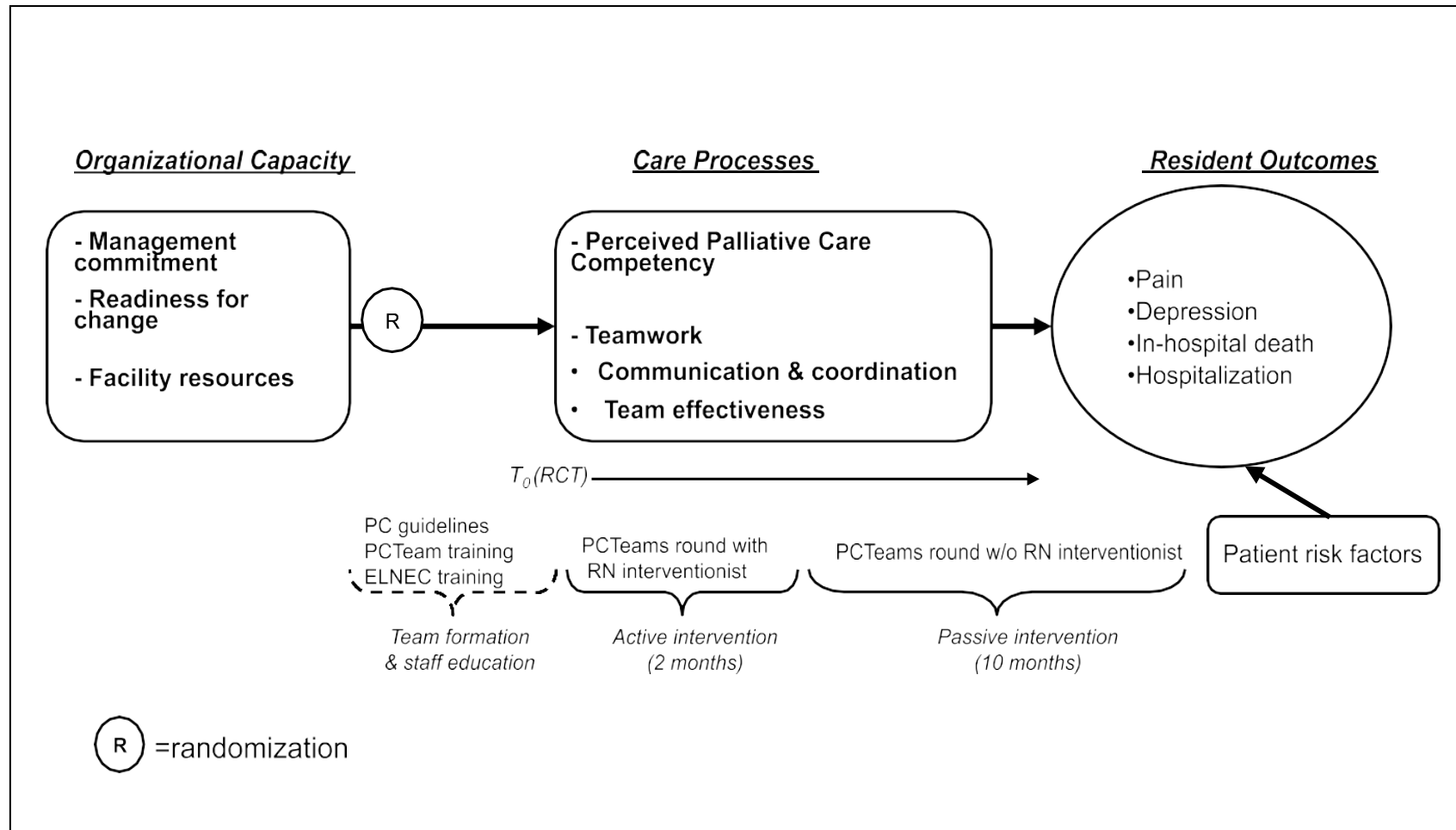
Abbreviations: ELNEC, end-of-life nursing education curriculum; PC, palliative care; PCTeams, palliative care teams; RN, registered nurse.

Organizations and their leaders play an important role in the uptake of new knowledge, its adoption, and its application into practice.[49,50] Their support and participation are necessary to create practice change and to secure adequate facility-level resources to sustain it. We employed rapid ethnographic assessments (REAs) to understand barriers to the intervention implementation and how the NH leadership dealt with the challenges encountered.

Prior research has identified the importance of care processes such as assessment and management of PC symptoms, communication and coordination of care among providers, and communication between providers and residents/families.[4] Residents in NHs with better team and PC processes have been shown to have better outcomes, including those at the EOL.[11,17]

To assess the impact of the intervention on residents' outcomes, we identified 4 risk-adjusted quality measures: place of death (in an NH or a hospital), number of hospitalizations at EOL, self-reported pain, and self-reported depression. These are considered to be meaningful indicators of quality because they meet the following criteria: (1) address an outcome of importance to residents; (2) can be affected by clinical care provided; (3) are calculated on a sufficiently large number of residents within a facility to be statistically meaningful; and (4) when adjusted for residents' risks account for factors over which the NH has no control.[51-53] Before the onset of the study we assessed face validity of the proposed outcome measures in a focus group of caregivers whose family members were in an NH. During the study period the proposed outcome measures were further discussed with stakeholders who represented NH staff and patient advocates.

Detailed information on the study design, recruitment and retention, intervention design, data sources, and baseline outcomes has been presented in a prior published paper.[54] Below, we provide a brief summary of the relevant information.

In the RCT, known as IMPACTT, we used a mixed methods research design with a DID analytic technique. All freestanding NHs in the metropolitan areas of Syracuse, Rochester, and Buffalo were approached for recruitment (n = 136). This included facilities in both urban and rural areas. A letter of invitation was issued to these NHs before we applied to PCORI for

funding. The letter included a brief description of the study, outlining data collection requirements, estimated time commitment needed from various staff members, and the potential benefits of participation to NHs. A letter of commitment from the facility administrator was required to demonstrate commitment to participate. After learning that the study was to be funded by PCORI, we "re-recruited" all the facilities, since at least a year had elapsed since the initial recruitment.

Based on power calculations, a sample size of 30 facilities was sufficient for the RCT.[54] We enrolled the first to respond to our renewed invitation; we stopped enrolling once 32 facilities agreed to participate.

Participants

We based our primary outcomes on resident-level assessment data derived from the Minimum Data Set (MDS) 3.0 (discussed in more detail below, in Section 3.6) obtained for all NHs in New York State (NYS). Using the MDS, we developed risk-adjusted outcome measures for NH decedents in the intervention homes (both treatment and control) and in all other NHs in NYS (not participating in the RCT). This latter "nonrandomized" control group was included to test for any temporal effects.

The analytical sample included decedent Medicare beneficiaries aged 65+ who had been residents in NYS NHs, died there or were discharged to an acute care hospital where they died within 18 days (90% of residents who died in the hospital die within this time frame), between October 1, 2012, and April 30, 2016. Specifically, this group included 5830 decedent residents from 25 study facilities (14 intervention and 11 controls) and 119 486 decedents from the remaining 609 facilities in the state—that is, the nonrandomized control group.

Interventions and Follow-up

A facility-level intervention, IMPACTT involved a multicomponent strategy that included implementing facility-based PCTeams. To aid in the development of these teams, we deployed TeamSTEPPS (see https://www.ahrq.gov/teamstepps/index.html). This development strategy was created by the Department of Defense and the Agency for Healthcare Research and

Quality. This model has been tested in more than 2 decades of research and has demonstrated effectiveness in acute health care settings.[55,56]

We provided staff in all treatment NHs with a template for PCTeam operational guidelines, which were developed from the consensus building of the Delphi process described above.[40] These guidelines suggested that PCTeams should be interdisciplinary and include nurses, certified nursing assistants, social workers, chaplains, nurse practitioners, and physicians; they further suggested that teams meet regularly, recommending at least a weekly conference. Other ideas included how to communicate with other stakeholders (eg, hospice agencies, physicians), interactions with family members, and processes for following through with the plan of care. These suggestions were presented as recommended guidelines, not as requirements, as it was clear that each NH had its own processes and would not respond positively to requirements arbitrarily imposed by outsiders.

Staff members in the treatment NHs were also provided with palliative and EOL geriatric training (End-of-Life Nursing Education [ENLEC] curriculum; see https://www.reliaslearning.com/elnec). ELNEC-geriatric is based on the Palliative Care Educational Resource Team program, which has been shown to be effective in increasing knowledge, skills, and confidence related to EOL care.[57] Team development and staff training in the treatment NHs were followed by a 2-month-long active intervention phase during which a gero-PC nurse practitioner interventionist (from the research team) rounded with the teams as they saw and/or discussed residents' care. The frequency of rounds with the interventionist was at the discretion of each NH, but the interventionist made, at a minimum, weekly contacts with each team during the active intervention phase.

A passive phase of at least 8 months immediately followed, during which the nurse interventionist was available to further coach the team on an as-needed/requested basis. Following the active intervention phase, each treatment NH received free online access to the ELNEC modules for a period of 3 years, allowing it to continue with the training for any new staff members. The passive phase was initially scheduled to last 10 months but was shortened to 8 months for those facilities that experienced significant implementation delays. Of the 14

treatment homes, only 5 underwent the shorter passive phase. The control homes did not receive any intervention activities.

Several aspects of the data collection (described below in detail) exceeded the period of exposure to the intervention. This was part of the design of the intervention as originally proposed and included the collection of postintervention surveys among NH staff, family bereavement surveys, and the conduct of the REAs.

Study Outcomes

The study's primary outcomes measured EOL quality of care. The outcomes of interest were place of death (NH vs hospital), number of hospitalizations, self-reported moderate-to-severe pain, and depressive symptoms, all within 90 days of death. We focused on these outcomes because they can be affected by NH staff ability to assess symptoms, coordinate care, communicate with the residents and their family members, and deliver care to the residents— in other words, the key PC competencies being tested in this intervention. Furthermore, patients and their families consider these outcomes important.

In employing these outcomes, we followed the methodology we developed and reported on previously.[53] Obtained from the MDS data, we defined primary outcomes as place of death = 1 if death occurred in a hospital, 0 otherwise; number of hospitalizations within the last 90 days of stay (excluding last hospital stay if death occurred in a hospital); self-reported pain = 1 if reported as moderate to severe, 0 otherwise; and depression = 1 if reported/displayed by the residents, 0 otherwise. We used discharge and readmission records to calculate death in hospital and hospitalization. We used the last assessment before death to calculate the pain and depression outcomes. Resident risk factors (see Supplemental Tables S.1 and S.2) were obtained from the last assessment before death or were imputed from a prior assessment when necessary. Because all measures of interest represent outcomes that residents would prefer to avoid (ie, negative), lower values should be interpreted as better quality.

The secondary outcomes of interest, obtained from staff surveys, were 5 care process measures based on staff perceptions of their team's cohesion, communication/coordination,

perceived team performance, and PC competency, and their organization's readiness to implement PC. We measured each care process as a score on a Likert scale ranging from 1 (worse) to 5 (best). Our prior studies showed that the tools used to assess care process domains were psychometrically reliable and conceptually valid.[58,59] We have also previously demonstrated a relationship between care process measures and residents' EOL outcomes.[11]

Data Sources and Analytical Samples

We employed multiple sources of data to evaluate the impact of the intervention.

Secondary Data

To assess the impact of the intervention on residents' outcomes (hypothesis 1), we used the MDS 3.0 and vital status data. The MDS 3.0 is used by the Centers for Medicare & Medicaid Services (CMS) to create Nursing Home Compare Quality Measures and 5-star ratings, as well as for Medicare and Medicaid payment systems.

We obtained the MDS 3.0 and the Vital Status File (VSF) data sets under a data use agreement with the CMS. We merged MDS 3.0 data with the VSF and longitudinally for all NH residents in NYS for the period of October 1, 2012, through September 30, 2013 (preintervention), and for October 1, 2013, through April 30, 2016 (intervention period). The VSF contains date of birth, date of death, and demographic information for each beneficiary ever entitled to Medicare. We linked the files using a BENE_ID (VSF identifier) to RES_ID (MDS identifier) crosswalk as well as with facility-level identifications.

The MDS 3.0 is a resident-level database that contains screening, clinical, and functional status elements completed for all residents at admission, quarterly, and annually, and when there is a significant change in status. The MDS includes common definitions and coding categories, which are the foundation of a comprehensive assessment for all residents of NHs certified to participate in Medicare or Medicaid (https://downloads.cms.gov/files/MDS-30-RAI-Manual-v115-October-2017.pdf). Trained NH personnel completed all assessments. Some missing items on resident-level health assessments in the MDS for each outcome are expected for several reasons: An item may not be relevant for a resident due to his or her clinical status.

The assessor may not have necessary information at assessment time, and not all health assessments contain all items collected in the MDS. To reduce missing data, we limited risk factors to items that are available on the prospective payment system and quarterly assessments. If a resident had missing items on his or her final health assessments which were considered risk factors in our models, we attempted to impute the information from a prior comprehensive assessment. If imputation was not possible (eg, the condition was acute), we excluded the resident from the risk-adjustment model. To account for statistical uncertainty due to missing data, we conducted several sensitivity analyses at those stages when problems due to missing data may have arisen.[53]

Primary Data

To measure the impact of the intervention on care processes (hypothesis 2), we conducted primary data collection via staff surveys with all staff providing direct patient care (eg, physicians, nurses, nurse assistants, therapists, social workers). We conducted the surveys before the start of the intervention and again once it was completed.

We based all measures of care process domains employed in the survey on psychometrically tested tools that were extensively examined in prior studies,[4,59] and that were revalidated on the data from the surveys implemented in the treatment and control homes of the IMPACTT intervention.[54] The survey tool and the survey implementation process are described in detail in a prior study.[54] Project staff provided all NH leaders/liaisons with survey packets and a request to distribute these materials to all staff with direct care responsibilities. Completed surveys were mailed directly to project staff in prepaid and preaddressed envelopes provided with the survey. The key care process measures of interest included in this survey were team communication/coordination, perceived team effectiveness, PC competency, team cohesion, and organizational readiness for PC. Each domain is measures on a Likert scale (1-5), with higher values indicating more positive appraisals. A copy of this survey is included in Appendix 9.2.

We obtained the preintervention staff surveys from 1018 staff respondents (response rate of 30%) in all participating facilities. The response rate to postintervention surveys was considerably lower (n = 466; response rate = 21%), with 3 treatment and 9 control homes not participating at all. This precluded us from conducting statistical analyses comparing treatment and control facilities regarding the intervention's impact on palliative and EOL care processes (hypothesis 2). However, we conducted statistical analyses on care process measures in the sensitivity analysis (described below) on a smaller subset of survey responses available from the treatment NHs (ranging from N = 911-965, depending on the measure).

To examine the domains of patient- and family-centered care (hypothesis 3), we used an abbreviated version of the After-death Bereaved Family Member Survey, a component of the Toolkit of Instruments to Measure End-of-Life Care (TIME), which has been developed and extensively tested for validity and reliability, including in NHs.[60] This survey measures domains of shared decision making and the emotional and spiritual needs of the family. Each domain is measured as a Likert scale score, with a higher score indicating more opportunity to improve. All facilities were asked to mail an abbreviated TIME survey to the family member identified as the contact person no earlier than 1 month but no later than 3 months following a resident's death. The family members were asked to return the survey, anonymously, directly to the research team in a prepaid envelope provided. Because the research team did not have information about the deceased residents' family members' names and addresses, it could not contact families directly to solicit their responses; instead it relied on the NHs to address the survey packets and distribute them via mail. The responses to 2 waves of the TIME survey were very disappointing: We received only 238 responses in the preintervention phase, and only 14 families returned surveys after we had provided 625 survey packets to facilities for distribution to deceased residents' families during the postintervention phase (2.2% response rate). Because of this low response rate, we could not conduct the analyses related to hypothesis 3.

We also conducted REAs in all treatment facilities. The REAs are a set of techniques that include interviewing and field observations used for rapid acquisition of data that are rich in work experiences of the subject population.[61] Data for our REAs contained semistructured

interviews with staff (N = 41), field notes, and the collection of written materials. We conducted the REAs postintervention in order to identify barriers/challenges to PCTeam development and sustainability experienced in the course of the intervention.[62] The interviews lasted 30 to 60 minutes and were audiotaped. The REA interview guide (Appendix 9.5) contained 17 semistructured questions (content depending on the informant's role in the facility). When appropriate, answers to questions were followed up with in-depth probes to collect the history of PCTeam implementation from staff most familiar with the IMPACTT project. Interviews included questions on whether the staff thought the PCTeam was successful, how it was structured and operated, if it made a difference in the lives of resident or in the care provided, and what challenges the team faced, with probes requesting specific examples. Field notes were collected based on observations of team and ELNEC training, rounding with the nurse interventionist, stakeholder meetings, and site visits. Written material included email communications between project and facility staff as well as site-developed policies used to formally embed a PCTeam in the facility or brochures marketing this as a service to the public. Interview participants were administrators (n = 7), directors of nursing (n = 9), registered and licensed practical nurses (n = 11), social workers (n = 11), and nursing assistants (n = 3).

Time Frame and Analytical and Statistical Approaches

Defining the Intervention Periods

Resident decedents were assigned to the preintervention period if most of their last 90 days of life occurred before the beginning of the intervention period; otherwise, these decedents were included in the intervention period.

We defined the intervention period in 2 ways. Definition 1 included both the active intervention period (2 months during which the PCTeams actively rounded with the nurse interventionist) and the passive period (the following 8-10 months during which the nurse interventionist could be consulted but did not actively round with the team). Definition 2 included only the passive period. The rationale for employing these 2 definitions is that during the active intervention, NHs were still being coached by the nurse interventionist and that

staff's knowledge of palliative and EOL practices was still forming and normalizing during this period. During this period, practices likely had been changing, and hence the intervention might just have begun to have an impact. The passive period (definition 2) reflects on the work of teams that had begun to operate largely without continuing input from the interventionist.

For definition 2, we excluded residents with most of their last 90 days of life falling within the active period because of the ambiguity in their classification.

Because the intervention was rolled out in the 14 treatment facilities on a staggered schedule, no well-defined absolute predates and postdates could apply to the 2 control groups (the randomized control group of 11 NHs and all other facilities in NYS). To handle this analytically, we used Monte Carlo techniques to randomly match control facilities with preperiods and postperiods. We defined preintervention and intervention periods for the usual care and NYS facilities by randomly assigning beginning and ending dates of active and passive periods from one of the intervention facilities. The randomization was repeated and each model estimated 200 times for each of the 2 definitions of the intervention period. We tested the effects of the intervention, both prechanges and postchanges in quality and DIDs, with respect to the unidirectional hypothesis that the intervention improved quality, with $P \leq .05$ significance level. We collected coefficients and P values for each replication. We report the average odds ratios (ORs) or average incidence rate ratios (IRRs) and the percentage of each of the 200 model iterations in which the P values for the relevant coefficient were statistically significant ($P < .05$). The higher this percentage, the greater our confidence that the observed effect is statistically significant.

DID Model

We determined the effect of the intervention by comparing the preintervention and intervention periods and DID—namely, comparing the performance differential between the intervention facilities before and during the intervention with that of the control groups preintervention and during intervention performance differential. We estimated 4 separate models, 1 for each outcome. These resident-level models predict outcomes controlling for the

individuals' clinical risk factors, the type of facility in which they resided (eg, intervention or control), and the period (eg, preintervention). We estimated logistic models for the outcomes that were binary (death in the hospital, pain, and depression). For the hospitalization outcome, which was a count variable, we estimated a Poisson model. Specifically, we estimated models of the following general form:

$$Y_{ij} = \alpha_j + \beta_1 IV_{i,j} + \beta_2 UC_{i,j} + \gamma P_{i,j} + \delta_1 IV_{i,j} \times P_{ij} + \delta_2 UC_{ij} \times P_{ij} + \theta RF_{ij} + U_{i,j},$$ where Y_{ij} is the outcome (in the case of hospitalization) or its logit (for the other 3 outcomes) for resident i in facility j; IV_{ij} is an indicator variable obtaining the value 1 if patient i resided in intervention facility; and $UC_{i,i}$ is an indicator variable obtaining the value 1 if patient i resided in a control facility, with the nonrandomized other NYS facilities serving as the reference. P_{ij} indicates if patient i resided in facility j during the intervention period. The preintervention period served as the reference. The facility type variables (ie, intervention or control) were interacted with the intervention period variable to allow for preintervention and intervention period comparisons for each type of facility. RF_{ij} is the vector of risk factors specific to each outcome.[53] We estimated the models with facility random effects to allow for clustering of residents within facilities.

Sensitivity Analyses

As originally proposed in our funding application, an integral part of our study design was its use of REAs to better understand barriers/challenges to the intervention and its uptake or sustainability that may have existed in the treatment facilities, how those were dealt with by the NH leadership and staff, and whether the facility's staff thought that their planned and hoped-for PCTeam was fully able to launch and maintain its work. Analysis of in-depth interviews with staff in the treatment homes revealed that only 6 of the 14 facilities had achieved consistently working PCTeams throughout the study period. These teams, in contrast with teams in the other 8 treatment NHs, were characterized by a clear and shared mission, a sense that the team influenced residents' care, and a perception of continued team sustainability. They also appeared to have a more tangible support from and involvement of their facility leaders, including nursing directors and administrators.[62] For ease of exposition we

refer to these 6 NHs as having "working," and the other 8 NHs as having "nonworking," PCTeams. We performed sensitivity analyses, employing the DID models described above, to compare NHs with working and nonworking teams with each other, and with the randomized and nonrandomized controls, on all outcomes of interest.

We also employed a generalized linear model with facility random effects to examine the differences between homes with working and nonworking teams in 5 care process measures (team cohesion, communication/coordination, perceived team performance, perceived PC competency, and organizational readiness for PC), and we performed a DID comparing the 2 types of NHs, preintervention and postintervention.

Conduct of the Study and Changes

Over the study, several noteworthy changes occurred. First, 6 NHs withdrew, reducing the number of facilities to 25 (14 treatment and 11 controls). One additional facility closed. Power calculations on this reduced sample showed the remaining powers of 77% to 85%, for measures of pain and in-hospital deaths, to be still acceptable,[54] thus allowing us to test hypothesis 1 on 4 out of 5 proposed outcome measures.

Second, the return rate for the staff surveys in the postintervention wave was well below expectation (466 completed surveys, 21% response rate, from 13 of the 25 NHs). We maintained frequent contact with all facilities, repeatedly communicating with facility leaders to stress the need for higher staff response rates. Four of the 25 NHs did not participate in the second survey wave, citing union/legal issues, changes in ownership, and other competing priorities. We offered raffle prizes to staff to complete the surveys and offered monetary awards to NHs to help us secure a minimal number of responses (30-50, depending on facility size). We offered to visit and hold "survey parties" to encourage greater staff participation. While these efforts did result in some increase in the response rate, it was far from expected or sufficient for analytical purposes; therefore, we were unable to test hypothesis 2 regarding changes in care processes.

Similarly, the return rate for the postintervention bereavement surveys of decedents' families was also well below the expected (14 completed surveys from 14 of the 25 NHs). We had very little control over facilities' willingness to mail these surveys to families, although monetary incentives were offered to all facilities. We were not able to test the impact of the intervention on family caregivers' satisfaction with care (hypothesis 3).

Third, the collection of facility-level data on use of advance directives (ADs) was completed only for the period before the implementation of the intervention. Most facilities in the areas outside of Rochester had substantial gaps in the availability of these data. Furthermore, we found that facilities were overburdened with the data collection requirements (between staff surveys, family surveys, and providing access to ADs to our data collectors). This burden was felt particularly acutely in the treatment NHs. To avoid losing additional facilities to attrition, we made a choice to focus our efforts on postintervention surveys rather than to also continue with postintervention AD collection. This decision was further reinforced by the relative incompleteness of the AD data and the fact that many ADs were transferred to the NH from a hospital rather than completed on site, thus reflecting on the care processes of the hospital, not those of the NH. However, this decision precluded us from including ADs in our outcome analysis.

Fourth, in 5 of the 14 NHs, we shortened the time for passive intervention phase from 10 to 8 months after the active intervention phase of 2 months was completed. This change was necessary to accommodate delayed take up of the intervention, thus delaying the intervention phase. The shortened passive phase allowed these 5 facilities to complete the intervention and be included in the outcome analyses. In the analytical approach, we controlled for the length of the exposure to passive intervention.

RESULTS

Figure 2 presents a CONSORT participant flow diagram depicting study population enrollment. All freestanding NHs in the metropolitan areas of Syracuse, Rochester, and Buffalo were approached for recruitment (n = 136). This included facilities in both urban and rural areas. Based on power calculations, a sample size of 30 facilities was sufficient for the RCT.

Figure 2. CONSORT Flow Diagram

Improving Palliative Care in Nursing Homes (IMPACTT) Study Flow Diagram

Abbreviation: NH, nursing home.
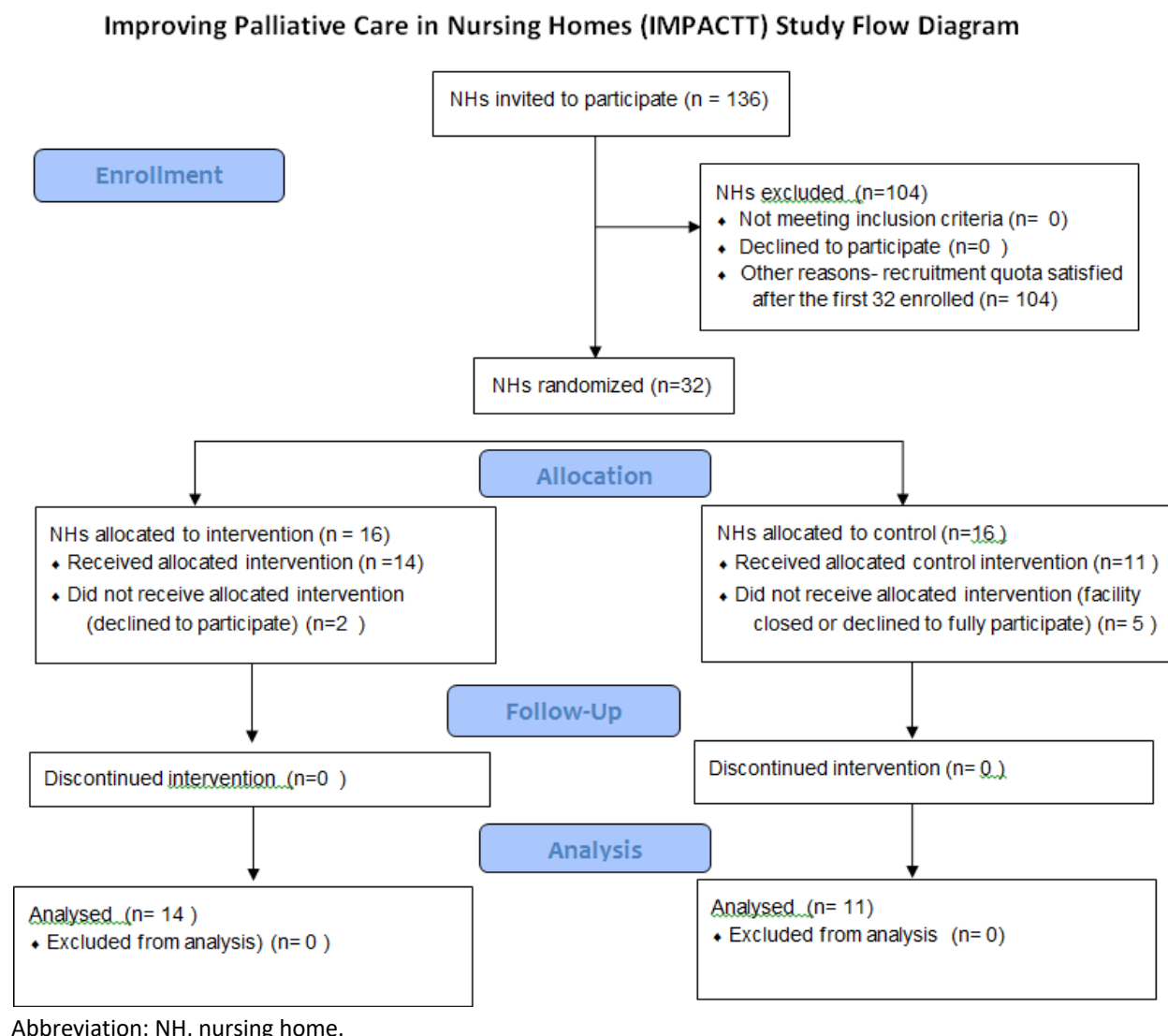
The intervention commenced in 2013 with 32 NYS NHs being randomized into treatment (n = 16) and control (n = 16) arms. Facilities were randomly allocated into either arm using a

computer-generated, random number–producing algorithm. Early in the study, 7 NHs were lost to follow-up. Five NHs belonging to 1 chain were administratively withdrawn all at once at a corporate level (2 intervention sites and 3 control sites), with administrators citing corporate inconsistency with the study principles, and an additional control NH closed. At the start of the second wave of staff surveys, an additional control NH declined to participate, citing increased workload inconsistent with disseminating the staff survey. The intervention ended in April 2016 with 25 facilities (14 treatment and 11 controls). In analyzing the impact of the intervention, we also included the comparison with all other NYS facilities not involved in the intervention. Using this additional "nonrandomized control" group allows us to test the possibility that the participating control homes may have improved care simply because they were aware of the intervention even though they did not receive it.

Facility-Based Qualitative Results

Through iterative analysis of the REA data, based on focused interviews with 41 staff members from the 14 intervention homes, and from field notes and supplementary written materials from the project coordinator, the TeamSTEPPS trainer, and the ELNEC trainer and nurse-interventionist, we identified key structural themes that influenced facilities' ability to launch and sustain a working team. We briefly report on these findings here because they provided important input into the sensitivity analyses we conducted, as described below. A detailed analysis of the REA data are presented in a manuscript submitted for publication.[62]

In our analysis of the REA data we identified 5 structural themes: presence or lack of administrative support for the PCTeam; overall financial considerations of the facility; turnover; staffing; and the extent to which there were competing priorities. Although the sustainability of the nascent PCTeams was constantly threatened by competing priorities, we found that the main factor in whether an NH could maintain a working team was consistent and tangible administrative leadership support—something 6 facilities benefited from and 8 facilities lacked. Teams that felt tangibly supported were able to plan for the continued conduct of their work and make the PCTeam part of standard care delivery in their facility. For the most part, these homes successfully tailored their PCTeam to align with their existing care structures. While

these teams also appeared to report considerable facility-level turnover, the turnover of their top administrative staff may have been slower and staffing levels in these facilities did not seem to reach a crisis mode, unlike in the facilities that were less able to sustain their PCTeams.

Furthermore, financial considerations were often brought up when discussing PCTeam implementation. Staff members from all NHs were acutely aware of limited financial resources in their organizations and how the development of PCTeams could easily be hindered by financial concerns.

Primary Outcomes

In this section, we focus on testing our primary hypothesis that residents in NHs with PCTeams achieve better EOL risk-adjusted outcomes compared with residents in facilities providing standard care. At baseline, 20.3% of the decedents from treatment NHs were dying in hospitals, compared with 14.8% from the control facilities and 31.1% from all other NYS NHs (Table S.1), and these differences were statistically significantly different ($P < .0001$). For measures of self-reported pain and depression, decedents in treatment and control homes did not report statistically significantly different symptoms. In the treatment homes, 12.7% and 12.9% of decedents reported moderate-to-severe pain and depressive symptoms, respectively, compared with 11.8% and 11.3%, respectively, in the control NHs. Compared with those in treatment homes, decedents in all other NYS facilities had lower baseline self-reported pain (8.1%; $P < .0001$), but higher depressive symptoms (15.8%; $P < .0001$). Preintervention hospitalizations in the last 90 days of life were more frequent in the treatment homes (0.34) compared with control (0.29, $P < .05$), and less frequent compared with all other NHs (0.44, $P < .0001$).

In Table 2, treatment and control homes are compared at baseline on several characteristics, including the 4 outcomes of interest. The control homes were not statistically significantly different from the treatment homes on any of the outcome measures, although there were some statistically significant differences between the randomized controls and all other NYS homes (death in hospital and pain), and between treatment and all other NHs (death in hospital). There were no other statistically significant differences at baseline between the

treatment and the control NHs, or vis-à-vis the remaining NYS facilities. The comparisons of resident characteristics and risk factors are presented in Supplemental Tables S.1 and S.2, and include all of the risk factors used in building the outcome models.[53]

Table 2. Baseline Facility Characteristics: RCT Participating and Other Nonrandomized NHs in NYS

Facility characteristics	Treatment NHs (N = 14)		Control NHs (N = 11)		Nonrandomized NYS facilities[a] (N = 609)	
	No.	%	No.	%	No.	%
Ownership						
For-profit	6	42.9	1	9.1	347	57.9
Nonprofit	7	50.0	9	81.8	214	35.7
Government	1	7.1	1	9.1	38	6.3
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
No. of certified beds	190.9	106.8	174.6	111.0	186.0	131.0
Occupancy rate	91.9	8.5	94.4	2.9	93.8	54.5
EOL outcomes[b]	**Mean**	**Treatment vs control P value**	**Mean**	**Control vs NYS P value**	**Mean**	**Treatment vs NYS P value**
Death in hospital	−0.102	.756	−0.112	**.001**	0.034	**.003**
Moderate-to-severe pain	0.056	.680	0.069	**.032**	0.017	.128
Depressive symptoms	0.016	.243	0.065	.902	0.060	.363
No. hospital stays in last 90 days	−0.088	.894	−0.095	.069	0.031	.105

Abbreviations: EOL, end of life; NHs, nursing homes; NYS, New York State.
[a]When facility data were missing, percentages were based on the number of NHs with available information.
[b]Mean baseline values represent the facility-level difference between the observed and expected risk-adjusted rates. These measures represent outcomes that patients prefer to avoid, thus lower values are interpreted as better quality.[53]

Tables 3 and 4 present the results of the multivariate analyses. The first set of columns show the pre-post differences in each outcome for each group of facilities in terms of the average IRRs for number of hospitalizations and ORs for the other outcomes. The second set of columns, reporting the DID, presents the average of the ratios of ORs or IRRs. If this ratio is <1, residents in the reference facility type performed better relative to the comparison facility.

Table 3 presents the results of the main multivariate analysis comparing all treatment NHs (working and nonworking groups) with control NHs. When testing the hypothesis of improvement in quality in the postperiod, we found that the large group of nonrandomized NYS facilities showed a significant improvement for pain and depression, but not for the 2 hospitalization measures. The randomized treatment and control groups show no significant improvement, as inferred by examining the percentage of iterations in which the relevant coefficient reached the significance level of 0.05. The impact of the intervention is demonstrated by the DID analysis. We found no significant effects of the intervention, using the same criteria.

Table 4 presents the multivariate analysis comparing treatment NHs with working and nonworking teams, and with the controls. Facilities with working PCTeams exhibited a decline for in-hospital deaths and for depressive symptoms when comparing the preintervention and postintervention periods, while facilities with nonworking teams did not. The second set of columns, reporting the DID results, presents the average of the ratios of ORs or IRRs. If this ratio is <1, the residents in the reference facility type performed better relative to the comparison facility (see Table 4, footnote 4). The DID analysis shows that in facilities with working PCTeams, compared with those facilities with nonworking teams, decedents had improved outcomes for in-hospital death (ratio of around 0.4) and depressive symptoms (ratio of around 0.2). Regarding randomized controls, NHs with working teams improved for in-hospital death (ratio of around 0.5) but only when using the passive intervention period definition. These facilities also improved on this outcome compared with all other NYS facilities with a ratio of about 0.6; however, the DID analysis did not demonstrate a statistically significant difference in depressive symptoms when comparing NHs with working teams and the controls (randomized and nonrandomized).

Table 3. Impact of Intervention on EOL Outcome Measures: Average Odds/Incidence Rate Ratios by RCT Arm[a]

| Outcome measure | Intervention period | Differences in outcomes: intervention period compared with the preintervention period[b] | | | Difference in difference: intervention period compared with the preintervention period[c] | | |
| | | | | | Compared with intervention facilities | | Compared with control facilities |
		Treatment facilities (% P < .05)	Control facilities (% P < .05)	Other NYS facilities (% P < .05)	Control facilities (% P < .05)	Other NYS facilities (% P < .05)	Other NYS facilities (% P < .05)
Death in a hospital	Definition[d]	1.038 (0)	1.178 (2)	0.970 (32)	0.904 (2)	1.071 (0)	1.216 (1)
	Definition[e]	1.022 (0)	1.174 (3)	0.961 (50)	0.895 (2)	1.064 (0)	1.223 (2)
Self-reported moderate-to-severe pain	Definition[d]	1.171 (0)	0.904 (13)	**0.879 (95)**	1.329 (0)	1.335 (0)	1.030 (2)
	Definition[e]	1.188 (0)	0.927 (12)	**0.875 (93)**	1.342 (0)	1.359 (0)	1.061 (4)
Depressive symptoms	Definition[d]	1.469 (0)	0.791 (35)	**0.875 (97)**	1.943 (0)	1.681 (0)	0.905 (2)
	Definition[e]	1.517 (0)	0.809 (32)	**0.870 (96)**	1.982 (0)	1.745 (0)	0.931 (18)
No. of hospital stays in the past 90 d	Definition[d]	1.091 (0)	1.046 (1)	1.010 (0)	1.054 (0)	1.080 (0)	1.036 (1)
	Definition[e]	1.068 (0)	1.035 (3)	1.015 (0)	1.050 (0)	1.053 (0)	1.020 (3)

Abbreviations: EOL, end of life; NYS, New York State; RCT, randomized controlled trial.
[a]Bolded cells are those where the estimated coefficients were significant at the 0.05 level in at least 90% of the iterations for the unidirectional hypothesis of improvement in the postperiod. Values below 1 indicate intervention success.
[b]The reported values for hospital deaths, pain, and depressive symptoms are ORs. The reported value for number of hospital stays is incidence rate ratio. A value <1 indicates improvement in the postperiod.
[c]The reported DID values are the average of the ratios of the reference group to the control group. A ratio of less than 1 indicates that the reference group improved relative to the control during the intervention period.
[d]Intervention period is defined as the active intervention plus the passive intervention.
[e]Intervention period is defined as the passive intervention. Active intervention residents are excluded from the model.

Table 4. Sensitivity Analysis—Impact of Intervention on EOL Outcomes: Average Odds/Incidence Rate Ratios by RCT Arm and Treatment Facility Type[a]

| Quality measure | Intervention period | Differences in quality: intervention period compared with the preintervention period[b] | | | | Difference in difference: intervention compared with preintervention[c] | | | | |
| | | Treatment NHs (% P < .05) | | Control NHs (% P < .05) | All ither NYS NHs (% P < .05) | Compared with treatment NHs with working PCTeams | | | Compared with treatment NHs with nonworking PCTeams | |
		Working PCTeam	Nonworking PCTeam			Treatment NHs with nonworking PCTeam (% P < .05)	Control facilities (% P < .05)	All other NYS facilities (% P < .05)	Control facilities (% P < .05)	All other NYS facilities (% P < .05)
Death in a hospital	Definition[d]	**0.630 (100)**	1.418 (0)	1.163 (2)	0.969 (32)	**0.445 (100)**	0.542 (85)	**0.650 (100)**	1.219 (0)	1.463 (0)
	Definition[e]	**0.558 (100)**	1.395 (0)	1.158 (3)	0.960 (50)	**0.400 (100)**	**0.482 (97)**	**0.581 (100)**	1.205 (0)	1.452 (0)
Self-reported moderate-to-severe pain	Definition[d]	1.198 (0)	1.152 (0)	0.893 (13)	**0.878 (95)**	1.040 (0)	1.342 (0)	1.364 (0)	1.290 (0)	1.312 (0)
	Definition[e]	1.158 (0)	1.207 (0)	0.907 (12)	**0.875 (93)**	0.959 (0)	1.277 (0)	1.324 (0)	1.331 (0)	1.380 (0)
Depressive symptoms	Definition[d]	**0.528 (100)**	2.841 (0)	0.773 (35)	**0.874 (97)**	**0.186 (100)**	0.683 (4)	0.604 (0)	3.674 (0)	3.250 (0)
	Definition[e]	**0.526 (100)**	2.745 (0)	0.787 (32)	**0.870 (96)**	**0.191 (100)**	0.668 (11)	0.604 (32)	3.490 (0)	3.157 (0)
No. of hospital stays in the past 90 days	Definition[d]	1.005 (0)	1.141 (0)	1.041 (1)	1.010 (0)	0.881 (0)	0.965 (0)	0.995 (0)	1.096 (0)	1.129 (0)
	Definition[e]	0.806 (0)	1.202 (0)	1.027 (2.5)	1.015 (0)	0.671 (0)	0.786 (3)	0.795 (0)	1.171 (0)	1.184 (0)

Abbreviations: EOL, end of life; NHs, nursing homes; NYS, New York State; RCT, randomized controlled trial.
[a]Bolded cells are those where the estimated coefficients were significant at 0.05 in at least 90% of the iterations for the unidirectional hypothesis of improvement in the postperiod. Values <1 indicate treatment success.
[b]The coefficients for hospital deaths, pain, and depressive symptoms.
[c]The DID coefficients are the average of the ratios of the reference group to the control group. A ratio less than 1 indicates that the reference group improved relative to the control during the intervention period.
[d]Intervention period is defined as the active plus the passive intervention.
[e]Intervention period is defined as the passive intervention. Active intervention residents are excluded from the model.

Secondary Outcomes

Our ability to analyze secondary outcomes and to understand how the intervention may have affected staff care processes and caregivers' satisfaction with care was severely compromised by our inability to secure adequate response rates to the postintervention wave of surveys.

Although we were not able to conduct a DID analysis comparing treatment and control homes on care processes, we had enough data to conduct this analysis on treatment homes known to have working PCTeams and those where PCTeams were not as well functioning throughout the intervention. This analysis allowed us to shed some light on the findings reported in Table 4. In terms of communication/coordination, perceived team effectiveness, and organizational readiness for PC, homes with working teams were significantly better than those with nonworking teams both before and after the intervention; there was no difference related to perceived PC competency (Table 5). The largest pre-post period impact was in communication/coordination (0.078) and the smallest was in PC competency (−0.015). However, the DID analysis showed no statistically significant differences between NHs with working and nonworking teams in any care process measures.

Table 5. Comparison of Mean Differences in Care Processes[a] in Treatment Facilities With and Without Working PCTeams

Care process measures	Preintervention		Postintervention		Difference: post- compared with preintervention period[a]		Difference in difference: working PCTeam compared with nonworking PCTeam[b]	P value
	Nonworking PCTeam	Working PCTeam	Nonworking PCTeam	Working PCTeam	Nonworking PCTeam	Working PCTeam		
Communication/coordination	3.298	3.469**	3.270	3.518***	−0.028	0.050	0.078	.394
Organizational readiness for PC	3.791	3.999**	3.725	3.948**	−0.067	−0.052	0.015	.879
Perceived team effectiveness	3.947	4.168**	3.932	4.151**	−0.015	−0.016	−0.002	.987
Perceived palliative competency	3.749	3.898	3.771	3.903	0.021	0.006	−0.015	.885

Abbreviations: PC, palliative care; PCTeam, palliative care team.

[a]Statistical significance is for the comparison with facilities with nonworking PCTeam, during the same period: *, $P < .05$; **, $P < .01$; ***, $P < .001$. Scores range from 1 to 5, with higher scores indicating better performance.

[b]Positive numbers indicate improvement.

DISCUSSION

Study Results in Context

PC intervention research in NHs, particularly using RCT design, has been quite rare. Of the published RCT interventions, several had very circumscribed PC-related objectives, such as improving pain management,[63] increasing completion of ADs,[64,65] or testing the effect of clinical pathways for pneumonia treatment.[66] There have been no RCTs in which PC is viewed as a system of care designed to incorporate all of these components.[57] In particular, the effectiveness of facility-based PCTeams on residents' outcomes has not been rigorously evaluated through RCTs.

In this paper, we report the results of a multifaceted RCT designed to create a model of PC delivery in NHs through focused interdisciplinary teams. Our findings are both disappointing and intriguing: disappointing, because we did not demonstrate a significant impact of the intervention on residents' risk-adjusted outcomes, when treating the findings in the traditional intent-to-treat RCT framework; intriguing, because in the sensitivity analysis, in which we bring to bear additional information based on qualitative data, regarding the success of the intervention in developing and sustaining PCTeams, we did find statistically significant impact of the intervention on selected outcomes. Furthermore, our findings from staff surveys revealed that facilities with continuously working PCTeams were significantly more prepared at baseline to incorporate PC into their daily practice, compared with the remaining treatment homes. Compared with the latter, staff in NHs with working teams did not report higher perceived PC skill levels but did report higher (better) scores on all domains of teamwork and on organizational readiness to adopt PC into daily practice. These higher scores continued postintervention, demonstrating greater gains in NHs with working PCTeams compared with those without, regarding communication and coordination and team cohesion. NHs with working PCTeams not only started from a better position but also seem to have been better able to learn the lessons offered by the intervention.

Surprisingly, however, while our outcome analysis detected a significant difference between facilities with and without working PCTeams, the analysis of care processes did not

detect statistically significant differences; rather, it demonstrated an effect in the expected direction. It is possible that the outcome measures we used are more sensitive to change than the care process measures so that for the former we were able to detect the impact of the intervention but not for the latter. Another possibility is that the care processes had larger measurement errors that overwhelmed the small effect size of the intervention. Due to high staff turnover, the preintervention and postintervention assessments of care processes were most likely completed by different individuals. While staff responding to preintervention and postintervention surveys in NHs with working teams may have perceived care processes to be good, they most likely did not share the same reference point and thus their responses did not reflect improvement.

Furthermore, it may be argued that an outcome such as death occurring in an NH (as opposed to in-hospital) would indeed be most responsive to improvement in facilities where communication between staff and with residents/families is better, allowing staff to be more familiar with residents' treatment preferences and making sure both residents and their families understand the benefits and drawbacks of hospitalizing patients with advanced illness.[11] Better communication among staff is also thought to be a necessary precondition for identifying residents with depression and to improve depression management.[67,68] But in order to improve an outcome such as pain, improvements in PC competency, which we did not observe, may be also necessary. We also did not observe a significant effect on the number of hospitalizations occurring in the last 90 days of life. This should not be too surprising, as our intervention did not provide NHs with skills or resources to more effectively manage acute care conditions on site. Good communication alone is likely not enough to reduce hospital transfers; this is consistent with the findings of a recently completed evaluation of the 2012 CMS' Initiative to Reduce Avoidable Hospitalizations in selected facilities in 7 states.[69] Only facilities in which advanced practice nurses were well integrated to provide clinical support were able to effect reductions in hospital admissions.

Generalizability of the Findings

Our findings were confined to facilities in 1 region of upper NYS, and while we demonstrated some significant effects of the intervention on resident risk-adjusted outcomes, we are unable to generalize these findings elsewhere.

Implementation of Study Results: Decisional Context

Our findings may be useful for policymakers (eg, CMS) to consider including EOL care measures in the existing repertoire of quality metrics regularly reported on the Medicare.gov Nursing Home Compare website. None of the currently reported quality measures focus on residents at the EOL. Including such measures may incentivize NH administrators to more thoughtfully consider the importance of these outcomes and may prompt family members to make different NH choice decisions. Our findings may also serve to remind policymakers (eg, federal and state government agencies) that NHs, which are notoriously strapped for resources, will, in the absence of regulatory and reimbursement incentives to the contrary, attempt to maximize service delivery to the most lucrative (ie, postacute) patients often to the disadvantage of the less profitable but perhaps more vulnerable long-term residents.

Subpopulation Considerations

Our analysis of the effectiveness of PCTeams in NHs applies only to NH residents who ultimately died during the postintervention retrospective time frame. We did not plan to, and therefore were not able to, evaluate whether other NH residents who were discharged from the facility during the study period, including short-term or rehabilitation-stay residents, as well as all other residents who were still alive after April 16, 2016, benefited from the launch of PCTeams in their respective care facilities. Whether PCTeams had any impact on their care, their hospitalization risk, or on pain or depression symptoms is not known; however, it is reasonable to suggest that dying patients should have received the greatest impact from an intervention designed to improve EOL care and therefore were the only subpopulation chosen for evaluation.

Study Limitations

Several limitations should be noted. First, we are unable to distinguish the relative importance of the individual intervention components. We cannot differentiate if and to what extent the educational efforts—that is, ELNEC and TeamSTEPPS training, coaching by the nurse-interventionist during the active phase or over the duration of the intervention—were effective in stimulating the formation of the PCTeams. However, given that only those homes that were better equipped at baseline to move forward with the intervention were more successful, it may be more important to first understand what made these facilities better to begin with. Second, some treatment homes were clearly better prepared to provide PC than others; however, we were unable to differentiate between these 2 groups of NHs by simply relying on the characteristics available to us for a baseline comparison, before randomization into treatment or control occurred. Thus, it is conceivable that our randomization was not able to control for all possible factors, including readiness to launch and sustain a PCTeam. Third, because we were not successful in obtaining sufficiently large number of responses to postintervention staff surveys and to surveys of families of decedent NH residents, we were not able to test hypotheses 2 and 3. Also due to difficulties in collecting information on ADs from the participating NHs, our analyses relating to hypothesis 1 (measures of outcomes) had to omit this metric. These experiences suggest that future interventions in NHs may need to either minimize data collections (possibly narrowing the scope of the intervention) that require the effort/cooperation of NH staff or, alternatively, consider devoting a substantial amount of funding to pay NHs for their participation and data collection—yet, at the same time, ensuring that no undue biases are introduced in the process.

Future Research

This project provides evidence that it is possible to implement sustainable facility-based PCTeams without necessarily employing expensive outside full-time PC staff during the intervention period, as other models have proposed (eg, in CMS demonstration projects).[70] However, future research may need to focus on the baseline facility-based factors and characteristics that permitted some NHs to sustain this intervention while others, equally

receptive to the concept of launching a PCTeam, fell short of independently supporting this model.

CONCLUSIONS

Increasing PC capacity in NHs has been deemed essential to the provision of high-quality care for residents with chronic illness and those nearing the EOL. And while the experts' voices endorsing PC in this setting have been increasing, evidence on the scope, depth, or effectiveness of PC in NHs has been very scant, and reimbursable models for PC delivery, outside of hospice, are largely nonexistent in NHs. In fact, current reimbursement policy incentives and business models favor the delivery of postacute care and do not incentivize NHs to focus on PC provision for their residents.

In this context, we conducted an RCT implementing PCTeams in NHs to improve residents' EOL outcomes. Prior studies have suggested that improving palliative and EOL care in NHs is much needed. Our study demonstrates that interventions may provide NHs that at baseline are primed to implement PC with an opportunity to succeed, but interventions alone are not likely to effect broad and generalizable improvements. Policy changes that prioritize and incentivize facilities to adopt palliative and EOL care practices, and regulatory efforts to include performance measures that are specific to patients with advanced illness, are needed to create an environment in which effective PC can become sustainable.

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STUDY-RELATED PEER REVIEWED JOURNAL PUBLICATIONS

- Temkin-Greener H, Ladwig S, Caprio T, et al. Developing palliative care practice guidelines and standards for nursing home–based palliative care teams: a Delphi study. *J Am Med Dir Assoc*. 2015;16(1):86.e1-e7. doi:10.1016/j.jamda.2014.10.013

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APPENDICES

Appendix. Supplemental Tables: Resident Characteristics at Baseline: By Type of Facility

Table S.1. All Treatment, Control, and Other Remaining NYS Facilities

	Treatment Facilities (N = 14)			Control Facilities (N = 11)			All Other NYS Facilities (N = 609)		
	Denominator	Numerator	%	Denominator	Numerator	%	Denominator	Numerator	%
Outcomes									
Death in a hospital	2852	579	20.3	2978	441	14.8***	119 486	37 111	31.1***
Self-reported moderate-to-severe pain	1844	235	12.7	1851	218	11.8	78 176	6363	8.1***
Depressive symptoms	2768	358	12.9	2909	329	11.3	116 477	18 398	15.8***
	Sample Size	Mean	SD	Sample Size	Mean	SD	Sample Size	Mean	SD
No. of hospitalizations in the last 90 days	1907	0.34	0.69	1930	0.29*	0.62	74 055	0.44***	0.77
Risk Factors									
	All Decedents With Data	Mean	SD	All Decedents With Data	Mean	SD	All Decedents With Data	Mean	SD
Length of stay									
Cumulative days in facility	2852	542.8	722.4	2978	508.6	665.3	119 486	532.1	762.7
	Denominator	Numerator	%	Denominator	Numerator	%	Denominator	Numerator	%
Cumulative days in facility is more than 100 days	2852	1844	64.7	2978	1874	62.9	119 486	70 734	59.2***
Demographic characteristics	All Decedents With Data	Mean	SD	All Decedents With Data	Mean	SD	All Decedents With Data	Mean	SD
Age	2852	86.0	8.9	2978	86.2	9.0	119 486	84.7***	9.7
	Denominator	Numerator	%	Denominator	Numerator	%	Denominator	Numerator	%
Male	2852	1039	36.4	2978	1048	35.2	119 486	45 724	38.3*
White	2852	2710	95.0	2978	2774	93.2**	119 486	97 424	81.5***
African American	2852	108	3.8	2978	153	5.1*	119 486	14 650	12.3***
Hispanic	2852	1	0.04	2978	18	0.6*	119 486	3077	2.6***
Asian	2852	11	0.4	2978	11	0.4	119 486	2146	1.8***
Native-American/other/unknown	2852	22	0.8	2978	22	0.7	119 486	2188	1.8***

	Treatment Facilities (N = 14)			Control Facilities (N = 11)			All Other NYS Facilities (N = 609)		
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Married	2801	779	27.8	2931	777	26.5	117 711	29 301	24.9***
Needs and interpreter	2851	28	1.0	2978	32	1.1	119 373	7498	6.3***
Functioning	**All Decedents With Data**	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**
Sum of activities of daily living (range: 0-40)	2852	30.7	6.9	2978	30.0***	6.7	119 486	31.9***	7.3
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Independence in daily decision making	2852	664	23.3	2978	694	23.3	119 486	27 897	23.4
Bladder/bowel function									
Catheter	2852	164 380	13.3	2978	335	11.3*	119 486	16 652	13.9
Incontinent	2765	2093	75.7	2907	2237	77.0	116 392	96 062	79.1***
Mood and behavior									
Potential indicators of psychosis	2768	147	5.3	2909	131	4.5	116 460	2727	2.3***
Verbally aggressive	2768	242	8.7	2909	294	10.1	116 469	7489	6.4***
Active diagnoses	**All Decedents With Data**	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**
No. diagnoses	2852	4.6	2.3	2978	4.2***	2.1	119,476	4.7**	2.3
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Any cardiovascular dx[a]	2852	2382	83.5	2978	2309	77.5***	119 486	101 528	85.0*
Any musculoskeletal dx	2852	252	8.8	2978	199	6.7**	119 486	7527	6.3***
Any neurological dx	2852	1832	64.2	2978	1976	66.4	119 486	77 787	65.1
Heart failure	2789	830	29.8	2917	870	29.8	115 659	33 560	29.0
Multidrug resistant organism	2789	89	3.2	2917	54	1.9***	115 659	2048	1.8***
Pneumonia	2852	248	8.7	2978	206	6.9*	119 486	10 703	9.0
Septicemia	2789	60	2.2	2917	41	1.4*	115 659	2784	2.4
Urinary tract infection	2852	355	12.5	2978	340	11.4	119 479	13 438	11.3*
Diabetes mellitus	2852	755	25.0	2978	752	25.3	119 486	38 872	32.5***

	Treatment Facilities (N = 14)			Control Facilities (N = 11)			All Other NYS Facilities (N = 609)		
	Denominator	Numerator	%	Denominator	Numerator	%	Denominator	Numerator	%
Alzheimer's disease	2789	270	9.7	2917	340	11.7*	115 659	12 719	11.0*
Non-Alzheimer's dementia	2789	1288	46.2	2917	1395	47.8	115 659	54 241	46.9
Asthma/chronic obstructive pulmonary disease/chronic lung dx	2852	687	24.1	2978	630	21.2**	119 486	33 151	27.7***
Health conditions									
Self-reported pain	2759	283	10.3	2904	295	10.2	116 316	8296	7.1***
Staff-assessed pain	2759	88	3.2	2904	94	3.2	116 316	2713	2.3
Vomiting	2768	109	3.9	2909	94	3.2	116 476	3324	2.9***
Internal bleeding	2852	2567	2.4	2978	39	1.3**	119 478	1456	1.2***
Swallowing and nutrition									
Any swallowing disorder	2852	267	9.4	2966	267	9.0	119 428	8168	6.8***
Feeding tube or IV feeding	2852	154	5.4	2975	174	5.9	119 475	16 992	14.2***
Weight loss without physician orders	2829	402	14.2	2935	482	16.4*	117 650	18 816	16.0**
Skin conditions									
Pressure ulcer (stage 2 or higher)	2852	356	12.5	2978	356	12.0	119 466	21 886	18.3***
Foot infection	2852	23	0.8	2978	21	0.7	119 470	1021	0.9
Diabetic foot ulcer	2852	13	0.5	2978	12	0.4	119 470	816	0.7
Open lesion	2852	85	3.0	2978	86	2.9	119 470	3046	2.6
Surgical wound	2852	150	5.3	2978	125	4.2	119 470	6516	5.5
Treatments									
Suctioning	2852	19	0.7	2977	63	2.1***	119 431	4146	3.5***
Ventilator	2852	2	0.1	2977	42	1.4***	119 431	2433	2.0***
Oxygen	2852	941	33.0	2977	776	26.1***	119 431	40 650	34.0
Dialysis	2852	59	2.1	2977	68	2.3	119 431	4026	3.4***
Tracheostomy	2789	15	0.5	2916	61	2.1***	115 604	3332	2.9***
Radiation	2852	5	0.2	2977	4	0.1	119 424	323	0.3

Note: Statistical significance is for comparison to treatment facilities: * P value < 0.05; ** P value < 0.01; *** P value < 0.001. [a] dx = diagnosis

Table S.2. Treatment Facilities With and Without Working PCTeams

	Facilities With Working PCTeams(N = 6)			Facilities With Nonworking PCTeams (N = 8)		
	Denominator	Numerator	%	Denominator	Numerator	%
Outcomes						
Death in a hospital	1256	244	19.4	1596	335	21.0
Self-reported moderate-to-severe pain	837	109	13.0	1007	126	12.5
Depressive symptoms	1226	165	13.5	1542	193	12.5
	Sample Size	**Mean**	**SD**	**Sample Size**	**Mean**	**SD**
No. of hospitalizations in the past 90 days	833	0.29	0.62	1074	0.38**	0.73
Risk Factors						
	All Decedents With Data	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**
Length of Stay						
Cumulative days in facility	1256	574.8	740.4	1596	517.7*	707.0
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Cumulative days in facility is more than 100 days	1256	810	64.5	1596	1034	64.8
Demographic characteristics	**All Decedents With Data**	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**
Age	1256	86.3	8.7	1596	85.9	9.1
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Male	1256	490	39.0	1596	549	34.4*
White	1256	1176	93.6	1596	1534	96.1**
African American	1256	59	4.7	1596	49	3.1*
Hispanic	1256	1	0.1	1596	0	0
Asian	1256	7	0.6	1596	4	0.3
Native-American/other/unknown	1256	13	1.0	1596	9	0.6
Married	1250	367	29.4	1551	412	26.6
Needs and interpreter	1256	25	2.0	1595	3	0.2***
Functioning	**All Decedents With Data**	**Mean**	**SD**	**All Decedents With Data**	**Mean**	**SD**
Sum of activities of daily living (range: 0-40)	1256	30.4	6.4	1596	30.8	7.3
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Independence in daily decision making	1256	290	23.1	1596	374	23.4
Bladder/bowel function						
Catheter	1256	164	13.1	1596	216	13.5
Incontinent	1224	912	74.5	1541	1181	76.6
Mood and behavior						

	Facilities With Working PCTeams (N = 6)			Facilities With Nonworking PCTeams (N = 8)		
	Denominator	Numerator	%	Denominator	Numerator	%
Potential indicators of psychosis	1226	97	7.9	1542	50	3.2***
Verbally aggressive	1226	107	8.7	1542	135	8.8
Active diagnoses	All Decedents With Data	Mean	SD	All Decedents With Data	Mean	SD
No. diagnoses	1256	4.6	2.5	1596	4.5	2.2
	Denominator	Numerator	%	Denominator	Numerator	%
Any cardiovascular dx[a]	1256	1031	82.1	1596	1351	84.7
Any musculoskeletal dx	1256	132	10.5	1596	120	7.5**
Any neurological dx	1256	825	65.7	1596	1007	63.1
Heart failure	1234	390	31.6	1555	440	28.3
Multidrug resistant organism	1234	48	3.9	1555	41	2.6
Pneumonia	1256	93	7.4	1596	155	9.7*
Septicemia	1234	26	2.1	1555	34	2.2
Urinary tract infection	1256	122	9.7	1596	233	14.6***
Diabetes mellitus	1256	314	25.0	1596	441	27.6
Alzheimer's disease	1234	134	10.9	1555	136	8.8
Non-Alzheimer's dementia	1234	593	48.1	1555	695	44.7
Asthma/chronic obstructive pulmonary disease/chronic lung dx	1256	297	23.7	1596	390	24.4
Health conditions						
Self-reported pain	1220	128	10.5	1539	155	10.1
Staff-assessed pain	1220	33	2.7	1539	55	3.6
Vomiting	1226	42	3.4	1542	67	4.4
Internal bleeding	1256	25	2.0	1596	42	2.6
Swallowing and nutrition						
Any swallowing disorder	1256	169	13.5	1596	98	6.1***
Feeding tube or IV feeding	1256	88	7.0	1596	66	4.1***
Weight loss without physician orders	1248	149	11.9	1581	253	16.0**
Skin conditions						
Pressure ulcer (stage 2 or higher)	1256	142	11.3	1596	214	13.4
Foot infection	1256	10	0.8	1596	13	0.8
Diabetic foot ulcer	1256	4	0.3	1596	9	0.6
Open lesion	1256	48	3.8	1596	37	2.3*
Surgical wound	1256	79	6.3	1596	71	4.5*
Treatments						
Suctioning	1256	7	0.6	1596	12	0.8
Ventilator	1256	0	0	1596	2	0.1

	Facilities With Working PCTeams(N = 6)			Facilities With Nonworking PCTeams (N = 8)		
	Denominator	**Numerator**	**%**	**Denominator**	**Numerator**	**%**
Oxygen	1256	439	35.0	1596	502	31.5*
Dialysis	1256	26	2.1	1596	33	2.1
Tracheostomy	1234	7	0.6	1555	8	0.5
Radiation	1256	1	0.1	1596	4	0.3

Note: Statistical significance is for comparison to treatment facilities: * P value < 0.05; ** P value < 0.01; *** P value < 0.001.
[a] dx = diagnosis

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UNIVERSITY of ROCHESTER
MEDICAL CENTER

MEDICINE of THE HIGHEST ORDER

INFORMATION SHEET

Principal Investigator: Helena Temkin-Greener, PhD
Co-Investigators: Drs. Dana Mukamel, Timothy Quill, Sally Norton, Thomas Caprio, and Tobie Olsan

This form describes a research study that is being conducted by Dr. Helena Temkin-Greener from the University of Rochester's Department of Public Health Sciences. The purpose of this study is to assess and improve teamwork and palliative care in nursing homes and to examine their impact on resident outcomes. We are very pleased that your nursing home has agreed to participate in this study, and we expect the findings from this project will improve palliative and end-of-life care for residents and the quality of the working environment for staff.

If you decide to take part in this study, you will be asked to complete 1 survey that will take about 15 minutes or less to complete. The enclosed questionnaire asks about your experience working in your facility. We estimate that approximately 900 staff members in 30 nursing homes in New York State will take part in this study.

Some of the survey questions may be upsetting or make you feel uncomfortable. You can skip any of the questions you do not want to answer. All of the information we collect will be stored in a secure manner and only study team members will have access to it. There are no other expected risks to filling out the questions. There are also no expected benefits to you.

The University of Rochester is receiving payment from the Patient-Centered Outcomes Research Institute (PCORI) for conducting this research study. You will not be paid for participating in this study, but as a way of thanking you for your participation, we will enter you in a raffle with prizes of up to $500 when we receive your completed survey. Please be sure to fill out the enclosed raffle ticket and send it back to us together with a completed questionnaire to enter this raffle.

The University of Rochester makes every effort to keep the information collected from you private. Sometimes, however, researchers need to share information that may identify you with people that work for your nursing home, regulators or the study sponsor. If this does happen we will take precautions to protect the information you have provided. Results of the research may be presented at meetings or in publications, but your name will not be used.

Your participation in this study is completely voluntary. Taking part in this research is not a part of your job duties, and refusing will not affect your job. You will not be offered or receive any special job-related consideration if you take part in this research. No one at your facility will know if you did or did not complete the survey, unless you tell them.

If you would like further information about this study, or have questions about the survey, please contact the Study Coordinator, Susan Ladwig MPH at: (585)276-3683 (telephone)
or by email: Susan_Ladwig@urmc.rochester.edu .
Please contact the University of Rochester Research Subjects Review Board at 265 Crittenden Blvd., CU 420315, Rochester, NY 14642, Telephone (585) 276-0005 or (877) 449-4441 for the following reasons:
- You wish to talk to someone other than the research staff about your rights as a research subject;
- To voice concerns about the survey;
- To provide input concerning the research process;
- In the event the study staff could not be reached.

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Version Date: 1/10/2013

RSRB University of Rochester Approval
EXEMPT
7/29/13

Appendix 9.2. Staff Survey: "Tell Us About Your Nursing Home"

Directions: **Please answer each item, as you believe things REALLY ARE, not as you think they should be. Think about people you work with at the nursing home as you answer each question. Your answers are CONFIDENTIAL!**
Co-workers: **people in your facility with whom you share responsibility for resident care.**

Section 1:

For the items in Section 1 below, please circle the number that most accurately describes your feelings about what is going on in this nursing home. For each statement <u>circle only one number</u> on the scale, with1 meaning Strongly Disagree and 5 meaning Strongly Agree with the statement.

Section 1 Domain Codes:
TC = Team Cohesion; CCOR = Communication & Coordination; TP = Team Performance; n = reverse coded

Section 1:	StronglyDisagree			Strongly Agree	
1. I look forward to working with others in this facility each day. (TC)	1	2	3	4	5
2. The goals and values of this nursing home are different from my own. (TC-n)	1	2	3	4	5
3. I take pride in being associated with my co-workers. (TC)	1	2	3	4	5
4. I identify with the goals and objectives of this nursing home. (TC)	1	2	3	4	5
5. If I had a chance to change my unit in this facility, for the same pay and same work,I would not want to. (TC)	1	2	3	4	5
6. My co-workers and I rarely meet with our supervisor/leader to discuss resident care and other issues. (CCOR-n)	1	2	3	4	5
7. When we do meet to discuss resident care and other issues, our meetings are disorganized. (CCOR-n)	1	2	3	4	5
8. I feel I am part of a team. (TC)	1	2	3	4	5
9. Our written care plans and work schedules are very effective. (TC)	1	2	3	4	5
10. It is not easy to talk openly with my co-workers. (CCOR-n)	1	2	3	4	5
11. I never have to double-check information given to me by my co-workers. (CCOR)	1	2	3	4	5
12. There is good communication between workers across shifts. (CCOR)	1	2	3	4	5
13. It is easy to ask for advice from my co-workers. (CCOR)	1	2	3	4	5
14. I have received incorrect information from others in this nursing home more than once. (CCOR-n)	1	2	3	4	5
15. I enjoy talking with my co-workers. (CCOR)	1	2	3	4	5
16. When a resident's condition changes, I get the right information quickly. (CCOR)	1	2	3	4	5
17. Some of my co-workers do not totally understand the information they receive. (CCOR-n)	1	2	3	4	5
18. Poor cooperation with other departments makes it hard to do our work. (CCOR-n)	1	2	3	4	5

		Strongly Disagree				StronglyAgree
19.	Co-workers are available to assist each other with patient care. (CCOR)	1	2	3	4	5
20.	I feel that I have a good understanding of resident care plans. (CCOR)	1	2	3	4	5
21.	We are not always well informed regarding events that happen on other shifts. (CCOR-n)	1	2	3	4	5

Section 1: Continued…		Strongly Disagree				StronglyAgree
22.	My co-workers do not always have the same understanding of resident care plans and goals. (CCOR-n)	1	2	3	4	5
23.	We do a good job of meeting the needs of our residents' families. (TP)	1	2	3	4	5
24.	My co-workers contribute their experience and expertise to produce good quality of care for residents. (TP)	1	2	3	4	5
25.	We do a good job of meeting residents' care needs. (TP)	1	2	3	4	5
26.	We respond well to emergencies. (TP)	1	2	3	4	5
27.	We almost always meet our resident treatment goals. (TP)	1	2	3	4	5
28.	Although we care for people with a variety of needs, our residents experience good outcomes. (TP)	1	2	3	4	5
29.	Overall, my co-workers and I function very well together. (TP)	1	2	3	4	5

Section 2:

For each statement in Section 2 below, please circle the number that most accurately describes your view about what is going on in this nursing home. For each statement circle only one number on the scale, with 1 meaning Strongly Disagree and 5 meaning Strongly Agree with the statement.

Section 2 EOL Domain Codes: Assess = Assessment; DEL = Delivery; CCP = Communication & coordination among providers; CRF = Communication with residents and families; n = reverse coded

Section 2:		Strongly Disagree				StronglyAgree
1.	When residents do not complain of pain nursing staff assess their symptoms on every shift (Assess)	1	2	3	4	5
2.	Nursing staff are often reluctant to administer opioid medications to treat severe pain. (DEL-n)	1	2	3	4	5
3.	When a prescribing clinician is informed about a resident being in pain, a new orderis typically written within 2 hours or less. (CCP)	1	2	3	4	5
4.	For residents in pain at the end-of-life, medications are routinely provided around the clock. (DEL)	1	2	3	4	5
5.	Nursing staff have good understanding of physical needs of residents at the end-of-life. (Assess)	1	2	3	4	5
6.	Nursing staff are often not clear about families' treatment priorities and preferences for their loved ones. (CRF-n)	1	2	3	4	5
7.	Medical staff are reluctant to prescribe opioids for residents who are significantly short of breath at the EOL. (DEL-n)	1	2	3	4	5
8.	When residents complain of pain, nursing staff typically respond within 30 minutes with a thorough pain assessment. (Assess)	1	2	3	4	5
9.	There is sufficient pain management expertise in our facility. (DEL)	1	2	3	4	5
10.	Nursing staff regularly discuss issues concerning management of pain and other symptoms of residents during daily reports/meetings. (CCP)	1	2	3	4	5

		Strongly Disagree				StronglyAgree
11.	When residents are depressed at the end-of-life, counseling and/or medications are promptly initiated. (DEL)	1	2	3	4	5
12.	When PRN (as needed) pain medication is administered residents are typically reassessed within 1 hour or less. (Assess)	1	2	3	4	5
13.	When a resident approaches death, family members often disagree with staff about treatments. (CRF-n)	1	2	3	4	5
14.	Nursing assistants often inaccurately report residents' symptoms such as pain, anxiety or shortness of breath to their supervisors. (CCP-n)	1	2	3	4	5
15.	Nursing staff have good understanding of the needs of family members of residents who are at the end-of-life. (Assess)	1	2	3	4	5
Section 2: Continued…		**Strongly Disagree**				**StronglyAgree**
16.	Our physicians are reluctant to discuss end-of-life issues with residents/families. (CRF-n)	1	2	3	4	5
17.	There are often delays in relaying information about residents' care needs between providers in this facility. (CCP-n)	1	2	3	4	5
18.	Nursing staff do a good job assessing residents' pain. (Assess)	1	2	3	4	5
19.	Our physicians, nurses, and nursing assistants share similar goals in caring for EOL residents. (CCP)	1	2	3	4	5
20.	Families are usually reluctant to discuss end-of-life issues with our staff physicians. (CRF-n)	1	2	3	4	5
21.	Nursing staff need to do a better job assessing pain in patients who are non-verbal. (Assess-n)	1	2	3	4	5
22.	Our staff routinely use non-pharmacological therapies to provide relief from distressing symptoms. (DEL)	1	2	3	4	5
23.	When problems with resident care arise, nursing staff generally work well together to problem solve. (CCP)	1	2	3	4	5
24.	Nursing staff are good at recognizing when a resident is actively dying. (Assess)	1	2	3	4	5
25.	Nursing staff lack confidence to discuss issues of death and dying with the residents and their family members (CRF-n)	1	2	3	4	5
26.	Nursing staff are not fully comfortable with their ability to assess symptoms of residents at the end of life. (Assess-n)	1	2	3	4	5
27.	Residents/families do not have a good understanding of the risks of CPR. (CRF-n)	1	2	3	4	5
28.	When a resident's condition worsens, the head nurse/supervisor gets information quickly. (CCP)	1	2	3	4	5
29.	Residents/families understand the risk/benefits of feeding tubes. (CRF)	1	2	3	4	5
30.	Nursing staff always assess for the emotional needs of residents at the end-of-life. (Assess)	1	2	3	4	5
31.	Our residents/families understand what hospice is. (CRF)	1	2	3	4	5
32.	Nursing assistants consistently report pain and other distressing symptoms of residents to the appropriate clinician. (CCP)	1	2	3	4	5

Section 3:

Please rate your work environment as described by each statement below. For each statement on the left, <u>circle only one number</u> that most accurately describes your nursing home environment.

Section 3 Domain Codes: All are work environment, none are reverse coded.

			1	2	3	4	5	
1.	We are usually	Under Staffed	1	2	3	4	5	Well Staffed
2.	My usual work schedule is	Inflexible	1	2	3	4	5	Flexible
3.	Compared to other facilities, my pay is	Worse	1	2	3	4	5	Better
4.	Compared to other facilities, my benefits are	Worse	1	2	3	4	5	Better
5.	Workers in this facility	Don't get along	1	2	3	4	5	Get along well
6.	Workers and management	Don't get along	1	2	3	4	5	Get along well
7.	With regard to palliative and end-of-life care, the on the job training I receive in this facility is	Insufficient	1	2	3	4	5	Sufficient
8.	Opportunities for promotion here are	Insufficient	1	2	3	4	5	Sufficient
9.	Overall, my work environment is	Unsatisfactory	1	2	3	4	5	Satisfactory
10.	Most days I find my job here very	Unsatisfactory	1	2	3	4	5	Satisfactory

Section 4:

In this section, we ask about the on-going in-service education on palliative and end-of-life care that you may have received in this facility.For each statement on the left, circle the one number (from 1 to 5) that most accurately describes the extent of education you have received on each topic (where 1=none and 5= a lot).

Section 4 Domain Codes: All are about education in EOL care, none are reverse coded.

With regard to: *The extent of education I have received is:*

Section 4:	None				A lot
1. Basic knowledge of ethics pertaining to palliative and end-of-life decision-making	1	2	3	4	5
2. Basic knowledge of law/regulation pertaining to palliative and end-of-life decision making	1	2	3	4	5
3. The symptoms and stages of dying	1	2	3	4	5
4. Communication skills for understanding and supporting dying residents and their families	1	2	3	4	5
5. Pain assessment and management	1	2	3	4	5
6. Assessment of non-pain symptoms and complications, eg, fatigue, anxiety, constipation	1	2	3	4	5
7. Benefits and risks of feeding tubes	1	2	3	4	5
8. Promoting dignity, relationships, and sense of control at the end-of-life	1	2	3	4	5
9. Religious and spiritual aspects of palliative and end-of-life care	1	2	3	4	5
10. Cultural preferences regarding end-of-life	1	2	3	4	5
11. Role of hospice in nursing facilities	1	2	3	4	5
12. Bereavement care for staff	1	2	3	4	5

Section 5:

Your nursing home leaders expressed interest in implementing a palliative care team in this facility. By rating each statement below you will help us to assess your facility's current readiness to undertake such change. On a scale from Strongly Disagree (1) to Strongly Agree (5), please circle the one number that best expresses your feelings about each statement.

Definition: Palliative care (PC) provides for the assessment and treatment of pain and other symptoms, helps with patient-centered

communication and decision-making, and coordinates care across the continuum of settings.

Section 5:	Strongly Disagree				Strongly Agree
Most staff in this facility think better palliative care is needed here.	1	2	3	4	5
Most staff agree that palliative care improves residents' care.	1	2	3	4	5
I believe the facility's leaders are committed to improving palliative care.	1	2	3	4	5
I think the supervisors or first-line managers would be supportive of palliative care teams in this nursing home.	1	2	3	4	5
In this facility, the details of major changes are not typically communicated to staff before changes occur. –n	1	2	3	4	5
There are effective ways for employees to give feedback about any change that takes place in this facility.	1	2	3	4	5

	Section 5: Continued…	Strongly Disagree			StronglyAgree	
7.	There are a lot of unresolved issues around here. -n	1	2	3	4	5
8.	This facility has a history of handling change pretty well.	1	2	3	4	5
9.	The facility's leadership has a history of doing what it says it will do.	1	2	3	4	5
10.	If the leadership wants to implement PC teams they can pull it off successfully.	1	2	3	4	5
11.	Decisions are not generally made in a timely fashion around here. -n	1	2	3	4	5
12.	When people get new roles or tasks, they can usually count on getting the training and coaching that they need to do the job.	1	2	3	4	5
13.	When faced with new and challenging situations, this organization forgets turf-issues and gets problems solved.	1	2	3	4	5
14.	It is safe to take risks in this facility; failure for a good reason isn't punished.	1	2	3	4	5
15.	People's commitment to their work here is not as high as it was a year ago. -n	1	2	3	4	5
16.	The facility's leadership has a history of making changes first and only then informing the staff. -n	1	2	3	4	5
17.	Management generally practices what it preaches.	1	2	3	4	5
18.	The facility's leadership generally cares how change will affect the rest of us.	1	2	3	4	5

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BACKGROUND INFORMATION. To mark your answer, please check the correct box or PRINT your answer in the space provided

1. **Experience:**
   a. Your current occupation or profession:

☐ 1 CNA	☐ 5 Physician	☐	
☐ 2 Nurse, LPN	☐ 6 Other	☐	
☐ 3 Nurse, RN	(specify)_____		
☐ 4 Social Worker			

   b. Years employed in your current occupation or profession:_____ years

   c. Full-time or Part-time employee:

   ☐ 1 Full-time   ☐ 2 Part-time   ☐ 3 Per Diem

   d. Years at this facility:_____ years

   e. Current job title:_____

   f. Years in current position in this facility:_____ years

2. **Education:**
   a. Highest Education Level:

☐ 1 Less than High School	☐ 5 Post-Graduate
☐ 2 High School	☐ 6 Other
☐ 3 More than High School	(specify) _____
☐ 4 College Graduate	

1. **Demographics:**
   a. Age: _____

   b. Gender:

   ☐ 1 Male
   ☐ 2 Female

   c. How would you describe your race and ethnicity? *Please check only one box in each group:*
      i. Race:

☐ 1 African-American/Black	☐ 4 Other
☐ 2 White	(specify)_____
☐ 3 Asian other Pacific Islander	

      ii. Ethnicity:

      ☐ 1 Hispanic or Latino
      ☐ 2 Not Hispanic or Latino

If there is anything else about your work environment that you believe directly affects palliative and end-of-life care in this facility, and that was not captured in this questionnaire, please feel free to let us know by enclosing another page.

Please put completed survey into return envelope provided and mail it back through US Post Office mail.
Remember to include your raffle ticket if you wish to participate in the drawing.
THANK YOU VERY MUCH!

IF YOU HAVE ANY QUESTIONS OR NEED ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE PLEASE CALL TOLL-FREE:

1-888-334-7788
Monday through Friday9am – 5pm

Appendix 9.3. Semistructured Interview Guide for Nursing Home Residents

Goal: Discover nursing home residents' expectations for high quality palliative care experiencesand to identify areas for improvement in care delivery processes and outcomes.

Facilitators: Tobie Olsan, PhD, RN with assistance from Susan Ladwig, MPH, Project Coordinatorto help with scheduling.

Introduction to the Interview with the Resident:

Hello Mr/Mrs_____, my name is_____, thank you so much for interviewing with me today. [Resident's understanding of the interview is reviewed before continuing].

I am working with researchers at the University of Rochester on a study to better understand how residents view their experience with care in nursing homes. Seeing the health care system through your eyes will help improve the ability of health care professionals to provide care in nursing homes. In this interview you are my teacher about what you expect from high quality care and to identify areas for improvement in care. I want to understand what mattersto you and how to address challenges in terms of what could be done differently. Do you haveany questions about the purpose of the interview?

I would like to talk with you for about 45 minutes to an hour, but if you are not able to talk that long please let me know when you are ready to end the interview. If you are still interested in talking with me after this first meeting, we can schedule a second session for aninterview. I would like to tape record the interview so I can concentrate on our conversation and better remember what you said. Do you have any objections to me tape recording our interview?

Questions

NOTE: Interviewer will follow-up on details of the resident's experience using the ProbeQuestions, with timing and wording dictated by interview content, dynamics, and conversation flow.

1. Tell me about yourself (how old, how long in the nursing home, your family, how you are feeling)
   a. Probe: What does it mean to you to be a nursing home resident at this time in your life?
       b. Probe: Do you feel differently about yourself now than when you were younger?
   2. What do you need from the health care system to be well cared for at this stage of your life?
       a. Probe: Are these needs different from the past? How?
       b. Probe: What has changed?
   3. How do you view your experience with care, in general, and with regard to meeting your needs?
       a. Probe: Are you able to get your needs met?
       b. Probe: Which needs? How well are they met?
       c. Probe specific needs and experiences:
           1.Involvement in decision making
               a. Establishing goals of care based on your values and preferences
               b. Treatment preferences

       c.   Aggressive care/Limits on care

       d.   Nutrition and hydration

       e.   Hospitalization

       f.   End-of-life care

2.Health care providers listening and responding3.Treated respectfully

4.Getting and understanding information5.Symptom management

6.Assessing and treating pain 7.Supportive and safe environment

8.Meaningful experiences 9.Spiritual health and well-being

       10.   Interactions with loved ones

       11.   Help for your family to cope with your illness, death

4. Are there any important needs (expectations, outcomes of care) that are not being met?
   a. Probe: What are you particularly worried about or afraid of?
   b. Probe: How can health care providers help with meeting your needs?

5. Are you familiar with the term palliative care? Comfort care? End-of-Life care?
   a. What does the term mean to you?

6. In closing, do you have any other suggestions or wisdom that you can share with us about what is good/not good about your experience with care? What could be done differently?

Thank you again for taking the time to meet with me and provide feedback about the study.

Goal: Discover family member perspectives about palliative and end-of-life careexpectations and where care falls short of expectations.

Method: Individual interviews will be conducted with family caregivers at the nursinghomes or a place preferred by the family member (eg,, own home). Caregivers who can understand the purpose of the study will be identified with the assistance of the nursing home staff. Study investigators will approach the caregiver to explain the study, answer questions, and set a date and time for the interview.

Facilitators: Tobie Olsan, PhD, RN with assistance from Susan Ladwig, MPH, ProjectCoordinator to help with scheduling.

Introduction to the Interview with the Caregiver:

Hello Mr/Mrs_____, my name is_____, thank you so much for interviewing with me today. [Caregiver's understanding of the interview is reviewed before continuing].

I am working with researchers at the University of Rochester on a study to better understand how caregivers view their experience with care in nursing homes. Seeing the health care system through your eyes will help improve the ability of health care professionals to provide care in nursing homes. In this interview you are my teacher about what you expect from high quality care and to identify areas for improvement in care. I want to understand what mattersto you and how to address challenges in terms of what could be done differently. Do you haveany questions about the purpose of the interview?

I would like to talk with you for about 45 minutes to an hour, but if you are not able to talk that long please let me know when you are ready to end the interview. If you are still interested in talking with me after this first meeting, we can schedule a second session for aninterview. I would like to tape record the interview so I can concentrate on our conversation and better remember what you said. Do you have any objections to me tape recording our interview?

Questions

NOTE: Interviewer will follow-up on details of the family caregiver's experience using theProbe Questions, with timing and wording dictated by interview content, dynamics, and conversation flow.

1. Tell me about yourself (how old, how long have you been caring for a loved one in a nursing home, your loved one, how you are feeling)

2. How do you view your experience with care provided in the nursing home, in general, and with regard to meeting specific needs of your loved one at this point in their life?
   a. Probe: What is going well
   b. Probe: What is not going so well
   c. Probe specifics:

1. Health care providers listening and responding
2. Treated respectfully
3. Getting and understanding information
4. Symptom management
5. Assessing and treating pain
6. Supportive and safe environment
7. Meaningful experiences
8. Spiritual health and well-being
9. Help with coping as a caregiver

3. How do you view your experience with involvement in decision-making about goals of care for your loved one?

   a. Probes: Do you serve as a Health Care Proxy?
   b. Probe specific decisions:
      - Establishing goals of care based on loved one's values and preferences
      - Treatment preferences
      - Aggressive care/Limits on care
      - Nutrition and hydration
      - Hospitalization
      4. Are there any important needs (expectations, outcomes of care) that are not being met?
   a. Probe: What are you particularly worried about or afraid of?
   b. Probe: How can health care providers help with meeting these needs?
      5. Are you familiar with the term palliative care? Comfort care? End-of-Life care?
   a. What does the term mean to you?
6. In closing, do you have any other suggestions or wisdom that you can share with us about what is going well/not going so well with your experience with care? What could be done differently?

Thank you again for taking the time to meet with me and provide feedback about thestudy.

Appendix 9.5. Rapid Ethnographic Assessment: Semistructured Interview Guide

Introduction—Hi, my name is _____ and I am a member of the *IMPACTT* research team helping to evaluate the development and use of palliative care teams in nursing home settings. Thank you for taking the time to talk with me today.

Purpose—The purpose of our visit is to better understand your perceptions of the palliative care team development in here at _____. In particular we hope to get your perspective on the strengths and challenges in developing the PC team and integrating the team into the organization. To that end, our questions focus on the team as well as the organization.

General Questions

1. Can you tell me a little bit about getting the PCTeam started?

[Probes] What were some of the things that went well? How about not so well? Did you think it was a good idea? How come?

2. Do you think your organization was ready to develop a PCTeam?

[Probes] How do you know? Can you give me examples?

3. Tell me about the PCTeam now. *How do you think the team is working?* How often does it meet? What is the structure of the team: who is on it? Is the membership fixed, or is it fluid and changing? What things happen when the PCTeam works with a resident? What does the team generally do?

[Probes] Can you give me examples? What are the things that have supported the team's development? What are some of the things that have been barriers to team development?

4. Sometimes with projects like these there are unintended or unexpected results. What kinds of things did you expect? What happened that you didn't expect?

5. One of the things we are interested in is the role of leadership in the implementation of the PCTeam. Can you describe the role of leadership both at the team and administrative level?

6. Can you tell me what some of your key challenges are now? Are they the same as before?

[Probe] Can you give me a few examples?

7. How do you define success of your PC Team? Can you tell me about some of your successes?

8. Do you notice any differences now that you have a PC Team?

[Probe] Can you give me a few examples of before and after?

9. How does the PC Team interact with other existing teams and routines in your setting?

10. ***NEW question:*** We've been hearing about the range of relationships between the homes we are visiting and local hospice agencies. Can you tell me how that is for you here?

   a. *Probes If they do use hospice*: What does hospice care look like for your residents here? What kinds of things is hospice responsible for, what do they do? How does your palliative care team or other staff work with hospice team members?

11. **NEW question:** We've been hearing from other facilities in this project that other things that require an investment in time, might provide a bigger financial return, or be a bigger priority sometimes compete with palliative care work. What kinds of competing priorities do you have here? How do you juggle them? How much of your facility's priority or centerof focus is driven by financial incentives? How much by time, resources or personnel constraints?

12. Another thing we are very interested in is how sustainable do you think the PC Team is within your organization? Have you used or adapted our "Team Operational Processes" guide for your facility ? Can you talk about why or why not?

[Probes] How will your organization decide whether to keep the PCTeam? What things would help support sustainability? What worries you the most about the ability to sustain the team?

13. The intervention had two educational pieces, TeamSTEPPS and Palliative Care. Tell me about your experience with each part.

[Probe] What has been helpful/not helpful?

14. If we were to do this again, how should we do it differently?

15. What surprised you the most about this project?

16. What advice would you give any nursing home looking to develop a PCTeam?

Additional questions focused for administrative leadership/PCTeam contact

1. Can you tell me what made your organization interested in participating in the palliative care team project?

[Probes] Who was on board? Who wasn't on board?

Appendix 9.6. Preferred Palliative Care Best Practices for Nursing Homes

Consensus Agreement* of the IMPACTT PROJECT
What will the nursing home and its palliative care (PC) team strive to do?

1. **Palliative and hospice care will be provided by a team approach that includes professionals and other stakeholders.**

2. **The PC Team will develop a care plan, supervise care, and regularly review the plan for residents referred to palliative care, based on interdisciplinary assessment.**

3. **The PC Team will assess, document, and manage physical symptoms (eg, pain, dyspnea, constipation) and side effects in a timely, safe, and effective manner to a level acceptable to the resident and family.**

4. **The PC Team will assess, document and manage anxiety, depression, delirium, behavioral disturbances, and other common psychological symptoms in a timely, safe, and effective manner to a level acceptable to the resident and family.**

5. **The PC Team will recognize and document the transition to the active dying phase and communicate the expectation of imminent death.**

6. **The PC Team will provide adequate dosage of analgesics and sedatives as appropriate and acceptable to the resident and family to achieve comfort during the active dying phase.**

7. **The facility will provide continuing education to all staff on the domains of palliative and hospice care.**

8. **The facility will provide adequate training and clinical support to assure that PC Team members are confident in their ability to provide palliative care to residents.**

9. **The PC Team will assure there is a designated surrogate decision maker for every resident who is referred for palliative care.**

10. **The PC Team will assure each referred resident's (or their surrogate's) preferences for (the residents) goals of care are documented.**

11. **The PC Team will assure each referred resident's treatment goals have been converted into medical orders using the MOLST.**

12. **The PC Team will enable referred residents/families to make informed decisions about their care by educating them on disease processes, prognoses, and benefits/burdens of interventions.**

13. **The PC Team will recognize and support psychological reactions of residents and families to address emotional suffering (including stress and anticipatory grief) in an ongoing fashion.**

14. **The PC Team will conduct regular resident and family meetings for referred residents, to provide information, discuss goals of care, disease prognosis, advanced care planning, and offer support.**

15. **The PC Team will implement a comprehensive social plan of care including the social, practical and legal needs of referred resident/family members.**

16. **For referred residents, the PC Team will ascertain and document resident and family wishes about the preferred care setting for site of death.**

17. **The PC Team will provide leadership in treating the body of a deceased resident with respect and with sensitivity to the emotional needs of the other residents, family members and facility staff.**

*Based on the Delphi survey process conducted in 16 facilities with 48 participants.