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Medical Staff Involvement in Nursing Homes: Development of a Conceptual Model and Research Agenda

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Abstract

Medical staff (physicians, nurse practitioners, physicians' assistants) involvement in nursing homes (NH) is limited by professional guidelines, government policies, regulations, and reimbursements, creating bureaucratic burden. The conceptual NH Medical Staff Involvement Model, based on our mixed methods research, applies the Donabedian structure-process-outcomes framework to the NH identifying measures for a coordinated research agenda. Quantitative surveys and qualitative interviews conducted with medical directors, administrators and directors of nursing, other experts, residents and family members and Minimum Data Set, the Online Certification and Reporting System and Medicare Part B claims data related to NH structure, process and outcomes were analyzed. NH control of medical staff, or structure, affects medical staff involvement in care processes and is associated with better outcomes (e.g. symptom management, appropriate transitions, satisfaction). The Model identifies measures clarifying the impact of NH medical staff involvement on care processes and resident outcomes and has strong potential to inform regulatory policies.

Keywords

nursing home medical staff; organizational structure; processes of nursing home care; outcomes of resident care

INTRODUCTION: MEDICAL STAFF INVOLVEMENT IN NURSING HOMES

Little is known about medical staff involvement in nursing facilities and its impact on how care is provided to residents. Insufficient medical staff presence can lead to impaired processes of care and troubling resident outcomes, such as undertreated symptoms and unnecessary re-hospitalizations (Intrator et al., 2004; Tija et al., 2009; Johnson 2010). In this paper we offer the "Nursing Home Medical Staff Involvement Model," to help clarify and advance theory and its application in gerontological research (Cutchin 2009), and to focus

on a range of activities in which a medical staff member is, or could be, professionally engaged as a participant in various nursing home (NH) activities, including communication with residents, family members, or other NH staff. We devised the model after conducting five interrelated mixed methods studies that revealed unexpected findings about medical staff involvement from varied stakeholder perspectives. Because our first studies, conducted with family members of NH residents, revealed that they found medical staff involvement to be inadequate, we decided to pursue, in more depth, the question of how medical staff is involved in NHs.

We define medical staff to include physicians (MDs) as well as nurse practitioners (NPs) and physician assistants (PAs) to underscore NPs' and PAs' important roles in assessing and managing medically complex residents (Caprio 2006, Johnson 2010). NHs are health care facilities bound by federal and state health care policy (Dimant, 2003; Winn et al., 2004). The regulatory structure governing NHs assumes the presence of physicians, and payers require and pay for medical staff involvement. Notwithstanding the importance of NH medical staff (e.g., Hanson et al., 1997; Mehr et al., 2003; Hanson et al., 2002), a meager literature describes their involvement and perceptions that other professionals, NH residents, or family members have of them (Katz et al., 1997; Caprio et al., 2009; Katz et al., 2009). In the very different culture of long term care, NHs are physically staffed by a nurse-led hierarchy, and the actual level of medical staff involvement in NHs varies widely and directly impacts processes and outcomes of care (Katz et al., 2009). Moreover, the nature and quality of relationships vary among NH medical staff and between NH medical and nursing staff and has not received sufficient scholarly attention (Schmid and Svarstad 2002). For example, the classic "doctor-nurse game" describes a culture of hospital communications in which the nurse makes significant recommendations for treatment, but must make it appear that the recommendations come from the physician (Stein 1967; Stein et al., 1990; Greenfield 1999; Cadogan et al., 1999; Holyoake 2011). Ongoing discussion of the quality of physician-nurse communication indicates the continued salience of this important interaction (Radcliffe 2000; O'Daniel and Rosenstein 2008; Germov 2009). Requirements that govern NHs, like hospitals, may create the organizational paradox of a geographically distant physician authority that is required to oversee care carried out by nursing staff that is physically on site and continually present. Nurse authority in the NH thus may be enhanced because of infrequent medical staff presence, while it remains subject to medical oversight due to regulation.

Inadequate medical staff presence is due to a number of factors, such as primary commitment to hospital or office practice, and reimbursement that is perceived as inadequate to compensate travel and time. Nurses frequently obtain physicians' signatures required for numerous care decisions using telephone or fax communications, and without direct medical staff observation of the resident. These frequently unreimbursed interactions are often perceived by physicians to be burdensome and sometimes unnecessary (Fowkes et al., 1997; Levy et al., 2007; Winn et al., 2004).

In this paper we use results and illustrations from our five studies to modify Donabedian's (1988) structure-process-outcomes model of assessing quality in the hospital setting so that it more aptly applies to the particulars of the NH environment. This paper presents the conceptual development of the model, and discusses how we utilized it in the development of a major national study of long term care. We suggest how this kind of conceptual model can inform empirical research and address policy problems in long term care.

Our five studies revealed how various stakeholders, such as administrators (NHAs) and directors of nurses (DONs), family members, and key experts in long term care perceive the operations of medical staff in NHs. We also examined measures of NH medical staff

organization developed from the medical director's perspective (Katz et al., 2009). As part of a major national study, "Shaping Long Term Care in America" (Shaping LTC), we collected primary data, including the testing and fielding of a national survey of NH administrators (NHA) and directors of nursing (DON), and integrated various secondary data. Based on these studies and data, we present measures and testable hypotheses of medical staff involvement, suggesting how these can be used to systematically explore how the structure of medical staff involvement is associated with processes of care and outcomes.

THEORY/CONCEPTUAL FRAMEWORK

In seeking to assess quality, Donabedian proposed causal links between how health care structure, such as staff, technologies and buildings, impact care processes which eventually influence health care outcomes (Donabedian 1988; Glickman et al., 2007). We are also motivated to use contingency theory regarding strategic dimensions of structure, including documentation, communication and coordination (Lawrence & Lorsch 1967; Roemer & Friedman 1971; Shortell et al., 2007); and literature about structural influences on NH quality improvement (e.g., Berlowitz et al., 2003; Zinn et al., 1997). We describe how we used our five studies to develop our evolving NH Medical Staff Involvement Model to better understand the organization and involvement of NH medical staff and to generate ideas for testable measures of structure, process and outcomes in the NH. First, we use findings from the five studies that revealed key elements comprising medical staff involvement in the NH. We suggest how these could be applied in a structure-process-outcomes model (Donabedian 1988) to help conceptualize how structures that define the extent of medical staff involvement in NHs can lead to effective or impaired processes of care that, in turn, affect NH resident outcomes. We next show how we weave the primary data from the five studies together with secondary data to inform the development of relevant measures to test each component of the model.

Structure

Following the Donabedian "structure-process-outcomes" format, our Model uses *structural* dimensions by which NHs attempt to *control* medical staff involvement in the NH; these dimensions include open vs. closed staff models, employment arrangements, processes of medical staff certification, numbers and types of medical staff, and their expected presence in the facility. The closed, or "panel," staff model refers to how the NH may elect to employ a set number of medical staff in the facility, as opposed to the open staff model in which the NH accepts a variety of medical staff providers to care for its residents. The choice of open versus closed medical staff may depend on factors such as physician availability or residents' preferences, for example. The physical presence of medical staff in the facility is fundamentally different from medical staff involvement by phone or fax. Physical presence of medical staff in the facility also relates to contractual arrangements as well as to state and national regulations.

Process

The structural dimensions affect processes of interaction, notably *communication* and *coordination*. These processes can be effective or impaired and include how medical staff are involved due to their physical presence in the facility. Communication refers to how often and how effectively medical staff interact among themselves and with nursing staff, residents and family members. Coordination refers to how medical staff members collaborate with one another and nursing staff to provide cross-coverage and conduct necessary NH tasks in effective or impaired ways, such as how well medical and nursing staff members follow through on tasks and work together to provide appropriate resident care without duplicating or neglecting tasks.

Outcomes

Outcomes, such as symptom management, ER visits, family satisfaction and hospitalizations are conceptualized in the model to be the result of how the structure of NH medical staff involvement influences care processes.

METHODS: COLLECTING DATA FROM THE FIVE STUDIES

A detailed literature review of NH and hospital organization of medical staff formed the theoretical basis for the five related studies (S1–S5). Conducted at the individual level of analysis the studies together derived from the perspectives of bereaved family members of patients who recently died (S1 and S2); NH medical directors (S3); NH providers and long term care policy experts (S4); and NH administrators (NHAs) and Directors of Nurses (DONs) (S5).

S1 was a quantitative mortality follow-back survey of bereaved individuals' perceptions of the care their loved ones received at the end of life (n=1,528), highlighting elements of interactions with nursing and medical staff in all sites of care. S2 was an in-depth qualitative follow-up study of a subset of S1 respondents whose loved ones spent at least one month of the last year of life in a NH (n=54). Family responses provided greater depth to our interpretations of their experiences with nursing and medical staff. S3 was a quantitative survey of NH medical directors (n=202) regarding organization and relationships among NH medical staff and other staff and families. In S4, interviews with NH providers and LTC policy experts provided insights on physician-nurse interaction in NHs (n=30). In S5, cognitive-based interviews with NHAs and DONs were used to refine survey questions regarding patterns of NH medical staff organization and involvement (n=45). By utilizing mixed methods, these five studies together provided generalizable and in-depth description of perceptions and experiences to suggest new areas of research opportunity (Patton 1990; Curry et al., 2006). The studies' methodologies and results provided impetus to advance the understanding of NH medical staff involvement. Table 1 shows information about the sources of the separately analyzed data (reported as S1, S2, etc.) that inform the conceptual model. We include each study's name, topic area, targeted population, years conducted, methods used, and the resultant publications.

In Figure 1, we depict the NH Model of Medical Staff Involvement, that shows how we refined the Donabedian-inspired framework, using data as applied to NH medical staff. The figure illustrates how the data from our studies contribute to the three phases of the model to depict how elements of structure influence processes of care which in turn are conceptualized to influence resident outcomes.

Medical staff structure is characterized by components of control that the NH exerts on NH medical staff, as described above. Data from the medical directors survey (S3), key informant interviews (S4) and the cognitive-based interviews (S5) contribute to our understanding of NH *structure* of medical staff organization, including the numbers of physicians, NPs and PAs; their employment arrangements; professional requirements; and other characteristics of their activities reflecting NH control, from the points of view of providers and experts in long term care.

These components of control in turn relate to the *processes of care*, such as communication and coordination among medical staff, nursing staff, residents and families. Data from the quantitative family survey (S1), the qualitative NH family interviews (S2), qualitative key informant interviews (S4) and the cognitive-based interviews (S5) help inform our understanding of the processes of medical care in NHs, including communication; daily coordination of medical staff onsite; physician emergency response time; attendance at team

meetings; and emergency cross-coverage, as reported by key experts, nursing staff, families and residents.

Finally, these processes lead to *resident outcomes*, such as symptom management, ER use, hospitalizations, and resident/family satisfaction. The same data sources that informed our understanding of care processes also contribute to our focus on resident outcomes, such as how symptoms are managed, and how transition decisions are made between care settings (such as, hospitalizations and ER visits), or whether and when referrals to hospice take place.

As we used the data from our five studies to refine the NH Medical Staff Involvement Model, we also developed relevant measures to test in future studies. The Shaping LTC national survey that we devised after the original five studies were completed asks targeted questions of DONs and NHAs to enlarge our information about the structure, process and outcomes measures of medical staff involvement. In addition to primary data collected in each of the five studies, related secondary measures have also been developed using the Minimum Data Set (MDS), the Online Certification and Reporting System (OSCAR) and Medicare Part B claims data (Feng et al., 2008; Grabowski & Castle, 2004; Intrator et al., 2011; Intrator et al., 2004; Reynolds et al., 2008). Table 2 shows illustrative questions from the Shaping LTC survey that drive the measures used to complement the primary data of the Model.

In the next section, we discuss each component of the Model and its contribution to the development of questions used to measure structure, process and outcomes in the Shaping LTC in America surveys.

HOW STUDY RESULTS INFORMED THE CREATION OF THE NH MODEL OF MEDICAL STAFF INVOLVEMENT

We use examples from our five studies to describe the components of the model, specifically to show components of structure, processes of care, and outcomes.

STRUCTURE: CONTROL AND INVOLVEMENT OF NH MEDICAL STAFF

In our five studies, we observed that NH medical staff involvement varies by the nature of the controls that NHs exert over physician arrangements shown in Figure 1. Experiences conveyed by the medical directors (S3) underscored the significance of closed versus open medical staff practices in deferring medical staff involvement in NHs. Our interviews with key experts (S4) further illuminated facets of medical staff involvement and its impact, and our interviews with NHAs and DONs (S5) provide examples of their perceptions of medical staff involvement in their individual NHs (See Table 1).

Control of Medical Staff Presence

NHs use various mechanisms to exert control on their medical staff, including presence and roles, for example, by specifying terms in the contract and/or credentialing requirements. Learning how medical staff functions in NHs begins with understanding the nature of medical staff physical presence in the facilities. For example, a NHA participating in S5 specifically cited the lack of physician availability as a determining factor: “*We can’t get doctors to begin with.*” Other S5 responses ranged widely regarding their views of physicians’ visits in the NH and their presumed effect on processes of care. According to our informants, physicians’ visits to NHs were scheduled based on federal regulations concerning skilled or maintenance care. This notion is illustrated by a DON who stated that, “*Physicians just sign orders; they’re not here daily.*” Similarly, a NHA said, “*They*

schedule you. We have no say." In responding to questions specifically about NP and PA involvement, informants noted that the level of their involvement usually varied according to whether they were hired by the NH or by the physician.

Another aspect of control is the degree to which physicians or other medical staff are employees of the institution as compared to operating as independent community physicians. Research in hospitals and managed care organizations has identified the concept of "open" and "closed" medical staff, indicating whether any provider (open) or only appointed providers (closed) are permitted to provide services in the institution (Katz et al., 2009). A closed staff is likely to provide more coordinated care than an open staff (Roemer and Friedman, 1971). The continuum ranges from full control in a closed staff model of a limited number of salaried or employed medical staff to an open ad hoc arrangement in which community physicians care for NH residents with or without NPs and PAs (Katz et al., 2009).

Respondents to the key informant interviews (S4) described their views about closed and open staff NHs, indicating how components of control affect medical staff involvement. A medical director of a NH pointed out that while he had "*broad and vague*" legal responsibility in the facility as medical director, he had no day-to-day management authority there. A DON in a 150-bed open-staffed NH said she was challenged by the demands of faxing and telephoning the separate staffs of 50 physicians who provide care in her open-staff facility. Further supporting the benefits of a closed medical staff, a DON of a large NH attributed low CNA turnover and high CNA comfort in talking with physicians to having a large closed staff NH, which, "*only works if the doctors are on staff.*"

Another aspect of control is the facility's credentialing process to allow medical staff to provide care to residents. In the cognitive-based interviews (S5), we asked DONs and NHAs about their facility's credentialing procedures and heard a range of responses. Quite commonly, the credentialing process was very informal. "*We just verify that they have a license,*" said one NHA. Another NHA answered, "*We give the physicians a check list of the information we require and a copy of the rules and regulations that they have to sign.*" And: [credentialing] "*is not really done here. Residents retain their community physicians. The physician doesn't have a formal or contractual relationship with the NH.*"

More formal procedures were also described. A NHA of a hospital-affiliated NH explained, "*We do a background check so it's up to par, no shady past or current issues; there is a credentialing committee for approval. After that we do orientation... They're credentialed already [in the hospital] and need our approval to work here in the NH.*" Another NHA said: "*We ask for their resumé, references, affiliated hospitals and we speak to other physicians. We get their license and DEA [United States Drug Enforcement Administration] number. There is a committee—approved by the medical director and me.*" Quotes from the NHA interviews together underscored the gamut of formal and informal medical staff arrangements and clarified the need for creating measures to methodically learn about how these aspects of control affect medical staff involvement in the facility.

Because medical staff also includes NPs and PAs, we asked NH providers and LTC experts (S4) about the role of NP/PAs in their NHs. The leader of a state quality improvement organization noted that "*the best NHs use geriatrics NPs.*" A nurse-researcher was similarly approving of this practice, stating NPs and PAs oversee "*pretty complicated medication regimens*" whose complexity "*often gets lost on physicians.*" Although not as common as MDs in NHs, NPs and PAs in NHs may be viewed more positively than MDs; there were no negative comments or concerns expressed about NPs or PAs in this set of interviews.

PROCESSES OF CARE: COMMUNICATION AND COORDINATION

The next component of the NH Medical Staff Involvement Model focuses on processes of care. Communication and coordination are essential to the appropriate and accurate transfer of information and decisions regarding resident care. Measures of these processes reflect the level of medical staff involvement and reveal whether these processes are effective or impaired. Respondents in four of our five studies helped identify how medical staff involvement influences the processes of care, particularly in how medical staff interacts with nursing staff, residents and families to communicate and coordinate care effectively (see Figure 1).

Family members provided their views about communication with physicians. Almost one quarter (23.9%) of the family member respondents in S1 expressed concern over difficulties in communication with medical staff on treatment decisions (Teno et al., 2004). In S2 interviews, family members expressed frustration regarding their difficulties in communicating with medical staff, particularly physicians, especially regarding information about prognosis and care (Wetle et al., 2005; Shield et al., 2005). For example, a daughter of an 84-year-old resident told the interviewer, *"The doctor was supposed to have been in every day. We never saw him."* NHA and DON responses in S5 noted their perceptions that, in addition to infrequent physician presence, there was little communication between families and physicians. One DON said, *"Families usually have limited contact with doctors."* Another noted that physicians, *"may be reluctant to talk to family... we have to encourage them."*

Differences were also noted among types of medical staff. DONs in S5 noted the positive effect of NP/PAs on processes of care such as communication, one saying NP/PAs talk with families *"most of the time... even better than the MDs."* A former DON interviewed for S4 said NPs *"reduced the stress of communication."* Another said, *"They are easily reachable."*

Regarding interactions between physicians and nursing staff cited by key informants (S4), a NH medical director attributed her self-described effective communication and collaboration to her regular presence at the NH two days a week that allowed her to *"teach and mentor"* staff members about how to communicate with medical staff (S4). She stated that because of her frequent presence in the facility, *"no one is alarmed"* when she asks a question of nursing staff since they are comfortable with her. The greater presence of a smaller number of medical staff was similarly effective. The DON of a 190-bed NH that reduced its number of physicians from 16 to 3 said that in addition to being better able to efficiently apprise all staff of regulations and policies, nursing staff now approached the medical director, *"an excellent communicator,"* and the other two physicians with greater ease (S4).

These key informants also expanded our understanding of such communication issues by linking the structure of medical staff organization to work flow aspects of communication and collaboration related to nursing staff turnover and retention. Key informants noted that in facilities with high rates of turnover nursing staff are less able to provide appropriate and timely information to physicians by telephone because they are less familiar with the medical staff and residents. These informants noted that physician frustration often resulted from the inadequate information provided by nursing staff.

RESIDENT OUTCOMES: SYMPTOM MANAGEMENT, FAMILY SATISFACTION, EMERGENCY ROOM VISITS/HOSPITALIZATION

The NH Medical Staff Involvement Model posits that resident outcomes, such as symptom management, ER visits, family satisfaction and hospitalizations are the result of how the structure of NH medical staff involvement influences care processes (Figure 1). In S1, one in four NH family members reported that their loved ones did not receive enough or any pain medication, and half reported they did not receive enough emotional support (Teno et al., 2004). In S5, a few DONs associated a lack of physician presence with inadequate response to treating resident pain.

One reported, “*Sometimes [doctors] have difficulty believing pain is what the patient says it is. Quite often they’re hesitant to do more than ‘prn’ [as needed].*” DONs also reported that greater attention by medical staff to residents’ changing symptoms might have prevented hospitalizations and/or visits to the ER that had occurred (S5). In a question about the DON’s perception of how many hospital/ER visits could have been avoided by greater physician presence, one DON chose the answer of 100%. Many others chose “some” or “a lot.”

MEASURES OF STRUCTURE, PROCESSES AND OUTCOMES

The results from our five interrelated studies allowed us to design and refine DON and NHA questions in the Shaping LTC surveys to explore the model’s relevant components. For example, we included questions to determine NH control as a measure of structure, including certification, contracting, and expectations of NH medical staff involvement. In addition to questions regarding the certification process for physicians, and the proportion of physicians salaried or under contract to the NH, questions were asked regarding expectations of medical staff involvement in specific care activities. Two such questions are, “*How often do you expect physicians to attend care plan meetings?*” and, “*How often do you expect physicians to lead team meetings?*”

Similarly, we designed DON and NHA survey questions to capture process concepts such as communication and coordination that depend on medical staff presence. One such process question asks, “*How often do you expect physicians to talk with pharmacy consultants about patients?*” Finally, questions to measure resident outcomes include DON survey items such as, “*When residents are at the end of life, how often do physicians make a referral for hospice?*” Or, “*How often do you have to re-contact a physician because the orders for medications are unclear?*” (Other examples of survey questions are listed in Table 2.) The data collected via the Shaping LTC surveys with DONs and NH administrators are being analyzed and measures of medical staff involvement are being constructed. In addition, we will use secondary data from billing records and the MDS to identify symptoms such as pain, and burdensome transitions and to combine with primary data to further refine and analyze measures of medical staff involvement.

PRACTICE AND POLICY IMPLICATIONS: DISCUSSION

A National Consensus Conference identified gaps in research on quality of life in long term care, and recommended studies of facility care structures and processes (Sloane & Zimmerman, 2005). We believe that understanding the impact of medical staff involvement is critical to improving processes, quality and resident outcomes.

In this paper we have described examples from our five studies to add clarifying information about each component of the structure-process-outcomes model as applied to developing the

NH Medical Staff Involvement Model (Figure 1). This process has also allowed us to develop measures to quantify and better understand associations among the Model's components. Illustrative results from our studies that led to the development of this Model increase our understanding of effective and impaired processes of care and help identify correlates of better care processes in NHs. In ongoing studies, we are further quantifying these measures to test associations within and among the components of the Model. This process will illuminate how medical staff operates in NHs, how medical and nursing staffs interact with one another, and how NH residents and families are affected in turn.

Policy efforts to enhance medical staff roles in NHs, such as their greater participation in care planning meetings, would foster improved knowledge by and communication among medical staff of the facility and should be vigorously explored. Research should compare medical staff in closed and open staffed-NHs and identify best practices for communications and interactions among staff members, residents and family members. We need a broader understanding of how NHs with a greater level of medical staff involvement operate and affect processes and outcomes of care.

Understanding how NHs exert structural control over medical staff organization and make use of NPs/PAs is a promising area of research to further clarify how their involvement impacts processes and resident outcomes (Stefannaci 2001; Rosenfeld et al., 2004). Our results support the identified need for improved nurse-medical staff communication (Tija et al., 2009) and improvements in education of nursing staff in effectively conveying resident's care information to medical staff, whether on or off site. Improving and evaluating mechanics for information transmission, such as the SBAR (Situation, Background, Assessments, and Recommendations) Hand-off Tool (Vardaman et al., 2011), should be carried out and disseminated.

The multi-pronged and exploratory effort described here requires the following cautions in interpreting results. The qualitative research is necessarily subjective, though the numbers of interviews are robust by qualitative standards, and the multidisciplinary and rigorous analysis methods lend confidence to their interpretation. The quantitative studies exhibit strength in numbers with reliable results as well as sampling strategies that facilitate generalization to the population, and benefit from the enhanced description provided by qualitative interviews. Generalizations about practices, relationships and activities are challenging because of the varied NH organizational structures, as well as the diversity with which medical staff is organized and interact in NHs.

CONCLUSIONS

Data from our mixed methods research described here demonstrate an iterative and synergistic process to develop a conceptual model with measurable elements. Our NH Medical Staff Involvement Model enables us to operationalize and link elements of structure to process and outcomes. Control is an element of structure that emerged from our research with families, DONs, NHAs, medical directors and key informants. As we learned the importance of control as a key aspect of medical staff involvement in NH activities, we refined our measures in order to better understand how greater control leads to improved process and outcome measures. We are using the NH Medical Staff Involvement Model to develop hypotheses regarding the causal relationships among structure, process, and outcome measures. Moreover, the measures developed and refined in these studies can be used to test hypotheses about NH medical staff organization, complemented by secondary data from the MDS and Medicare claims.

Overall, this paper helps identify components of NH medical staff structure and process that we believe comprise important aspects of medical staff involvement. The elements and measures of our conceptual model can be methodically studied to associate aspects of medical staff structure, processes of care and resident outcomes. These will be critical when analyzing the impact of market characteristics and policies on relevant NH structures and processes and in suggesting policy changes intended to promote improved administrative structures that in turn will foster better resident care.

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NH Medical Staff Involvement Model Mapping Data Sources to the Conceptual Model

* In addition, secondary data, such as Minimum Data Set (MDS) and Medicare claims will be linked in all analyses

** Components shown are examples of structure, process, and outcomes variables for the model

Figure 1.

Table 1
Description of NH Studies Contributing to Development of Conceptual Model

Study Focus/Name	Topic of study	Population studied (Year)	Methods	Summary of Findings
S1. Family members National mortality follow-back survey(Quantitative survey)	Bereaved individuals' perceptions of care that their deceased family member received in various sites of care at the end of life	Nationally representative sample of respondents whose family members experienced non-traumatic deaths in all sites of care (N=1,528). 2002	Quantitative approach used a 2-stage probability sample to estimate end of life care experiences of Americans dying of a chronic illness in 2000. The survey included respondents' views of whether health care providers and institutions provided the desired level of physical comfort and emotional support; supported shared decision-making and communication; treated the patient with respect and dignity; attended to the needs of the family and provided information on what to expect; and coordinated care among providers and settings.	Results indicated insufficient levels of physical comfort and emotional support by family members for the dying person. ¹
S2. Family members Follow-up to national mortality follow-back survey (S1) (Qualitative interview)	Aspects of care at the end of life, including symptom control, communication with care providers, transitions of care, and hospice care	Subset of original respondents from S1 whose family members spent at least the last month of life in a NH (N=54). 2003–2004	Qualitative approach used narrative telephone interviews with family members using a semi-structured interview guide. The transcripts were qualitatively analyzed by a multi-disciplinary team of researchers to identify salient themes across interviews.	;; Respondents indicated a desire for more communication with physicians. 2–5
S3. NH medical directors AMDA quantitative study of NH medical directors	National survey regarding practices of NH medical directors	Survey of medical directors (N=202) 2006	Qualitative focus group of medical directors; Quantitative survey of NH medical directors; subsequent survey of a random sample of AMDA members.	Results showed a wide variation in how physicians practice in NHs, and reveal contrasts between closed and open physician panels in NHs. ⁶
Study Focus/Name	Topic of study	Population studied	Methods	Authors (date of study/publication)
S4. NH providers and LTC experts Key informant qualitative interviews about NH physician-nurse interactions	NH physicians and nursing staff and long term care stakeholders' views of interactions among NH physicians and nursing staff	Network sample of NH physicians, nursing staff, long term care policy experts (N=30) 2005–2006	Qualitative in-person and telephone interviews were conducted that lasted between 30 and 60 minutes and were analyzed for summary themes.	Interviews with LTC experts indicate the need for research on NH medical staff and lend support to benefits of closed physician panels in NHs. ⁷
S5. NH Directors of Nurses and Administrators Qualitative cognitive-based interviews to develop and refine measures for national NH surveys.	Interviews to refine measures and characterize NH care practices, policies, perceptions and behaviors	Random sample of NH directors of nurses (DONs) and NH administrators (NHAs) throughout the country. (N=45) 2008/2009	Qualitative in-person and telephone interviews were conducted with a sample of NH DONs and NHAs before national administration of mail surveys in order to conduct cognitive-based testing of each question. The purpose was to test the validity, utility and appropriateness of the survey questions to ensure that questions were understood by respondents as intended.	Cognitive interviews with NHAs and DONs revealed an unmet need for greater physician, NP and PA presence and involvement in NHs. ⁸

¹ Teno et al., 2004

² Wetle et al., 2004

³ Wetle et al., 2005

⁴ Shield et al., 2005

⁵ Shield et al., 2010

⁶ Katz et al., 2009

⁷ Shield and Rosenthal (2005–06; unpublished data)

⁸ Tyler, Shield, Rosenthal, Miller, Wetle, Clark (2011)

Table 2

Examples of Nursing Home Administrator and Directors of Nursing Survey Questions Measuring Structure, Process and Outcomes of Medical Staff Organization

Measures of Structure (Focused on Control)					
How is the medical director paid for his or her administrative duties?	Direct payroll salary (e.g., employee)		Under contract or retainer	Other (please specify):	Medical Director is not paid
About how many hours per week in total does your medical director serve as the medical director for the NH?	0 hours		1 to 2 hours	3 to 4 hours	More than 4 hours
How detailed are the NH rules or by-laws in listing criteria necessary for granting physician attending privileges?	Not at all	Somewhat	Moderately	Quite a bit	Very
Is there at least one physician, nurse practitioner, or physician assistant scheduled to be on-site at your NH Saturdays, Sundays, and holidays?				No	Yes
Is there at least one physician, nurse practitioner, or physician assistant scheduled to be on-site at your nursing home Monday through Friday?				No	Yes
Is there scheduled telephone coverage by a physician, nurse practitioner, or physician assistant Saturday, Sunday, and holidays?				No	Yes
In your nursing home, do you have NPs who are employed by the nursing home?				No	Yes
In your nursing home, do you have NPs who are employed by a physician or physician group?				No	Yes
Measures of Processes (Such as Communication and Coordination)					
How often do you expect physicians to attend care plan meetings?	None of the time	A little bit of the time	Some of the time	Most of the time	All of the time
How often do you expect physicians to talk with pharmacy consultants about patients?	None of the time	A little bit of the time	Some of the time	Most of the time	All of the time
How often do physicians communicate with other staff about the care of a resident?	None of the time	A little bit of the time	Some of the time	Most of the time	All of the time
How often do NPs, who are employed by the nursing home, participate in care planning meetings?	None of the time	A little bit of the time	Some of the time	Most of the time	All of the time
Are NPs, who are employed by the nursing home, responsive to nursing concerns about residents?	None of the time	A little bit of the time	Some of the time	Most of the time	All of the time
Measures of Resident Outcomes (Such as Symptom Management, Family Satisfaction, Hospitalizations)					
How many hospitalizations do you think could have been avoided if physicians paid greater attention to residents' changing symptoms or health statuses?	None			Some	A lot
When residents are at the end of life, how often do physicians make a referral for hospice?	Never		Sometimes	Often	Almost always
How often do physicians write orders for the appropriate amount of pain medication?	Never		Sometimes	Often	Almost always
Additional Secondary Data from MDS and Medicare Claims					

Number of hospitalizations	Hospice authorizations	ER visits
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