OXFORD

Consistent Assignment of Nursing Staff to Residents in Nursing Homes: A Critical Review of Conceptual and Methodological Issues

Tonya Roberts, PhD, RN,[*,1,2] Kimberly Nolet, MS,[2] and Barbara Bowers, PhD, RN[2]

[1]Geriatric Research Education & Clinical Center (GRECC), William S. Middleton Veteran Affairs Hospital, Madison, Wisconsin. [2]School of Nursing, University of Wisconsin, Madison.

*Address correspondence to Tonya Roberts, PhD, RN, Advanced Nurse Fellow, Center for Women's Health, Geriatric Research Education and Clinical Center, William S. Middleton Veteran Affairs Hospital, 2500 Overlook Terrace, Madison, WI 53705. E-mail: tjbeal@wisc.edu

Purpose of Study: Consistent assignment of nursing staff to residents is promoted by a number of national organizations as a strategy for improving nursing home quality and is included in pay for performance schedules in several states. However, research has shown inconsistent effects of consistent assignment on quality outcomes. In order to advance the state of the science of research on consistent assignment and inform current practice and policy, a literature review was conducted to critique conceptual and methodological understandings of consistent assignment.
Design and Methods: Twenty original research reports of consistent assignment in nursing homes were found through a variety of search strategies.
Results: Consistent assignment was conceptualized and operationalized in multiple ways with little overlap from study to study. There was a lack of established methods to measure consistent assignment. Methodological limitations included a lack of control and statistical analyses of group differences in experimental-level studies, small sample sizes, lack of attention to confounds in multicomponent interventions, and outcomes that were not theoretically linked.
Implications: Future research should focus on developing a conceptual understanding of consistent assignment focused on definition, measurement, and links to outcomes. To inform current policies, testing consistent assignment should include attention to contexts within and levels at which it is most effective.

Key words: Nursing homes, Organizational and institutional issues, Nursing studies, Consistent assignment

Many national organizations consider consistent assignment of nursing staff to residents in nursing homes an important strategy for improving quality of care and quality of life for residents (Advancing Excellence, 2012; American Health Care Association, 2012; Koren, 2010b; Leavitt, 2006; Pioneer Network, 2011; Quality Partners of Rhode Island, 2004), and some states have even included consistent assignment as target goals in their pay for performance

programs (Colorado Department of Health Care Policy and Financing, 2011; Commonwealth of Massachusetts Office of Health and Human Services, 2012). Furthermore, consistent assignment is a central strategy in the culture change movement, a national effort to improve nursing home environments by transforming traditional, institutional culture to one that is home like, where residents are able to receive person-centered care according to their preferences and customary routines (Doty, Koren, & Sturla, 2008; Koren, 2010a; Pioneer Network, 2011). Culture change advocates believe consistent assignment fosters strong, trusting relationships between staff and residents and enhances ability of staff to better "know" residents, their needs and preferences, and to provide care in meaningful and person-centered ways (Advancing Excellence, 2012; Koren, 2010a; Pioneer Network, 2011).

The practice of consistent assignment of nursing staff to residents has intuitive appeal, and anecdotal reports suggest that it leads to better quality of care outcomes, stronger relationships between staff and residents, and a more stable and committed workforce (Albright, 2009; Farrell & Frank, 2007; Farrell, Frank, Brady, McLaughlin, & Gray, 2006; Kaldy, 2011; Rahman, Straker, & Manning, 2009). However, research demonstrates an inconsistent link between consistent assignment and outcomes, with studies demonstrating improvements, as well as not changing, and even worsening outcomes. A recent review of consistent assignment outcomes noted methodological limitations may be influencing this inconsistency (Rahman et al., 2009). In order to explore reasons for varied results and advance the state of the science, it is necessary to have a thorough understanding of conceptual and methodological inconsistencies found in this research. The purpose of this review is to summarize and critique the conceptual and methodological inconsistencies in research on consistent assignment. This review will answer two questions:

1. How has consistent assignment been conceptualized and defined in research?
2. What are the methodological limitations in current research on consistent assignment that may contribute to inconsistencies in outcomes?

Methods

The literature search included use of online databases, manual searches through reference lists of articles, and contacting experts for reports that may not be obtained in traditional searches. Databases included PubMed, Cumulative Index to Nursing and Allied Health Literature, Academic Search Premier, Health Source: Nursing/Academic Edition, Medline, PsycARTICLES, PsycINFO, SocINDEX, and

Social Science Full Text. Terms used included MESH terms; *Personal staffing and scheduling*, *primary nursing*, *consistent assignment*, *permanent assignment*, and *rotating assignment*. Each of these terms was combined with *nursing homes*. All available years were included.

Only original research articles were included. Articles that addressed staffing issues unrelated to consistent assignment such as ratios of RN's to LPN's, hours per resident day, agency staffing, turnover, and full-time equivalents, or settings other than nursing homes were excluded. The initial search produced 433 original articles. From that, a total of 20 research articles fit the criteria and were reviewed here. See Figure 1 for a PRISMA flow diagram describing the search.

Results

Conceptualization and Definition of Consistent Assignment

Most studies in this review included some description of conceptualization or definition of consistent assignment. However, the way consistent assignment was conceptualized or defined varied considerably with little overlap from study to study.

Conceptual Frameworks

Seven studies were guided by an explicit conceptual framework. Four of these were guided by frameworks specifically addressing consistent assignment or concepts of primary nursing. The other two studies were guided by practice change theories or other substantive theories unrelated to consistent assignment, providing no direction for understanding relationships between consistent assignment and other variables of interest and will not be described here.

In two studies testing consistent assignment, Teresi and colleagues were guided by a conceptual model of primary nursing care that had been used in other settings (Pasternak, 1988; Rantz & Roethle, 1984; Zander, 1970 as cited in Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993; Teresi, Holmes, Benenson, Monaco, Barrett, Ramirez, et al., 1993). Elements from these works were combined into a framework that defined core elements of their care model emphasizing (a) feelings of direct responsibility for individual patient care, (b) continuity of care, (c) enhanced socioemotional interaction, and (d) patient autonomy and independence in performing self-care activities. Although the patient population to which the framework had previously been applied (mentally and physically impaired) may have relevance for residents in nursing homes, at least one reference they used was previously used for critical care nursing. The authors do not expand on
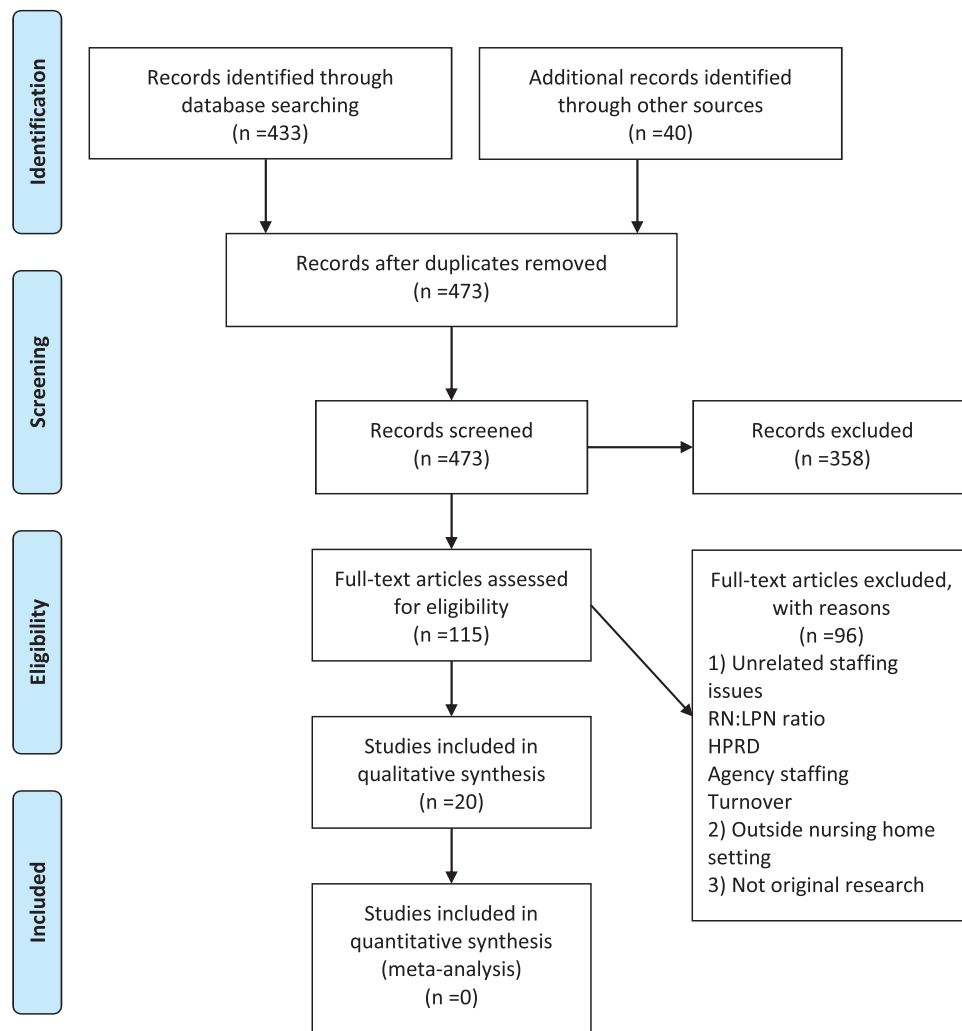
Figure 1. PRISMA flow diagram of reviewed research.

how they feel the framework could be directly applied to nursing home settings.

Castle (2011, 2013) used prior research to develop a conceptual framework describing links between consistent assignment and quality outcomes (Farrell & Frank, 2010; Rahman et al., 2009; Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993; Teresi, Holmes, Benenson, Monaco, Barrett, Ramirez, et al., 1993 as cited in Castle, 2011, 2013). The research cited indicated that consistent assignment was linked to quality because it increased socioemotional interaction and improved relationships between aides and residents, improved staff morale, and lightened care burden for staff thereby improving quality of care and resident quality of life.

The lack of guidance, or at least explicit guidance, from a conceptual framework in most studies may represent a general lack of conceptual understanding of consistent assignment practices and how and why they might affect outcomes. Furthermore, application of frameworks from other settings indicates that the role of consistent

assignment in influencing quality in nursing home settings is not well known.

Purpose for Consistent Assignment

In some studies, rather than an explicit conceptual framework, a general purpose for implementing or studying consistent assignment can be inferred from the context of the article, outcomes measures, or other areas of clarification throughout the article. Practical reasons cited or implied for instituting consistent assignment included: enhancing accountability (typically clarified as 24-hr responsibility for nurses and described as not "letting residents down" for aides); introducing coordinated, individualized, or person-centered care; improving continuity and quality of care; improving communication among staff; allocating care decisions to one staff member; instituting case managed care plans; and building strong, trusting relationships between residents, staff, and families. The Nursing Home Reform Act of 1987 that emphasized the importance of

quality of life for nursing home residents was a policy also cited as impetus for implementing consistent assignment (Doty et al., 2008; Kaeser, 1989).

In two studies, benefits of consistent assignment were assumed. Berman (1989) indicated that management practices, including decisions about rotating or permanent assignments, are assumed to be related to turnover. Zimmerman and colleagues (2005) indicated that they studied resident–staff assignments because these assignments may have practice or policy relevance for improving quality of life for residents with dementia.

Knowing the purpose for implementing consistent assignment can aid determination of study applicability by providing some practical guidance for those wishing to implement consistent assignment for similar reasons and under similar contexts. It may also direct the reader to expect particular outcomes from consistent assignment. However, a generally stated purpose does not provide strong theoretical rationale for choices surrounding study design or hypotheses in the same way as a conceptual framework.

Conceptual Definitions

Consistent assignment was generally viewed across studies as a mechanism for achieving one of several quality goals; however, the priority or emphasis on consistent assignment as the key mechanism for achieving a goal varied across studies. Subtle distinctions in the importance of consistent assignment were not explicit but could be detected by comparing descriptions and definitions of consistent assignment. Consistent assignment was viewed in three general ways: as essential, as supportive, or as both essential and supportive in achieving a specified goal.

Consistent assignment was described as essential when it was discussed as an independent technique implemented to improve a quality goal. Consistent assignment was supportive when it was described as one technique among several in conjunction with implementation of a broader care philosophy. For example, in several studies implementing primary nursing included changes to accountability systems, job roles, and decision-making authority in addition to consistent assignment. In some cases, consistent assignment was represented as both essential and supportive. For example, in one report, the philosophy of primary nursing guided the study. However, consistent assignment was the only intervention implemented despite the philosophy, suggesting other components may be important. Therefore, consistent assignment was philosophically viewed as supportive, but practically viewed as essential.

Terminology used to describe consistent assignment and the staff targeted by the practice varied depending on whether the practice was viewed as essential or supportive (see Table 1). Terms used to denote consistent assignment as essential were associated with definitions that reflected the practice as one of a simple staffing arrangement and the term "assignment" was often included; for example, the terms consistent assignment, permanent assignment, and primary assignment were used. Terms used to denote consistent assignment as supportive ranged depending on the broader philosophy of care associated with the practice; as an example, the terms primary nursing and resident-centered staffing were used. It is noteworthy that working in a team was described both as part of consistent assignment and in contrast to consistent assignment. For instance, in one article, team nursing was described as hierarchical, task-oriented care or in contrast to primary nursing (i.e., consistent assignment). In another article, working in a team (specifically a team of two) was an essential part of implementing consistent assignment in order to lessen workload burden.

Nurses and nurse aides were reported as participating in consistent assignment. Only in two studies were both nurses and aides simultaneously included. Only in one study were various levels of nurses described (i.e., RN, LPN, and manager). In some cases, staff were referred to as "staff" or "direct care staff," and the target population had to be inferred. It is noteworthy that aides were the staff most often targeted, even in some cases in which primary nursing was the goal. In these cases, primary nursing was adapted for nurse aides but definitions of primary nursing were essentially unchanged such that clauses regarding decision-making authority still existed unmodified and without detail regarding the scope of what that meant for nurse aides.

Variations in conceptual definitions of consistent assignment have implications for how it is implemented, thereby influencing interpretability and comparability of study results. When consistent assignment is viewed as part of a broader philosophy of care, it is implemented with a variety of other intervention components. This can make it difficult to distinguish whether intervention effects were due to consistent assignment or other package components, particularly if studied outcomes are general, potentially influenced by multiple factors, not specific to consistent assignment. The outcomes of these studies should, thus, not be directly compared with those in which consistent assignment was implemented alone.

Operational Definitions and Measurement

In 14 studies (70%), an operational definition of consistent assignment was provided (see Table 2). However, it is important to note that in some of these articles,

Table 1. Terms and Conceptual Definitions Used to Describe Consistent Assignment

Term(s)	Definition elements[a]	Target staff[b]	References[c]
Essential mechanism (assignment structure)			
Permanent assignment Primary assignment Consistent assignment	Staffing arrangement in which aides or nurses work with the same group of residents on a regular basis	Nurses = 2 studies Aides = 8 studies	(Caspar, Cooke, O'Rourke, & MacDonald, 2013; Castle, 2011; Cox, Kaeser, Montgomery, & Marion, 1991; Doty et al., 2008; Patchner, 1989; Ramirez, Teresi, Holmes, & Fairchild, 1998; Temkin-Greener, Zheng, Cai, Zhao, & Mukamel, 2010; Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993; Teresi, Holmes, Benenson, Monaco, Barrett, Ramirez, et al., 1993).
Supportive mechanism (philosophy of care)			
Primary nursing Case managed care	Delivery of care in comprehensive, coordinated, continuous, individualized ways through a nurse aide or professional nurse who has autonomy, accountability, decision-making responsibility, and authority on a 24-hr basis	Nurses = 2 studies Aides = 4 studies	(Burgio et al., 2004; Campbell, 1985; Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993; Teresi, Holmes, Benenson, Monaco, Barrett, Ramirez, et al., 1993; Wilson & Dawson, 1989)
Resident centered/oriented	Residents assigned to an individual nurse or aide as one element of several in a package of interventions aimed at improving overall care delivery to residents in person-centered ways	Nurses = 2 studies Aides = 3 studies	(Boumans et al., 2005; Cox et al., 1991; Doty et al., 2008; Kaeser, 1989).
Inconsistent assignment structure			
Rotating assignment	Aides or a team of aides that change assignments according to some predetermined schedule (e.g., daily, weekly, or monthly)	Nurses = 0 studies Aides = 3 studies	(Burgio et al., 2004; Patchner, 1989; Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993).
Inconsistent assignment philosophy of care			
Team nursing functional Nursing task-oriented care	Traditional nursing care delivery systems with nursing staff divided into hierarchical task-oriented teams aimed at meeting patient care needs	Nurses = 4 studies Aides = 2 studies	(Boumans et al., 2005; Burgio et al., 2004; Campbell, 1985; Laakso & Routasalo, 2001; Wilson & Dawson, 1989)

[a]Definition elements include key elements common in definitions across studies. Definitions were not the same from study to study.

[b]Target staff column includes the number of studies in which a given term was used in reference to assignment of nurses or aides. In some cases, both were referenced so numbers do not always add up to number of references presented in each row.

[c]Not all references provided conceptual descriptions consistent assignment. Some references will be found in more than one row if they viewed consistent assignment as both essential and supportive or if they used antonyms as a strategy for defining consistent assignment.

operationalization of consistent assignment was only gleaned from descriptions of variables used in the study, whereas in others, narrative was devoted to describing it. The definitions generally discussed the proportion of time that staff were assigned to residents. For example, some definitions included whether aides cared for the same group of residents every day they worked and another captured the percent of time caregivers cared for residents. However, there were subtle differences in how time was described in each definition. One definition included staff only on day and evening shifts, excluding night shifts. Another definition defined time from the resident's perspective, in particular capturing a specific resident event by including, "aides assigned until resident discharge, death, or transfer." The remaining definitions varied in whether they included language regarding assignments occurring on shifts, days, both, or neither (e.g., every shift they worked, every day they worked, while on duty, etc.). Three definitions were written to reflect residents being assigned to staff rather than vice versa, for example, a measure of the "consistency of patients assigned to caregivers" as opposed to "aides care for the same group of residents."

Table 2. Operational Definitions and Measurement of Consistent Assignment

Measurement	Definition	Reference
Not measured	Assignment to a resident until discharge, transfer, or death	(Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993; Teresi, Holmes, Benenson, Monaco, Barrett, Ramirez, et al., 1993)
Not measured	Residents permanently assigned the same aides on day and evening shifts—5 days/week, not on night shifts	(Cox et al., 1991)
Not measured	Aides care for the same group of residents every day/shift they work	(Patchner, 1989)
Self-report	% of workers who report being consistently assigned to residents (facility level measure based on individual responses to a dichotomous item on survey[a])	
Self-report	Aides rotated among different residents (dichotomous survey item)	(Berman, 1989; Temkin-Greener et al., 2010)
Self-report	Frequency of rotation—daily to permanent (3-point[a] or 5-point Likert item on survey)	(Caudill & Patrick, 1991; Ramirez et al., 1998; Zimmerman et al., 2005)
Self-report	Extent to which residents are allocated to the same nurse (10- to 5-point Likert items on a survey)	(Boumans et al., 2005)
Self-report calculation	Same caregivers consistently caring for the same residents almost every time they are on duty; % of time (instructions for calculations provided on survey)	(Castle, 2011)
Self-report calculation	The average level of aide consistent assignment (instructions for calculations provided on survey)	(Castle, 2013)
Researcher calculation	Consistency (frequency) of patients assigned caregivers within a 7-day period (based on record review[a])	(Wilson & Dawson, 1989)
Researcher calculation	Degree of permanency: Calculated % of time residents in facility are cared for by most frequently assigned CNA by totaling # days CNA worked with resident divided by total # of workdays in period (based on observation[a])	(Burgio et al., 2004)

[a]Not explicitly indicated as such. Inferred based on contextual descriptions of the item.

There was considerable variation in the ways these operational definitions were measured. Consistent assignment was measured by self-report in seven studies, by researchers in two studies, and not measured in four studies. Only two measures included a means for calculating the frequency of time consistent assignment was achieved. In other measures, participants were asked to make crude judgments regarding frequency: responding yes or no, or estimating on a three- to five-point Likert scale, how often staff were consistently assigned. For example, in one study, participants were asked to respond yes or no to an item that asked whether aides were rotated among residents. Five of these studies were intervention-level designs and in only one was consistent assignment measured as part of a treatment fidelity check. In all except two studies, researchers developed new items or collections of items to measure consistent assignment. Castle (2011, 2013) used a previously developed set of steps for calculating consistent assignment in nursing home administrator survey. Boumans, Berkhout, and Landeweerd (2005) adapted a subscale from an established instrument on perceived responsibility in integrated nursing to measure consistent assignment. Boumans and colleagues were the only researchers to report reliability and validity procedures for a measure of consistent assignment. They piloted the instrument to determine face validity, feasibility, and user-friendliness and reported a Cronbach alpha of .91 for the scale.

A major limitation of definitions and measures is that the term "consistent" is not associated with an objective numerical value. This can result in considerable variation in responses. Cohen-Mansfield and Bester (2006) described units that had self-identified as using consistent assignment as having consistent assignment with "considerable rotation," reflecting the variance of what may be considered consistent assignment by respondents. Furthermore, Boumans and colleagues (2005) found that while higher than that of rotating, facilities self-identified as using consistent assignment were doing so only 65% of the time.

Research on consistent assignment has also been limited by the lack of measurement with adequately reliable and valid instruments. A lack of reported and established reliability and validity results in an inability to draw inferences about the links between the measured outcomes and consistent assignment (Cook & Beckman, 2006). Although

coarse-grained assessment of "usual" practices may be suitable for some purposes, a precise, reliable, and valid examination where exact staffing data are collected may be required, particularly if one wishes to make judgments about the best level of consistent assignment needed to achieve improvements in resident or staff outcomes.

Methodological Inconsistencies

Design

The following types of studies were conducted: one experimental, seven quasiexperimental, two program evaluations, nine surveys, and one qualitative study. There were methodological strengths noted in several studies. In experimental studies, differences in study facilities or between control and intervention groups were controlled statistically. In some experimental studies, data were collected over multiple time points rather than just pre/postintervention, and in others, data were collected and triangulated from multiple stakeholders or by multiple methods. One experimental study achieved nearly true randomization for intervention and control conditions and another implemented a rigorous sequential, crossover intervention design.

Despite these strengths, multiple design limitations presented significant barriers to obtaining compelling evidence for consistent assignment. Inadequate descriptions of data collection and analysis were found, including the absence of statistical testing of group differences. Several studies used nonequivalent control groups or no control group. In studies where control and treatment groups were in the same facilities, contamination effects were often not discussed. One study described the research design as quasiexperimental, yet there was no manipulation in the study—Burgio and colleagues enrolled facilities that self-identified as using rotating assignment into a "control" group and facilities that self-identified as using consistent assignment into a "treatment" group. Attrition in one study resulted in collection of pre- and posttest measures from different staff. In another study, staff were surveyed only postintervention and asked to recall their perceptions of care practices preintervention subjecting their responses to recall bias. Finally, in one study, intervention effects were confounded by simultaneous implementation of other quality improvement initiatives including a pressure ulcer program and restorative ambulation program limiting conclusions that changes in ambulation and pressure ulcers were related to consistent assignment.

Among the survey and statistical modeling studies, there were also several design strengths and limitations. Statistical corrections were included in several studies for (a) violation of model assumption, (b) nesting effects, and (c) differences in groups. In one study, data were collected from multiple perspectives rather than from a single source, another design strength. However, some of the survey studies included an inadequate description of analyses making it difficult to replicate findings, and some did not include a statistical analyses of any kind so that the reader can be confident that true differences between groups existed.

The single qualitative study included a thorough description of the rigor and trustworthiness of their data and conclusions. However, the researchers conducted both purposive and random sampling, two techniques that are often at odds with one another and did not adequately describe the rationale or procedures for doing so.

Sample sizes

Sample sizes in most experimental studies or program evaluations were small (see Table 3 for sample size ranges). A range of perspectives were solicited across studies. Nurse aide and nurse perspectives were captured in most experimental studies (90% of studies). Director of Nursing and Administrator perspectives were captured in 38% of the descriptive studies. Resident perspective was solicited collected from a variety of sources including resident, family, and staff in 90% of experimental studies and 25% of descriptive studies. Only two studies included family members in the sample.

The number of facilities included was small for experimental studies or program evaluations but large in descriptive studies. Among the experimental and quasiexperimental studies, consistent assignment was tested in a maximum of four nursing homes in a single study, with most studies testing in one or two facilities. In only one study, consistent assignment was implemented at the facility level. All other studies implemented consistent assignment at the unit level, a design in which contamination effects are highly likely. Overall, cause and effect study designs have only been implemented (albeit not with strong control as most had nonequivalent control groups, or not singly as most were in multicomponent interventions) in 19 nursing homes across the country raising questions about generalizability of the findings. Among the descriptive studies, some had large samples that were designed to be nationally representative and one used probability sampling. Only one survey had a limited sample obtained from a single state. The single qualitative study was conducted in a single facility.

Interventions

Two of 10 experimental studies or program evaluations tested consistent assignment interventions in isolation. Burgio, Fisher, Fairchild, Scilley, and Hardin (2004) explored the isolated effects of permanent and rotating

assignment as well as combined and isolated effects of work shift on quality of care. In this study, facilities self-identified as using permanent or rotating assignment and their quality of care outcomes were compared using a between-groups comparison design. The researchers included a treatment fidelity check to ensure that the facility's self-identification was appropriate. In the second study (Patchner, 1989), permanent assignment was implemented among aides in two nursing homes. In order to implement the practice, the authors describe an intensive preparation phase, which included dividing the residents into groups according to the amount of care they needed and then having the aides develop a list of 10–15 residents they would like to be permanently assigned to. Then aide/resident matches were made based on the degree of matches between the aides preferred assignment list and the organized groupings. Aides could make adjustments in assignments over time.

In the remaining eight experimental or program evaluation studies, six unique interventions were tested, which included implementation of consistent assignment along with other job change components, specifically changes in job roles, accountability, and communication systems (see Table 4 for intervention components). Multicomponent, or complex, interventions are somewhat common in health and health services research (Craig et al., 2008) and are often seen as necessary to be most effective in changing behavior. However, multicomponent interventions are complex sets of independent and interdependent effects that are combined in ways that make it difficult to know what the "active" ingredient is or be confident of which component is most important in influencing outcomes (Craig et al., 2008; Shiell, Hawe, & Gold, 2008). Reviewed studies generally did not acknowledge the limitations of their conclusions within this context or give an indication that there may have been multiple factors in addition to consistent assignment influencing outcomes.

Table 3. Sample Size Ranges From Intervention and Descriptive Studies

Target sample	Intervention	Descriptive
Facilities	1–4	1–3,941
Units	2–6	
Residents	50–318	10–421
Aides	10–178	10–7,418
Nurses	5–92	567
Nursing managers/ DON's	28	1,435
Administrators	5	294–3,941
Family members	92	10

Note: DON = Director of Nursing.

Table 4. Intervention Components in Quasiexperimental Studies

Study	Consistent assignment	Accountability systems	Unit structural changes	Working in pairs	Enhanced communication among staff	Resident-centered scheduling	Enhanced resident choice and control	Head nurse as facilitator
Burgio et al.	X							
Patchner	X							
Teresi et al.	X			X	X			
Teresi et al.	X			X	X			
Campbell	X	X	X					
Cox et al.	X	X					X	
Kaeser	X						X	
Boumans et al.	X					X		
Wilson and Dawson	X				X			X

In addition to multicomponent interventions, in one study, staff were allowed to operationalize the philosophy of primary nursing. This may lead to unstandardized and unsystematic results when the practices of consistent assignment are not articulated and implemented uniformly across groups.

Outcomes

Studied outcomes are summarized in Table 5. There were positive, negative, and null findings, sometimes for the same variable (e.g., staff turnover). There was considerable overlap in the *types* of outcomes studied, at least at a conceptual level (there was considerable variation in the way these outcomes were operationalized). Similar concepts were studied regardless of the purpose for or definition of consistent assignment used in the study.

Research was focused on staff and resident outcomes of consistent assignment with less attention to family and organizational outcomes. Researchers commonly measured quality of care, psychological well-being, and reduction in "challenging behaviors" for resident outcomes. Resident-level data were collected in a variety of ways including surveying residents directly, researcher observation, staff surveys, and chart reviews. For staff outcomes, researchers commonly measured staff stability (measured as turnover, absenteeism, or intent to leave) and staff attitudes toward, or satisfaction with, care and/or consistent assignment. Satisfaction with care and care workers were the most commonly measured family outcomes (assessed rarely). The ease with which facilities were able to implement and sustain consistent assignment was the most commonly described organizational outcome. Rarely were facility deficiencies also measured at an organizational level.

Only in limited cases did measured outcomes appear to be directly linked to the stated purpose for, or definition of, implementing consistent assignment. For example, Campbell (1985) stated that primary nursing involved the delivery of comprehensive, coordinated, and continuous individualized patient care through a professional nurse who has the autonomy, accountability, and authority on a 24 hr basis. The author subsequently collected data from nurses regarding their feelings of accountability and authority.

Discussion

The purpose of this review was to explore conceptual and methodological reasons for the variable efficacy of consistent assignment reported in research. The review reveals considerable conceptual and methodological variability that is likely contributing to inconsistent research findings. There

was little overlap from study to study in the way consistent assignment was conceptualized, operationalized, or measured. Essentially, across studies, different groups of people were studied doing different activities for different reasons. Few studies were guided by a conceptual framework, the mechanism by which consistent assignment influenced outcomes was generally not articulated, and the priority given to consistent assignment in improving quality varied. Across studies, the definition of consistent assignment varied considerably including who was consistently assigned (e.g., nurses or aides) and the time period (e.g., day shifts) or length of time over (e.g., until resident transfer or death) which consistent assignment occurred. Furthermore, consistent assignment was measured in several ways, measurement precision varied from study to study, and information was obtained primarily by self-report. These conceptual issues are further complicated by the methodological variation. Consistent assignment studies varied in implementation and testing of consistent assignment were conducted in few facilities, and organizational context was not often discussed. Overall, given the conceptual and methodological variation, there has been a lack of replicative studies, making the inconsistency in outcomes from consistent assignment an expected finding.

However, in addition to the conceptual and methodological issues noted in this review, there may be a number of alternative reasons for the inconsistency, not commonly noted in research. One explanation may be the lack of attention to the role of staff–resident interactions within the context of consistent assignment. For consistent assignment to achieve the goals of close staff–resident relationships and enhanced staff familiarity of the resident, attention to staff–resident behaviors within the context of the consistent assignment structure is important. Consistent assignment alone does not ensure the quality of interactions between staff and residents, only the consistency. However, staff–resident dyadic interactions within the context of consistent assignment staffing structures have received little attention in research. There is a growing body of research that suggests staff–resident interactions often focus on task rather than person and that staff often lack the requisite skills to develop positive relationships with residents in ways that are person centered without education or further intervention (Grosch, Medvene, & Wolcott, 2008; McGilton, 2004; McGilton et al., 2003; Williams & Tappen, 1999). Consequently, discounting the role of the dyadic interactions between staff and residents in research on consistent assignment may be contributing to the variability with which positive outcomes are obtained.

Another possibility for the variation in outcomes of consistent assignment is that it may not work all the time, under all conditions, for all facilities. At both practical and

Table 5. Outcomes of Consistent Assignment

Direction of outcome	Resident	Staff	Family	Organizational
Positive	• Better hygiene	• Ability to treat residents as persons	• Felt staff became friendlier	• Administrators express greater commitment to resident-centered staffing
	• Improved relationships with staff	• Enhanced independence, accountability, responsibility, and autonomy	• More cooperative	• Fewer quality of care and quality of life deficiencies
	• Reduction in challenging behaviors	• More positive attitudes	• Felt they could go to aides with questions	
	• Improvements in some care outcomes (e.g., pressure ulcers)	• Better coordination of care and ability to implement care plans		
	• Higher satisfaction with care and more positive attitudes	• Lower turnover and absenteeism		
	• Improved affect	• Better relationships with supervisors		
	• Increased participation in social activities	• Delivery of higher quality of care		
	• Enhanced choice and control	• Higher job satisfaction		
		• Improved documentation		
No change	• Participation in social activities	• Attitudes	• Satisfaction	
	• Affect	• Satisfaction		
	• Relationships with staff	• Turnover and absenteeism		
	• Satisfaction			
	• Care outcomes			
Negative	• Lower staff ratings of resident quality of life	• Higher turnover and absenteeism		• Difficulty sustaining practice due to unbalanced workloads and unavailability of staff to cover off-shifts
	• Declines in self-care competency and health status	• Dislike of the practice due to boredom, routinization, high resident demands, higher accountability		
		• Resistance to care		
		• Supervisors disliked addressing problem behaviors that surface with enhanced accountability		
		• Burnout		

policy levels, the possibility of negative consequences from consistent assignment practices has largely been dismissed. This may be related to a focus on implementing consistent assignment at the facility level without consideration to the multiple organizational factors that may influence how it is implemented and a lack of attention to interactions that occur between staff and residents within the context of a consistent assignment staffing arrangement. Furthermore, as with any quality initiative, consistent assignment can be poorly implemented or can be implemented in an unsupportive or poor work environment. Consistent assignment

used in these conditions may do little to achieve quality goals—another factor which may be influencing the inconsistent link to positive outcomes.

To move the state of the science on consistent assignment forward, it is important for future research to overcome past limitations in ways that will allow scientists, providers, and policy makers the ability to understand whether consistent assignment improves outcomes, how and under what conditions. With this goal in mind, we put forward a number of areas for possible future exploration.

Addressing Conceptual Inconsistencies

Attention should be devoted to developing a strong conceptual understanding of consistent assignment that details how it should be defined while also articulating the link between consistent assignment and outcomes. As the literature has demonstrated, consistent assignment can be defined in numerous ways. However, whether it is seen as an approach to care, as part of a package of interventions that change care delivery, or simply as a staffing arrangement needs greater conceptual clarity.

Theory-generating work could be undertaken in order to articulate concepts relevant to consistent assignment and the relationships among consistent assignment practices, related aspects of practice change (e.g., relationship building or accountability), dyadic behaviors at the staff–resident level, and resident, staff, family, and organizational outcomes. Focusing qualitative research on key practice elements and staffing patterns to better understand the link between consistent assignment and outcomes and to determine which outcomes are most likely to change as a result of consistent assignment could be beneficial. Finally, qualitative research could be used to explore under which conditions both positive and negative results are achieved, clarifying which practices promote positive aspects of consistent assignment. Qualitative exploration is particularly useful for reaching pursuing these topics because it does not assume that key concepts have already been articulated and are measurable.

Measuring Consistent Assignment

To ensure consistent collection of information regarding consistent assignment, instrument development is required. A reliable and valid instrument that measures numerically how consistent assignment is implemented is needed. Exploring whether the Advancing Excellence tool (Advancing Excellence, 2012), which allows nursing home staff to input staffing data and determine the level to which they are implementing consistent assignment, can be adapted for research would be useful. Developed measures need to balance the resources required to collect the data with the accuracy, validity, and reliability of the data. For example, it is important to understand the accuracy of self-report of consistent assignment. This approach may be the least resource intensive for staff and researchers, but given the potential social desirability to demonstrate the use of consistent assignment, it may not be reliable. On the other hand, the resources needed to collect raw staffing data may be too intensive given the returns.

Finally, it may be useful to develop an instrument that considers consistent assignment as part of a multidimensional construct of overall staffing stability. For example,

turnover can greatly affect the stability of a staff workforce (Castle, 2011; Castle & Engberg, 2008) and therefore the consistency of consistent assignments. This raises questions regarding the relative importance of consistent assignment as a single construct. In general, a global measure of staff stability, which includes aspects such as turnover (of both direct care, licensed, and management staff), consistent assignment practices, staffing levels, and ratios may be a better indicator to use in linking staffing practices to outcomes. Future research could explore questions such as: Are there rates of turnover at which, even with consistent assignment, improved quality is not realized? To what degree does turnover influence the ability to implement consistent assignment and to what degree does consistent assignment reduce or influence turnover?

Testing Consistent Assignment

As the field moves forward with considering policy and financial incentives for consistent assignment, it may become increasingly important to focus research on the effectiveness of consistent assignment rather than the efficacy. Articulating the real-world conditions under which consistent assignment works and why; whom it works with (e.g., aides or nurses, both, others); and whom it works for (e.g., resident, staff, both, others) will be essential for ensuring wide adoption, implementation, and sustainability. In addition, the ideal level, degree of, or consistency of the practice needs to be explored to inform national benchmarks (e.g., 85% marker set by Advancing Excellence's quality program) and policy development (e.g., including consistent assignment in pay for performance programs). Research to test the influence of consistent assignment on outcomes may include a number of approaches to meet these goals.

Comparative effectiveness research is becoming a priority in healthcare research as a useful mechanism for testing and comparing two or more interventions with the aim of understanding which works best and under what conditions (American Recovery and Reinvestment Act 111th Congress, 2009; Institute of Medicine, 2009; Sox & Greenfield, 2009). Intervention research could be used to conduct comparative effectiveness trials of consistent assignment at various levels, as well as between different approaches of staffing to explore how it works best and under what conditions. However, it is essential if these designs are used, that careful attention is paid to overcoming the limitations of previous work reported here. In particular, it will be important to carefully articulate a clear definition of consistent assignment, which includes: who is consistently assigned (e.g., nurses or aides); when consistent assignment happens (e.g., only on day shifts); how (e.g.,

in conjunction with a larger philosophy of care); at what level (e.g., 85% of the time); and under which conditions (e.g., in culture change facilities). In addition, articulating the mechanism by which consistent assignment works and improves study outcomes should be described. These descriptions will move the field forward and better inform practice and policy by providing the detail needed to determine whether results are comparable across studies and the conditions under which consistent assignment works best.

Consistent assignment is becoming a commonplace practice with some studies estimating 21%–68% of facilities using it (Castle, 2011; Mueller, 2002; Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993). This may present challenges to researchers wishing to employ intervention designs, as options for control facilities may be limited. Another potentially useful approach for exploring the variable effectiveness of consistent assignment and the conditions that influence it may be statistical modeling of large sets of survey data. For example, controlling for multiple, unavoidable confounding factors with propensity analysis or using structural equation modeling to test complicated relationships is among several possible statistical approaches that may be useful to study consistent assignment.

Statistical modeling of survey data may need to rely on extensive primary data collection presently however, as existing large databases that could inform this design and research question are limited. There may be more opportunities in the future to employ a secondary data analysis design if various organizations currently collecting data on concepts of relevance to consistent assignment determine whether and how that data could be used for research. For example, various data sets that could be merged together to answer relevant questions might include: Advancing Excellence databases (consistent assignment data and person-centered care data), Pioneer Network databases (culture change adoptors and nonadopters), Minimum Data Set (resident outcomes), and Nursing Home Compare (quality measure outcomes).

Regardless of the data source, in order to use a modeling approach to testing the effectiveness of consistent assignment, a valid and reliable mechanism for measuring it will first need to be developed. With an appropriate measure, a modeling approach with large samples can help determine the varying degrees at which consistent assignment is effective, how it is effective, and the path by which outcomes are achieved. Longitudinal designs can be used in conjunction in order to support discussions about causal links.

It is important to include consideration and notation of the broader care context in which consistent assignment is implemented in study design as well as the role of other components in multicomponent interventions to better understand the conditions under which it works best. For example, culture change is becoming more prevalent in nursing homes across the country with over 50% of nursing homes engaged in or committed to it (Doty et al., 2008). Consistent assignment that is instituted in a facility which has adopted many aspects of culture change may look and be sustained differently than in a more traditional, institutional model. Whether change in outcomes is related to consistent assignment or other aspects of philosophical shifts in practice should be explored and articulated. Considering the care model within which consistent assignment is implemented as a covariate may be a useful consideration.

Very recent research, such as that conducted by Castle (2011, 2013), is a valuable example of research that has focused on exploring the variable effectiveness of consistent assignment combining both primary and secondary data collection approaches. This newer research using innovative approaches is providing unique insights about the practice that can answer contemporary questions pertinent to research, practice, and policy. Future studies which build on the notion of understanding the level at, and conditions under, which consistent assignment is effective will be important for moving the science forward.

Limitations

This review included only literature on consistent staffing patterns in nursing home settings. Primary nursing has been extensively studied in hospital settings. However, whether a staffing arrangement that was implemented for care in hospital settings can be applied to nursing homes is debatable given the differences in numbers and mix of staff and ratio of staff to residents.

Conclusions

In summary, research on consistent assignment in nursing homes is growing. Available literature suggests that there are more positive aspects of consistent assignment than negative. However, many conceptual and methodological inconsistencies in these reports make it difficult to draw strong conclusions regarding whether outcomes are due to consistent assignment. In particular, whether consistent assignment works differently at different levels, works better under certain conditions, or requires a particular care or work environment to be successful is little studied. As the field moves forward, articulating how, when, why, where, and for whom consistent assignment is effective is essential for informing practice and policy. Future research that learns from the limitations of prior research by clearly conceptualizing and articulating what consistent assignment is and how it works is needed.

Funding

References

Advancing Excellence. (2012). Consistent assignment. Retrieved July 7, 2012, from http://www.nhqualitycampaign.org/star_index.aspx?controls=resByGoal#goal2

Albright, L. A. (2009). Interview with a quality leader—Karen Davis, executive director of The Commonwealth Fund. *Journal for Healthcare Quality*, **31**, 5–9. doi:10.1111/j.1945-1474.2009.00013.x

American Health Care Association. (2012). Consistent assignment document library. Retrieved June 15, 2012, from http://www.ahcancal.org/events/calendar/webinar_Consistent_Assignment/default.aspx?InstanceID=1

American Recovery and Reinvestment Act 111th Congress. (2009). Retrieved from http://www.govtrack.us/congress/bills/111/s1

Berman, H. J. (1989). Effects of structural and operational variables on nurse aide turnover. In J. A. M. Day & H. J. Berman (Eds.), *Successful nurse aide management in nursing homes* (pp. 36–43). Phoenix, AZ: Onyx Press.

Boumans, N., Berkhout, A., & Landeweerd, A. (2005). Effects of resident-oriented care on quality of care, wellbeing and satisfaction with care. *Scandinavian Journal of Caring Sciences*, **19**, 240–250. doi:10.1111/j.1471-6712.2005.00351.x

Burgio, L. D., Fisher, S. E., Fairchild, J. K., Scilley, K., & Hardin, J. M. (2004). Quality of care in the nursing home: Effects of staff assignment and work shift. *The Gerontologist*, **44**, 368–377. doi:10.1093/geront/44.3.368

Campbell, S. D. (1985). Primary nursing: It works in long-term care. *Journal of Gerontological Nursing*, **11**, 12–16.

Caspar, S., Cooke, H. A., O'Rourke, N., & MacDonald, S. W. (2013). Influence of individual and contextual characteristics on the provision of individualized care in long-term care facilities. *The Gerontologist*. doi:10.1093/geront/gns165

Castle, N. G. (2011). The influence of consistent assignment on nursing home deficiency citations. *The Gerontologist*, **51**, 750–760.

Castle, N. G. (2013). Consistent assignment of nurse aides: Association with turnover and absenteeism. *Journal of Aging & Social Policy*, **25**, 48–64. doi:10.1080/08959420.2012.705647

Castle, N. G., & Engberg, J. (2008). Further examination of the influence of caregiver staffing levels on nursing home quality. *The Gerontologist*, **48**, 464–476. doi:10.1093/geront/48.4.464

Caudill, M. E., & Patrick, M. (1991). Turnover among nursing assistants: Why they leave and why they stay. *The Journal of Long Term Care Administration*, **19**, 29–32.

Cohen-Mansfield, J., & Bester, A. (2006). Flexibility as a management principle in dementia care: The Adards example. *The Gerontologist*, **46**, 540–544. doi:10.1093/geront/46.4.540

Colorado Department of Health Care Policy and Financing. (2011). 2011 Nursing facilities pay for performance review. Retrieved from http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251740677759&ssbinary=true

Commonwealth of Massachusetts Office of Health and Human Services. (2012). Nursing Facility Bulletin 132: Reestablishment of the nursing facility pay for performance program. Retrieved from http://www.mass.gov/eohhs/docs/masshealth/bull-2012/nf-132.pdf

Cook, D. A., & Beckman, T. J. (2006). Current concepts in validity and reliability for psychometric instruments: Theory and application. *The American Journal of Medicine*, **119**, 166.e7–166.16. doi:10.1016/j.amjmed.2005.10.036

Cox, C. L., Kaeser, L., Montgomery, A. C., & Marion, L. H. (1991). Quality of life nursing care. An experimental trial in long-term care. *Journal of Gerontological Nursing*, **17**, 6–11.

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M.; Medical Research Council Guidance. (2008). Developing and evaluating complex interventions: The new Medical Research Council guidance. *British Medical Journal (Clinical Research Ed.)*, **337**, a1655. doi:10.1136/bmj.a1655

Doty, M., Koren, M., & Sturla, E. (2008). *Culture change in nursing homes: How far have we come? Findings from the Commonwealth Fund 2007 national survey of nursing homes*. New York, NY: Commonwealth Fund.

Farrell, D., & Frank, B. (2007). A keystone for excellence. *Provider*, **33**, 35–36.

Farrell, D., Frank, B., Brady, C., McLaughlin, M., & Gray, A. (2006). A case for consistent assignment. *Provider*, **32**, 47–52.

Grosch, K., Medvene, L., & Wolcott, H. (2008). Person-centered caregiving instruction for geriatric nursing assistant students: Development and evaluation. *Journal of Gerontological Nursing*, **34**, 23–31; quiz 32. doi:10.3928/00989134-20080801-07

Institute of Medicine. (2009). *Initial national priorities for comparative effectiveness research*. Washington, DC: National Academies Press.

Kaeser, L. (1989). Nurse aides and quality of life nursing care in nursing homes. In J. A. M. Day & H. J. Breman (Eds.), *Successful nurse aide management in nursing homes* (pp. 59–65). Phoenix, AZ: Oryx Press.

Kaldy, J. (2011). The ties that bind: Consistent assignment gives residents a sense of security, family. *Provider*, **37**, 22–24, 26, 28 passim.

Koren, M. J. (2010a). Person-centered care for nursing home residents: The culture-change movement. *Health Affairs*, **29**, 312–317. doi:10.1377/hlthaff.2009.0966

Koren, M. J. (2010b). Predictable scheduling. Nursing homes can boost quality, bottom line with 'consistent assignment'. *Modern Healthcare*, **40**, 21.

Laakso, S., & Routasalo, P. (2001). Changing to primary nursing in a nursing home in Finland: Experiences of residents, their family members and nurses. *Journal of Advanced Nursing*, **33**, 475–483. doi:10.1046/j.1365-2648.2001.01687.x

Leavitt, M. O. (2006). Improving the Medicare Quality Improvement Organization Program: Response to the Institute of Medicine Study.

Retrieved from https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityImprovementOrgs/Downloads/QIO_improvement_RTC_fnl.pdf

McGilton, K. (2004). Relating well to persons with dementia: A variable influencing staffing and quality of care outcomes. *Alzheimer's Care Today*, **5**, 71.

McGilton, K. S., O'Brien-Pallas, L. L., Darlington, G., Evans, M., Wynn, F., & Pringle, D. M. (2003). Effects of a relationship-enhancing program of care on outcomes. *Journal of Nursing Scholarship*, **35**, 151–156. doi:10.1111/j.1547-5069.2003.00151.x

Mueller, C. (2002). Nurse staffing in long-term care facilities. *The Journal of Nursing Administration*, **32**, 640–647. doi:10.1097/00005110-200212000-00009

Patchner, M. A. (1989). Permanent assignment: A better recipe for the staffing of aides. In J. M. Day & H. J. Berman (Eds.), *Successful nurse aide management in nursing homes* (pp. 50–58). Phoenix, AZ: The Oryx Press.

Pioneer Network. (2011). Retrieved July 8, 2012, from http://www.pioneernetwork.net/

Quality Partners of Rhode Island. (2004). Change ideas for consistent assignment. *Care Practice Work Place Practice Environment*.

Rahman, A., Straker, J. K., & Manning, L. (2009). Staff assignment practices in nursing homes: Review of the literature. *Journal of the American Medical Directors Association*, **10**, 4–10. doi:10.1016/j.jamda.2008.08.010

Ramirez, M., Teresi, J., Holmes, D., & Fairchild, S. (1998). Ethnic and racial conflict in relation to staff burnout, demoralization and job satisfaction in SCUs. *Journal of Mental Health and Aging*, **4**, 459–479.

Shiell, A., Hawe, P., & Gold, L. (2008). Complex interventions or complex systems? Implications for health economic evaluation. *British Medical Journal (Clinical Research Ed.)*, **336**, 1281–1283. doi:10.1136/bmj.39569.510521.AD

Sox, H. C., & Greenfield, S. (2009). Comparative effectiveness research: A report from the Institute of Medicine. *Annals of Internal Medicine*, **151**, 203–205. doi:10.7326/0003-4819-151-3-200908040-00125

Temkin-Greener, H., Zheng, N. T., Cai, S., Zhao, H., & Mukamel, D. B. (2010). Nursing home environment and organizational performance: Association with deficiency citations. *Medical Care*, **48**, 357–364. doi:10.1097/MLR.0b013e3181ca3d70

Teresi, J., Holmes, D., Benenson, E., Monaco, C., Barrett, V., & Koren, M. (1993). Evaluation of primary care nursing in long-term care: Attitudes, morale, and satisfaction of residents and staff. *Research on Aging*, **15**, 414–432. doi: 10.1177/0164027593154003

Teresi, J., Holmes, D., Benenson, E., Monaco, C., Barrett, V., Ramirez, M., & Koren, M. J. (1993). A primary care nursing model in long-term care facilities: Evaluation of impact on affect, behavior, and socialization. *The Gerontologist*, **33**, 667–674. doi:10.1093/geront/33.5.667

Williams, C. L., & Tappen, R. M. (1999). Can we create a therapeutic relationship with nursing home residents in the later stages of Alzheimer's disease? *Journal of Psychosocial Nursing and Mental Health Services*, **37**, 28–35.

Wilson, N. M., & Dawson, P. (1989). A comparison of primary nursing and team nursing in a geriatric long-term care setting. *International Journal of Nursing Studies*, **26**, 1–13. doi:10.1016/00207489(89)90042–4

Zimmerman, S., Sloane, P., Williams, C., Reed, P., Preisser, J., Eckert, J., et al.et al. (2005). Dementia care and quality of life in assisted living and nursing homes. *The Gerontologist*, **45**, 133–146. doi:10.1093/geront/45suppl_1.133