50th Anniversary Feature Article

The Gerontologist
Vol. 50, No. 4, 426–442
doi:10.1093/geront/gnq052

What Is Nursing Home Quality and How Is It Measured?

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Received March 18, 2010; Accepted June 7, 2010
Decision Editor: William J. McAuley, PhD

Purpose: In this commentary, we examine nursing home quality and indicators that have been used to measure nursing home quality. ***Design and Methods:*** A brief review of the history of nursing home quality is presented that provides some context and insight into currently used quality indicators. Donabedian's structure, process, and outcome (SPO) model is used to frame the discussion. Current quality indicators and quality initiatives are discussed, including those included in the Facility Quality Indicator Profile Report, Nursing Home Compare, deficiency citations included as part of Medicare/Medicaid certification, and the Advancing Excellence Campaign. ***Results:*** Current quality indicators are presented as a mix of structural, process, and outcome measures, each of which has noted advantages and disadvantages. We speculate on steps that need to be taken in the future to address and potentially improve the quality of care provided by nursing homes, including report cards, pay for performance, market-based incentives, and policy developments in the certification process. Areas for future research are identified throughout the review. ***Implications:*** We conclude that improvements in nursing home quality have likely occurred, but improvements are still needed.

Key Words: Quality of care, Nursing homes, Long-term Care

In the past, nursing home care and long-term care were synonymous. If elders needed long-term care, it would invariably be provided in a nursing home. In recent years, the long-term care sector has changed considerably and is arguably evolving into a "system" in which care can be provided in settings that are more appropriate for consumers' needs. This includes care by home health providers, adult day care, residential care, and assisted living (to name just four). However, nursing homes are still an essential component of the current long-term care system. In the United States, approximately 1.6 million elderly and disabled persons receive care in 1 of the 17,000 nursing homes (National Nursing Home Survey, 2004). Enduring issues surrounding nursing homes have been quality related. The often-poor quality of nursing homes has been a consistent issue of concern for consumers, government, and researchers.

In this commentary, we first provide a brief review of the history of nursing home quality. This centers on how nursing home quality has been

measured and provides some context and insight into currently used quality indicators in the nursing home industry. In doing so, we note that the concepts of what is measured, who does the measuring, and why measures are used are intertwined. We secondly provide our opinion on the relative merits of indicators of quality. Notable current quality indicators are presented. We then speculate on steps that need to be taken in the future to address and potentially improve the quality of care provided by nursing homes. These steps include policy changes and future research that is needed.

Numerous definitions of quality exist. A current well-cited example comes from the Institute of Medicine (IOM) (1996): "The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (p. 5). Operationalizing "quality" from definitions such as these proffered by the IOM can be problematic as the definitions are extremely general and subjective and as such resulting measures tend to be unable to fully realize the quality concept (Castle, Zinn, Brannon, & Mor, 1996).

Because of this inability to adequately realize "quality" in nursing homes, quality indicators are prevalent rather than quality measures. This helps denote a less precise association between the "indicator" and actual quality (i.e., they are surrogate measures). This has also fostered the creation of many quality indicators. For example, in choosing the quality indicators to be reported in Nursing Home Compare (www.medicare.gov/NHCompare; discussed subsequently), 181 indicators were considered. With many quality indicators available, some organization is useful. In this regard, in conceptualizing and organizing quality indicators, the approach of Donabedian (1985) is valuable.

Donabedian proposed that quality could be measured in terms of structures (S), processes (P), and outcomes (O). Structural measures are the organizational characteristics associated with the provision of care. Process measures are characteristics of things done to and for the resident. Outcome measures are the desired states one would (or would not) like to achieve for the resident. Donabedian's SPO approach is somewhat pervasive in the quality literature. For example, in MEDLINE (2005–2010), 57% (N = 3,950) of nursing home studies either directly or indirectly applied this approach of conceptualizing quality indicators. This approach of conceptualizing quality indicators as SPO measures is also used in this commentary.

The SPO approach also has theoretical underpinnings in that good structure should facilitate good process and good process should facilitate good outcomes. However, we note that the theoretical SPO underpinnings were not developed specifically for nursing homes and some have questioned its suitability for this setting (Glass, 1991). Moreover, SPO linkages are not always validated in the nursing home literature (Gustafson, Sainfort, Van Konigsveld, & Zimmerman, 1990). Some scholars have also further substantially developed components of this approach by including factors such as culture (S) and work groups (P) (Scott Poole & Van De Ven, 2004), whereas others in long-term care have modified the SPO theory, for example by combining it with contingency theory (Zinn & Mor, 1998).

A Brief History of Nursing Home Quality

A significant influence on nursing home quality has come from federal and state oversight bodies. This is the result of nursing home facility licensure and certification requirements and payments nursing homes receive from federal and state programs. Thus, a history of nursing home quality is intertwined with developments in these federal and state entities. We highlight key federal and state activities that have influenced quality indicators.

State health departments use a licensure process to establish standards for nursing home care. In 1961, the Public Health Service (as part of the U.S. Department of Health, Education, and Welfare) began studying nursing home state licensures after problems were being reported by the Commission on Chronic Illness and by a number of states (IOM, 1986). The Public Health Service issued the Nursing Home Standards Guide that expressed the need for standardized definitions of nursing homes and other critical terminology (i.e., administrator, advisory council, and resident). This guide also recommended "basic minimum standards applicable to all nursing homes" (Department of Health, Education, and Welfare, 1961, p. 5). The recommendations consisted of 77 health and safety standards—55 of these were structural quality indicators.

The nursing home industry continued to develop. By the late 1960s, by today's standards, what we would call the modern nursing home industry existed. This industry development and growth were primarily in response to the newly created Medicare and Medicaid programs. Certification was a requirement

for nursing homes to receive reimbursement for Medicare and/or Medicaid residents. This certification process occurs approximately yearly and consists of an on-site inspection by a team of surveyors. These surveyors monitor quality of care and assess whether the facility meets standards for certification (see review by Castle, Men, and Engberg, 2007, of the current certification process).

Despite the entry into the nursing home market of many new facilities, demand outstripped supply. Many nursing homes operated at 100% occupancy, and nursing homes generally did not incur much in the way of competitive pressure from each other. Quality issues remained, and health and safety standards continued to be developed and implemented. By 1974, 90 health and safety standards existed (for what were termed Skilled Nursing Facilities), with 59 of these as structural quality indicators.

In 1977, a new federal organization, the Health Care Financing Administration (HCFA) was created specifically for the coordination of Medicare and Medicaid. As part of this coordination, HCFA assumed jurisdiction over the nursing home certification process and development of standards for certification. HCFA continued to amend the standards and the certification process during the 1980s. One major change included using deficiency citations (Spector & Drugovich, 1989). That is, a deficiency citation represents an area in which a facility does not meet a Nursing Home Standard for certification.

As part of the improvements to the standards for certification, process quality indicators were introduced. For example, process quality indicators included the prevalence of daily physical restraints, occasional bladder/bowel incontinence without a toileting plan, and indwelling catheters. By 1987, certification consisted of 136 health and safety standards, with 98 of these structural quality indicators and 38 as process quality indicators (IOM, 1986).

Despite the amendments to the standards and the certification process that occurred during the 1980s, these generally did not keep pace with the increasingly complicated medical needs of residents. The nursing home industry's solution was to lobby to weaken the certification process. This move by the nursing home industry was contrary to media reports that had identified fraud, abuse, neglect, and poor care in nursing homes. Thus, HCFA commissioned the IOM to examine and report on nursing home regulations (IOM, 1986). The expert committee assembled by the IOM to examine nursing home regulations concluded that care was "shockingly deficient" (IOM, 1986, p. 2). This was further verified by a General Accounting Office report (GAO, 1987). Both the IOM and the GAO reports advocated for stronger government oversight to protect nursing home residents.

The IOM and GAO recommendations were incorporated into Subtitle C of the Omnibus Budget Reconciliation Act of 1987 (OBRA-87). The specific nursing home reform provisions are sometimes referred to as the Nursing Home Reform Act (Emerzian & Stampp, 1993). The changes were regarded as significant and wide ranging. Forty-seven recommendations were included. A timetable was established for implementation, and not all the changes to standards and enforcement were in effect until 1995. OBRA-87 was largely responsible for the quality environment in which nursing homes operate today. This includes a more stringent survey process, revised care standards, sanctions and remedies, training of nurse aides, and use of the Resident Assessment Instrument (of which the Minimum Data Set (MDS) is a major component).

The IOM report recommended that nursing home regulations should be refocused and to move from assessment of structure and process to an assessment of outcomes. This was facilitated by the MDS. The MDS is a summary assessment of each resident. The original MDS developed in 1990 and implemented in 1991 was redesigned as the MDS 2.0 in 1995 (Rahman & Applebaum, 2009). This includes measures of residents' functional status and health conditions. With this information from the MDS, outcome indicators were developed (e.g., falls, behavioral symptoms affecting others, symptoms of depression, bladder/bowel incontinence, and urinary tract infections). In 1999, the Nursing Home Standards for health and safety used during the certification process consisted of 153 standards; 81 of these were structural quality indicators, 48 of these were process quality indicators, and 24 of these were outcome quality indicators.

The progression over time in use of quality indicators as part of the Nursing Home Standards is shown in Table 1. For parsimony, this time line is simplified as information from only 5 years are presented. The use of these various SPO quality indicators has evolved gradually, and few watershed events have prompted substantial change (with the exception of OBRA-87).

The drivers of use of these SPO quality indicators are also simplified. The drivers not only include federal/state oversight as described (i.e., as part of

Table 1. Progression Over Time in Nursing Home Standards and Deficiency Citations

SPO indicator type	Year				
	1963[a]	1974[b]	1987[b]	1999[c]	2009[c]
Structure	5 of 55	5 of 59	5 of 98	5 of 81	5 of 104
	Patient Care Advisory Physician	Disclosure of ownership	The resident has the right to receive information in a language he/she can understand.	Employment of qualified dietitian (F361)	Nurse aide registry verification (F496)
	Patient Care Attending Physician	Staff development	The resident has the right to manage his/her finances and are not required to deposit their personal funds with the facility.	Sufficient support personnel (F362)	In-service education (F497)
	Charge Nurse on staff	Patient rights	The resident has the right to choose a personal attending physician.	Use of charge nurse and Registered Nurse (F354)	Responsibilities of Medical Director (F501)
	Registered professional nurse or licensed practical nurse on staff and on duty at all times	Director of nursing services	The activities program must be directed by a qualified professional.	Emergency physician services 24 hr a day (F389)	Paid feeding assistants (F373)
	Sufficient number nursing personnel on duty at all times (only recommendations based on what current state mandates are)	24-hr nursing care	The facility must help residents who have difficulties with vision and hear make appointments and arrange transportation.	Dental services in nursing facilities (F412)	Infection control program (F441)
Process	5 of 22	5 of 31	5 of 38	5 of 48	5 of 62
	Medical examinations upon admission and once every 2 months	Medical reviews	The facility must conduct initial and periodic "comprehensive, accurate, standardized, reproducible assessment of each resident's functional capacity."	Treatment to prevent/heal pressure sores (F314)	Influenza and pneumococcal immunization (F334)
	Only use physical restraints when necessary	Not medically necessary admissions or continued stays	Each resident must be examined at minimum every 3 months by the facility and revise the resident's assessment based on the findings.	Assessment after significant change (F274)	Minimum Data Set transmission requirement (F287)
	Written nursing care plans	Staff hygiene	A comprehensive care plan must be developed within 7 days after completion of the comprehensive assessment.	Develop comprehensive care plans (F279)	Quarterly review of assessments (F276)
	Serious illness, accident, or death reporting process	Notification of patient status change	A physician may delegate tasks to a physician assistant, nurse practitioner, or clinical nurse specialist who is acting within the scope of practice as defined by State law.	Discharge summary (F287)	Drug regimen reviewed monthly (F428)

(Table continues on next page)

Table 1. *(continued)*

SPO indicator type	Year				
	1963[a]	1974[b]	1987[b]	1999[c]	2009[c]
Process	5 of 22	5 of 31	5 of 38	5 of 48	5 of 62
	Automatic "Stop Orders"	Patient care plan	In accordance with State and Federal laws, the facility must store all drugs and biologicals in locked compartments under proper temperature controls, and permit only authorized personnel to have access to the keys.	Notice before room/ roommate change (F247)	Promptly notify Physician of Radiology/other findings (F511)
Outcome			3 of 3	5 of 24	5 of 24
			A resident who is incontinent of bladder receives appropriate treatment and services to prevent urinary tract infections and to restore as much normal bladder function as possible.	Resident free from significant medication errors (F333)	Free from unnecessary drugs (F329)
			Residents who have not used antipsychotic drugs are not given these drugs unless antipsychotic drug therapy is necessary to treat a specific condition as diagnosed and documented in the clinical record.	No development of mental problems (F320)	No feeding tube unless unavoidable (F321)
			The facility must ensure that a resident maintains acceptable parameters of nutritional status, such as body weight and protein levels, unless the resident's clinical condition demonstrates that this is not possible.	Maintain nutrition status/therapeutic diet (F325)	No reduction in range of motion unless unavoidable (F317)
				Activities of daily living do not decline unless unavoidable (F310)	Medication error rates of 5% or more (F332)
				Maintain hearing and vision (F313)	Facility free of accident hazards (F323)

Note: Some quality indicators can be categorized either as process or outcome quality indicators (Zimmerman, 2003).

[a]These standards were recommendations that predate federal nursing home standards. States were responsible for implementing and enforcing all nursing home standards at this time.

[b]Standards are presented.

[c]Deficiency citations are presented (deficiency citations are notice given to a nursing home to identify an area that is not meeting the minimum requirements [standards] set forth by law). The notation following the deficiency citation (i.e., F number) represents the coding on the survey form.

the certification process) but also include advances in measurement science and data availability (e.g., the MDS). They also include prompts from external bodies, such as the Joint Commission. The Joint Commission accredits relatively few nursing homes but as part of the Oryx system in the late 1990s emphasized outcomes of providers (Morrissey, 1997). This invariably had a spillover influence on nursing homes.

Advantages and Disadvantages of SPO Indicators of Quality

The use of varying SPO quality indicators over time connotes improvement. This may not be the case; we have little evidence that quality indicators have improved in their association with actual quality. Moreover, some research has determined that current quality indicators do not meet accepted standards for measures (Nakrem, Vinsnes, Harkless, & Paulsen, 2009). It is also tempting to state that an improved association with quality may be especially true for outcome indicators. A prevailing view is that we should use more outcome indicators to improve quality (Spector & Mukamel, 1998). This is an issue we now discuss as SPO indicators have both advantages and disadvantages.

Structural Quality Indicators

Structural quality indicators are advantageous in several respects. Most significantly, structural quality indicators are easy to measure. Data used are often routinely available and relatively inexpensive.

Structural quality indicators also have disadvantages. Nursing homes can meet structural quality measure standards but not necessarily provide quality care. Echoing this, Donabedian (1988) noted that structural quality indicators can be blunt instruments. Although structural quality indicators are considered important for assuring quality, they are best viewed as "necessary but not sufficient." This is typified by the nursing home staffing level literature.

Staffing levels are included in many current quality initiatives. It would seem almost intuitive that providing higher levels of caregivers would improve quality of care. However, the literature in this area is somewhat ambiguous—with many empirical studies finding no such relationship (Castle, 2008). As a way of explaining this apparent anomaly, staffing levels are viewed as likely extremely important, but how staff are used (i.e., processes) may be just as inherently linked to quality (Castle).

Process Quality Indicators

Process quality indicators have advantages. They are often easy to interpret. For example, either a resident received a pneumonia vaccination or they did not. Many are also easy to enumerate and do not require adjustment (described subsequently). Process quality indicators may also help pinpoint how to improve quality of care. The Nursing Home Compare measure—prevalence of occasional bladder/bowel incontinence without a toileting plan—would indicate that a toileting plan should be used for residents with bladder/bowel incontinence. For consumers, this asset may be less important as a quality indicator, but for providers, this is of use.

Process indicators may also have inefficiencies as quality indicators. In many cases, process indicators assess what is being done and not necessarily the appropriateness of what is being done. Medications (a process indicator) can be given to the wrong resident (Handler et al., 2008). Other medication errors include incorrect dose, incorrect time, incorrect prescription, or even given when not needed (to name just four; Handler et al., 2008).

Process measures are often criticized as representing measures of documentation rather than actual care. Such criticisms of paper compliance are often a drawback levied on physical restraint use care, for example. To prevent the damaging side effects of immobility due to restraint, federal regulations mandate that restrained residents should be released, exercised, and repositioned every 2 hrs. However, Schnelle, Simmons, and Ory (1992) determined that actual care and the documentation of this mandate were often inaccurate.

As measures assessing what is being done, process quality indicators are limited in that some components of care are difficult to measure. Technical expertise is important in many components of care. For example, use of physical restraints does not include a dimension for how well this procedure was implemented. A nursing home resident can be placed in physical restraints in such a way that bruising or restricted circulation can occur.

Outcome Quality Indicators

Outcome indicators are considered more stringent quality indicators than structural or process indicators because deviations from appropriate care should influence residents' health outcome (Donabedian, 1988). Moreover, outcome indicators

in many cases are important to know—they have intrinsic interest. Mortality rates, for example.

Nevertheless, outcomes can be problematic measures. To be a valid indicator, the change in residents' health status (i.e., outcome) must be attributable to prior care (i.e., under the control of the provider). Spector and Mukamel (1998) describe this attribution difficulty as the difficulty in isolating the facility effect. This attribution is in many cases unclear. In addition, many outcomes are influenced by genetic, environmental, or other factors unrelated to care. That is, care is only one of several determinants of health status (Mant, 2001).

To help mitigate these confounding issues (genetic, environmental, or factors unrelated to the care process), outcome measures are often statistically manipulated to account for differences in risk for adverse outcome among residents (and/or facilities). The process and science of "risk adjustment" has many issues, most of which were previously discussed by Spector and Mukamel (1998). One important issue is a real risk of either over or under adjustment of the value of the outcome indicator—which will bias the reported outcome rate.

One particularly challenging issue for risk adjustment is the often interrelated nature of the constructs used. For example, a factor associated with the development of pressure ulcers is malnutrition. So if facilities receive a high number of residents with malnutrition, some adjustment would seem necessary. However, if the nursing home influenced the malnutrition in the first place, then as a characteristic used for risk adjustment, this is clearly inappropriate.

This malnutrition example also raises the issue that the baseline distribution of many outcomes (or resident characteristics) is also not random among nursing homes. For example, some nursing homes specialize in treating some outcomes (e.g., pressure ulcers) or gain a reputation for providing high quality care in a specific area, thereby receiving more residents with that condition. For these nursing homes, unadjusted outcome scores will not accurately reflect the quality of care.

The period of observation for some outcome indicators may also be untenable (Brook, McGlynn, & Shekelle, 2000). For the resolution of clinical conditions, such as depression, knowing that there was no clinical reoccurrence may be a more appropriate quality indicator than a simple prevalence rate. However, the period of follow-up observation needed is unclear, the data collection needed becomes more complex, and the resident may not reside in the facility long enough for the indicator to be of use.

Current Quality Indicators

The "quality" of nursing homes is generally assessed using several quality indicators, usually including a mixture of several SPO indicators. Current important sets of quality indicators are the deficiency citations used as part of Medicare/Medicaid certification, the Facility Quality Indicator Profile Report, those used by Nursing Home Compare, and the Advancing Excellence Campaign. These current sets of quality indicators are important because they are national in scale and include a comprehensive scope of quality indicators. They influence which quality indicators: providers address, consumers pay most attention to, and regulators examine. The quality indicators used in these initiatives are shown in Table 2 and are categorized into SPO indicators.

Deficiency Citations

Deficiency citations are influential quality indicators because they represent an assessment of quality coming from the main nursing home oversight body. They are presented in many report cards (including Nursing Home Compare) in government reports (such as those from the GAO) and in the lay press.

Facility Quality Indicator Profiles

The Center for Health Systems Research and Analysis developed indicators that could be used to evaluate nursing home care (Zimmerman, 2003)—these are often called the Nursing Home Quality Indicators (or QIs). These were developed from the clinical research literature and care planning guidelines. There were a total of 24 indicators that covered 12 areas of care that were found to be the most relevant through information from the MDS (Meiller, 2001). These Quality Indicators are influential because through the National Automated Quality Indicator System, regulators can gauge quality issues as a preliminary step to the certification process (Zimmerman). Specifically, the Facility Quality Indicator Profile Report identifies areas for further emphasis during the survey process. These reports are not available to the public but are available to each provider.

Table 2. Quality Indicators Used in Prominent Quality Initiatives

Quality initiative	Structure	Process	Outcome
Nursing Home Compare		Residents who were physically restrained	Residents who have increased depression or anxiety
		Long-stay residents given the influenza vaccine	Residents with a urinary tract infection
		Long-stay residents who were assessed and given the pneumococcal vaccine	Residents who have an increased weight loss.
		Short-stay residents who were assessed and given the pneumococcal vaccine	Residents who have a decreased ability to move about in and around their room
		Short-stay residents given the influenza vaccine	Residents who have increased their need for help with daily activities
			Residents who spend most of their time in bed or in a chair
			Low-risk residents who lose control of their bowels and/or bladder
			Residents who spend most of their time in bed or in a chair
			Residents who have moderate to severe pain
			High-risk residents who have pressure sores
			Low-risk residents who have pressure sores
			Short-stay residents with delirium
			Short-stay residents who had moderate to severe pain
			Short-stay residents with pressure sores
Quality Indicators		Prevalence of occasional or frequent bladder or bowel incontinence without a toileting plan	Incidence of new fractures
		Prevalence of indwelling catheters	Prevalence of falls
		Prevalence of tube feeding	Prevalence of behavioral symptoms affecting others
		Prevalence of antipsychotic use in the absence of psychotic and related conditions	Prevalence of symptoms of depression
		Prevalence of antianxiety/hypnotic drug use	Prevalence of depression without antidepressant therapy
		Prevalence of hypnotic use more than two times in the last week	Use of nine or more different medications
		Prevalence of daily physical restraints	Incidence of cognitive impairment
		Prevalence of little or no activity	Prevalence of bladder or bowel incontinence
			Prevalence of fecal impaction
			Prevalence of urinary tract infections
			Prevalence of weight loss
			Prevalence of dehydration
			Prevalence of bedfast residents
			Incidence of decline in late loss ADLs
			Incidence of decline in ROM
			Prevalence of little or no activity
			Prevalence of Stage 1–4 pressure ulcers

(Table continues on next page)

Table 2. *(continued)*

Quality initiative	Structure	Process	Outcome
Deficiency citations (used in 2009)	5 of 104	5 of 62	5 of 24
	Facility must develop and implement written policies and procedures that prohibit mistreatment, neglect, and abuse of residents and misappropriation of resident property (F226)	Proper treatment to prevent or treat pressure sores (F314)	ADLs do not decline unless unavoidable (F310)
	Facility may not employ persons who have been found guilty of abuse (F225)	Resident is not catheterized, unless unavoidable (F315)	No reduction of ROM, unless unavoidable (F317)
	Facility must have written policies and procedures that prohibit abuse and neglect (F224)	Appropriate treatment for incontinent resident (F316)	Residents are free of any significant medication errors (F333)
	Facility should have policies that accommodate residents' needs and preferences (F246)	Proper care and services for resident with nasogastric tube (F322)	Each resident's drug regimen must be free from unnecessary drugs (F329)
	Facilities director must be fully qualified (F249)	Facility must provide sufficient fluid intake to maintain proper hydration and health (F327)	Residents who use antipsychotic drugs receive gradual dose reductions (F331)
Advancing Excellence Campaign		Reduce the use of physical restraints Improve treatment of pressure ulcers Improve pain management for long-term residents Improve pain management for short-term residents Set clinical quality targets yearly Assigning the same nurse aides to the same residents	Reduce pressure ulcers Incorporate resident and family care experiences into improvement plans Measure staff turnover and satisfaction

Note: The notation following the deficiency citation (i.e., F number) represents the coding on the survey form. ADLs = activities of daily living; ROM = range of motion.

Nursing Home Compare

Nursing Home Compare was developed by the Centers for Medicare and Medicaid Services (CMS; in 2001, HCFA changed its name to CMS). Via the Internet, Nursing Home Compare provides information on all Medicare/Medicaid-certified nursing homes in the United States. This information includes what are called Quality Measures (GAO, 2002), which are intended to represent indicators of quality of care. The number of Quality Measures has varied over time and currently consists of 19. The Quality Measures were the result of extensive testing that included both provider and consumer concerns of what indicators were most useful (Abt Associates, 2004). Nursing Home Compare is influential because it presents publicly available standardized quality information on most nursing homes in the Unites States.

Advancing Excellence Campaign

The Advancing Excellence Campaign was instituted in 2006. It is a voluntary coalition of providers (such as the American Health Care Association [AHCA]) with the goal of promoting excellence in nursing home care (Advancing Excellence in Americas Nursing Homes, 2009). This includes measuring quality indicators (see Table 2). Nursing homes voluntarily work on improving three of the eight quality goals. The Advancing Excellence Campaign

is included as an influential quality initiative as it includes several leaders in quality from government agencies, foundations, and providers.

We do note that many other public and private entities influence quality indicators used for nursing homes. These include Quality Improvement Organizations (QIOs; Kissam et al., 2003) and the Agency for Healthcare Research and Quality. Many states also have initiatives in place that address one or two specific indicators (e.g., Indiana Pressure Ulcer Quality Improvement Initiative; www.in.gov/isdh/24611.htm). Other states are using pay for performance (P4P), also known as Value-Based Purchasing, initiatives as part of Medicaid reimbursement for nursing homes. Given the link to reimbursement, the quality indicators used are clearly important for nursing homes in these states (Briesacher, Field, Baril, & Gurwitz, 2009) and are discussed subsequently.

Issues With Current Quality Indicators

The previous sections highlight ambiguities in quality indictors used in nursing homes. SPO quality indicators each have various advantages and disadvantages. No clear delineation or consensus on which sets of SPO indicators should be used exists. A large and confusing number of sets of quality indicators are prevalent. Individual quality indicators and sets of quality indicators, in general, are also encumbered by several other issues. These are further discussed.

Parsimony

No single quality indicator represents the overall quality of a nursing home (i.e., a global measure). Possibly, the closest global measure is the Five Star Quality Rating System recently introduced by CMS as an addition to the Nursing Home Compare Web site. The Five Star Quality Ratings give consumers a "snapshot" or simplified look at how a nursing home compares on quality. This rating system provides a graphical representation (i.e., stars) of overall high and low performance in three areas: Health Inspections, Staffing, and Quality Measures (CMS, 2010).

The availability and use of multiple quality indicators have limitations. One disadvantage of using multiple quality indicators is that findings can be inconsistent. Empirically, quality indicators have orthogonal relationships (Mor, 2005). That is, multiple dimensions of quality are thought to exist. This likely occurs because nursing homes provide care across multiple dimensions (medical and social, to name two); and they are not consistent in the quality of care for each dimension.

Thus, the number of "needed" quality indicators is a vexing issue. A narrow focus on a single (or a few) quality indicator may be misleading and may lead to erroneous, incomplete, or simply incorrect conclusions. However, a focus on more quality indicators introduces the risk of confusion and may be no less misleading or incomplete.

Measurement Issues

For relatively rare outcomes, quality indicators have limited ability (power) to detect real differences in quality. The standard errors for rare events are large, giving rise to several issues. First, the true quality level lies within the standard error so that reliability of a single measure is questionable. Second, this is compounded when comparing more than one facility. With large bands of standard errors, it can be problematic to differentiate whether one facility has a truly better/worse quality level than that of the other.

A further issue is the assumed linearity of quality indicators. That is, does a 10% rate represent twice the quality problem of a 5% rate? Also, linearity assumes full use of the scale such that 0% and 100% are possibilities. This is improbable for many quality indicators. For example, pressure ulcer rates less than 2% are considered improbable (Lyder, 2003). So the implied scales are not necessarily clinically achievable. Experience shows that the functional form of quality indicators is often unexpected and nonlinear (Castle & Engberg, 2005).

As part of process and outcome quality indicator assessment, ascertainment bias can occur (a type of detection bias). Assessing the elements included in a process or outcome quality indicator may vary by provider. As Mor, Angelelli, Gifford, Morris, & Moore (2003) have described, higher quality nursing homes may be more able to make these assessments than lower quality nursing homes. Higher quality nursing homes may be actively "looking" for problems. Alternatively, lower quality nursing homes may have high staff turnover or high agency staff use, for example, and may inadequately complete documentation (Sangl et al., 2005). As such, higher quality nursing homes may have systematically higher quality indicator rates, and lower quality nursing homes may have systematically lower indicator rates.

The issue ascertainment bias (detection bias) has been of particular concern with quality indicators formulated from the MDS data (Sangl et al.,

2005). That is, the reliability and validity of the data have been subject to some criticism (Rahman & Applebaum, 2009). Issues such as interrater variability are often raised as problems influencing the usefulness of these data.

Detection bias is a measurement issue inherent to deficiency citations. Considerable variation in the use of deficiency citations across different locations exists. Many states do not emphasize the same deficiency citations, and some are more or less aggressive in the use of deficiency citations in general. The high degree of variation can limit the usefulness of deficiency citations not only for CMS but also for consumers and providers.

Nursing Home Characteristics

U.S. nursing homes consist of a diverse group of providers. Some of the diversity in structural characteristics of nursing homes can work against the use of many quality indicators. One obvious example is that the small average number of beds limits statistical power. Less frequently noted is the unit-based nature of many nursing homes. This structural arrangement can lead to distinct practices and outcomes in different units. Powell Lawton maintained that we could learn substantially more about nursing home quality by using a unit-based perspective. Mor and colleagues (2003) also indicate that intra-provider variation may be helpful. Simply put, the averages reported on facility quality may hide substantial and important variation in quality. However, examining intra-provider variation limits statistical power but can also add to the quality indicator overload (by reporting quality indicators on each unit). Nevertheless, a reasonable question would seem to be should a facility with widely disparate quality levels, yet somewhat reasonable average levels, be required to report this variation?

Nursing home residents are also quite varied. Some residents spend very little time in the facility (e.g., for rehabilitation), which limits their exposure time to facility influences. Moreover, health status can be transitional, and untangling these transitional health changes from adverse changes precipitated by facility care can be problematic. These residents may also require care that is distinct from other residents. In such cases, specific outcomes are sometimes used (e.g., in Nursing Home Compare). This specificity restricts the generalizability of these quality indicators.

In addition to short-stay residents, many other subpopulations of residents exist in nursing homes with distinct needs and characteristics—many of which can influence quality. This includes not only resident needs based on demographics age, gender, and race but also resident needs based on characteristics, such as religion. Thus, in many respects, there is no such thing as a "typical" nursing home or a "typical" nursing home resident. As such, this challenges much of the quality rubric (including assessment, reporting, and development of indicators).

Consumer-Determined Quality

Quality indicators are also often criticized as having a medical focus, and as such, some dimensions of quality that consumers' value do not get reflected. Use of resident and family satisfaction scores represent one means of including a consumer "voice" as quality indicators (Sangl et al., 2007). States such as Ohio include satisfaction indicators in their report cards (Ejaz, Straker, Fox, & Swami, 2003). However, this approach is uncommon primarily due to the expense involved in collecting satisfaction information (Sangl et al., 2007).

Resident and family complaints are investigated, first as part of the Long-Term Care Ombudsman Program if the complaint was filled through the Ombudsman (Allen, Klein, & Gruman, 2003) and second as part of the state certification agency if the complaint was filled to this agency (Stevenson, 2006a). As consumer-generated quality concerns, complaints were shown by Stevenson (2006a) to be more timely than other quality indicators, and they had the potential to supplement quality reporting efforts.

Consumers of nursing home services examine nursing home quality information from report cards. Many report cards (e.g., Angie's List) are not associated with government entities. Some of these report cards use many of the same quality indicators as government-sponsored sites, such as deficiency citations (Castle & Lowe, 2005), whereas others offer consumer opinions/reviews of nursing homes. This shows that a market for consumer-based information exists and that it may have some value. Stevenson (2006b) presents a review of public reporting of nursing home quality.

Policy Initiatives and Quality

OBRA-87 undoubtedly changed nursing home care in many ways. Some empirical research has attributed OBRA-87 as successfully influencing quality (Shea, Russo, & Smyer, 2000), whereas

some studies have identified a relatively small influence on quality (Kumar, Norton, & Encinosa, 2006). However, OBRA-87 was a watershed event in ways other than its influence on quality. OBRA-87 represented the use of quality as a "tool" that policy makers could use to influence the nursing home market. Until OBRA-87, policies had focused on quality assessment (e.g., through the certification process). However, OBRA-87 promoted a more proactive approach that stipulated specific actions needed for quality improvement (although certification still remains a process primarily consisting of assessment).

As a follow-up to the 1986 IOM report that helped stimulate OBRA-87, a further report continued to highlight poor quality nursing home care (IOM, 2001). Policy interventions have continued to address the nursing home quality issue, and many of these continue to use quality indicators as proactive tools to affect the nursing home market.

The first two policy interventions we discuss are report cards and P4P. These generally come under the rubric of what are called market-based incentives (Werner & Konetzka, 2010). These initiatives use provider competition (i.e., the market) as an aggregate mechanism to facilitate quality improvement. The next policy intervention is patient safety, which is a movement with its genesis in the acute care sector. Policy developments in the certification process are next discussed. Finally, the potential implications of the recent 2010 health care reforms as part of the Patient Protection and Affordable Care Act (P.L. 111–148) are discussed.

Report Cards

Somewhat recently, a consumer empowerment movement has developed in health care. This movement has influenced health care policy, and one linchpin to this was the development of report cards. Report cards have the potential to influence quality of care. The mechanism behind this change rests on consumers' examining report cards and migrating toward higher quality facilities and nursing homes in turn competing to improve their quality in order to attract potential residents.

The AARP has published a compendium that lists report cards available in each state (Kelly & Gearon, 2008). The most widely discussed nursing home report card is Nursing Home Compare (Mukamel, Weimer, Spector, Ladd, & Zinn, 2008). Since 2002, when Nursing Home Compare was first widely released, improvements in the Quality Measures have occurred. For example, Mukamel and colleagues (2008) found two Quality Measures (from five examined) to show significant improvement over time. However, the MDS is used to construct the Quality Measures. It may be that nursing homes have become better at completing the MDS documentation.

Pay for Performance

P4P initiatives are policy options that seem to be gaining some traction for influencing the quality of the nursing home industry. From 2002 to 2007, six states (Iowa, Minnesota, and Kansas, Georgia, Ohio, and Oklahoma) have used nursing home P4P (Arling, Job, & Cooke, 2009). An additional program has been initiated by CMS, the Nursing Home Value-Based Purchasing Demonstration Program (Levenson, 2006). Quality indicators are key components of all P4P initiatives.

Some results indicate that P4P has improved levels of some nursing home quality indicators (Arling et al., 2009), although others have noted that there are not enough data to show that P4P incentives are enough to change providers' behaviors and there is limited evidence that P4P improves overall quality of care (Briesacher, Field, Baril, & Gurwitz, 2008).

These P4P initiatives are shaping the emphasis on quality indicators. For the most part, existing quality indicators are used. For example, residents with pressure ulcers, catheters, physically restrained, and whose mobility decreased. Thus, new quality indicators are not included in P4P, but because of their use in P4P schemes, these quality indicators have assumed greater importance. Still, these quality indicators are subject to many of the issues discussed earlier. They are especially problematic with respect to the number of needed measures as the risk of using too few quality indicators is that they can unnecessarily narrow the view of whether quality has truly improved.

Patient Safety

The *To Err is Human* (Kohn, Corrigan, & Donaldson, 1999) report galvanized the public and legislators partly by suggesting that as many as 98,000 deaths attributable to avoidable mistakes occurred in U.S. hospitals. As a result, patient safety has become an important topic for many health care providers. Moreover, prominent national organizations have developed various initiatives to

assess and improve patient safety in the nursing home setting (e.g., AHCA, 2009; www.ahcancal.org).

These initiatives are also shaping current quality indicators. In the 9th Scope of Work for QIOs, Patient Safety Culture is to be assessed in nursing homes. Certification has likewise recently started to address patient safety issues. This includes emphasis on deficiency citations for patient safety issues (e.g., medication administration). CMS also recently extensively updated the pharmacy- and medication-deficiency citations addressing medication errors (Krechting, 2006).

Certification

CMS has continued to refine the nursing home certification process. For example, the timing of survey visits was criticized as being highly predictable. Thus, more variation in this timing was introduced (GAO, 1999). Sanctions (e.g., fines) were criticized as ineffectual. The sanctions were further developed for facilities that received deficiency citations (penalties of up to $10,000 a day, denial of payment for new admissions, state monitoring, temporary management, and termination from the Medicare or Medicaid programs; GAO, 1999).

A recent change in certification is the Special Focus Facility (SFF) initiative. Nursing homes that are determined to have a greater number of quality problems, more serious problems than average, and a demonstrated pattern of quality problems are included in this initiative (CMS, 2008). For nursing homes, inclusion in the SFF program entails having two survey inspections per year (rather than the standard one survey) and the potential to be terminated from the Medicare and/or Medicaid programs.

Health Care Reform

As part of the Patient Protection and Affordable Care Act, there are requirements that would necessitate nursing homes to disclose information on ownership, accountability requirements, finances (i.e., expenditures) and place information on standardized quality indicators on a Web site (much like Nursing Home Compare) (Kaiser, 2010; http://healthreform.kff.org/). Depending on how these requirements are implemented, further quality indicators for nursing homes may become widely available (e.g., benefits paid to staff, staff wages, staff turnover).

Provider Initiatives and Quality

With respect to the development and use of quality indicators, policy interventions are significant. However, clearly, it is provider initiatives that ultimately influence nursing home quality. These initiatives include the use of Quality Assessment (QA), Total Quality Management (TQM), Continuous Quality Improvement (CQI), and Perfecting Patient Care (PPC; Spear, 2004). It is worth clarifying also that the development and measurement of quality indicators are not necessarily related to solutions to quality. It is effective use by providers that is most related to quality solutions. Nevertheless, with respect to quality indicators, one provider development, culture change, has significantly affected the development and measurement of quality indicators.

Since the early 1990s, some nursing homes have adopted resident-directed philosophies (or resident-directed care; also known as culture change). Organizations, such as Action Pact, Inc. and Eden Alternative, have fostered the growth of resident-directed care. This places the resident at the center of the decision-making process. It allows the traditional top down model of decision making to become inverted to allow staff (e.g., nurse aides) to work with the residents to make decisions (i.e., when to eat). This recognizes the importance of residents' Quality of Life (QoL; Castle, Ferguson, & Hughes, 2009). Quality indicators used thus are QoL related, which include measures such as energy levels, sleep, self-esteem, and sense of mastery.

Culture change is primarily a provider development. However, characterizing the public–private intertwining of nursing home quality, CMS is influential in this area also. CMS directed QIOs to facilitate improvements in nursing home culture (Werner & Konetzka, 2010). The implementation of the new MDS 3.0 is expected for October 2010 (Rahman & Applebaum, 2009). With this reformulation, the MDS 3.0 is reported to include items assessing resident QoL (www.cms.hhs.gov), which is a departure from the primarily clinical focus of most of the quality indicators coming from these data (Rahman & Applebaum).

The benefits of culture change have proven difficult to gauge. After a 1-year study comparing the first year of implementation of the Eden Alternative and a control nursing home run by the same organization, very few quantitative differences existed (Coleman, Looney, O'Brien, Zeigler, & Pastorino, 2002).

Furthering Advances in Quality

We have identified substantial progress in the area of "quality" of nursing homes. Numerous quality indicators have been developed. Numerous policy initiatives have been implemented. Numerous provider initiatives also exist. For this narrative, the "elephant in the room" remains what can be done to further improve quality? We propose that further advances in quality may occur: first, by some long-term care integration policies; second, enhanced current initiatives; and, third, enhanced certification activities. These are discussed, along with additional research that may be needed to make these advances a reality.

First, one somewhat troubling fact appears to be that many nursing homes still have poor quality levels. Yet, many of the initiatives discussed earlier indicate that improvements in quality have occurred. In this regard, we cite Cherry (1991) who identified improved quality and poor quality as not necessarily contradictory. Cherry pointed out that in the nursing home setting, we are often describing less poor care versus poor care, not necessarily good versus poor care.

Alternatively, the poor quality levels that seem to exist in many nursing homes may be a function of the quality process itself. As we identify earlier, it may be that quality indicators are simply not accurate metrics for measuring actual quality. Given the number of quality indicators, this is likely not the case for all indicators. It may be that given the number of quality indicators available, the worst receive attention, whereas the best do not. For example, physical restraint use has declined, but a more recent emphasis on pain management has developed. Parenthetically, we note that this does seem to be an issue with quality measurement in general. We seek and report the worst and not necessarily the best (with some exceptions such as deficiency free nursing home status).

In addition, to be fair to nursing homes, resident case mix has increased. Thus, nursing homes are challenged to care for sicker residents with substantially more health problems. So quality may have indeed improved, but this may not have kept pace with the challenges presented by the resident population.

Long-Term Care Integration

One non-nursing home policy would be to address integration and continuity with other areas of the long-term care system (Konetzka & Werner, 2010). That is, to step back from nursing homes to address the "system" of long-term care providers. Many residents come to nursing homes with unmet needs (and frustrations) that could (or should) have been addressed in other settings. As the often-final stop in several transitions across various long-term care settings, nursing home quality would surely benefit if residents were cared for appropriately in these prior settings.

A further policy option does not focus directly on nursing homes but has a spillover influence. That is, the emphasis on Home and Community-Based Services (HCBS) as an alternative to nursing home care (Reinhard, 2010). Policy makers have expanded the coverage of HCBS (primarily under Medicaid waivers) to redirect potential nursing home residents to community settings (Wiener, Tilly, & Alecxih, 2002). In addition, in the recently enacted health care reform legislation (i.e., Patient Protection and Affordable Care Act), barriers to providing HCBS would be eliminated (section 2402), including increased coverage of services, removal of limits on the number of participating individuals, and incentive payment programs for states to develop HCBS (Richards, 2010). This may force more market-based competition among nursing homes.

Enhanced Current Initiatives

One intervention would be for policy makers and providers to continue along their current paths—but doing what they know in an enhanced fashion. That is, for providers, culture change, QA, TQM, CQI, and PPC could all be continued. To continue with these initiatives, a change in emphasis is needed. Policy often focuses on aligning the needed incentives, whereas these provider initiatives need an alignment of favorable conditions. An extreme example would be Medicaid payment reform. An argument could be made that providers already have the tools for providing quality care (i.e., QA, TQM, CQI, and PPC) but that resources are needed to stimulate improvement. Empirical research has shown that levels of Medicaid payment rates (as an essential resource for nursing homes) are consistently associated with nursing home quality (Grabowski, 2004). However, this is presented as an extreme example as such reform is unlikely in the current fiscal environment.

More subtle changes in emphasis may be needed and more feasible. An example would be better

top management capability. Policy could promote these more favorable conditions (e.g., subsidies for nursing home top management education). However, the role of CMEs, state licensing standards, and the role of training all need to be investigated more thoroughly. Improving staffing levels and staffing competencies could also produce an alignment of favorable conditions, although policy to date has tended to emphasize stipulating staffing conditions (especially staffing levels). These often-unfunded mandates have the incumbent risk of providers' skimping in other areas—thereby nullifying any potential quality gains.

One area of research from a feasibility standpoint would be the notion that providers are indeed able to effectively use existing tools for providing quality care (Wagner, van der Wal, Groenewegen, & de Bakker, 2001). Many of these are built off the notion of using systems level quality improvement (Werner & Konetzka, 2010). This orientation may be difficult to implement in an industry that is technology deficient and reliant upon a paraprofessional workforce. However, the QIOs appear to have had some success in doing so (Kissam et al., 2003). One recent notable quality indicator development initiative has included the resources available in the average nursing home in choosing candidate quality indicators (Saliba et al., 2005).

For policy makers, report cards, patient safety initiatives, P4P, and the certification process could all be continued. Each has its benefits and limitations. Subtle changes could also be made, such as providing aggregate information on chains; this could promote more corporate involvement in quality. P4P could be integrated with specific quality improvement activities such that payments are for specific measures (such as improved staffing). However, from a quality perspective, this creates a vast number of quality indicators that need to be tracked by providers and creates tensions between providers and regulators. It also creates the risk of accentuating measurement and not improvement. One recent suggestion to overcome this quality indicator overload is to focus on quality improvement and not necessarily specific indicators (Werner & Konetzka, 2010). That is, nursing homes could chose areas for improvement and be credited for these initiatives. This has the advantage of overcoming the retrospective nature of quality monitoring (Scott, Vojir, Jones, & Moore, 2005). However, a disadvantage would be that public reporting initiatives would still likely drive the areas chosen for improvement. This would make these quality indicators more salient.

Certification Process

The use of deficiency citations is thought to foster minimal compliance by providers. That is, these can create thresholds such that deficiency citations foster a quality floor rather than quality improvement. Still, the certification process (beyond deficiency citations) represents a viable and ongoing infrastructure for further quality improvement and development of quality indicators. It may be possible to make further use of this process and further use of deficiency citations. They are ultimately used as quality indicators with specifications as benchmarks, rankings, and specific targets. Further development of metrics for deficiency citations would appear integral to their effective use as quality indicators.

The certification process is generally regarded as fostering a compliance culture. It may be possible for nursing homes to form relationships with State Survey Agencies, who conduct survey and certification activities. This may move the compliance orientation to a more proactive orientation (Kissam et al., 2003).

Deficiency citations could be used for further quality indicator development. As described, producing a global quality indicator comes with many issues. However, using deficiency citations may be amenable to producing an aggregate quality score. For each deficiency citation, 1 of the 12 categories is used to define scope and severity of the problem(s) identified. Some research exists in this area wherein a numeric system for collapsing the scope and severity information and reducing measurement noise in survey results was developed (Antonova, 2008). This could be expanded as an aid to parsimoniously reporting deficiency citations.

Conclusions

Quality concerns in nursing homes still exist. Many of these concerns have received considerable attention in the public press. For example, the Lexus-Nexus (a database of press reports) lists more than 500 accounts of poor quality in nursing homes in 2009. Empirical research studies still identify poor quality and government reports continue to find fault with care in nursing homes. Nevertheless, these current accounts should be tempered by current nuances that have occurred in our understanding of quality of care in nursing homes.

The scope of nursing home quality indicators is phenomenal. The scale of what is routinely measured is also extremely broad. But somewhat ironically, 45 years after the passage of Medicare and Medicaid and more than 20 years after the passage of OBRA-87, it remains somewhat difficult to answer the following question: what is the quality of nursing homes in 2010? What we can say with some certainty is that improvements have likely occurred, and what we can say with even more certainty is that improvements are still needed.

Funding

This research was funded in part by a grant from the Commonwealth Fund (20070403: a web-based staffing and quality simulation tool to improve quality of care for frail elders) and in part by a grant from The Agency for Healthcare Research and Quality (R01 HS016808-01: staffing characteristics of nursing homes and quality).

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