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Abstract
Quality measurement and performance monitoring are under continuous assessment in Nursing Homes (NH). Through this research project we assess the quality of care provided in NH in the state of West Virginia by publicly accessible quality measurements. The methodology for this research study was through the retrieval of data from the Nursing Home Compare website in which a total of 80 NH were located and analyzed. The results demonstrate that more than 50% of NH in West Virginia are at or above the national average when compared using the Five Star Rating System by CMS, in overall rating (59%), health inspections (57%), nursing home staffing (63%) and quality measures (55%). Contrary to the prevailing reputation, the nursing homes of West Virginia are at or above the nation’s average in overall rating, health inspections, nursing home staffing and quality measures.

Introduction
Formalized and standardized quality measurement, performance monitoring and quality enhancement are now permanently a part of the US healthcare system; healthcare facilities and groups are producing figures regarding their performance in selected clinical areas, and most are now surveying their patients about the fulfillment of their expectations of care. Nursing homes in the United States are now being compared with multiple quality indicators resulting from inspections, as well as routinely collected data.

To define quality of healthcare is not an easy venture, as there are multiple factors and aspects of it that can remain subjective to the evaluator. Currently the Institute of Medicine describes quality of healthcare as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”.

As the population changes and longevity increases, long term care grows in popularity in the industrialized countries. In the United States roughly 1.6 million older individuals receive care in one of the 17,000 NH located geographically all over the country, with an estimated 0.5% in the state of West Virginia (WV). WV, with a current population of 1,855,364 individuals in 2011, had approximately 0.38% NH beds per individual living in the state.

Most NH residents suffer from multiple chronic conditions, and most are unable to feed, bathe, dress, transfer and toilet without moderate to extensive assistance. Because of the vulnerability of the NH residents, active surveillance of quality of care in the NH residents is an extremely important task, and deciding which NH to transfer one’s loved one into can be daunting without objective data.

Even though many NHs provide good care, the lack of quality of care provided in some NH has been documented over the past 40 years. NH quality has been assessed as having somewhat worsened or stayed the same over the past five years. Poor quality care provided by NH had been the object of media uproar and of malpractice suits that range in the hundreds of thousands of dollars.

There are several systems in place to oversee and promote quality of care in NH. These programs include State surveys and certification programs, the State Long Term Care Ombudsman Program, Centers for Medicare and Minimum Data Set (MDS). The MDS is a standardized tool to evaluate the resident’s current state. Since its creation, MDS was planned to provide several functions such as gathering information to inform policymakers, and portraying the resident census to produce quality indicators to assess NH and show the success of actions plans, and to aid as an information resource for NH compensation programs. In an effort to better inform consumers, CMS in 2002 launched a consumer information internet site called Nursing Home Compare (NHC) that presented MDS-based quality scores for almost all nursing homes. This website was the foremost federal effort to notify the public regarding NHs and included basic information such as the geographic location, bed size, and occupancy; resident’s complications like pressure sores; staffing; and quality indicators deficiencies. The information is in active use, as shown by the fact that the webpage gets about 100,000 visits a month.
So far there is no clear consensus on which one of the clinical indicators should be used as a more clear representation of the overall quality of the care in the NH. Perhaps, the measurement closest to a global score is the Five Star Quality Rating System recently announced by CMS as a plus to the NHC web site. These rating systems give consumers a “snapshot” or a basic way of looking at how a NH contrasts with others in overall “excellence”, an option that is useful to families looking for placement of their loved one in a NH facility. The rating system can also be used to measure different areas of care that are essential for providing an appropriate level of quality to the NH resident by providing a graphic symbol (i.e., stars) of elevated or decreased performance in three aspects: Health inspection, Nursing Staffing, and Quality measures. This same system is used in this research paper as an objective way to document the MDS-reported performance of every NH in West Virginia.

Methodology

Our initial hypothesis of this research was that in the state of West Virginia nursing homes may be below average in overall rating, health inspections, nursing home staffing and quality measures ratings. The study was conducted by the retrieval of data from the Nursing Home Compare website from the U.S. Department of Health & Human Services/CMS. Each NH was given a score depending on the degree of fulfillment of the 180 indicators that were measured on yearly CMS inspections. Information from all indicators is collated into scores of health inspections, nursing home staffing, quality measures, and overall rating. Assisted living facilities are not included on the Nursing Home Compare website from the U.S. Department of Health & Human Services and they were not part of this research data.

Health Inspection

Health Inspections data comprised yearly surveys performed by a trained health inspector on site. The information consisted of the care provided to the residents, the overall course of care, the personnel and residents’ communications, and the NH atmosphere. Information from the previous three health inspections and from all complaint investigations executed in the previous three years was used to estimate the score.

Nursing Home Staffing

Nursing home staffing reports contained self-reported information by the NH and any other information collected throughout the most recent health inspection. The star score is for “generally staffed hours”, and incorporated Registered Nurses (RNs), Licensed Practical Nurses (LPNs) aka Licensed Vocational...
Additional categories of NH personnel such as chaplains, executive, or maintenance staff were not incorporated in the staffing score. To estimate the score, the number of personnel hours per resident per day was used and then the data was case-mix attuned by the NH. Case-mix modification took into consideration the dissimilar levels of resident requirements (or mix of cases) in diverse NH.

### Quality Measures

Ten quality measures were defined from self-reported data from the NH which the NH habitually gathered on every resident at particular periods. These quality measures were the percent of residents who: had any increased need for help in their daily activities, had a decreased functional capacity, were at high risk for pressure sores, had a urinary catheter left in place, had a urinary catheter placed, were physically restrained, had a urinary tract infection at the time of the data gathering, had moderate to severe pain, had pressure ulcers, and had delirium. The Quality measure scores examined for this study were taken from information presented by the NH between January 1, 2010 and September 30, 2010.

### Overall Rating

Overall Rating was identified as a combination of the health inspection rating, the staffing rating and the quality measure rating. Analysis of each of these ratings was equally combined into one overall or mean rating. Each of these variables was scored with a five-star scale; five stars being the highest rating and one star the lowest. Therefore, NHs rated as one or two stars were below average.

### Results

There were 80 NH in the State of WV in February 2012 with a total of 7,084 beds, an average of 88 beds per NH (Figure 1). These 80 homes range from skilled nursing facilities to acute short or long term rehabilitation facilities. The type of ownership also varies; 28% were not-for-profit corporations, 62% were for-profit corporations and nine percent were government owned. Of the 80 NH facilities in West Virginia 13 (19%) participate in Medicare only and the remaining 67 (81%) participate in both Medicare and Medicaid.

In the health inspections category, 18 (22%) and 17 (21%) scored one and two stars respectively. There were 20 (25%) NH that scored three stars (average), 17 (21%) that scored four stars (above average) and eight (10%) that scored five stars (much above average) (Table 1). For staffing, only 10 (12%) and 20 (25%) of WV NH’s score at the one and two star level of NH staffing. There were 20 (25%) NH that scored three stars or “average”, 20 (25%) that scored four stars, “above average” and eight that scored 10 (12%) or “much above the average” in staffing levels (Table 1). Regarding the fulfillment of the quality measures, the data extracted showed that 16 (20%) and
20 (25%) of the NH scored one or two stars respectively on their level of compliance with these measures (Table 1). There were 16 (20%) NH that scored three stars, 20 (25%) that scored four stars and eight that scored five stars (10%) (Table 1).

Finally, each NH is given an overall rating from 1 to 5 stars. These ratings are the result of combining the scores from the yearly health inspections, nursing home staffing score and quality measures. 19 (23%) scored one star and 15 (18%) scored two stars. There were 13 (16%) NH that rated three stars, 27 (33%) that rated four stars and six (8%) that rated five stars (Table 2). There were 46 (57%) NH in WV which scored 3 or more stars whereas 34 (42%) scored 2 or less stars. Therefore there are more NH in the state of WV with a rating at or above the national average than below the national average.

Discussion

Since the 1940’s the term quality had been used and applied in many settings. Up to now the idea of quality had evolved increasingly in society, involving now almost every aspect of it, and healthcare couldn’t be left untouched. Operationalizing “quality” can be very problematic as the definition tends to be broad and subjective. Such resulting measures tend to be incapable of completely grasping the quality model and results that can be generalized.1

There has been a significant influence on nursing facilities quality of care from the CMS oversight bodies or state surveyors. This has been a consequence of the high participation rate of nursing homes with CMS. Up to 2004, 98.5% of the 16,100 nursing facilities in the US were certified and received funds from Medicare, Medicaid, or both.2

Unfortunately, regardless of the numerous reports linking the range of quality development behavior in NH, there had been few methodical assessments of their impact. Several studies of NH quality indicators programs exposed them to be imperfect to absent.9 Knowing the complexity of putting into practice and supporting development some have concluded that the accomplishment of the quality development movement ought to be focused on enhancing the managerial capacity in the NH in order to improve quality.13

Through this research we were able to collect and contrast the 80 NH in the WV with a national scoring system, with the aid of a public Nursing Home Compare website from the U.S. Department of Health & Human Services. The overall results of this research study demonstrated that more than 50% of NH in West Virginia are above or at the average level when comparing them using the Five Star Rating System by CMS in overall rating (59%), health inspections (57%), nursing home staffing (63%) and quality measures (55%). The data reveal that through this scoring system the WV NH score above or at the average level, not supporting the initial hypothesis that West Virginia NH might be below the average in all variables.

Limitations

The above presented results are the compilation of quality indicators that are currently used in the NH. These types of indicators, as expected, come with both advantages and disadvantages. As stated in the introduction, the Five Star Quality Rating System is considered to be an excellent resource to assess quality of NH, as it evaluates them on three different domains and uses multiple quality indicators. It is important to state that the quality indicators obtained in these research have been updated, as in early 2012 CMS had began using new quality measures based on the MDS 3.0 nursing home assessment form.4

The quality measures used on
The availability and use of multiple quality indicators have limitations. One drawback of using multiple quality indicators is that outcomes can be inconsistent. Empirically, quality indicators have orthogonal relationships. In other words; multiple dimensions of quality are thought to exist. Thus, the number of “needed” quality indicators is a complex problem. A narrow attention on one or a few quality indicators may be misrepresentative and may lead to inaccurate or incomplete conclusions. However, attention to multiple quality indicators introduces the risk of confusion and these may also lead to inaccurate conclusions.

As stated by Castle et al in 2010, another detected problem with the use of quality indicators in the NH is that the focus on certain types of indicators could be wrong. The worst indicators could be receiving more attention, whereas the best quality indicators could be receiving less attention. We tend to look for and report the poorest receiving less attention. We tend to focus on certain types of ownership of the NH was a limitation as the ownership type in WV was very similar to the rest of the US. With 28% not for profit corporations, 62% for profit corporations and nine percent government owned NH in WV, contrasted with 61% profit, 31% not for profit and 8% government owned NH in the US (Table 3).

**Conclusion**

A NH is a complex organization and the decisions of when to place a loved one and which NH to choose are not easy ones. The utility of the Nursing Home Compare website should not be underestimated as it is a public access tool which could be used to access quality of care in the NH. According to the website, the nursing homes of West Virginia when compared with the nation’s average are above or at the national average level in overall rating, health inspections, nursing home staffing and quality measures. The site should be revisited often as new data based on MDS 3.0 and other updates will be continually available.

**References**