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The Relationship of Clinical Quality, Performance Improvement, and Internal Risk Scores in Nursing Homes

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THE RELATIONSHIPS OF CLINICAL QUALITY, PERFORMANCE

IMPROVEMENT, AND INTERNAL RISK SCORES IN

NURSING HOMES

by

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Dissertation

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DEDICATION

I dedicate this research and program in Ethical Leadership to my husband Mark. He has been my cheerleader, encourager, supporter, and technical support throughout the whole Ethical Leadership degree program. I am truly humbled by his sacrifice and servanthood to allow me to cross the finish line.

ABSTRACT

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A clinical quality review (CQR) assessing high-risk areas as staffing, change in
condition, and pressure ulcers (PU) was completed in 31 nursing homes. Scores between
the assigned clinician and the researcher were analyzed using paired *t*-tests and Pearson *r*
correlations. Average scores for staffing were reliable, while the PU and change in
condition scores were significantly different. Individual staffing, 6 of 9 change in
condition, and 9 of 18 PU questions were reliable and consistent. Multiple regressions
compared relationships between performance improvement (PI), internal risk, and CQR
scores with various results. The internal risk and PI scores were inversely related. Future
focus should be on PI, and review of policies and instructions for change in condition and
PU areas.

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CHAPTER I

INTRODUCTION

More than 1.4 million Americans live in over 16,000 nursing homes or skilled

nursing facilities, including non-profit (NP) and for profit (FP) facilities. The average

length of stay is 892 days, compared to 4.8 days in a hospital (National Center for Health

Statistics, 2006). Nursing homes continue to be the target of lawsuits and criticism in the

health care sector. Winzelberg's (2003) analysis of the nursing home industry history

suggested that relying on government regulation has not ensured quality. Factors that

have contributed to lack of quality include the higher acuity of residents than in the past,

the high prevalence of residents with dementia and those requiring assistance with

activities for daily living, the turnover rate of nursing assistants, and the industry's

financial instability. Major issues facing facilities include declining Medicaid

reimbursement and quality of care. The nursing home industry has a reputation of poor

quality care, resulting in the enactment of the Omnibus Budget Reconciliation Act

(OBRA) in 1987. This resulted in over one hundred regulations, or "tag numbers"

dictating structure, process, and outcome measures (American Health Care Association,

2009).

Wagner, van der Wal, Groenewegen, and de Bakker (2001) defined quality of

care as the degree which the care process is consistent with current professional

knowledge, and which nursing homes increase the likelihood of desired health outcomes

for residents. They presented the concept of quality systems or management activities

that monitor, assess, and improve the quality of care. Examples of quality system activities included peer review, practice guidelines, quality policy, and continuing education, and are means of improving an organization's performance. They also concluded there is no clear quality system activity to be used in nursing homes to improve care for residents.

According to Donabedian (2005), quality care is comprised of structure, process, and outcomes components. Maas and Specht (1999) further described Donabedian's conceptual components that structure is the social and physical characteristics of the organization, while processes are the activities and behaviors of personnel providing the service, and outcomes are the end products. Outcomes are the result of processes that depend on structures. Mor (2005) related how the Institute of Medicine (IOM) dealt with the long-term care quality data to stimulate quality improvement, since it was reported to the public. Leaders should seek to reduce the occurrence of undesirable clinical events and increase the rate of functional improvement.

Hillmer, Wodchis, Gill, Anderson, and Rochon (2005) also discussed Donabedian's (2005) framework for analyzing quality in healthcare as structure, process, and outcomes. In their review, cross-sectional studies with aggregate data found that nursing staff levels were lower, and nursing aide turnover was higher in FP facilities. The authors also stated that "simple association between quality and facility ownership does not provide sufficient information about the nature of the relationship between ownership and quality" (p. 159). When outcome quality indicators were reviewed, pressure ulcers and hospitalization patterns suggested a higher quality in not for-profit homes.

Davis (1991) found that for-profit homes delivered lower quality of care, the research employing composite indexes. However, Davis (1991) cautioned that "it would be premature to conclude that nonprofit nursing homes provide higher-quality care" (p. 147). In contrast, Cherry (1991) did not find any significant relationship between FP status and care. Cherry's study found that only levels of LPN and RN staffing were significantly correlated with poor or lower care in a skilled nursing facility (SNF).

However, Hillmer et al. (2005) indicated that "multifaceted, quality scores indicated that FP homes were providing lower quality of care" (p.158). In summary, analysis of outcome quality indicators indicated that FP homes had more quality problems, the most obvious of which was pressure ulcers. Pressure ulcers are used as an excellent quality of care marker because very few residents develop these if they receive proper care. In the same study, Hillmer et al. concluded that "despite increased awareness and numerous high-profile governmental reports and publications, residents of FP nursing homes were more likely to be the recipients of poor quality compared with similar residents in NFP facilities" (p.162).

Grabowski and Castle (2004) examined high and low quality care within particular nursing homes over time, showing that high and low quality care was concentrated in certain facilities over time, and that public reimbursement and asymmetric information are important factors in explaining why low quality persists over time. They explored "three different explanations for persistent low and high quality over time including the level of public reimbursement, the presence of bed constraint polices such as certificate-of-need and construction moratoria, and role of consumer information" (p. 89), specifically Medicaid payment levels and the degree of consumer information as

root causes of persistent quality. These researchers also indicated the "greater public reporting of quality information may actually occur in the context of lower Medicaid payment of nursing home care" (p.112). Relating to "persistently low-quality nursing home care, this could be a classic case of one step forward and two steps back" (p.112).

Examining the relationship between variable costs and specific quality measures as decline in ADLs (activities of daily living), pressure ulcer development, weight loss, and psychotropic drug use, Hicks, Rantz, Pertroski, and Mukamel (2004) "revealed that variable costs can be negatively influenced by quality of care" (p. 178). "Variable costs were defined as expenditures related to patient care, ancillary services, and administration as reported on Schedule B of the state Title XIX (Medicaid) Cost Reports. The categories of capital, depreciation, taxes, and 'other' were excluded" (Hicks et al., p.180). Declining ADLs and pressure ulcers accelerate care costs, but sacrificing quality does not appear to be effective in containing costs. The bulk of patient care costing the most staff dollars must be provided regardless of the quality of care delivered. Therefore, to provide the highest quality of care for the 1.4 million nursing home residents, we are challenged to measure and evaluate the structure, process, and outcomes of care.

Statement of the Problem

The purpose of the study was to improve the accuracy of clinical review scores for three identified clinical quality review (CQR) areas [staffing, pressure ulcer (PU), change in condition] between a non-center assigned reviewer and the District Director of Clinical Operations (DDCO), and then to determine the relationship between scores, and determine relationships between CQR, performance improvement (PI), and an internal risk score. The researcher determined the quality of the performance improvement

program, and what relationship, if any, existed between the performance improvement program and the clinical review scores. Then they determined what relationship, if any, existed between clinical review scores, performance improvement quality score, and the overall composite score.

Because we should attempt to measure quality so that we can improve care, this study focused on evaluating three clinical systems and performance improvement, using structure, process, and outcome components. In a nationwide long-term care company, professionals in clinical operations and compliance have attempted to evaluate these areas, but obtaining accurate measurements have been challenging. The reason accurate scores are important is that if areas for improvement are not identified, then systems cannot improve, and subsequent progress after the review cannot be accurately measured. After a review, a facility should integrate low scoring areas into their performance improvement program. If clinical standards and systems are unmet, then company standards and quality are compromised. Poor quality costs money in outcomes, liability, and risks. Additionally, if standards and systems are not in place, then federal regulations are not met. Unmet regulations may cost money in fines, non-payment for a resident's stay, and ultimately in resident care and outcomes.

In a nationwide long-term care, for-profit company, henceforth named Markco, with 228 long-term care facilities, a clinical quality review is conducted two times per year, by an assigned district director of clinical operations. In these reviews, the problem is inconsistent and inaccurate scores in sampled clinical review areas. In retrospective reviews by a non-assigned DDCO reviewer, sampled areas do not always correspond to previous scores. Instructions for completing the CQR are minimal, and line by line

instructions were not available. Reasons for inconsistent or inaccurate scores may be the

DDCO's lack of knowledge, defense of the individual's job if scores are low, lack of

experience with the CQR tool, lack of instructions or training on the clinical systems and

processes, or lack of detailed instructions for the CQR. Accuracy of scores may also be

affected by one's integrity, subjectivity in reviewing one's own center, or reviewing as a

DDCO team versus singular review.

Hillmer et al. (2005) summarized that retrospective study designs can only use

data "available from the specified data source and may involve considerable biases from

unmeasured factors that may affect the likelihood of observed quality differences" (p.

142). Potentially confounding factors would be accounted for and addressed better in the

prospective study designs. Hillmer et al. also indicated that "composite quality scores and

federal facility audits are advantageous because they often include a wider range of

quality of care and quality of life combined into a single score" (p. 158). However, the

authors recognized that it is difficult to capture all nursing home quality aspects using

only one measure. Furthermore, they indicated a challenge in developing a composite

score that properly weighs care factors.

As presented by Miliucci and Rogers (2006), when students audited charts in the

peer review process, students were biased, and that process was considered unreliable as

being an objective measureable system. Davis (1991) presented that "conflicting values

within and among nursing home residents, taxpayers, legislators, owners, administrators,

health care professionals, and other constituencies will virtually guarantee controversy

with respect to quality versus efficiency" (p. 159). Moxey, O'Conner, White, Turk, and

Nash (2002) also discussed that various stakeholders have different perspectives, and this

complicates the definition of quality and measurement domains. Lastly, Smith, Atherly, Kane, and Pacala (1997) discussed that reliability can be poor in peer assessments of quality of care for complex patients.

Related to the problem of inaccurate and inconsistent CQR scores, the ability to maintain a system over time, and the internal assessment of clinical systems, Markco's professionals identified that only 50% of sampled facilities in 2007 had an effective performance improvement program. Therefore, even if an opportunity to improve is identified, then facility employees may not be able to measure demonstrated improvement.

Mor (2005) discussed that establishing benchmarks to compare providers assumes agreement on what inappropriate and appropriate care are and may reveal poor quality of care. However, the measure of the clinical desirable result is the quality of the outcome. Kane (2005) added that assessing nursing home success "depends on choosing the right measurements to reflect that achievement" (p. 7). This concept relates to Markco's internal measurement of quality and risk, the KPI Dashboard (Performance Improvement). The facilities are scored using criteria in major areas such as our people, our residents, be efficient, manage finances, and pursue excellence. Subsections under these components include turnover, worker's compensation, CQR, QI (quality indicators), event reporting, labor, financials, liability claims, government survey, and compliance. The research goal is ultimately to improve quality of care for the facilities' residents.

.   Background

        In review of the literature, the three clinical areas of PU, staffing, and change in

condition, along with PI and relationship to quality, and documentation will be discussed.

In addition, internal company analysis of risk factors will be discussed.

Pressure Ulcers

        Scott-Cawiezell and Vogelsmeier (2006) reminded us that the PU guidelines

supported by the Agency for Health Care Policy and Research (AHRQ) have been

available since 1992, and the guidelines present assessment as a critical component of

pressure ulcer prevention and treatment. Saliba et al. (2003) studied the nursing homes'

overall adherence to pressure ulcer prevention guidelines, and identified large variations

between homes in adherence to many recommendations. Adherence to PU prevention

guidelines was relatively low. The Wound Ostomy and Continence Nurses (WOCN)

Society and the National Pressure Ulcer Advisory Panel (NPUAP) have established best

practice guidelines based on their literature review of risk factors, prevention, and

treatment of pressure ulcers. Pressure ulcers used to be classified as Stage I, II, III, or IV

depending the skin thickness involved. However, in February, 2007, the National

Pressure Ulcer Advisory Panel (NPUAP, 2007) redefined the PU definition and stages of

PU, including the original four stages, but added two stages on deep tissue injury and

unstageable PU.

        Maklebust (2005) analyzed studies comparing various outcomes before and after

implementation of PU guidelines, with clinical audit data as evidence. Overall, passive

strategies were associated with poorer care, and active strategies associated with better

outcomes. Courtney and Spencer (2000) reported on the views of 36 RNs using semi-

structured interviews. When asked to nominate major clinical indicators of high quality residential care, all 26 RNs working at the bedside stated that the absence of pressure ulcers was the most important measurable factor. Only two managerial RNs ranked it as the most important factor, while five managerial RNs also mentioned low rates of pressure ulcers. Lastly, in the interest of minimizing risk for the company, Voss et al. (2005) concluded that long-term care providers can improve their residents' quality of life, improve survey results, and minimize risk of expensive lawsuits by preventing pressure ulcers through development, implementation, and documentation of a basic measures plan.

Staffing

Staffing in nursing homes is critical to resident outcomes. Relating to outcomes, Horn, Buerhaus, Bergstrom, and Smout (2005) explored the time nurses spent in direct care and how it affected outcomes in nursing home residents. More RN direct care time per resident per day was associated with fewer pressure ulcers and hospitalizations. More licensed practical nurse and certified nursing assistant time was also associated with fewer pressure ulcers. However, they also relate that in nursing homes, where malnutrition, pain, urinary incontinence, and pressure ulcers are serious problems, evidence linking nurse staffing and outcomes is mixed. Zimmerman, Gruber-Baldini, Hebel, Sloane, and Magaziner (2002) determined a relationship between multiple structure and process elements of nursing home care and resident infection and hospitalization for infection. RN turnover was significantly related to both outcomes, and with each proportionate loss of a RN, the risk of hospitalization increased more than 80% and the risk of infection increased nearly 30%.

Harrington et al. (2000) concluded that current data show that the nursing home average nurse staffing levels (for RNs, LVN/LPNs, and nurse aides) are too low in some facilities for high quality care. The authors recommended proposed RN time at 1.15 hour per patient day, including 24-hour RN coverage, LVN at .70 hour, nurse assistant 2.70 hour, for a total of 4.55 hours per patient day. The researchers also recommended adjusting for resident case-mix, proportional to the Resource Utilization Group (RUG) staff time requirements.

In a study by Centers for Medicare and Medicaid Services (CMS), 2001, CMS found that until a threshold is reached, quality of care improves in nursing homes with each increase in nurse staffing levels. When the threshold was reached, additional staff do not improve the quality. The study indicated that threshold ranged between 2.4 – 2.8 CNA hours/resident day, 1.15 – 1.30 hours/resident day licensed staff (RN and LPN), and .55 - .75 hours/resident day. Furthermore, the study indicated that about 97% of nursing homes would not meet these standards if these thresholds were implemented. However, their analysis also indicated that implementing staffing threshold less than the levels maximizing quality, would still produce substantial improvements. Mueller (2000) discussed The Framework for Nurse Staffing in LTC Facilities and "proposes that residents' needs will be met [quality of care will be achieved] as established and measured by the standards and philosophy of care" (p. 267).

Change in Condition

The next area of the CQR is resident change in condition, or change in clinical status. Goldrick (2005) discussed how the current trend of earlier hospital discharge, leading often to longer nursing home stays, and the increase in number of older adults

will "create an unprecedented increase in the number of nursing home residents at greater risk for illness and death because of infection" (p. 31). Pneumonia and urinary tract infections are of particular concern, necessitating the nursing home licensed and unlicensed staff to recognize changes in condition. Pals et al. (1995) studied clinical triggers for fever and dehydration in long-term care. Controversy still exists among health care workers as to how to detect fevers early, despite the high incidence of febrile episodes. They concluded that vigilant observation and monitoring of residents' physical condition, ability to perform ADL, and cognitive status must be an ongoing process of evaluation. Failure to recognize change in condition can be life threatening.

Jackson and Schafer (1993) emphasized that nurse aides must develop skills to recognize clues to potential medical problems, especially because aides provide the most direct care to the resident. Elon (2003) complements these studies by stating:

another error of omission occurs when the facility staff does not recognize an important change in resident status and therefore does not notify the physician in a timely fashion, such as when a resident has a change in mental status accompanied by a drop in blood pressure, but the staff does not recognize the immediate importance of dangerously low blood pressure. (p. 136)

Performance Improvement

As the additional area to be studied and specifically relating to the quality of care, performance improvement (PI) will be discussed. In White's (2005) review of nursing quality, she emphasizes that substantial improvements in nursing home quality of care must be achieved, leaving its historical roots and embracing systematic changes to promote quality. Continuous quality improvement, or PI, should be based on quality

indicators, along with continued development, innovation, and collaboration. Rantz et al. (2004) found that active quality improvement, team process, and tenure of key leadership influenced the basics of care.

Referring to Donabedian's (2005) model of measuring quality, Schirm, Albanese, and Garland (1999) conducted a qualitative study of nursing staff perceptions of quality care in nursing homes, linking data to structure, process, and outcome. The primary issue raised was the need for training nursing home personnel in the relationships of structure of care, then producing processes of care, and ultimately outcomes of care. Before a nursing home can experience the benefits of PI, personnel must understand and support the process. In Price, Fitzgerald, and Kinsman's (2007) study, clinical nurses and nurse managers had divergent views of the identified deficiencies in the way that PI was implemented, reducing its clinical impact. However, their research findings indicate potential benefits are far outweighed by the negative issues related to PI.

Berlowitz et al. (2003) examined PI implementation in nursing homes, its association with organizational culture, and its effects on PU care. Primary data were collected from Veterans Affairs (VA) nursing homes staff on measures related to PI implementation and organizational culture. These data were combined with abstractions of medical records information and analyses of an existing database. One-thousand sixty-five nursing home staff completed surveys about PI implementation, employee satisfaction, organizational culture, and perceived adoption of guidelines. Adherence to PU prevention best practices was abstracted from medical records. Nursing homes differed significantly in their extent of PI implementation, with PI implementation greater in nursing homes with an organizational culture emphasizing teamwork and innovation.

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Nursing home employees with a greater degree of PI implementation were more satisfied with their jobs and were more likely to report adoption of clinical guidelines for pressure ulcers. However, no significant association was found between either adherence to PU guideline recommendations as abstracted from records or the rate of pressure ulcer development, and PI implementation. The researchers concluded that while PI implementation may result in more job satisfaction and workers may believe they are providing better care, relationships with improved care are uncertain. Thus, due to the sampling of Markco's PI effectiveness, and impact on clinical care areas, this study will incorporate an assessment of the PI program and compare the CQR and PI assessment scores.

Other researchers (Walshe & Freeman, 2002) evaluated the effectiveness of PI and results suggested that most PI have highly variable effects, depending on the context they are used and the way they are implemented. Walshe and Freeman summarized three implications: the approach to PI matters less than how and why it is used, future research should focus on the determinants of effectiveness, and some evaluation should be incorporated into every PI program, so that effectiveness can be monitored and used for improvement.

Similar to Markco's KPI, Fitzgerald, Shiverick, and Zimmerman (1996) described the Quality Indicator Index and Education (QUIX-Ed) project to use performance measurement data to support PI in nine nursing facilities in Mississippi. The nine nursing facilities contributing data to the quality indicator database were more interested in comparing their peer performance than with performance for a larger group of facilities across the state. Markco used the KPI Dashboard to rate and rank centers in risk, using a

composite score for the areas of our people, our residents, be efficient, manage finances, and pursue excellence.

CQR Process

Because the CQR is a large review of 28 clinical areas, Markco's risk management and compliance department reviewed only three areas to assess and validate clinical systems. The three areas were determined by an internal study defining the risk in 2007, scoring the probability and impact, policy and procedure, education, and auditing and monitoring. Scores were then totaled, and the areas with the highest scores were determined to be the highest risk. Then the scored risk areas were sent to Clinical Operations leaders to determine what areas they viewed as having the most impact and risk to the organization. Even though the risk scores were ranked, clinical operations leaders did not choose the top three ranked areas. Instead, they chose "staffing levels do not meet resident's needs," "failure to recognize and notify physician of significant change of condition", and "ineffective wound care control (PU) program." Because these areas correspond to the standard system assessment criteria on the CQR, the CQR measurement criteria are used.

Markco's Clinical Operations and compliance (now Risk Management and Compliance) departments also realized that lack of instructions could be a contributing factor for inconsistent scores. In summer 2007, one member from the compliance department and a DDCO conducted a review of sampled CQR areas in attempt to develop written instructions, while conducting inter-rater reliability without written instructions. While two observers took notes and observed the process, no final instructions resulted.

Because Markco's Risk Management and Compliance department would be assessing three CQR clinical systems during their quality visits, they developed written instructions within their department. Then clinical operations leadership were required to approve and modify, if needed, the instructions for the three CQR areas. Compliance and risk management personnel were trained on the instructions in February, 2008. Subsequently, clinical operations finalized instructions for all the CQR areas, with compliance and risk management and clinical operations personnel participating, and the instructions were rolled out in November, 2008. Therefore the researcher and the DDCOs that participated in the study were both using the same set of instructions.

Research Questions

Because the relationships of the quantitative data will provide direction on systems measurement and are important in managing risk for the company, the study was guided by the following research questions:

1. Was there a statistical relationship between the performance improvement (PI) program quality score, the clinical quality review (CQR) scores, and the KPI Dashboard score?

2. Was there a statistical relationship of CQR scores obtained by a non-center assigned reviewer and a center assigned (DDCO) reviewer, using line by line instructions?

3. Was there a statistical relationship of a PI program quality score, and the three CQR scores for the identified areas?

Description of Terms

The following definitions provide clarity to the unique terms used in this dissertation project:

Activities of Daily Living (ADL). Activities required to maintain daily life, as eating, dressing, transferring self to another location.

Clinical Operations. Clinical operations is used to describe administrative, clinical, and financial functions to develop, implement, and plan systems for quality of care, reporting up through district, regional, and then corporate administration.

Certified Nursing Assistant (CNA). Performs activities within their scope of training and works under the direction of a LPN or RN.

Markco Performance Improvement Dashboard (KPI). Markco's internal risk database that analyzes factors under the major areas our people, our residents, be efficient, manage finances, pursue excellence. Specific factors include turnover, worker's compensation, CQR, QI (Quality Indicators), event reporting, labor, financials, liability claims, government survey, and compliance. Through analysis, a risk score from one through five is assigned, with the highest risk a five.

Licensed Practical Nurse (LPN). Performs nursing activities, such as gathering objective and subjective data, and passing oral and topical medications, working under the supervision of a RN and/or physician within their scope of practice.

Nursing Home or Skilled Nursing Facility (SNF). Statutory definitions of the Social Security Act for a SNF, as cited in American Health Care Association (2009). A facility or institution must meet certain requirements to participate in Medicare and Medicaid programs. The institution primarily provides skilled nursing care and related

services, or rehabilitation services, and is not mainly for the mental disease care and treatment. It also has a transfer agreement in effect with one or more hospitals having agreements under number 1866, and meets requirements for a SNF described in subsections. For purposes of the dissertation, the terms nursing home and long-term care are used interchangeably, and are SNF.

Performance Improvement (*PI*). Also may be called quality improvement, or continuous quality improvement, and is used to describe the process of identifying areas of improvement, methods or action plan to improve area, and evaluation of plan implementation.

Pressure Ulcers (*PU).* A term to describe a localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction (NPUAP, 2007).

Registered Nurse (RN). Performs nursing activities such as assessment and planning nursing care, administering intravenous drugs, and works under direction of a physician or similar licensed healthcare professional.

Risk Management and Compliance. The Risk Management and Compliance department reports to the Governing Board of Markco and is responsible to support the company in areas of risk identification, analysis, and mitigation. The department's responsibilities include administration of an Ethics and Compliance Program and initiatives to reduce medical malpractice issues.

<div align="center">Significance of the Study</div>

For about four years at Markco, clinical operations leadership has made

<div align="center">17</div>

concerted efforts to improve the quality of care in their nursing centers. These initiatives have included implementing standard policies and procedures and forms, emerging from a Corporate Integrity Agreement with the government, and monitoring and evaluating the implementation of standards. Not only is evaluating quality of care important for resident outcomes, federal regulations require that standards are met. If standards are not met, a nursing home may lose its ability to be paid for the resident's care, lose financial resources due to fines, and ultimately, resident quality of care is affected. Therefore, rather than only depending on federal or state surveyors to monitor and evaluate care, nursing homes must self-monitor to identify areas to improve care. If assessments of care standards are not accurate, then opportunities to improve are not identified, and patient care suffers. Hillmer et al. (2005) reinforced the difficulty to capture all aspects of nursing home care quality with a single measure. However, they supported federal facility audits and composite quality scores because a wider range of quality of life and quality of care was combined into a single score. Again, the multifactorial quality scores indicated that lower quality of care was being provided by FP nursing homes.

As previously discussed, Markco identified three clinical areas of high-risk to the nursing homes and subsequently to patient outcomes: staffing, identification of change in condition, and PU management. Concrete and anecdotal evaluation of these standards are inconsistent and often clinical quality review (CQR) scores appear inaccurate. In addition, the company expectations for PI were not met. Therefore, the significance of the study is that if detailed CQR instructions for evaluating these clinical areas are provided, then the areas may be more accurately assessed, and scores may have a significant relationship for two reviewers. After a CQR is completed, then nursing home

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professionals should integrate identified areas for improvement into their PI. A DDCO is responsible to oversee PI and progress toward meeting the standards. A question of the researcher, and discussed in literature, is whether a PI program affects a nursing home meeting a standard.

In their review of 200 publications, Wagner et al. (2001) found only 21 studies that described a quality system implementation and effects on quality of care. The researchers concluded that specific resident assessment procedures, specific training, and using quality assessment cycles with the assistance of a quality assessment consultant were effective in improving certain health outcomes and quality of care in specific aspects of the care process. The studies identified quality system activities such as providing feedback, implementing guidelines, providing an ombudsman, and assessing residents' needs by care planning and internal audits and tuition. However, Wagner et al. also concluded from the literature that it is not clear which quality system activity should be used to improve care for nursing residents.

Lastly, Markco currently evaluates internal risk factors for each nursing home and calculates risk scores, as previously discussed. The KPI Dashboard is an additional source of data that could that indicate a nursing home is at high risk for providing poor quality care to the residents. Thus, comparing PI, KPI Dashboard composite scores, and CQR scores may mirror the Dashboard model. The researcher could provide valuable information of any data or additional components that could be modified in the Dashboard model, along with assessing if CQR instructions are important for accurate CQR scores.

Process to Accomplish

The researcher focused on three quality of care areas and PI activities at Markco. The quantitative data obtained in the study process were analyzed to describe what relationships, if any, existed between the CQR, PI, and KPI Dashboard scores. In addition, the researcher measured the impact of instructions for the CQR areas by comparing two Markco employee scores. Substantial time and effort over three years has yielded a range of CQR scores and PI has been implemented with various degrees of quality and appropriateness.

To determine the statistical relationship between the CQR score obtained by a non-center assigned reviewer and a center assigned DDCO reviewer using line by line instructions, the researcher paired with one DDCO per district to collect the data (Appendix A). Using purposive sampling (Leedy and Ormrod, 2005), a DDCO in each of 21 districts and ten additional DDCOs in various districts comprised the sample total of 31 DDCOs. The researcher was the non-center assigned reviewer in this study. Twenty-one districts represented each district in the East, Central, and Pacific regions, and all nursing homes in the company. The DDCO and researcher coordinated the days for the every six month CQR and arrived at the nursing home the same day. Data were collected using standardized audit tools, with instructions, for the staffing, change in condition, pressure ulcers, and change in condition sections. The researcher and DDCO had opportunity to review instructions before the visit. Each person then chose his or her own sample records and residents and completed the three CQR sections independently. By the end of the first day, the researcher collected the three CQR section worksheets from the DDCO and collated their worksheets. The researcher and the DDCO continued to

collect additional data necessary for their respective center visits, such the DDCO completing additional CQR sections and the researcher completing the PI quality analysis.

To analyze the data, scores for each item in the three sections were correlated between the DDCO and researcher, measuring inter-rater reliability. In addition, total scores for each section were correlated between the DDCO and non-center reviewer. Further, a total score for all three sections was obtained between the researcher and DDCO and analyzed in the same manner.

To determine the statistical relationship between the PI program quality score, and the three CQR scores for the identified areas, the researcher averaged the two CQR total scores between the DDCO and the researcher. After the researcher assessed the PI quality using a standard audit tool, the score was totaled. Then, the PI score and the averaged CQR scores were analyzed using correlational statistics.

Lastly, to determine the relationship between the PI program score, the CQR, and the KPI Dashboard, the researcher used the averaged total CQR score and the PI program score as discussed above. The KPI Dashboard score was obtained by the researcher by printing the current score from the company's internal website during the week of the researcher review and reflecting the latest data available (Appendix B). The overall score for the nursing home, a single value, was used as the data value. Then, correlational statistics were used to analyze relationships between the scores.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

In review of the literature, the three clinical areas of pressure ulcers, staffing, and change in condition, along with performance improvement and relationship to quality, and documentation will be discussed. In addition, internal company analysis of risk factors will be discussed.

Pressure Ulcers

In review of the literature, Scott-Cawiezell and Vogelsmeier (2006) reminded nursing home health care professionals that the pressure ulcer guidelines supported by the Agency for Health Care Policy and Research (AHRQ) have been available since 1992, and the guidelines present assessment as a critical component of pressure ulcer prevention and treatment. Saliba et al. (2003) studied the nursing homes' overall adherence to pressure ulcer prevention guidelines, and identified large variations between homes in adherence to many recommendations. Adherence to PU prevention guidelines was relatively low. "The low level of adherence and high level of variation to many best-care practices for PU prevention indicate a continued need for quality improvement, particularly for some guidelines" (p. 56).

Wipke-Tevis et al. (2004) studied 362 nursing homes in a retrospective analysis of a large data set and comparative survey, to measure PU quality indicator scores and describe the self-reported skin integrity assessment, PU prevention and treatment

practices, and PU risk assessment. Best practices for pressure ulcers were not being used in nursing homes, with fewer than 13% of facilities using the AHRQ PU prevention and treatment guidelines. Reliable and valid pressure ulcer risk assessment tools were underused, and evidence-based treatment and prevention guidelines appeared to be seldom implemented.

Horn et al. (2004) conducted a study to identify resident, treatment, and facility characteristics associated with PU development in nursing home residents, with 95 long-term care facilities participating in the National Pressure Ulcer Long-Term Care Study. Data were collected, for each of 1,524 residents over a 12-week period, from medical records, Minimum Data Set, and other written records. Seventy-one percent of resident did not develop a PU during the 12-week study period, and 29% developed a new PU. If a resident had a higher initial severity of illness and recent PU, significant weight loss and eating problems, and used catheters and positioning devices, they were more likely to develop a Stage I to IV PU. Residents were less likely to develop a PU if they were a new resident, had nutritional intervention, used antidepressants, used disposable briefs for more than 14 days, had RN hours of .25 hours per resident per day or more, nurse aide hours of at least 2 hours per patient day, and a LPN turnover less than 25%. Thus, the researchers concluded that "a broad range of factors, including nutritional interventions, fluid orders, medications, and staffing patterns, are associated with prevention of PUs in long-term care residents" (p. 359).

In another study led by Horn et al. (2005) collected resident characteristics data over a 12-week period, and determined that a broad range of factors were associated with preventing pressure ulcers in long-term care residents. The more time nurse aides and

nurses spent with a resident, the more likely they would receive appropriate and adequate care, including pressure ulcer prevention and intervention. Residents with a higher initial severity of illness and history of recent pressure ulcers, and significant weight loss, were more likely for a Stage I to develop to a Stage IV.

Determining that there was no unanimously accepted definition of quality wound care, the Association for Advanced Wound Care Quality of Care Task Force created a framework of quality wound care indicators (Paine et al., 2006). The Task Force members identified relevant components of quality wound care, and the created indicators enabled the assessment or creation of wound care delivery systems. The conceptual framework "uses the Institute of Medicine's Crossing the Quality Chasm: A New Health System for the 21st Century to define quality systems for wound care" (p. 57). The pillars of quality "include safety and effectiveness coupled with the delivery of timely, efficient, equitable, collaborative, patient-centered care" (p. 57). The authors suggest that the framework can be used during managerial, clinical, or regulatory review of wound care services. Other previous studies complemented this framework.

The American Nurses Association (ANA) developed nurse quality indicators, key in evaluating the quality of patient care in acute care settings. This study found the indicators were relevant in long-term care settings, including pressure ulcers, total nursing care hours provided per patient day, and the mix of licensed and unlicensed staff (Mueller, 2004). Furthermore, slightly more than half of the respondents to the survey indicated that lower PU were related to the RN contribution. "Nurse sensitivity would be indicated by higher RN staffing and lower prevalence rates for the QIs" (p. 46).

In another study by Ehrenberg and Birgersson (2003), the researchers reviewed 100 patient records with leg ulcers and investigated the adherence of nursing documentation to clinical guidelines. Deficiencies were found in the documentation of care, and flaws in adopting the recording of the nursing process. They concluded that medical record information without following the nursing process may impede communication and evaluation of care, and is likely to impact the continuity and quality in patient care.

Several researchers have studied PU, quality of care, and costs. Hicks et al. (2004) found higher costs associated with lower quality of care delivered and a higher incidence of pressure ulcers. In one health care system, Ascension Health, St. Vincent's Medical Center developed a comprehensive program to reduce and eliminate facility-acquired pressure ulcers. The alpha site initiative in pressure ulcer prevention, helped them identify at-risk populations, implement appropriate actions, and achieve measurable and positive results (Gibbons, Shanks, Kleinhelter, & Jones, 2006). At another facility, a person-centered care delivery model resulted in improved pressure ulcer outcomes while operating costs have declined (Flesner & Rantz, 2004).

The Wound Ostomy and Continence Nurses (WOCN) Society and the National Pressure Ulcer Advisory Panel (NPUAP) have established best practice guidelines based on their literature review of risk factors, prevention, and treatment of pressure ulcers. Pressure ulcers were classified at Stage I, II, III, or IV depending the skin thickness involved. However, in February, 2007, the National Pressure Ulcer Advisory Panel (NPUAP, 2007) redefined the PU definition, and stages of PU, including the original four stages, but added two stages on deep tissue injury and unstageable PU. In treating PU,

Reddy et. al (2008) conducted a systematic review published randomized controlled trials that evaluated therapy for PU. The researchers concluded that "little evidence supports the use of a specific support surface or dressing over other alternatives. Similarly, there is little evidence to support routine nutritional supplementation or adjunctive therapies compared with standard care" (p. 2657).

Brown (2003) conducted a non-experimental, retrospective analysis of pressure ulcer data in a Veterans Affairs medical center, over a five year period, to determine the relationship between the occurrence of nosocomial full-thickness PU, healing, and mortality. His findings were consistent with previously published data that established a link between impending death and the development of nosocomial pressure ulcers. Developing a full-thickness pressure ulcer in the chronically and critically ill appears to be a comorbid pathologic process rather than a failure in turning and repositioning. Maklebust (2005) analyzed studies comparing various outcomes before and after implementation of PU guidelines, with clinical audit data as evidence. Overall, passive strategies were associated with poorer care, and active strategies associated with better outcomes.

Lastly, in the interest of minimizing risk for the company, Voss et al. (2005) concluded that long-term care providers can improve their residents' quality of life, improve survey results, and minimize risk of expensive lawsuits by preventing pressure ulcers through development, implementation, and documentation of a basic measures plan. Lawsuits are typically based on patients with PU, or their advocates, contending that the nursing home was negligent and failed to provide care to prevent or manage wounds.

Staffing

Staffing in nursing homes is critical to resident outcomes. Reilly, Mueller, and Zimmerman (2006) incorporated on-site nursing home quality assessments and concepts that were founded on Donabedian's (1980) model and psychometric theory. Based on the staffing taxonomy, a quality monitoring protocol was used to assess quality improvement systems. Results from 48 long-term care facilities showed that 92% of facilities do not have formal systems in place to allocate nursing staff across residents, for example acuity-based staffing. Most facilities struggled with integration of staffing into a quality monitoring process, reflecting Donabedian's structure, process, and outcome model. The researchers concluded that "a well-defined nurse-staffing taxonomy informs staffing decisions that impact quality" (p. 184).

Anderson and McDaniel (1999) studied RN participation in organizational decision making. Nursing homes with the most resident outcomes improvement had greater RN decision-making participation than did nursing homes with the least improvements. Their results suggested that nursing homes wanting to improve quality can use RN participation to make improvements without significantly increasing costs. Arling, Kane, Mueller, Bershadsky, and Degenholtz (2007) determined the relationship between nursing home staffing level, individual care, and quality-related care processes and functional outcomes. While a certain minimum level of staffing is necessary for good quality, they indicated that the expertise of direct care staff, staff morale and teamwork, and facility or unit management practices, or other organizational context of care delivery were important determinants.

Also relating to outcomes, Horn et al. (2005) explored the time nurses spent in direct care and how it affected outcomes in nursing home residents. In the a retrospective study of data collected as part of the National Pressure Ulcer Long-Term Study, more RN direct care time per resident per day was associated with fewer pressure ulcers, hospitalizations, and urinary tract infections (UTI). In addition, more RN time resulted in less weight loss, deterioration in ADLs, and catheterization, and increased use of oral nutritional supplements. More licensed practical nurse and certified nursing assistant time was also associated with fewer pressure ulcers. However, they also relate that in nursing homes, where malnutrition, pain, urinary incontinence, and pressure ulcers are serious problems, evidence linking nurse staffing and outcomes is mixed.

Another group of researchers, Zimmerman et al. (2002) determined a relationship between multiple structure and process elements of nursing home care and resident infection and hospitalization for infection. RN turnover was significantly related to both outcomes, with each proportionate loss of a RN, the risk of hospitalization increased more than 80% and the risk of infection increased nearly 30%.

Also relating to staffing and outcomes, Konetzka, Norton, Sloane, Kilpatrick, and Stearns (2006) investigated effects of financial pressures from Medicare payment changes on incidence of UTIs and PUs among long-stay nursing home residents. The panel data analysis of nursing home residents in Kansas, Ohio, Maine, Mississippi, and South Dakota used the Minimum Data Set from 1995 to 2000. After Medicare's prospective payment system was implemented, the probability of developing a PU or UTI increased significantly. The researchers concluded that even though the Medicare payment systems directly applied to short-stay residents, the financial pressures lowered

the quality of care experienced by the long-stay resident as measured by the adverse outcomes. They concluded that quality decreases were likely due to nurse staffing decreases prompted by the payment reductions.

Harrington et al. (2000) concluded that current data show that the nursing home average nurse staffing levels (for RNs, LVN/LPNs, and nurse aides) are too low in some facilities for high quality care. Recommendations proposed RN time at 1.15 hour per patient day, including 24 hour RN coverage, LVN at .70 hour, nurse assistant 2.70 hour, for a total of 4.55 hours per patient day. They also recommended adjusting for resident case-mix, proportional to the Resource Utilization Group (RUG) staff time requirements. In a study by Centers for Medicare and Medicaid Services (CMS, 2001), CMS found that until a threshold is reached, quality of care improves in nursing homes with each increase in nurse staffing levels. When the threshold was reached, additional staff do not improve the quality. The study indicated that threshold ranged between 2.4 – 2.8 CNA hours/resident day, 1.15 – 1.30 hours/resident day licensed staff (RN and LPN), and .55 - .75 hours/resident day. Furthermore, the study indicated that about 97% of nursing homes would not meet these standards if these thresholds were implemented. However, their analysis also indicated that implementing staffing threshold less than the levels maximizing quality would still produce substantial improvements.

Mueller (2000) discussed The Framework for Nurse Staffing in LTC Facilities, and provided a way for administrators to determine how to meet residents' needs effectively, or that quality of care will be achieved. Blair and Glaister (2005) added that "nursing assistants are the number one resource in nursing homes. The challenge is to

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recruit, educate, and retain nursing assistants who consistently provide the highest quality of resident care" (p.110).

Dellefield (2006) studied staffing using the RUG-III system as a staffing tool. Nurses using RUG-III as a staffing tool for nonpsychiatric nursing home residents found that it was beneficial. Bostick (2004) studied staffing and pressure ulcer rates and found no relationship between LPN staffing hours, but a significant relationship between RN and nurse aide hours. In the cross-sectional descriptive survey using 1999-2000 data from 413 Missouri nursing facilities, the researcher found that increasing nurse aide hours may decrease the prevalence of pressure ulcers. Bostick summarized that "increasing the number of LPN and NA(nurse aide) staff does not automatically improve the quality of nursing care, nor does increasing the number of RN staff alone improve the quality of nursing care" (p. 135).

In Hillmer's et al. (2005) review of nursing home profit status and quality, they reviewed two measures of staffing as number of staff members and nursing aide turnover. Cross-sectional studies with aggregate data found that nursing staff levels were lower in FP facilities, and that nursing aide turnover was higher. The researchers organized the review in structure, process, and outcome quality indicators. As cited previously, Mass and Specht (1999) found that greater nursing staff to resident and greater RN to unlicensed staff ratios were substantiated as positively related to quality resident outcomes.

Considering staffing as a risk for lawsuits, Johnson, Dobalian, Burkhard, Hedgecock, and Harman (2004) hypothesized that nursing homes will have more lawsuits filed against them if they have more financial resources available to them, are more

exposed due to the resident census, and if homes have poor quality of care. Interestingly, staffing levels for RNs and nurse aides and multistate chain membership were negatively associated with higher numbers of lawsuits.

Change in Condition

The next area of the CQR is resident change in condition. Goldrick (2005) discussed the current trend of earlier hospital discharge, leading often to longer nursing home stays, and the increase in number of older adults will "create an unprecedented increase in the number of nursing home residents at greater risk for illness and death because of infection" (p. 31). Pneumonia and urinary tract infections are of particular concern, necessitating the nursing home licensed and unlicensed staff to recognize changes in condition.

Pals et al. (1995) studied clinical triggers for fever and dehydration in long-term care. Controversy still exists among health care workers as to how to detect fevers early, despite the high incidence of febrile episodes. They concluded that vigilant observation and monitoring of residents' physical condition, ability to perform ADL, and cognitive status is important in detecting dehydration and fever. Failure to recognize change in condition can be life threatening.

Jackson and Schafer (1993) emphasized that nurse aides must develop skills to recognize clues to potential medical problems, especially because aides provide the most direct care to the resident. They also emphasized that failing to recognize a resident problem can result in rapid progression of a medical condition, for example an infection. The future challenge will be improved nurse aide performance with "more elderly people, few resources per capita, and increasing regulatory demands to reduce complications in

residents and improve safety for care providers" (p. 42). Elon (2003) complements these studies by stating:

> another error of omission occurs when the facility staff does not recognize an important change in resident status and therefore does not notify the physician in a timely fashion, such as when a resident has a change in mental status accompanied by a drop in blood pressure, but the staff does not recognize the immediate importance of dangerously low blood pressure. (p. 136)

The decision to hospitalize, after recognition of change in condition, can be multifactorial. Intrator, Zinn, and Mor (2004) found that providing intravenous therapy, the employment of nurse practitioners (NP)/physician assistants (PA), and conducting certified nurse assistant training programs appeared to reduce ambulatory care sensitive hospitalizations, and may be cost-effective interventions. Kane (1990) discussed that the most efficacious care should be sought, analyzing nursing homes (NH) and hospital settings. Hospitals may discharge unnecessarily or prematurely to NH, and Kane indicated that many cases sent from the NH to hospitals could be managed better in the NH. He blamed the poor primary care in the NH, physicians shunning NH because of poor staff support, low prestige, poor reimbursement, and lack of satisfaction. Lastly, Buchanan et al. (2006) surveyed medical directors and directors of nursing in 448 nursing homes. Attitudes, beliefs, and subjective opinions are important decision-making elements in hospitalizing nursing homes residents, with patient-centered factors playing the largest role, and the most important causes of overhospitalization potentially modifiable.

Performance Improvement and Quality of Care

As the additional area to be studied and specifically relating to the quality of care, PI will be discussed. In White's (2005) review of nursing quality, she emphasizes that substantial improvements in nursing home quality of care must be achieved, leaving its historical roots and embracing systematic changes to promote quality. Even though continuous quality improvement methodology is effective in improving health care delivery of easily measured outcomes, much of the nursing home care is not easily measured. Continuous quality improvement, or PI, should be based on quality indicators, along with continued development, innovation, and collaboration.

Stevenson et al. (2000) identified the serious concerns about nursing home care quality, and described a comprehensive system model. The model viewed organizational environments as consisting of four interacting dimensions, and was used as a conceptual framework to identify factors contributing to poor quality care and then highlight previous research efforts. The four dimensions included organizing arrangements, social factors, technology, and physical setting, and the framework can be used in their quality improvement implementation processes.

Rantz et al. (2004) found that active quality improvement, team process, and tenure of key leadership influenced the basics of care. In the sample of 92 Missouri nursing homes, processes of care, cost of care, staffing level, staff mix, and organizational attributes were described with good, average, and poor resident outcomes. Consistent nursing and administrative leadership, an active quality improvement program, and using team and group processes were necessary for basics of care to be accomplished. Smaller facilities had better outcomes, but no significant differences in

staffing, costs, or staffing mix were found in the poor, average, or good outcomes. However, "a trend in higher total costs of $13.58 per resident per day was detected in the poor-outcome group compared with the good-outcome group" (p. 24).

Scott-Cawiezell (2005) also presented a conceptual model to build organizational capacity to improve nursing home quality. By using insight and problem-solving, a high performing team had the capacity to make and sustain improvement and capacity to provide high quality care. The capacity to make and sustain improvement included culture, communication and relationship, leadership, management infrastructure, and information mastery.

Refering to Donabedian's (1980) model of measuring quality, Schirm et al. (1999) conducted a qualitative study of nursing staff perceptions of quality care in nursing homes, linking data to structure, process, and outcome. The primary issue raised was the need for training nursing home personnel in the relationships of structure of care, then producing processes of care, and ultimately outcomes of care. Before a nursing home can experience the benefits of PI, personnel must understand and support the process.

In Price's et al. (2007) study, clinical nurses and nurse managers had divergent views of the identified deficiencies in the way that PI was implemented, reducing its clinical impact. Both nurse managers' and clinical nurses' views must be included for a successful quality improvement process. However, their research findings indicate potential benefits are far outweighed by the negative issues related to PI.

Banner Health, as presented by Kirkman-Liff (2003) successfully developed an organization-wide integrated effort called care management, including PI. Work groups

used a planned process in which knowledge was created, reviewed, synthesized, distributed, taught, and implemented. Lessons learned after two years included information sharing, increased ability to use statistical tools, "and the strategy to have functional teams and work groups develop systemwide policies and toolkits but leave implementation to facility employees has worked relatively well" (p. 264).

Similar to Markco's KPI Dashboard, Fitzgerald et al. (1996) described the Quality Indicator Index and Education (QUIX-Ed) project to use performance measurement data to support PI in nine nursing facilities in Mississippi. The nine nursing facilities contributing data to the quality indicator database were more interested in comparing their peer performance than with performance for a larger group of facilities across the state. Markco used the KPI Dashboard to rate and rank centers in risk, using a composite score for the areas of our people, our residents, be efficient, manage finances, and pursue excellence. Another health care system, the Veterans Health Administration (VHA) used infomatics to support their Quality Enhancement Research Initiative (QUERI), their large-scale, multidisciplinary quality improvement initiative (Hynes, Perrin, Rappaport, Stevens, & Demakis, 2004). The quality improvements underway in the VHA system rely on data systems that bring essential decision points and quality measures to appropriate personnel.

Other researchers evaluated the effectiveness of PI, and results suggested that most PI have highly variable effects, depending on the context they are used in, and the way they are implemented (Walshe & Freeman, 2002). Walshe and Freeman (2002) summarized three implications: the approach to PI matters less than how and why it is used, future research should focus on the determinants of effectiveness, and some

evaluation should be incorporated into every PI program, so that effectiveness can be monitored and used for improvement. Lynn et al. (2007) defined quality improvement (or PI) as data-guided, systematic activities designed to produce immediate improvements in health care delivery, and concluded that PI is an important part of routine health care operations. Most PI activities are not human subjects research and should not undergo an institutional review board review, but methodical supervision of PI activities should be part of professional clinical practice supervision. The Hastings Center group convened leaders that recommended a period of evaluation and innovation to refine the framework for ethical conduct of quality improvement and integrating into clinical practice.

Next, two studies discuss the relationship of pressure ulcers and quality of care. Courtney and Spencer (2000) reported on the views of 36 RNs, using semi-structured interviews. When asked to nominate major clinical indicators of high quality residential care, all 26 RNs working at the bedside stated that the absence of pressure ulcers was the most important measurable factor. Only two managerial RNs ranked it as the most important factor, while five managerial RNs also mentioned low rates of pressure ulcers.

Berlowitz et al. (2003) examined PI implementation in nursing homes, its association with organizational culture, and its effects on pressure ulcer care. Primary data were collected from Veterans Affairs (VA) nursing homes staff on measures related to PI implementation and organizational culture. These data were combined with abstractions of medical records information and analyses of an existing database. One-thousand sixty-five nursing home staff completed surveys collecting information on PI implementation, employee satisfaction, organizational culture, and perceived adoption of

guidelines. Adherence to pressure ulcer prevention best practices was abstracted from medical records.

Nursing homes differed significantly in their extent of PI implementation, with PI implementation greater in nursing homes with an organizational culture emphasizing teamwork and innovation. Nursing home employees with a greater degree of PI implementation were more likely to report adoption of PU clinical guidelines, and were more satisfied with their jobs. However, no significant association was found between either adherence to PU guideline recommendations as abstracted from records or the rate of pressure ulcer development, and PI implementation. Researchers concluded that while PI implementation may result from staff who may believe they are providing better care and have more job satisfaction, the relationships with improved care are uncertain. Thus, due to the sampling of Markco's PI effectiveness, and impact on clinical care areas, this study will incorporate an assessment of the PI program and compare the CQR and PI assessment scores.

Several other studies described quality of care and outcomes. Wagner et al. (2001) examined literature to determine if quality systems have an impact on the care processes. The design of most studies, only four studies using a control group, meant that results could not be attributed entirely to the new quality system. In analysis of the controlled studies, activities associated with the professional's ability, as guidelines and training, patient level outcomes can be influenced. They concluded that there is no clear answer as to which quality system activity should be used in nursing home to improve the care provided for residents.

However, Moxey et al. (2002) emphasized that in a quality tool development, an operational quality assessment tool had significant implications for the long-term care systems. They concluded that system management can take a consistent view of the diverse institutions within the system, focusing on the perceived quality of care by the residents. This tool and process would mimic the CQR process.

Wan, Zhang, and Unruh (2006) referenced Mor's (2005) work as the structure-process-outcome framework that is a theoretically informed approach to a longitudinal study of nursing home quality. Maas and Specht (1999) concluded that quality resident outcomes are positively related to greater nursing-staff-to-resident and greater registered nurse to unlicensed staff ratios. Residents with Alzheimer's disease and related disorders had improved outcomes with specifically designed physical and psychosocial environments.

Complementing Donabedian's (1966) theoretical framework, Mitchell, Ferkelich, and Jennings (1998) presented the Quality Health Outcomes Model that included interventions, client, outcomes, and systems. While Donabedian's model was linear, this model extended previous models and reflected a dynamic relationship with indicators that act upon and "reciprocally affect the various components" (p. 43). The model related "multiple factors affecting quality of care to desired outcomes" (p.43). Alvine (2005) discussed that nursing research analyzes workplace conditions, organizational culture, and quality outcomes. If leaders understand organizational aspects that affect quality, then nursing home leaders can use the systems approach to assist in their daily tactical problem-solving.

Wan et al.(2006) evaluated the effects of contextual characteristics and nursing-related factors, such as PU, physical restraints, and catheter use, on the overall quality improvement of resident outcomes. In the initial study period, they found that nursing homes with a smaller bed size, caring for more Medicare residents, being FP, located anywhere other than the South, having a high level of nurse staffing, and with fewer occurences of nursing care deficiencies, had better quality. Improved quality in resident outcomes was related to nursing homes having less nursing care deficiencies than their counterparts.

Methodology

In review of the CQR process and research process, several studies will be highlighted. AHIMA, or American Health Information Management Association (2001), offers tips and tools for auditing in long-term care. The Association provides guidelines for audits and quality monitoring, including assessing the quality of documentation, qualitative versus quantitative audits and monitoring, and integrating audits/monitoring into the QA (quality assurance)/QI (quality improvement), or PI, program.

Through the use of an expert panel, Holtzman, Degelau, Meyers, Christianson, and Lurie (1997) developed measures for shortness of breath, fever, and chest pain as nursing home quality of care indicators. The researchers concluded that those measures had significant face validity and reasonable reliability, with one of the measures having the ability to predict resident death. They were able to "use chart abstraction to obtain information regarding these process measures and to translate these back into clinical scenarios" (p. 1207). Reflective of this dissertation research methodology, Holtzman et al. rated the "quality of care represented for most of the scenarios with reasonable intra-

and interrater reliability" (p. 1207). Moultrie, Bartlett, Foo, Whitehead, and Duce (2005) also studied a peer audit. Managers agreed that auditing each other was valuable, and the researchers emphasized that validity and reliability of audit tools is critical. Before audits were conducted, the managers were briefed on how to use and distribute checklists and questionaires for audit completion, and the process. The approach was generally considered a valuable tool in measuring quality.

Bowie, Cooke, Lo, McKay, and Lough (2007) studied criterion, with the pretense that clinical audit has failed to fully deliver the expected rewards. Contributory factors include assuming that health care professionals can intuitively apply audit methods, a poorly defined approach to the audit, and the lack of a quality assurance system to evaluate the process. Their findings potentially confirmed that important opportunities are missed to improve administrative and clinical practice. Unsatisfactory audits may have implications for health care quality, resulting from a range of audit issues. They suggest that a minimum of formal teaching is required, emphasizing life application audit submissions. However, Dickinson and Brocklehurst (1997) discussed how 15 of 18 facilities completed the cycle of audits covering all domains, including pressure ulcer prevention. Facilities made desirable changes in practice after the first audit, confirmed by comparing the findings of the two audits.

Saliba and Schnelle (2002) identified 19 specific care processes as important and valid on nursing home quality of care. They concluded that nine of the quality indicators could be measured best by direct observation of nursing home care, rather than by review of medical records or interviews. In the meetings of the panel of experts, the panel

concluded that nine of the quality indicators could only be consistently implemented in well-staffed nursing homes.

Complementary to this study, Rantz et al. (2002) evaluated an instrument to measure the dimensions of nursing home care quality during a brief nursing home site visit, known as the Observable Indicators of Nursing Home Care Quality (OIQ) instrument. They conducted validity and reliability studies in 32 nursing homes, in three different countries, using a test-retest and inter-rater observations. Carroll (2006) discussed the study and indicated that three groups of observers visited the nursing homes. Some visits were made in pairs with one member returning one week later for test-retest and interrater observations. She summarized that survey citations were significantly correlated to the OIQ quality score, and a significant relationship was found between groups of facilities constructed on the basis of their quality indicator scores and the OIQ communication subscale.

Smith et al. (1997) compared the interrater reliability for process and outcome assessments in an older adult population and identified systematic sources of variability contributing to poor quality. They concluded that peer assessments can be important in characterizing the quality of care for patients with multiple interrelated chronic conditions, but that reliability can be poor. Outcome measures had a higher interrater reliability than process measures, with three factors contributing to poorer process measures reliabilities. Factors included systematic bias from specific reviewers, and bias related to the professional training for the reviewer, and reviewers "inability to differentiate among cases with respect to the quality of management" (p. 1577).

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In review of the chart audit process, Miliucci and Rogers (2006) used this method to review clinical documentation of active dental hygiene records, both as an administrative audit of forms but also an audit of client care. Researchers were able to integrate a process that mentored student learning and faculty calibration for excellence in record keeping.

Hall, Schroder, and Weaver (2002) also conducted retrospective chart audits to assess end-of-life care for nursing home residents and to then develop an educational strategy for physicians. Commonly found symptoms present in the terminally ill and matching treatments were recorded on an audit form created by authors, including pain, dysphagia, fever, and delirium. "Nurses played a crucial role in the care of dying residents through their documentation and communication of end-of-life issues" (p. 501).

In contrast, Schnelle, Bates-Jensen, Chu, and Simmons (2004) found that medical record documentation about daily care processes may be so inaccurate that even best efforts to improve the care for residents will not be successful. The nursing home survey (federal/state) focuses mostly on chart documentation to assess quality and encourages care-process documentation rather than process care delivery. They recommend identifying staff requirements, and conducting educational interventions to improve staff productivity. Additionally, nursing homes should implement specific data management and auditing quality systems to ensure that care processes listed in the care plans are implemented. Nursing home care quality cannot be expected to improve "until information systems that provide accurate measures of the actual care provided to residents are implemented" (p. 1382).

Also reflecting the CQR process, Wagner, van Merode, and van Oort (2000) described a method for reporting and measuring the cost of quality management in 11 long term care organizations. The existence of quality management activities and investigating the costs per quality management activity was measured using site visits and a questionaire. They also presented that most nursing home organizations have no insight into failure costs, or the costs of not meeting standards or quality deviations.

In review of literature for data analysis, Bliesmer and Earle (1993) used a *t*-test to identify significant differences between two groups of information. Singh, Amidon, Shi, and Samuels (1996) evaluated the correlation of key variables affecting quality in nursing homes using *t*-tests. Complementary to these methods, Rantz et al. (2002) used Spearman rank-based correlation for inter-rater and test-retest reliability for the Observable Indicators of Nursing Home Care Quality instrument (OIQ) that measured the dimensions of nursing home quality during a nursing home visit. While Bowie et al. (2007) did not specifically discuss the type of statistical analysis used, the researchers analyzed the differences in proportions between groups of physicians. Because the researcher at Markco will be correlating data scores, the researcher used *t*-tests and correlational statistical analysis after consultation with a statistician. This study is expected to produce valuable information for Markco to assess if current methodologies of assessing quality and relationships of data should be modified.

CHAPTER III

METHODOLOGY

Introduction

The clinical operations leadership at Markco has made concerted efforts to improve the quality of care in their nursing centers. These initiatives have included implementing standard policies and procedures, forms, and monitoring and evaluating the implementation of standards. Not only is evaluating quality of care important for resident outcomes, federal regulations require that standards were met. Rather than only depending on federal or state surveyors to monitor and evaluate care, nursing homes must self-monitor to identify areas to improve care. If assessments of care standards are not accurate, then opportunities to improve are not identified, and patient care suffers.

As previously discussed, Markco identified three clinical areas of high-risk to the nursing homes and subsequently to patient outcomes: staffing, identification of change in condition, and PU management. The significance of the study was that if detailed CQR instructions for evaluating these clinical areas were provided, then the areas may be more accurately assessed, and scores may have a significant relationship for two reviewers. After a CQR was completed, then nursing home professionals should integrate identified areas for improvement into their PI. A DDCO was responsible to oversee PI and progress toward meeting the standards. A question of the researcher, and discussed in literature, is whether a PI program affects a nursing home meeting a standard.

The researcher focused on three quality of care areas and PI activities at

Markco. The quantitative data obtained in the study process were analyzed to describe

what relationships, if any, existed between the CQR, PI, and KPI Dashboard scores. In

addition, the researcher measured the impact of instructions for the CQR areas by

comparing two Markco employee scores, the researcher and the DDCO. Substantial time

and effort over three years has yielded a range of CQR scores and PI has been

implemented with various degrees of quality and appropriateness. The specific research

questions were:

1. Was there a statistical relationship between the performance improvement (PI)
   program quality score, the clinical quality review (CQR) scores, and the KPI
   Dashboard score?

2. Was there a statistical relationship of CQR scores obtained by a non-center
   assigned reviewer and a center assigned (DDCO) reviewer, using line by line
   instructions?

3. Was there a statistical relationship of a PI program quality score, and the three
   CQR scores for the identified areas?   .

Research Design

After review and approval by the IRB, the researcher obtained approval to do the

study from Markco's executives. Full IRB review was required, even though study

participation was a job requirement of the DDCO. A Senior Vice President in Clinical

operations sent out an announcement to the DDCOs that explained the study and goals of

the study, shortly after the study began. Prior to the study beginning, the proposed study

was presented at the Divisional PI meeting in January, 2009. After presentation at the

Divisional PI, the researcher then contacted each of the three regional Vice President of Clinical Operations by e-mail, for the CQR schedule.

To determine the statistical relationship between the CQR score obtained by a non-center assigned reviewer and a center assigned DDCO reviewer using line by line instructions, the researcher paired with one DDCO per district to collect the data. Using purposive sampling, a DDCO in each of 21 districts and additional DDCOs in some districts comprised the sample total of 31 DDCOs. The researcher was the non-center assigned reviewer in this study. Twenty-one districts represented each district in the East, Central, and Pacific regions, and all nursing homes in the company. The DDCO and researcher coordinated the days for the every six month CQR and arrived at the nursing home on at least one day together, in all but two cases. In those two cases, a coordinated date had been scheduled, but the DDCOs changed their schedule. A few other dates were re-scheduled due to different circumstances, for example survey activity.

Data were collected using standardized audit tools, with instructions, for the staffing, change in condition, pressure ulcers, and change in condition sections. The researcher and DDCO had opportunity to review instructions before the visit. The instructions were distributed to the DDCOs in January, 2009, but no formal roll out was provided. Each person then chose his or her own sample records and residents and completed the three CQR sections independently. If any sample record, under a line item, did not meet the criteria, then that area was not met. No partial credit was given for the questions. In nearly all cases, the researcher collected the three CQR section worksheets from the DDCO and collated their worksheets. The DDCO mailed or faxed at least one of

the data collection sheets to the researcher in seven cases. With the exception of two cases, the DDCO and researcher overlapped at least some time in a coordinated day.

The researcher and the DDCO continued to collect additional data necessary for their respective center visits, such as the DDCO completing additional CQR sections and the researcher completing the PI quality analysis. In three visits, a colleague of the researcher completed additional CQR sections. Throughout the data collection process, the researcher found that not all instructions under each section were used, or that some subjective assessment was made. This is illustrated in mainly the following questions:

1. Staffing-Question #1-The question "the schedule reflects a minimum 1.0 licensed staffing nursing PPD" asked the reviewer to review the Payroll Trend Analysis report and interview the DNS regarding the budgeted licensed nurse PPD. The question instructions and line item detail differed, so the researcher used the Payroll Trend Analysis to determine if this area was met.

2. Staffing-Question #4-The question "staff is deployed based upon the acuity need of the resident" lists multiple areas to evaluate to determine if this area was met. The researcher usually focused on interviewing "two licensed/direct care staff and three residents (and/or families) to interview to determine perception of acuity and clinical burden."

3. Staffing-Question #5-The question "average ratio per center of C. N. A./ resident assignment is reflective of (ask 5 C. N. A., review the schedule and the daily assignment sheet): 1: 8 on days, 1: 12 on evenings, 1: 20 on nights." The instructions provided three areas for review but the researcher focused on review of the assignment sheets of shifts actually worked for the past

completed week Monday to Sunday (the instructions did not indicate for what period or how many days to review), the average daily census from the Payroll Trend Analysis, and interviewing CNAs. The decision on whether the points were awarded was usually using the objective data.

4. Pressure Ulcers-Question # 2-"The pressure ulcers/non-pressure ulcers are identified as required" included instructions to interview caregivers to inquire if they had any residents with pressure ulcers, in addition to reviewing for appropriate forms. The researcher focused on reviewing the medical record documentation.

5. Pressure Ulcers-Question # 17-"The care plan interventions are evident on rounds" included instructions to observe if interventions are in place. The researcher focused on whether individualized interventions, for example heel protectors, were in place. The general interventions as turn and position every two hours were not observed or assessed.

6. Change in Condition-Question #5-"Interview the Medical Director to discern that center staff is appropriately identifying and reporting changes in resident condition" included instructions to interview the Medical Director, or designee if the Medical Director is not available. The researcher was usually able to interview the medical director or the medical director's nurse practitioner. However, in some cases, a physician or nurse practitioner with a reasonable number of residents at the nursing home was interviewed.

7. Change in Condition-Question #6-"Unit manager/charge nurse conducts nursing rounds at the start of the shift, during the shift and before the end of

the shift, to assess for changes in resident condition." The instructions provided "general suggestions for assessing the item." The researcher generally awarded points for this item due to sample observations that nurses were actively out on the unit providing care or supervision needed, and not sitting at the nursing station for the majority of the time.

8. PI-Question # 2-"Minutes reflect actions taken, follow-up and or resolution to identified opportunities for improvement." The instructions differed from the criteria, with one item "interview the ED and DNS to determine areas that have been identified as needing improv(e)ment." The ED and DNS may not have been interviewed for this information, or interview was not necessary due to observation and assessment of conversation. The nursing home line staff were generally not interviewed.

9. PI-Question # 8-"ED and key center staff have knowledge of PI initiatives." Under the criteria (not the instructions), the researcher or evaluator was to "Answer 'met' if center level staff indicate active involvement in action plan development. Through interview and/or observation, it is evident that center staff have knowledge of center specific PI action plans/goals." The ED and DNS may not have been interviewed for this information, or interview was not necessary due to observation and assessment of conversation. The nursing home line staff were often not interviewed. For example, in two cases, the researcher attended the nursing homes' PI meeting.

10. PI-General instructions-Information in those boxes was not used nor referred to in assessing the PI.

To determine if there was a statistical relationship of CQR scores, using line by line instructions, and to analyze if scores for the DDCO and the researcher were similiar for each line by line item, a paired samples *t*-test was used. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data. In addition, to determine if the total scores for each of the three sections were correlated between the DDCO and researcher, Pearson correlations were used. SPSS was used to analyze the data.

To determine if there was a statistical relationship between the PI program quality score and the three CQR scores for the identified areas, the researcher averaged the two CQR total scores between the DDCO and the researcher. Then, the KPI score and the three averaged CQR scores were analyzed using multiple regression statistics with the average scores and KPI scores used as independent variables and PI score as the dependent variable. The SPSS software was used to analyze the data.

Lastly, to determine the relationship between the PI program score, the CQR, and the KPI Dashboard, the researcher used the averaged total CQR scores for each of the three sections and the PI program score as discussed above. The researcher printed the KPI Dashboard score from the company's internal website during the week of the researcher review and reflecting the latest data available. The overall KPI score for the nursing home, a single value, was used as the data value. Then, multiple regression statistics were used to analyze relationships between the scores.

In review of the CQR process and research process rationale, several studies will be highlighted. AHIMA, or American Health Information Management Association (2001) offers tips and tools for auditing in long-term care. The Association provides guidelines for audits and quality monitoring, including assessing the quality of

documentation, qualitative versus quantitative audits and monitoring, and integrating audits/monitoring into the QA (quality assurance)/QI (quality improvement), or PI, program.

Through the use of an expert panel, Holtzman et al. (1997) developed measures for shortness of breath, fever, and chest pain as nursing home quality of care indicators. The researchers concluded that those measures had significant face validity and reasonable reliability, with one of the measures having the ability to predict resident death. They were able to "use chart abstraction to obtain information regarding these process measures and to translate these back into clinical scenarios" (p. 1207). Reflective of this dissertation research methodology, Holtzman, et al rated the "quality of care represented for most of the scenarios with reasonable intra- and interrater reliability" (p. 1207). Moultrie et al. (2005) also studied a peer audit. Managers agreed that auditing each other was valuable, and the researchers emphasized that validity and reliability of audit tools is critical. Before audits were conducted, the managers were briefed on how to use and distribute checklists and questionaires for audit completion, and the process. The approach was generally considered a valuable tool in measuring quality.

Bowie et al. (2007) studied criterion, with the pretense that clinical audit has failed to fully deliver the expected rewards. Contributory factors include assuming that health care professionals can intuitively apply audit methods, a poorly defined approach to the audit, and the lack of a quality assurance system to evaluate the process. Their findings potentially confirmed that important opportunities are missed to improve administrative and clinical practice. Unsatisfactory audits may have implications for health care quality, resulting from a range of audit issues. They suggest that a minimum

of formal teaching is required, emphasizing life application audit submissions. However, Dickinson and Brocklehurst (1997) discussed how 15 of 18 facilities completed the cycle of audits covering all domains, including pressure ulcer prevention. Facilities made desirable changes in practice after the first audit, confirmed by comparing the findings of the two audits.

Saliba and Schnelle (2002) identified 19 specific care processes as important and valid on nursing home quality of care. They concluded that nine of the quality indicators could be measured best by direct observation of nursing home care, rather than by review of medical records or interviews. In the meetings of the panel of experts, the panel concluded that nine of the quality indicators could only be consistently implemented in well-staffed nursing homes.

Complementary to this study, Rantz et al. (2002) evaluated an instrument to measure the dimensions of nursing home care quality during a brief nursing home site visit, known as the Observable Indicators of Nursing Home Care Quality (OIQ) instrument. They conducted validity and reliability studies in 32 nursing homes, in three different countries, using a test-retest and inter-rater observations. Carroll (2006) discussed the study and indicated that three groups of observers visited the nursing homes. Some visits were made in pairs with one member returning one week later for test-retest and interrater observations. She summarized that survey citations were significantly correlated to the OIQ quality score, and a significant relationship was found between groups of facilities constructed on the basis of their quality indicator scores and the OIQ communication subscale.

Smith et al. (1997) compared the interrater reliability for process and outcome assessments in an older adult population and identified systematic sources of variability contributing to poor quality. They concluded that peer assessments can be important in characterizing the quality of care for patients with multiple interrelated chronic conditions, but that reliability can be poor. Outcome measures had a higher interrater reliability than process measures, with three factors contributing to poorer process measures reliabilities. Factors included systematic bias from specific reviewers, and bias related to the professional training for the reviewer, and reviewers " inability to differentiate among cases with respect to the quality of management" (p. 1577).

In review of the chart audit process, Miliucci and Rogers (2006) used this method to review clinical documentation of active dental hygiene records, both as an administrative audit of forms but also an audit of client care. Researchers were able to integrate a process that mentored student learning and faculty calibration for excellence in record keeping.

Hall et al. (2002) also conducted retrospective chart audits to assess end-of-life care for nursing home residents and to then develop an educational strategy for physicians. Commonly found symptoms present in the terminally ill and matching treatments were recorded on an audit form created by authors, including pain, dysphagia, fever, and delirium. "Nurses played a crucial role in the care of dying residents through their documentation and communication of end-of-life issues" (p. 501).

In contrast, Schnelle et al. (2004) found that medical record documentation about daily care processes may be so inaccurate that even best efforts to improve the care for residents will not be successful. The nursing home survey (federal/state) focuses mostly

on chart documentation to assess quality and encourages care-process documentation rather than process care delivery. They recommend identifying staff requirements and conducting educational interventions to improve staff productivity. Additionally, nursing homes should implement specific data management and auditing quality systems to ensure that care processes listed in the care plans are implemented. Nursing home care quality cannot be expected to improve "until information systems that provide accurate measures of the actual care provided to residents are implemented" (p. 1382).

Also reflecting the CQR process, Wagner et al. (2000) described a method for reporting and measuring the cost of quality management in 11 long term care organizations. The existence of quality management activities and investigating the costs per quality management activity were measured using site visits and a questionaire. They also presented that most nursing home organizations have no insight into failure costs, or the costs of not meeting standards or quality deviations.

In review of literature for data analysis, Bliesmer and Earle (1993) used a *t*-test to identify significant differences between two groups of information. Singh et al. (1996) evaluated the correlation of key variables affecting quality in nursing homes using *t*-tests. Complementary to these methods, Rantz et al. (2002) used Spearman rank-based correlation for inter-rater and test-retest reliability for the Observable Indicators of Nursing Home Care Quality instrument (OIQ) that measured the dimensions of nursing home quality during a nursing home visit. While Bowie et al. (2007) did not specifically discuss the type of statistical analysis used, the researchers analyzed the differences in proportions between groups of physicians. Because the researcher at Markco will be correlating data scores, the researcher used Pearson corrlelation, multiple regression, and

paired samples *t*-test statistical analyses after consultation with a statistician. This study produced valuable information for Markco to assess if current methodologies of assessing quality and relationships of data should be modified.

Population

The population studied was the DDCO for an assigned nursing home, with at least one nursing home per district that was located throughout the United States. The time frame for the study was February 1, 2009 to May 31, 2009. The researcher's goal was to complete all the visits by June 1, 2009 and that goal was met. The nursing homes reviewed were owned or operated by Markco, with 31 nursing homes sampled and visited from 21 districts, in each of three regions. The nursing home personnel were observed, interviewed, and the documentation reviewed according to the CQR or PI questions and sections. The DDCO group consisted of three males and twenty-eight females.

Data Collection

The researcher obtained the CQR schedule from each of the Vice President of Clinical Operations for the three regions. In some cases, the exact CQR date was scheduled, in some cases, only the month was scheduled, with an exact date to be determined. Because the East region schedule was obtained first, the researcher coordinated 12 visits in that region, completing all those visits by the middle of March, 2009. Then, the Central and Pacific region visits were scheduled throughout the remainder of March, April, and May. To schedule the visit, the researcher used purposive sampling, choosing to visit a nursing home according to location, date, district, and subjective information. The researcher maintained a back-up list of CQRs so that if a visit needed to be re-scheduled or changed due to survey activity, DDCO cancellation, or

other circumstance, then the researcher could fill in a visit with another nursing home CQR.

On the coordinated day, the researcher provided prepared data collection sheets to the DDCO for each of the CQR sections. With the exception of two cases, the DDCO met the researcher at the nursing home on the coordinated day. Often, the researcher scheduled two days to allow ample time to complete the CQR sections and additional CQR sections not related to the study. The goal was to overlap at least one day with the DDCO, albeit a few minutes in two cases, and this was met in all but two cases. The procedure was the same for each of the three sections, as staffing, pressure ulcers, and change in condition. In scoring each line by line item, if any sample was not met, then no points were awarded, there being no partial scores. For some questions, the researcher did not necessarily review each particular instruction item under for a line by line item, or used subjective judgment, as described above in the research design section. The researcher also observed that even though specific forms, identified by form numbers, were not available on the researcher's sample, the DDCO may have marked this particular area as met.

For the inter-rater reliability of scoring each question and system, the researcher sought to have the same sample pool available. In one case, the DDCO cancelled for the next day after the researcher spent one day at a nursing home. The DDCO was unable to complete their sections until one month later. However, the researcher included these data, so as not to discard data. The DDCO then provided the data collection sheets to the researcher, marked either with points awarded, or met or not met. The researcher asked for clarification in a few instances, when the points awarded were not clear. In a few

cases, the researcher received the completed data collection sheets by mail, for reasons as not having the collection sheets completed when the researcher was finished and left the nursing home.

To gather the data for the KPI, the researcher printed out the KPI risk score from Markco's website during the week that the researcher had completed her visit. The printouts were set aside for future data collation. The researcher used the standard PI tool to determine the PI score. Of particular note, for question #2 and #8, the researcher did not always interview the executive director, director of nursing, or nursing home personnel. Usually the executive director or director or nursing was interviewed, but the researcher also evaluated this area by observation and interaction.

Analytical Methods

To analyze the data, several statistical tests were used. For each of the CQR sections, the points awarded for each question, for both the DDCO and researcher, were entered into an Excel spreadsheet. The same method was followed for the total scores for each section also, for the DDCO and the researcher. Then the data set in the spreadsheet was inputted into SPSS. The Pearson correlation was run for the each of the CQR sections totals, and for each individual question to determine the relationship between the scores for the DDCO and the researcher. The paired samples t-test, for each of the CQR totals and for each individual question in the three CQR sections, was run to determine if differences between the scores occurred by chance, and if the scores were consistent between the DDCO and the researcher.

To determine the relationship between the CQR sections scores and the PI score, the total CQR scores for each section, for both the DDCO and the researcher, were

averaged. Then a multiple regression was run between the average score for each CQR score and the KPI score, with the average scores and KPI scores used as independent variables and the PI score as the dependent variable.

Lastly, Pearson *r* correlations were also run to determine the relationship between the KPI score and the PI score. The average of all KPI scores and the average of all PI scores were used.

Limitations

While this was a study that showed some important results, there were limitations to this study.

1. The line by line instructions were available to all the DDCOs for the first time ever. However, there was no formal roll out or explanation provided to the instructions. Some DDCOs brought their books to the CQR, others did not. The data collection sheets included the instructions from the CQR instruction manual. However, the researcher observed that the instructions were not read or observed. For example, on the PU section, many questions require certain forms for documentation, and the researcher did not observe the forms to be available, yet the points for the question were awarded.

2. While it was preferred that the assigned nursing home DDCO complete the CQR section, this did not always happen. DDCOs often paired up with another DDCO or another nursing home staff member to complete the CQR.

3. As discussed in the research design, the researcher may not have reviewed all criteria under specific sections. But perhaps the DDCO may have taken reviewed all instructions under a specific question, and come up with a different answer. However, by

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observation, this was generally not the case. The more CQR visits the researcher did, the more proficient the researcher became in assessing if a question was met or not met. For example, if any one sample record did not meet the criteria, or if any part of the specific question was not met, the researcher could mark the question as not met, as appropriate, and moved on to another question. In contrast, the DDCO would not have completed any or only a very few CQRs with instructions, before pairing with the researcher.

4. The researcher had no vested interest in any of the scores. While the researcher wanted a nursing home to do well in their CQR, the researcher was more concerned about obtaining an accurate score. In contrast, the DDCOs may have perceived that the score is reflective on their skills in guiding and training the nursing home on Markco's systems. The DDCO may have external pressure by the district or region leaders to make sure that their nursing homes have good scores. A low score means more supervision required by the DDCO and a need to explain a plan and rationale to regional leaders. The researcher would not have any of these pressures, because they report to risk management and compliance, rather than clinical operations.

5. There were a few questions both in the PI and the CQR sections that were not fully explained, or the explanations or instructions seemed contradictory to the criteria. Those major points were explained above in the research design section.

6. This study was completed during the first CQR assessment period after the CQR instructions were distributed. The researcher was on the CQR instructions work group and had done many nursing home visits over the previous three years prior to the study. While the researcher attempted to remain objective and detailed to assess each area

appropriately, the researcher may not looked at a question the same way as an assigned

DDCO, despite the instructions.

   7. In contrast, because the researcher was pairing with the DDCO and the DDCO

was aware of the purpose of the study, the DDCO may have been especially meticulous

to see the same thing the researcher saw and pay attention to all the instructions. The

DDCO may have been more experienced and done many CQRs before instructions, like

the researcher, and may not have examined the areas in detail. For example, the

researcher witnessed that the DDCO did not always observe the form number in order to

assess if criteria were met.

   8. The sample size included a representation from each of the 21 districts. While

the researcher was coordinating the CQR visits nationwide, four DDCOs never responded

to the researcher's multiple e-mails. The researcher questioned whether a chosen DDCO

was then selected in these two districts as the one who would participate in the study.

However, most of the DDCOs cooperated with the researcher's attempt to coordinate a

CQR visit.

   The time frame seemed optimal considering several variables. For example, the

study was done at the first CQR interval after the instructions were released. Each DDCO

would have no or only a few opportunities to use instructions prior to pairing with the

researcher. The researcher set a goal to be completed by June 1, 2009, which necessitated

an average of two visits per week, and strongly encouraged the DDCOs to coordinate a

date with the researcher. Scheduling one to two days for a CQR visit was feasible, with

the researcher having experience in doing similar visits in the past.

Markco fully funded all the expenses for the study, including travel, printing of materials, and other in-kind support. The researcher would not consider that the study was affected by lack of resources. In contrast, no study of this magnitude or scope had ever been done or undertaken related to the CQR. The executives in the clinical operations and risk management and compliance operations were supportive of the researcher's project, and communicated that to the field clinical operations, specifically to the DDCOs. Both areas anxiously awaited the results of the study. In summary, the methodology for the study was discussed in this section, specifically the research design, population, data collection, analytical methods, and limitations.

CHAPTER IV

FINDINGS AND CONCLUSIONS

Introduction

Markco identified three clinical areas of high-risk to the nursing homes and subsequently to patient outcomes: staffing, identification of change in condition, and PU management. The significance of the study was that if detailed CQR instructions for evaluating these clinical areas were provided, then the areas may be more accurately assessed, and scores may have a significant relationship for two reviewers. After a CQR was completed, then nursing home professionals should integrate identified areas for improvement into their PI. A DDCO was responsible to oversee PI and progress toward meeting the standards. A question of the researcher, and discussed in literature, is whether a PI program affects a nursing home meeting a standard.

The researcher focused on three quality of care areas and PI activities at Markco. The quantitative data obtained in the study process were analyzed to describe what relationships, if any, existed between the CQR, PI, and KPI Dashboard scores. In addition, the researcher measured the impact of instructions for the CQR areas by comparing two Markco employee scores, the researcher and the DDCO. Substantial time and effort over three years has yielded a range of CQR scores and PI has been implemented with various degrees of quality and appropriateness. The specific research questions were:

1. Was there a statistical relationship between the performance improvement (PI) program quality score, the clinical quality review (CQR) scores, and the KPI Dashboard score?

2. Was there a statistical relationship of CQR scores obtained by a non-center assigned reviewer and a center assigned (DDCO) reviewer, using line by line instructions?

3. Was there a statistical relationship of a PI program quality score and the three CQR scores for the identified areas?

To determine the statistical relationship between the CQR score obtained by a non-center assigned reviewer and a center assigned DDCO reviewer using line by line instructions, the researcher paired with one DDCO per district to collect the data. Using purposive sampling (Leedy and Ormrod, 2005), a DDCO in each of 21 districts and ten additional DDCOs in various districts comprised the sample total of 31 DDCOs. The researcher was the non-center assigned reviewer in this study. Twenty-one districts represented each district in the East, Central, and Pacific regions, and all nursing homes in the company. The DDCO and researcher coordinated the days for the every six months CQR and arrived at the nursing home on at least one day together, in all but two cases. In those two cases, a coordinated date had been scheduled, but the DDCO changed the schedule. A few other dates were re-scheduled due to different circumstances, for example survey activity.

Data were collected using standardized audit tools, with instructions, for the staffing, change in condition, pressure ulcers, and change in condition sections. The researcher and DDCO had opportunity to review instructions before the visit. The

instructions were distributed to the DDCOs in January, 2009, but no formal roll out was provided. Each person then chose his or her own sample records and residents and completed the three CQR sections independently. If any sample record under a line item did not meet the criteria, then that area was not met. No partial credit was given for the questions. In nearly all cases, the researcher collected the three CQR section worksheets from the DDCO and collated their worksheets.

The researcher and the DDCO continued to collect additional data necessary for their respective center visits, such as the DDCO completing additional CQR sections and the researcher completing the PI quality analysis. In three visits, a colleague of the researcher completed additional CQR sections. Throughout the data collection process, the researcher found that not all instructions under each section were used, or that some subjective assessment was made.

In 18 of the 31 visits, at least one other non-assigned DDCO or nurse from another Markco nursing home, participated in the CQR. Therefore, even though the researcher encouraged the assigned DDCO to complete the study sections, it is possible that another Markco employee, DDCO or other nurse, completed the sections. In one example, a director of nursing from another Markco nursing home presented the exit summary for the PU section.

To determine if there was a statistical relationship between the PI program quality score and the three CQR scores for the identified areas, the researcher averaged the two CQR total scores between the DDCO and the researcher. Then a multiple regression was run between the average score for each CQR score and the KPI score, with the average and KPI scores used as independent variables and the PI score as the dependent variable.

Lastly, to determine the relationship between the PI program score, the CQR, and the KPI Dashboard, the researcher used the averaged total CQR scores for each of the three sections and the PI program score as discussed above. The researcher printed the KPI Dashboard score from the company's internal website during the week of the researcher review and reflecting the latest data available. The overall KPI score for the nursing home, a single value, was used as the data value. Then, multiple regression statistics were used to analyze relationships between the scores.

The population studied was the DDCO for an assigned nursing home, with at least one nursing home per district that was located throughout the United States. The time frame for the study was February 1, 2009 to May 31, 2009. The researcher's goal was to complete all the visits by June 1, 2009 and that goal was met. The nursing homes reviewed were owned or operated by Markco, with 31 nursing homes sampled and visited from 21 districts, in each of three regions. The nursing home personnel were observed, interviewed, and the documentation reviewed according to the CQR or PI questions and sections. The DDCO group consisted of three males and twenty-eight females.

<p style="text-align:center">Findings</p>

To determine the statistical relationship between the CQR score obtained by a non-center assigned reviewer and a center assigned DDCO reviewer using line by line instructions, the researcher paired with one DDCO per district to collect the data. The average scores of the DDCO and the researcher, for each CQR section, were compared using the paired samples t-test. For the staffing section, the average DDCO score was 73.06 versus the researcher score of 72.42, out of 100 possible points. The difference between the scores was not statistically significant, $t(30) = .172$. A Pearson r correlation

determined that the relationship between the scores was strong, r (29) = .605, and significant, $p < .001$. Therefore, the staffing section score could be considered reliable scores for the researcher and DDCO.

In the PU section, the average DDCO score was 102.58 in contrast to the researcher's score of 71.61, of 200 possible points. The difference between the scores was statistically significant, t (30) = 4.204, $p < .01$. The relationship between the scores was moderately strong, r (29) = .437, and statistically significant, $p < .01$. The scores were not considered reliable and consistent.

The DDCO average score for the change in condition section was 78.71 versus 85.48 for the researcher, of 100 possible points. The difference between the scores was statistically significant, t (30) = -2.18, $p < .05$. The relationship between the scores was weak, r (29) = .320, and close to being statistically significant. The change of condition scores from the DDCO and the researcher are not reliable.

The individual question scores for the staffing section, for the DDCO and the researcher, were compared using the paired samples t-test. None of the question results were statistically significantly different. The results are illustrated in Table 1.

The Pearson r correlation was also run for the staffing section and all correlations were statistically significant except for question four. Therefore, question four may not be considered reliable. Questions one, two, three, and five ranged from a weak to a very strong relationship. The results are illustrated in Table 2.

The individual question scores for the PU section, for the DDCO and the researcher, were compared using the paired samples t-test. The results were statistically

Table 1

Paired Samples t-Test Results for Staffing Questions

Question	DDCO		Researcher				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
1	18.06	6.01	18.71	4.99	-0.57	30	0.57
2	6.77	7.59	5.81	7.43	1.44	30	0.16
3	14.19	9.23	13.55	9.50	0.44	30	0.66
4	21.77	8.52	23.39	6.24	-0.81	30	0.42
5	12.26	9.90	10.32	10.16	1.14	30	0.26

Table 2

Correlations for Staffing Questions

Question	*N*	*r*	*p*
1	31	0.36	0.05
2	31	0.88	0.00
3	31	0.62	0.00
4	31	-0.10	0.59
5	31	0.56	0.00

significantly different in nine of the eighteen questions. Therefore, the other half of the

questions had similar scores and were not statistically significantly different, so they

could be determined reliable between the DDCO and the researcher. The results are

illustrated in Table 3.

Table 3

Paired Samples t-Test Results for PU Questions

Question	DDCO		Researcher		t	df	P
	M	SD	M	SD			
1	6.45	4.86	3.23	4.75	3.00	30	0.00
2	5.48	5.06	1.29	3.41	3.76	30	0.00
3	3.87	4.95	0.97	3.00	2.75	30	0.01
4	7.10	4.61	7.10	4.61	0.00	30	1.00
5	2.90	4.61	0.00	0.00	3.50	30	0.00
6	5.48	5.06	3.55	4.86	1.99	30	0.06
7	3.87	4.95	7.74	4.25	3.50	30	0.00
8	4.84	5.08	4.84	5.08	0.00	30	1.00
9	2.90	4.61	2.26	4.25	0.53	30	0.60
10	6.13	4.95	0.97	3.00	4.25	30	0.00
11	3.23	4.75	1.61	3.74	1.54	30	0.13
12	3.55	4.86	3.87	4.95	-0.33	30	0.74
13	7.10	4.61	8.39	3.74	-1.68	30	0.10
14	7.42	4.45	8.71	3.41	-1.44	30	0.16
15	9.03	10.12	1.94	6.01	3.59	30	0.00
16	4.52	5.06	2.58	4.45	1.65	30	0.11
17	14.84	8.90	8.39	10.03	2.75	30	0.01
18	3.87	4.95	3.87	4.95	0.00	30	1.00

The Pearson *r* correlation was also run, and only four of the questions showed statistically significant correlations between the researcher and DDCO. Two questions, six and 13, had a moderate relationship, *r* (29) = .402, and *r* (29) = .492, and question 10 had a moderate inverse relationship, *r* (29) = -.412. An *r* value could not be calculated for question five because the researcher scored all of the questions zero. With a score of zero and a standard deviation of zero, there cannot be any correlation. The results are illustrated in Table 4.

The individual question scores for the change of condition section, for the DDCO and the researcher, were compared using the paired samples *t*-test. The results were statistically significantly different in three of the nine questions. For question four, all scores were the same, so the standard deviation was zero, and no correlation or relationship could be determined. For question six, the researcher's score was 3.87 points higher than the DDCO score, which appears to be more than large enough for a significant difference, but SPSS could not run the test because the standard deviation was zero. However, the results are consistent and reliable. The results are illustrated in Table 5.

The Pearson *r* correlation was also run. Question four had the same scores for the DDCO and researcher, so neither scorer had a standard deviation. For questions five and six every DDCO had the same score, so there was no standard deviation. Question seven had a moderate relationship and was statistically significantly different, *p* < .01. The results are illustrated in Table 6.

Table 4

Correlations for PU Questions

Question	N	r	p
1	31	0.22	0.23
2	31	-0.04	0.84
3	31	-0.04	0.85
4	31	0.06	0.75
5	31	0.00	0.00
6	31	0.40	0.02
7	31	0.11	0.55
8	31	0.10	0.61
9	31	-0.17	0.34
10	31	-0.41	0.02
11	31	0.07	0.70
12	31	0.38	0.03
13	31	0.49	0.00
14	31	0.21	0.25
15	31	0.14	0.45
16	31	0.06	0.76
17	31	0.05	0.78
18	31	0.32	0.08

Table 5

Paired Samples t-Test Results for Change of Condition Questions

Question	DDCO		Researcher		t	df	p
	M	*SD*	*M*	*SD*			
1	8.39	3.74	6.77	4.75	1.54	30	0.13
2	7.74	4.25	4.52	5.06	2.75	30	0.01
3	6.77	4.75	8.39	3.74	-1.72	30	0.10
4	15.00	0.00	15.00	0.00	a	30	a
5	9.68	1.80	10.00	0.00	-1.00	30	0.32
6	11.13	6.67	15.00	0.00	-3.23	30	0.00
7	7.42	4.45	8.71	3.41	-1.68	30	0.10
8	7.74	4.25	8.71	3.41	-0.90	30	0.37
9	4.84	5.08	8.39	3.74	-2.99	30	0.01

[a] *t* could not be computed because the standard error of the difference is 0.

To determine if there was a statistical relationship of a PI program quality score and the three CQR scores for the identified areas, multiple regressions were run. Multiple regression was used to explore the relationship and predictive ability of staffing scores, PU scores, and change of condition scores on PI and KPI scores. In analyzing the DDCO and researcher staffing scores to predict the KPI score, the *R* was .235 and not statistically significant. In analyzing the DDCO and researcher staffing scores to predict the PI score, the *R* was .235 and not statistically significant. Therefore, that combination of scores was determined not to be a reliable predictor.

Table 6

Correlations for Change of Condition Questions

Question	*N*	*r*	*P*
1	31	0.07	0.70
2	31	0.02	0.89
3	31	0.26	0.16
4	31	a	A
5	31	0.00	0.00
6	31	0.00	0.00
7	31	0.43	0.01
8	31	-0.21	0.26
9	31	-0.10	0.58

[a]*r* could not be computed because the standard
error of the difference is 0.

Multiple regression was used to analyze if the DDCO and researcher PU scores
could predict or correlate to the PI score. The *R* was .47, F (2, 28) = 3.961, $p < .05$,
showing that the relationship is statistically significant. But because the *R* is only.47, the
predictive ability was not strong. Additionally, $R^2 = .221$, showing that 22% of the
variability in the PI score can be accounted for by these two variables. Only one of the
individual predictors, the researcher's score, approached statistical significance. Multiple

regression was also used to analyze if the DDCO and researcher PU scores could predict the KPI score. The R was .28 and not statistically significant.

Multiple regression was used to analyze if the DDCO and researcher change in condition scores could predict the PI score. The R was .416 and not statistically significant, showing that this combination cannot predict the PI scores. However, the DDCO change of condition score was approaching significance at $p = .066$. Multiple regression was used to analyze if the DDCO and researcher change in condition scores could predict the KPI score. The R was .245 and not statistically significant, showing that this combination cannot predict the KPI scores. However, the DDCO score predictor approached statistical significance.

To determine if there was a statistical relationship between PI program quality score, CQR scores, and the KPI Dashboard score, multiple regressions were run. In the next set of multiple regressions, CQR section scores and the KPI score were used to measure the relationship to the PI scores. Using the average of the two staffing scores (DDCO and researcher) and KPI scores, the R was .484 and was statistically significant, $F (2, 28) = 4.275$, $p < .05$. Additionally, $R^2 = .234$, showing that 23% of the variability in the PI scores can be accounted for by these two variables. Only the KPI score showed a statistically significant relationship to the dependent variable or PI score: $B = -.474$, $t = -2.789$, $p < .01$.

Using the average of the two PU scores (DDCO and researcher) and KPI scores, the R was .555 and was significant, $F (2, 28) = 6.229$, $p < .001$. Additionally, $R^2 = .308$, showing that 31% of the variability in the PI scores can be accounted for by these two variables. Although the relationship between these variables is significant, it is not strong

enough to predict the PI scores reliably. Additionally the KPI scores were close to being statistically significant ($B = -.319$, $t = -1.966$, p is .059), and the average PU scores showed a statistically significant relationship, to the dependent variable, PI ($B = .380$, $t = 2.339$, $p < .05$).

Using the average of the two change in condition scores (DDCO and researcher) and KPI scores, the R was .551 and was statistically significant, $F(2, 28) = 6.116$, $p < .05$, showing that this combination has a relationship to the PI scores. Additionally, $R^2 = .304$, showing that 31% of the variability in the PI scores can be accounted for by these two variables. Both the average change in condition score and the KPI scores showed a statistically significant relationship to the dependent variable, PI score: $B = -.371$, $t = -2.333$, $p < .05$, and $B = .365$, $t = 2.299$, $p < .05$.

Lastly, a Pearson r correlation was run for the KPI and PI scores. The scores showed a moderately negative relationship, $r = -.416$, $p < .05$, that was statistically significant. Therefore, the KPI and PI score were inversely related. A low KPI score indicates a low risk that would then correlate to a high score from the PI.

Conclusions

When determining the statistical relationship between the CQR score obtained by a non-center assigned reviewer and a center assigned DDCO reviewer using line by line instructions, the following conclusions could be made:

1. In the comparisons for the average scores for the staffing CQR section and individual questions, the scores could be considered reliable or consistent, some scores more than others.

2. In the comparisons for the average scores for the PU and change in condition sections, the scores were statistically significantly different. Therefore, total average scores were not considered to be reliable or consistent. There was a moderate trend in the scores, although the DDCO scores were consistently higher than the researcher's scores. Among the individual questions, some scores were statistically significantly different and some were not different.

3. In the comparisons for the individual questions for the PU section, one half of the questions for PU had statistically significantly different results, so those could not be considered reliable. Those questions were one, two, three, five, six, seven, ten, fifteen, and seventeen. However, the other half the questions had similar scores, to varying degrees, and were not statistically significantly different, so they could be determined reliable or consistent between the DDCO and the researcher. Questions four, eight, and eighteen had exactly the same means, so were considered most reliable between the DDCO and researcher. Questions nine, eleven, twelve, thirteen, fourteen, and sixteen were less reliable, but considered to be reliable between the DDCO and researcher.

4. In the comparisons for the individual questions for the change of condition section, six questions were not statistically significantly different. Therefore results for those six questions, one, three, four, five, seven, and eight, could be considered reliable between the researcher and DDCO, to varying degrees. Question four had exactly the same results for the researcher and DDCO.

In analyzing the statistical relationship between the PI program quality score, the CQR scores, and the KPI Dashboard score, the following conclusions could be made:

1. In the relationship to the staffing scores for the DDCO and researcher, the staffing scores could not reliably predict the KPI or PI score.

2. In the relationship to the staffing scores for the DDCO and researcher, the KPI score showed a statistically significant relationship to the PI score.

3. The combination of the KPI score and staffing score average showed a statistically significant relationship to the PI score.

4. The KPI scores were close to being statistically significant, and the average PU scores showed a statistically significant relationship, but the combination of them was even stronger, to the dependent variable, PI score.

5. Both the average change in condition score and the KPI scores showed a statistically significant relationship to the PI score and the combination of them has the best relationship to the PI.

6. KPI and PI were moderately and inversely correlated, so that a high PI score indicated that the nursing home was low risk for operational and clinical issues.

In analyzing the statistical relationship between a PI program quality score and the three CQR scores for the identified areas, no strong relationships or predictive ability of staffing scores, PU scores, and change of condition scores on PI and KPI scores were found. Widespread differences were found between the DDCO and researcher's scores, with the DDCO often scoring the nursing home more favorably.

Implications and Recommendations

Markco identified three clinical areas of high-risk to the nursing homes and subsequently to patient outcomes: staffing, identification of change in condition, and PU

management. The significance of the study was that if detailed CQR instructions for evaluating these clinical areas were provided, then the areas may be more accurately assessed, and scores may have a significant relationship for two reviewers. However, the results showed that many of the questions, when analyzed between the DDCO and researcher, had significantly different results. Those questions could not be considered to be reliable. As a result of the study, the following improvements or changes could be implemented:

1. Staffing- Question #1-The question was "the schedule reflects a minimum 1.0 licensed staffing nursing PPD" asks the reviewer to review the Payroll Trend Analysis report and interview the DNS regarding the budgeted licensed nurse PPD. The question instructions and line item detailed differed, and should be further clarified. However, the DDCO and researcher scores were not significantly different.

2. Staffing-Question #4-The question was "staff is deployed based upon the acuity need of the resident" lists multiple areas to evaluate to determine if this area was met. The researcher usually focused on interviewing "two licensed/direct care staff and three residents (and/or families) to interview to determine perception of acuity and clinical burden." The researcher did not interview in detail, occasionally not obtaining all patient samples for interview, and generally awarded points for this question regardless of the answer. The researcher scored zero points in only two instances. In comparison, the DDCO scored zero points in only four instances. For a future update of the instructions, the instructions could include "general suggestions

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for assessing the item." Despite this possible discrepancy between the DDCO and researcher, the scores were not significantly different.

3. Staffing-Question #5-The question was "average ratio per center of C. N. A./ resident assignment is reflective of (ask 5 C. N. A., review the schedule and the daily assignment sheet): 1: 8 on days, 1: 12 on evenings, 1: 20 on nights." The instructions provided three areas for review but the researcher focused on review of the assignment sheets, of actually shifts worked, for the past completed week Monday to Sunday (the instructions did not indicate for what period or how many days to review), the average daily census from the Payroll Trend Analysis, and interviewing CNAs. The decision on whether the points were awarded was usually using the objective data. The instructions should be further clarified. However, the DDCO and researcher scores were not significantly different.

4. Pressure Ulcers-Question #1-On the initial nursing assessment, a line for the "time" under the skin assessment should be added. The DDCO and researcher scores were significantly different.

5. Pressure Ulcers-Question # 2-"The pressure ulcers/non-pressure ulcers are identified as required" included instructions to interview caregivers to inquire if they had any residents with pressure ulcers, in addition to reviewing for appropriate forms. The researcher focused on reviewing the medical record documentation. Interviewing a C. N. A. may only help identify a sample resident for review, rather than identifying if the whole item is met. Therefore, the researcher recommends focusing only on the documentation as Weekly

skin checks, a Non PU sheet, and a Weekly PU Log to determine if this item is met. The DDCO and researcher scores were significantly different.

6. Pressure Ulcers-Question # 3-On the form for the Braden scale, add a line for the time of the assessment. The DDCO and researcher scores were significantly different.

7. Pressure Ulcers-Question # 5-The proper form must be used and started upon identification of the PU or NPU to receive credit, per Markco's policy. The DDCO and researcher scores were significantly different.

8. Pressure Ulcers-Question # 6-A treatment order for the wound must be obtained the day of identification or admission, per Markco's policy. If wounds are not being identified per policy, then perhaps this question is unmet. The DDCO and researcher scores were significantly different.

9. Pressure Ulcers-Question # 7-The family notification must be clearly documented to receive credit, and is not met if only a message is left. The DDCO and researcher scores were significantly different.

10. Pressure Ulcers-Question # 10-The nursing home must maintain a Weekly NPU Log, and be initiating appropriate forms for all NPU areas for this question to be met. The DDCO and researcher scores were significantly different.

11. Pressure Ulcers-Question # 15-The appropriate PU and NPU forms must be completed per policy to be met. Pain must be addressed on the care plan related to the NPU or PU. The DDCO and researcher scores were significantly different.

12. Pressure Ulcers-Question # 17-"The care plan interventions are evident on rounds" included instructions to observe if interventions are in place. The researcher focused on whether individualized interventions, for example heel protectors, were in place. The general interventions as turn and position every two hours were not observed or assessed. The instructions should include that the care plan should be individualized with specific interventions. The DDCO and researcher scores were significantly different.

13. Pressure Ulcers-Re-emphasize the documentation forms per policy. The researcher would not give credit if the required form under the instructions was not used or available.

14. Change in Condition-Question # 2-Nursing home personnel should be using the 24-hour report book, per policy. The question may be unmet if personnel gives report from a worksheet and not the 24-hour report book. If the 24-hour report book is not a usable tool for many nursing homes, then the report form perhaps should be modified. The DDCO and researcher scores were significantly different.

15. Change in Condition-Question # 5-"Interview the Medical Director to discern that center staff is appropriately identifying and reporting changes in resident condition" included instructions to interview the Medical Director, or designee if the Medical Director is not available. The researcher was usually able to interview the medical director or the medical director's nurse practitioner. However, in some cases, a physician or nurse practitioner with a reasonable number of residents at the nursing home was interviewed. The

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researcher recommends adding this option to the instructions, because those individuals would be able to answer the question accurately. The DDCO and researcher scores were not significantly different.

16. Change in Condition-Question #6-"Unit manager/charge nurse conducts nursing rounds at the start of the shift, during the shift and before the end of the shift, to assess for changes in resident condition." The instructions provided "general suggestions for assessing the item." The researcher generally awarded points for this item due to sample observations that nurses were actively out on the unit providing care or supervision needed, and not sitting at the nursing station for the majority of the time. The researcher recommends continuing with the same instructions, however, the wording of the question should match the instructions. For example, the question could be worded as "unit manager/charge nurse conducts rounds, or interacts on the nursing unit to assess for changes in resident condition." The DDCO and researcher scores were significantly different.

17. Change in Condition-Question # 9- The family notification must be clearly documented to receive credit and is not met if only a message is left. The DDCO and researcher scores were significantly different.

18. Because PI quality was found to be related to a NH operational and clinical risk for poor outcomes, PI questions should be incorporated into the total CQR. Presently, only one PI question is scored by the DDCO. Markco should consider more emphasis on training, monitoring, and observation of the PI process.

19. The PI Tool should be reviewed and updated to more concisely and precisely determine the PI quality. Despite the occasional subjectivity of the researcher used to evaluate questions, the relationship of the PI and KPI was expected.

20. As discussed above, even with instructions, the researcher and DDCO may score a question differently depending on thoroughness of reading instructions, sample used, knowledge of nursing home strengths and weaknesses, time constraints, understanding of instructions, if part or all the instructions were followed, or assessing the question by what makes logical sense. For example, the researcher observed that question may be marked as met when the required form was not available. Markco should continue to update and refine instructions as the DDCO uses them.

21. The DDCO should consider always pairing with another DDCO. Each DDCO may have areas of strength and efficiency, so therefore would complete the review quicker. However, another DDCO may lend more objectivity to the review.

22. In this study, the design of the study did not allow for any qualification or rationale of how the score was met or not met. As previously discussed, the score must be marked as met or not met, and the researcher and the DDCO must make a decision on if a question was met or not met.

23. Continue with the instructions of sampling up to three records to determine if a question is met or not met. If the one record did not meet the criteria, thus scoring as not met, then one or two more records may not have been reviewed.

24. Due to the exceptional low score for the PU system, consider if the forms or documentation requirements should be changed. The required documentation clearly follows assessment (actual and potential), monitoring, intervention, evaluation, and care planning. Each document serves a purpose in standards of care and for the licensure practice acts. Nursing home personnel should prioritize systems and processes to have this high risk system in place. However, Markco is at risk for not following their own policy.

25. Consider always using a team approach to complete the CQR. For example at least one other Markco clinician, to assist in completing the CQR not only for efficiency and time requirement but possibly to improve objectivity.

For future study and evaluation, the researcher recommends the following:

1. A non-assigned DDCO always evaluates a nursing home.

2. The whole CQR is completed by a team, rather than only one or two DDCOs.

3. Compare CQR scores according to the way a sample is selected.

4. Conduct a CQR unannounced rather than announced.

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Appendix A

CQR and PI Tool

Center: _____
DDCO: _____
DDCO Date Section Completed: _____
SDRM: _____
SDRM Date Section Completed: _____
Comments: _____
_____
_____
_____

5

Staffing

		Score Value	Met	Unmet	Brief Comments
					Sample Size: 3 (Unless indicated otherwise in criteria)
1	Schedule reflects minimum 1.0 licensed nursing PPD	20		20	• Review Payroll Trend Analysis Report and interview DNS regarding budgeted Licensed Nurse PPD.
2	Schedule reflects 24-hour RN coverage.	15		15	• Review the Licensed Nurse for the previous week for 7 full days ending the Sunday before the visit (Monday through Sunday). • This item is met if there is an RN in the building all 7 days/ 24 hours a day including holidays and weekends. • Management staff, Unit Managers, and Supervisors count in this determination. Differentiate that managers and supervisors are actually in the
3	Schedule reflects minimum 1.94 C.N.A. PPD	20		20	• Review Payroll Trend Analysis Report regarding budgeted CNA PPD. • item is met if CNA PPD is equal to or exceeds 1.94 PPD.
4	Staff is deployed based upon the acuity needs of the resident.	20		20	• Review staffing patterns for each unit. • Review general clinical needs for each unit (requirements for provision of basic care needs, numbers of residents with IVs, Tube feedings, orders for Blood Glucose fingersticks, VS monitoring, wound care, etc.) • Interview 2 licensed/direct care staff and 3 residents to determine perception of acuity and clinical burden. *For example:* *Staff question: Do you feel there is enough staff available to make sure your residents get the care they need without having to wait a long time?* *Resident Question: Do you feel there is enough staff available to make sure you get the care and assistance you need without having to wait a long time?* • If negative response, observe the staff for objective data to validate the negative response or contradict it. *For example, signs of improper deployment of staff or short staffing may include, but are not limited to staff not answering the call lights timely or failing to answer them at all, residents that normally eat in the dining room eating in their rooms, medications are not given in the appropriate time frames, showers are not given, treatments are not completed, etc.*

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5

	Score Value	Met	Unmet	Brief Comments
5				• Calculate ratios for the entire center, not unit by unit.
	Average ratio per center of C.N.A./ resident assignment is reflective of (ask 5 C.N.A., review the schedule and the daily assignment sheet):			
05a	20			*The ratios are intended to be a guide, and may be flexed by unit to meet the clinical needs of the center. (Example, Reflections programs with higher functioning clientele may be able to manage with a 1:10 ratio on day shift, while a skilled unit may require a 1:7 ratio on day shift).* • Interview C.N.A.s to determine their work load (e.g., number of residents in their assignments, number of showers, number of residents to be toileted, etc.)
	1: 8 on days			
05b			20	• Throughout the day, observe resident care, determine if staff is adequately deployed by ability to complete assignments (e.g., call lights are answered timely, resident showers are completed, residents are neat and clean, snacks are passed, no prevalent odors in the center, residents are engaged in activities, residents are eating in the dining room not their rooms, etc.). *Consider whether work load (showers, new admissions, etc.) are more evenly divided between days and evenings, reflecting a more equal ratio on days and*
	1:12 on evenings			
05c				
	1:20 on nights.			
	Total Possible Score	100	0	100

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Identifying & Notifying Family and Physician of Change of Resident Condition

8

#	Score Value	Met	Unmet	Brief Comments
				Sample Size: 3 (Unless indicated otherwise in criteria)
1	10		10	24-hour Nursing Report is used to communicate resident change of status and as a "tickler" mechanism to monitor issues requiring follow-up. • Review the 24-hour report to validate that information reflecting a change in a resident's condition is included on the report. • Item is met if the 24-report is: ○ Observed to contain information of a resident's condition ○ Observed to be used as a tool to monitor resident issues that require following up (e.g., Lab results, Physician calls, Clinic or Physician appointments, etc.)
2	10		10	Discussion at Morning Stand-Up and at shift change reflects items on 24-hour report. • Observe staff using the 24-hour report. • Item is "met" if the center has demonstrated changes in resident condition are discussed in a comprehensive manner during: ○ Used at change of shift to communication resident's condition from shift to shift. ○ Used at Morning Stand-up Meeting to update other disciplines on the resident's condition.
				Note - Completion of number 6 will essentially provide the information needed to answer items 7, 8, and 9.
3	10		10	Evidence of prompt identification of change in condition exists: • Determine if the documentation in the resident's medical record reflects details of the resident's change of condition such as: ○ Signs & symptoms, ○ Appropriate triage, ▪ Head to toe assessment ▪ Vital signs ▪ Resident's complaints ○ Interventions/treatment that were implemented. § [TL 6103-02] Protocols for Physician Notification Vital Signs or Laboratory Values § [TL 6103-03] Guidelines for Physician Notification of Clinical Problems in Center Residents
03a				Appropriate triage
03b				Medical provider notification
03c				Prompt and appropriate treatment
03d				Adequate monitoring prior to transfer or discharge
			-	• Interview 1 licensed nurse and 2 C.N.A.s. Licensed staff and C.N.A.s can state the center's process for

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Tab 2 Policies and Procedures (11/20/08)

Identifying & Notifying Family and Physician of Change of Resident Condition

	Score Value	Met	Unmet	Brief Comments
8				Sample Size: 3 (Unless indicated otherwise in criteria)
4 identifying and reporting changes in resident condition.	15		15	• Determine the process by which a resident's change of condition is identified and reported.
5 Interview Medical Director to discern that center staff is appropriately identifying and reporting changes in resident condition.	10		10	• Contact and interview the center's Medical Director. • If the Medical Director is not available, contact the Medical Directors designee. • Item is "met" if Medical Director states the staff appropriately identifies and reports changes in the resident's condition. § Refer to [TL 6103-02] Guidelines for Physician Notification of Change in Condition/Clinical Problems in Center Residents § [TL 6103-03] Protocols for Physician Notification Vital Signs and Laboratory Values
6 Unit manager/ charge nurse conducts nursing rounds at the start of the shift, during the shift and before the end of the shift, to assess for changes in resident condition.	15		15	General suggestions for assessing this item: • Observe the nurses (nursing/Unit Managers) on the units to determine if the licensed nurses are making nursing rounds throughout the shift. • Item is "met" if Unit Mangers/Licensed Nurses are observed to be interacting with the residents, family/significant others and staff in coordination with their duties. For example, at the beginning of the shift, during medication pass, at mealtime, during treatment administration, and/or before the end of the shift. • Review the resident's medical record, resident progress note for an assessment of resident condition, plan or interventions, implementation and ongoing evaluation.
7 Resident's change in condition is reflected in medical record. (Check 5 charts)	10		10	• Review the resident's medical record, resident progress note for an assessment of resident condition, plan or interventions, implementation and ongoing evaluation.
				• Review resident medical records with change of condition to validate that timely notification was documented.

100

Tab 2 Policies and Procedures (11/20/08)

Identifying & Notifying Family and Physician of Change of Resident Condition

8

		Score Value	Met	Unmet	Brief Comments
					Sample Size: 3 (Unless indicated otherwise in criteria)
8	Medical provider notified of change in condition in a timely fashion.	10		10	• Item is "met" if there is evidence of the physician being notified of resident symptoms of change of condition and physician response (e.g., new physician orders). § Refer to [TL 6103-02] Guidelines for Physician Notification of Change in Condition/Clinical Problems in Center Residents § [TL 6103-03] Protocols for Physician Notification Vital Signs and Laboratory Values

		Score Value	Met	Unmet	Brief Comments
9	Family/responsible party is notified in a timely fashion.	10		10	• Review resident's medical record to validate that timely notification was documented. • Item is "met" if there is evidence in the medical record that the licensed nurse spoke with the resident's family and/or responsible party that they were notified of the resident's change of condition. • Do not give credit, if a message was left on the family/responsible party's answering machine with no follow-up to validate that family was aware the resident had a change of condition.
	Total Possible Score	100	0	100	

Tab 2 Policies and Procedures (11/20/08)

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Pressure Ulcer Management/Skin Breakdown

#	Score Value	Met	Unmet	Brief Comments
				Sample Size: 3 (Unless indicated otherwise in criteria)
1	10		10	Head to toe assessments are completed upon admission/ readmission and documented within 6 hours of admission. • Review the resident's medical record for progress notes that have the time and date the head to toe assessment was completed. • Item is met if signature, date and time (must be within 6 hours of admission) are present and the skin assessment is complete. • Do not give credit if unable to verify date and time or if the nurse is unable to verbally verify the appropriate time frame to complete a head to toe assessment. § [FRM 61012] Nursing Assessment—Full (version 06008)

2	10		10	Pressure ulcers/non-pressure ulcers are identified as required.
				• Interview caregivers (e.g., CNAs, PT, etc.) inquire about the residents' skin is and if they have any residents with pressure ulcers.
				• Review the medical record to validate that identified areas are reflected in the documentation.
				  § [FRM 66107-09] Weekly Skin Checks
				  § [FRM 66107-01] Weekly Pressure Ulcer Condition Report, or
				  § [FRM 66107-02] Weekly Non-Pressure Skin Condition Report
				• Item is met if there is documented evidence that the wound was identified. If a resident has [FRM 66107-01] Pressure Ulcer Condition Report and the ulcer was identified after the weekly skin check was completed, but succeeding skin checks identify the pressure ulcer, give credit.

3	10		10	Norton Plus/Braden Scale is completed within 6 hours after admission/readmission and then weekly for a total of 4 weeks after a resident was admitted/readmitted, then quarterly • Review the medical record for completed Braden Scale/Norton Plus within 4 hours of admission and that the scale is completed for a total of 4 weeks. • If the scales have not been completed upon admission and/or weekly (no more than 7 days) for a total of 4 week and/or quarterly (if the resident has been in the center long enough to require a quarterly), do not give credit. • Do not give credit if date and time is not recorded.
4	10		10	Resident has been assessed for appropriate nutrition to promote healing/prevent breakdown. Refer to Investigative Protocol - Pressure Ulcers. • Review the resident's medical record for information for a nutritional evaluation &/or nutritional interventions to promote healing/prevent breakdown. § [FRM 61052] Medical Nutrition Therapy Assessment,

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Tab 2 Policies and Procedures (11/2008)

Pressure Ulcer Management/Skin Breakdown

	Score Value	Met	Unmet	Brief Comments
9				Sample Size: 3 (Unless indicated otherwise in criteria)
				• [FRM 61062-01] Medical Nutrition Therapy Review, • [FRM 61062-02] Enteral Review or • [FRM 61057] Resident Progress Notes • Item is met if the RD or DT completed reviews for residents with wounds. NOTE: the RD or DT should be completing the review of residents with wounds. The RD may delegate this to the DTR if the RD deems the DTR competent. • Do not give credit if someone completes documentation other than the RD or DT.
5	10		10	Appropriate pressure ulcer/non-pressure ulcer forms are initiated upon identification of a pressure ulcer/non-pressure ulcer. • Validate that there is evidence that documentation was initiated when the pressure ulcer/non-pressure ulcer was identified. • [FRM 66107-01] Weekly Pressure Ulcer Condition Report and • [FRM 66107-05] Daily Monitoring/Pressure Ulcers, or • [FRM 66107-02] Weekly Non-Pressure Ulcer Skin Condition Report • Do not give credit if the form was started on the next day. • Do not give credit if each ulcer does not have [FRM 66107 Weekly Pressure Ulcer Condition Report] and [FRM 66107-05 Daily Monitoring/Pressure Ulcers sheets] and/or [FRM 66107-02] Weekly Non-Pressure Ulcer Skin Condition Report.

6	10		10	Physician is notified and an appropriate treatment obtained.
				
				 • Review resident's medical record to determine if the physician was notified upon identification of wound. For example:
				   o Resident's progress notes,
				   o Physician's progress notes,
				   o Physician's orders for treatment, and/or
				   o Fax notifications
				 • Give credit if there is a response from the physician/NP with orders for treatment documented. If this is a new admission or a new area, the treatment order should be obtained the day of admission.

7	10		10	Family/responsible party is notified of ulcer development. • Review the resident's progress notes to determine if the resident's family/responsible party was notified upon identification of wound. (This includes notifying the resident if the resident is his/her own responsible party). • Give credit if there is clear evidence that the resident and/or family/responsible party were notified. • Do not give credit if a message was left on the family/responsible party's answering machine with no follow-up to validate that family was aware that the resident has developed an ulcer.
8	10		10	Care plan is initiated to address the pressure ulcer prevention and treatment. • Review the care plan to validate pressure ulcer prevention and treatment interventions have been addressed such as specialty mattresses, floating heels, turning/repositioning, etc.

Tab 2 Policies and Procedures (11/20/08)

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Pressure Ulcer Management/Skin Breakdown

	Score Value	Met	Unmet	Brief Comments
				Sample Size: 3 (Unless indicated otherwise in criteria)
9	Daily documentation is completed on pressure ulcers.	10		10	• Review the resident's medical record to validate daily documentation for the pressure ulcer has been completed. § [FRM 66107-05] Daily Monitoring/Pressure Ulcers
10	Inquire and validate the center's process for monitoring non-pressure ulcers.	10		10	• Obtain a copy of the log containing residents with non-pressure wounds. § [FRM 67400-01] Non-Pressure Ulcer Weekly Skin Log • Validate weekly documentation is complete to date and there are no missed entries, the form should correspond to the first notation of the non-pressure wound. § [FRM 66107-02] Weekly Non-Pressure Skin Condition Report.
11	Nurse completes weekly pressure ulcer evaluation. Progress of ulcer healing is recorded and graphed.	10		10	• Review resident's medical record to validate weekly documentation of wound measurements, progress of wound healing or lack of progression of healing, the data is graphed and the form signed/dated by the Licensed Nurse. • Daily monitoring supports weekly documentation. § FRM 66107-01 Weekly Pressure Ulcer Condition Report § FRM 66107-05 Daily Monitoring/Pressure Ulcers
12	Treatments are completed as ordered and there are no holes in the TAR.	10		10	• Review Treatment Sheets to validate that they were completed. • Give credit if the treatment sheets are complete. • If late entries are made, the entries are made following procedure. § [PRO 61001-03] Documentation of Resident Health Status, Needs and Services

	Score Value	Met	Unmet	Brief Comments
13	Treatments are evaluated for effectiveness.	10		10	• Review treatments and compare to measurements and graph on weekly documentation form. • Determine if the treatment is effective and the wound is healing. § [FRM 66107-01] Weekly Pressure Ulcer Condition Report. § [PRO 61009-01] Pressure Ulcer/Non-Pressure Ulcer Assessment.
14	If no healing is noted, the physician is notified and a new treatment obtained.	10		10	• Review weekly ulcer documentation, graph, resident progress notes and Physician's Orders. • If wound has not shown any progress in two weeks, documentation supports that the physician was consulted and new orders obtained and/or documentation of physician response. § [FRM 66107-01] Weekly Pressure Ulcer Condition Report § [FRM 66107-02] Weekly Non-Pressure Ulcer Skin Condition Report
					• Pain related to the pressure ulcer is addressed on the back of the weekly pressure ulcer and/or non-pressure ulcer form. § [FRM 66107-01] Weekly Pressure Ulcer Condition Report

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Tab 2 Policies and Procedures (11/20/08)

Pressure Ulcer Management/Skin Breakdown

9		Score Value	Met	Unmet	Brief Comments
					Sample Size: 3 (Unless indicated otherwise in criteria)
15	Pain associated with the ulcer is assessed and care planned.	20		20	§ [FRM 66107-02] Weekly Non-Pressure Ulcer Skin Condition Report • Pain is addressed on care plan as it related to the pressure ulcer and/or non-pressure ulcer.
16	Risk factors addressed on C/P with evaluation and revision.	10		10	• Review pertinent documentation on the resident's medical record to identify risk factors for the development of pressure ulcers/non-pressure ulcers (e.g., History and Physical, Hospital Discharge Summary, Braden Scale/Norton Plus). • Review the Care Plan for inclusion of related risk factors that may predispose the resident to skin breakdown or poor healing. • Review for evidence of evaluation and revision.
17	Care plan interventions are evident on rounds.	20		20	• Review the care plan. • Item is met if the interventions are observed to be in place.

| 18 | Resident skin checks are conducted and documented by a licensed nurse weekly. | 10 | | 10 | • Obtain the weekly skin assessment schedule.
• Review medical record for documented evidence that weekly (no more than 7 days) skin assessments were completed.
• Item is met:
  ○ Form reflects the weekly skin assessments are completed,
  ○ Assessments are completed as scheduled,
  ○ Assessments are dated and signed by the nurse conducting the weekly skin check.
• If the resident was not evaluated per the schedule and reasoning was documented for the delay give credit (e.g., the resident was out for a Physician appointment).
§ [FRM 66107-09] Resident Weekly Skin Check |
| | Total Possible Score | 200 | 0 | 200 | |

Tab 2 Policies and Procedures (11/20/08)

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GENERAL INSTRUCTIONS	SUPPORT MATERIALS
Before the Visit • Prior to visiting the Center determine the date of the most recent release of P&P's from Corporate. Release date information can be found on KNECT - Health Service Division – Clinical Operations – Policies and Procedures. *Copy and review the last CQR. - Send email to ED requesting the following documents to be available on arrival: 1. 6 months of QI/QM report 2. 12 months of PI minutes 3. Request Action Plan for CQR. **During the Visit** 1. Interview the ED and DNS prior to reviewing the minutes. 2. Review previous 12 months of PI minutes. 3. Interview appropriate staff. **Key:** I = Interview O = Observation D = Documentation	**Applicable Policies and Procedures** - POL 003 – Performance Improvement - POL 003-01 – Root Cause Analysis - POL 504-03 – Event Reporting - PRO 06001 – Quality Review of Resident Care - PRO 54001 – Event Reporting - PRO 00001 – Root Cause Analysis - PRO 06001-01 – Internal Quality Issue Response

Performance Improvement Tool

SECTION	CRITERIA	Score	MET	NOT	N/A	INSTRUCTIONS
CQR 1	**Minutes for last 12 months available** *To assess this area:* Answer "met" if 12 months of minutes are available for review.	10				Request PI minutes from ED or DNS. Met if 12 months of PI minutes available. There may only be quarterly minutes for the full committee. There should be monthly minutes for sub-committee or work teams.
CQR 2	**Minutes reflect actions taken, follow-up and or resolution to identified opportunities for improvement.** *To assess this area:* Prior to review of the minutes interview the ED and DNS to elicit which processes and/or systems were identified as action items and how it was determined that the items were actionable. Answer "met" if identified action items are followed through to completion in the minutes. (I,O,D)	10				1. Interview the ED and DNS to determine areas that have been identified as needing improvement. Determine how the the area was identified as needing action (e.g., CQR results, State survey findings, QI/QMs, SMART, medical record audits, observation, etc.). 2. Determine if action plans were developed, responsible persons identified and time of completion identified.. 3. Determine if the interventions and/or revised process was communicated to staff (e.g., inservices, unit meetings, etc.) and implemented. 4. Determine if the area was re-evaluated for effectiveness and the action plan revised if needed or documentation indicates that improvement has been noted.
CQR 3	**Appropriate membership in attendance** *To assess this area:* Answer "met" if you can validate quarterly ED, DNS, MD and 3 staff members' attendance at PI meetings. (I,O,D)	10				Must be able to validate quarterly attendance of the ED, DNS, designated physician and 3 staff members in the minutes. Note - Kindred's policy requires monthly meeting. Regulation requires quarterly PI meetings.
CQR 4	**PI Committee minutes reflect approval of latest release of Policy and Procedures and annually approval.** *To assess this area:* Answer "met" if approval of P&P's annually can be found in the PI minutes.	10				Determine the date of the last HSD policy and procedure release and check minutes for evidence of approval.

GENERAL INSTRUCTIONS

Before the Visit
* Prior to visiting the Center determine the the date of the most recent release of P&P's from Corporate. Release date information can be found on KNECT - Health Service Division -- Clinical Operations -- Policies and Procedures.

*Copy and review the last CQR.

- Send email to ED requesting the following documents to be available on arrival:
1. 6 months of QI/QM report
2. 12 months of PI minutes
3. Request Action Plan for CQR.

During the Visit
1. Interview the ED and DNS prior to reviewing the minutes.
2. Review previous 12 months of PI minutes.
3. Interview appropriate staff.

Key:
I = Interview
O = Observation
D = Documentation

SUPPORT MATERIALS

Applicable Policies and Procedures
- POL 003 -- Performance Improvement
- POL 003-01 -- Root Cause Analysis
- POL 504-03 -- Event Reporting
- PRO 06001 -- Quality Review of Resident Care
- PRO 54001 -- Event Reporting
- PRO 00001 -- Root Cause Analysis
- PRO 06001-01 -- Internal Quality Issue Response

Performance Improvement Tool

SECTION	CRITERIA	Score	MET	NOT	N/A	INSTRUCTIONS
CQR 5	Evidence that the PI minutes reflect identification and evaluation of the prevalent resident care processes for improvement. *To assess this area:* Answer "met" if PI minutes during the previous 12 months include documentation of monitoring of these items:	10				PRO 06001 - The "Quality Review of Resident Care" procedure identifies data that should be reviewed, and provides guidance for evaluating the data. Use this procedure to evaluate if the Center is correctly identifying data for review, and appropriately evaluating the data. Examples include external quality indicators/quality measures, Internal Health Services Event Reporting system, Kindred Business Warehouse reports (i.e. CQR) and Resident Care System Reporting system (i.e. weights, falls, etc.).
	5a) QI/QM review					
	5b) CQR					Documentation of data evaluation may include recognition of trends, high risk items, QI/QMs > 90%.
	5c) State Survey Results					
	5d) Event Reports					Note - Each data element may not be reviewed every month.
	5e) RCS Reporting System (I,D)					
CQR 6	Evidence that the PI minutes reflect identification and evaluation of *To assess this area:* Answer "met" if PI minutes during the previous 12 months include documentation of monitoring of these items:	10				If the minutes over the past 12 months do not include any mention of a CMQR or an OQR, score the item is "Not Met", and ask the ED for the date and results of the last CMQR and OQR. Recommend that the results of these reviews go through the PI committee just like the CQR.
	8a) CMQR (previously UQR)					
CQR 6, Cont'd	6b) Operational Quality Review (OQR)					
CQR 7	PI Teams are commissioned based on findings or trends identified through PI. PRO 06001-01 *To assess this area:*					PRO 06001-01 -Internal Quality Issue Response should be reviewed and used as a guide to determine if the center is commissioning teams based on the data gathered to resolve the issues identified.

GENERAL INSTRUCTIONS	SUPPORT MATERIALS
Before the Visit * Prior to visiting the Center determine the date of the most recent release of P&P's from Corporate. Release date information can be found on KNECT - Health Service Division – Clinical Operations – Policies and Procedures. *Copy and review the last CQR. · Send email to ED requesting the following documents to be available on arrival: 1. 6 months of QI/QM report 2. 12 months of PI minutes 3. Request Action Plan for CQR. **During the Visit** 1. Interview the ED and DNS prior to reviewing the minutes. 2. Review previous 12 months of PI minutes. 3. Interview appropriate staff. **Key:** I = Interview O = Observation D = Documentation	Applicable Policies and Procedures · POL 003 – Performance Improvement · POL 003-01 – Root Cause Analysis · POL 504-03 – Event Reporting · PRO 06001 – Quality Review of Resident Care · PRO 54001 – Event Reporting · PRO 00001 – Root Cause Analysis · PRO 06001-01 – Internal Quality Issue Response

Performance Improvement Tool

SECTION	CRITERIA	Score	MET	NOT	N/A	INSTRUCTIONS
	Answer "met" if minutes reflect teams were established based on the findings/trends/patterns identified by the subcommittees, State Surveys, Districts' findings (e.g. CQR/OQR/CMQR), or Regional findings.	10				Initiation of PIT teams may be evidenced in the "Summary of Actions To Be Taken" column of the minutes, or a separate PIT form may be attached to the minutes.
CQR 8	**ED and Key Center staff have knowledge of PI initiatives.** *To assess this area:* Answer "met" if center level staff indicate active involvement in action plan development. Through interview and/or observation, it is evident that center staff have knowledge of center specific PI action plans/goals. (D,I)	10				1) Review minutes and identify current initiatives 2) Interview 3 Staff (include ED if available): 2a) ED - does he/she have knowledge of PI action plan/goals? 2b) Interview key center staff (i.e. DNS, Dept Heads, Unit Mgrs) - does the staff have knowledge of the PI action plans/goals? Can they describe their role in the plan? Note - If a staff person can't think of a PI initiative, ask him/her to tell you about an initiative that you identified in the minutes.
CQR 9	**T the center's action plans focus on areas consistent with resident care processes indicated for improvement.** *To assess this area:*					Center must have a written action plan based on the trends in the center. For example, do action plans correspond with latest CQR &/or State survey findings, or problematic data trends?

GENERAL INSTRUCTIONS	SUPPORT MATERIALS
Before the Visit * Prior to visiting the Center determine the date of the most recent release of P&P's from Corporate. Release date information can be found on KNECT - Health Service Division – Clinical Operations – Policies and Procedures. *Copy and review the last CQR. - Send email to ED requesting the following documents to be available on arrival: 1. 6 months of QI/QM report 2. 12 months of PI minutes 3. Request Action Plan for CQR. **During the Visit** 1. Interview the ED and DNS prior to reviewing the minutes. 2. Review previous 12 months of PI minutes. 3. Interview appropriate staff. **Key:** I = Interview O = Observation D = Documentation	**Applicable Policies and Procedures** - POL 003 – Performance Improvement - POL 003-01 – Root Cause Analysis - POL 504-03 – Event Reporting - PRO 06001 – Quality Review of Resident Care - PRO 54001 – Event Reporting - PRO 00001 – Root Cause Analysis - PRO 06001-01 – Internal Quality Issue Response

Performance Improvement Tool

SECTION	CRITERIA	Score	MET	NOT	N/A	INSTRUCTIONS
	Do areas identified correspond with latest CQR findings, State Surveys results, clinical data trends, and QIs at 90% or greater? Answer "met" if statements are found to be true. (D,I)	5				Review the pertinent 6 months of the QI/QM report as compared to the center's action plan. The QI/QM is run from the center's MDS system, and the 90th % refers to the State Percentile Threshold. Minutes should reflect action items for QI's at the 90th percentile or greater. Answer "met" if statements are found to be true. Note - If the minutes don't include information related to the CQR or State Survey/s, ask about the last review/survey, and possibly review.
CQR 10	The center's action plans focus on areas consistent with operational areas and processes indicated for improvement. *To assess this area:* Do areas identified correspond with the latest CMQR/OQR findings, or trends in the complaint/grievance data?	5				Center must have a written action plan based on the trends in the center. For example, do action plans correspond with the latest CMQR/OQR findings, or problematic trends in operational data (i.e. resident complaints, customer satisfaction surveys).
CQR 11	Root Cause Analysis is completed per policy *To assess this area:*					The center selects performance measures for processes that are known to jeopardize the safety of the residents. When the center detects undesirable performance or variation, it initiates intense analysis to determine where best to focus changes for improvement. The center initiates intense analysis when the comparisons show that: - Levels of performance, patterns, or trends vary significantly and
CQR 11, Cont'd	Answer "met" if PI minutes reflect that RCA was completed when: 10a) Levels of performance, patterns, or trends, vary significantly and undesirably from those expected 10b) Performance varies significantly and undesirably from that of other facilities (i.e QI)	5				undesirable from those expected; - Levels of performance, patterns, or trends vary significantly and undesirable from those expected; or from that of other facilities (i.e. QIs); or when an event has occurred.

GENERAL INSTRUCTIONS

Before the Visit

* Prior to visiting the Center determine the date of the most recent release of P&P's from Corporate. Release date information can be found on KNECT - Health Service Division -- Clinical Operations -- Policies and Procedures.

*Copy and review the last CQR.

- Send email to ED requesting the following documents to be available on arrival:
1. 6 months of QI/QM report
2. 12 months of PI minutes
3. Request Action Plan for CQR.

During the Visit
1. Interview the ED and DNS prior to reviewing the minutes.
2. Review previous 12 months of PI minutes.
3. Interview appropriate staff.

Key:
I = Interview
O = Observation
D = Documentation

SUPPORT MATERIALS

Applicable Policies and Procedures
- POL 003 -- Performance Improvement
- POL 003-01 -- Root Cause Analysis
- POL 504-03 -- Event Reporting
- PRO 06001 -- Quality Review of Resident Care
- PRO 54001 -- Event Reporting
- PRO 00001 -- Root Cause Analysis
- PRO 06001-01 -- Internal Quality Issue Response

Performance Improvement Tool

SECTION	CRITERIA	Score	MET	NOT MET	N/A	INSTRUCTIONS
	10c) A significant or sentinel event has occurred. Review Policy 003-01, POL 504-03, PRO 54001,PRO 00001					
CQR 12	Evidence of ongoing PI plan evaluation and modification To assess this area: Interview ED and DNS to determine how they evaluate the PI Process and make changes. Answer "met" if there is evidence of appropriate changes of plan based on discussions, root cause analysis, indicators that goals are met/changed, etc. (I,O,D)	5				This item refers to the "overall" PI Process in the center. Interview the ED and DNS to determine how they evaluate the PI process and make changes. Answer met if there is evidence of appropriate changes of the plan based on discussion, root cause analysis and indicators that goals are met/changed.

Met Score: 0

Unmet Score: 0

Total Points Possible for this Center: 100

110

Appendix B

KPI Sample Printout

HSD KPI Key Success Factor Summary

Print | Bookmark

Region: Show All Values | District: Show All Values | Facility ID: Show All Values

Facility Open Status: Open | Operational Status: Owned | Facility Type Name: Nursing, Nursing Center

Composite Score Data

	Average Score Last 12 Months	Average Score Last 3 Months	Score Current Month
3.0			
2.9	2.94	2.94	2.94
2.8			

12 Month Scoring Trends

People	Residents	Efficient	Finances	Excellence
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1

Facility vs. Division Workers Comp Incidents 24 mos.

Facility vs. Division Liability Claims 24 mos.

4

0.03

2

0.02

0.01

0

0.00

Start | Monthly K... | Simmons,... | Windows... | Projects | Microsoft... | Knect - M... | HSD KPI...

112

Facility vs. Division Workers Comp Incidents 24 mos.

Facility vs. Division Liability Claims 24 mos.

Facility Incidents		437.0
Facility FTEs		21,937.0
Facility Incidents per 100 FTEs		1.99
Division Incidents per 100 FTEs		1.99
Facility Claims		13.0
Facility Patient Days		732,561.0
Facility Claims per 1000 PD		0.018
Division Claims per 1000 PD		0.018
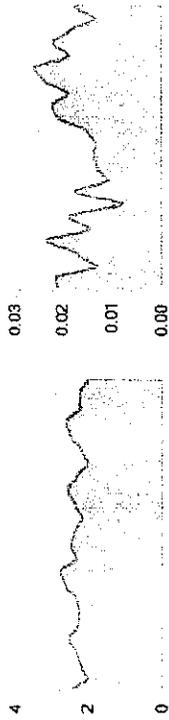
Calendar Year/Month	10/2008	11/2008	12/2008	01/2009	02/2009	03/2009	04/2009	05/2009	06/2009	07/2009	08/2009	09/2009
▼Overall	3.00	2.93	2.90	2.97	2.94	2.93	2.95	2.95	2.94	2.95	2.94	2.94
▼Our People	3.06	2.97	2.94	2.96	2.93	2.91	2.94	2.96	2.95	2.93	2.93	2.84
▶Turnover	2.93	2.81	2.82	2.87	2.83	2.85	2.88	2.86	2.84	2.85	2.88	2.77
▶Workers Comp	3.18	3.14	3.07	3.06	3.02	2.96	3.00	3.05	3.06	3.00	2.97	2.91
▼Our Residents	3.09	3.07	3.06	3.06	3.03	3.05	3.04	3.05	3.05	3.05	3.07	3.05
▶CQR	3.05	3.04	3.01	3.01	2.99	3.00	3.00	2.99	2.96	2.98	3.01	2.99
▶QI	3.02	2.99	3.00	3.00	2.95	3.00	2.93	2.95	2.99	2.96	2.96	2.95
▶Event Reporting	3.20	3.18	3.16	3.16	3.15	3.15	3.18	3.20	3.21	3.22	3.23	3.22
▼Be Efficient	2.86	2.75	2.85	2.94	2.89	2.78	2.87	2.84	2.75	2.87	2.75	2.77
▶Labor	2.86	2.75	2.85	2.94	2.89	2.78	2.87	2.84	2.75	2.87	2.75	2.77
▼Manage Finances	2.85	2.76	2.49	2.75	2.74	2.82	2.79	2.76	2.83	2.77	2.79	2.85
▶Financials	3.10	2.86	2.30	2.78	2.72	2.76	2.73	2.68	2.79	2.70	2.79	2.93
▶Liability Claims	2.80	2.65	2.68	2.72	2.76	2.87	2.85	2.84	2.88	2.84	2.79	2.76
▼Pursue Excellence	3.13	3.12	3.15	3.15	3.12	3.08	3.10	3.12	3.14	3.13	3.16	3.19
▶Gov't Survey	3.08	3.06	3.07	3.07	3.08	3.07	3.09	3.10	3.09	3.06	3.09	3.09
▶Compliance	3.17	3.17	3.24	3.23	3.16	3.09	3.12	3.14	3.19	3.20	3.22	3.29