

KANSAS NURSING FACILITY PROJECT EVALUATION

For the Kansas Department on Aging

Sarah Forbes-Thompson, PhD, RN
University of Kansas School of Nursing
Principal Investigator

Nancy Dunton, PhD
University of Kansas School of Nursing
And Department of Health Policy & Management
Co-Principal Investigator

Byron Gajewski, PhD
University of Kansas School of Nursing
& School of Allied Health

Marcia Wrona, BSW
University of Kansas School of Medicine
Department of Biometry

Annette Becker, MA
University of Kansas School of Nursing
Project Manager

Rosemary Chapin, PhD
University of Kansas School of Social Welfare

Roxanne Rachlin, MHSA
University of Kansas School of Social Welfare

Robert Lee, PhD
University of Kansas School of Medicine
Department of Health Policy & Management

Mary Zimmerman, PhD
University of Kansas School of Medicine
Department of Health Policy & Management
& University of Kansas, Department of Sociology

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Preface

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We also thank the nursing homes that participated in our simultaneous surveys for your patience and understanding. And, thank-you to all the Administrators and Directors of Nursing that attended our focus groups.

Under subcontract, Myers & Stauffer, provided the project with extracts from the Minimum Data Set, including quality indicator and case mix adjustment files.

For any questions or comments concerning this report, please contact the Principal Investigator, Sarah Thompson, at (913) 588-1624 or at **sthompson2@kumc.edu**.

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Executive Summary

In response to public concerns about resident safety and quality of care and a landmark report from the Institute of Medicine in 1986, the nursing home industry is subject to regulatory mandates and oversight. Although, the regulations and survey process are federally mandated, the actual survey process is administered through individual state agencies. In Kansas, the survey process is regionalized and there are significant regional differences in the average number of deficiencies per nursing home. This has raised questions as to whether the regional differences reflect inconsistency in the survey process or differences in facility characteristics from one region to another. This study was commissioned to investigate the sources of these regional differences. Both qualitative and quantitative methods were used to address this question.

There were significant regional differences in the average number of deficiencies per nursing facility.

- Facilities in the Northeast region had nearly three times the average number of deficiencies (11.64) as facilities in the West (3.69).
- On average, facilities in the Northeast region had more deficiencies with D+ and G+ scope and severity than in the West or Lawrence regions.
- Facility administrators and directors of nursing thought regional differences in deficiencies were due to differences in surveyor practices.
- Surveyors thought regions with higher deficiencies had facilities with poorer characteristics.

There were significant regional differences in facility characteristics that have been related to the quality of nursing home care. The pattern of regional differences in facility characteristics was very similar to the regional deficiency pattern.

- On average, nursing homes in the Lawrence region were the largest (93 beds) and facilities in the West region were the smallest (44 beds).
- A higher percentage of nursing homes in the Lawrence region were for profit (80%), compared with 22% in the West.
- While there were only small regional differences in nursing hours per resident day, the average in every region was below 3.5 hours. Studies indicate a level below 4.1 hours could have adverse consequences.
- Turnover rates in nursing facilities were very high. Across the state, there was a change of administrators in 43% of nursing homes in 2001 and a change in 65% of the RNs and 73% of the LPNs. There was complete turnover (109%) in aides. The

Northeast region had the highest Administrator and LPN turnover and the second highest RN turnover.

- One-third of Kansas nursing homes changed ownership at least once in 2001.

Facility characteristics accounted for one-third of the regional difference in deficiencies. Two-thirds remained unexplained.

- Taking 18 facility characteristics (such as ownership, staff turnover, rural/urban location, bed size) into account, there were still significant regional differences in deficiencies.
- Facility characteristics explained less about deficiencies in the Northeast than in the other regions. That is, other factors played a larger role in the rate of deficiencies in the Northeast than elsewhere in the state.
- In all regions, larger facilities and for-profit facilities had higher rates of deficiencies than their counterparts.

There were inconsistencies in the survey process from one facility to another. There was no information on whether these inconsistencies were associated with regions.

- In a series of simultaneous surveys in 12 facilities, there were differences in the number of deficiencies cited, in the F tags that were cited, and the scope and severity of the deficiencies.
- Inconsistencies were greatest when the number of deficiencies was highest. As surveyors have a limited amount of time in facilities, they must select which deficiencies to pursue when faced with a large number of options. These choices may be guided by surveyors' opinions of which deficiencies are the most egregious, which have the best documentation, or other considerations.
- Surveyors stated that different Regional Managers may give different guidance regarding specific circumstances when reviewing deficient practices and determining scope and severity.
- Both facility administrators/DONs and surveyors thought that attitudes of both surveyors and nursing facility personnel played an important role in the survey process.

Although there were inconsistencies in the application of specific regulations, the surveyors appeared to be more consistent in their implied assessment of the quality of care in facilities.

- There was a great deal of agreement between the simultaneous survey teams on the general number of deficiencies and in a measure of the number of deficiencies combined with their scope and severity. Further, surveyors who cited different F tags frequently cited tags in the same general care system.

Rates of deficiencies were highest in the Northeast, a region that had, on average, the worst facility characteristics and the most highly educated and experienced surveyors.

There also was significant regional variation in the average quality indicators (QIs).

- A nursing facility with an urban location and higher turnover had higher (worse) QIs than their counterparts.
- Some facility administrators thought the QIs might bias the surveyors against a facility before they arrived.
- The QIs come from the Minimum Data Set (MDS), used for planning and monitoring resident care. Focus group participants had different opinions on how helpful the MDS was, with some administrators stating that it was a waste of time. To the extent that the MDS is not used effectively, the QIs will not be representative of care issues in a facility.

Recommendations for Improving Consistency Across Surveys

- Institute processes that generate increased agreement on procedures and interpretation of findings at the regional manager level. The processes could include joint discussion of case studies, joint review of documentation, or conducting surveys that include regional managers and QI coordinators only.
- Improve surveyor training in two areas: medication review and decision-making regarding scope and severity. Developing more detailed, written guidance for scope and severity determination would contribute to inter-regional consistency.

Background and Significance

Currently, 12% of the US population is over the age of 65 and by the year 2030 this will increase to 20%. It is estimated that approximately 15 million individuals will be over the age of 85 in 2030 and that approximately 50% of this group will need caregiver assistance. Long-term care has multiple components, including community-based services, home health care, assisted-living, and nursing home care. The number of residents residing in nursing homes is expected to increase from 1.6 million in 2000 to 4.6 million in 2030. Nursing facilities provide care to the most vulnerable members of our society.

In 2003, there were 374 nursing facilities in Kansas. Most of these facilities have high occupancy rates. Across the nation, many nursing homes experience continuous change. Employee turnover is high and change in ownership is common. The forecast increase in demand for nursing home care, combined with the volatile structure of care, give rise to public and professional concerns over the future adequacy of the supply of nursing home beds and the quality of care.

In response to public concerns about resident safety and quality of care and a landmark report from the Institute of Medicine in 1986, the nursing home industry has faced increasing regulatory mandates and oversight. To participate in Medicare and Medicaid programs, nursing facilities must meet federal regulations or conditions of participation as established by the Health Care Financing Administration, now known as the Centers for Medicare and Medicaid Services (CMS).¹ Although, the regulations and survey process are federally mandated, the actual survey process is administered through individual state agencies.

Nursing homes are required to be surveyed once every 9 to 15 months to assess for compliance with federal regulations, however complaints can initiate additional surveys. The survey process is designed to regulate care in nursing facilities and facilities must be in compliance with 190 federal regulations in order to operate. The 190 regulations fall into several categories: Resident Rights; Quality of Life; Quality of Care; Resident Assessment; Services: dietary, pharmacy, rehabilitation, dental and physician; Physical Environment; and Administration. State or federal surveyors cite deficiencies when a facility fails to be in substantial compliance with the regulations. Deficiencies are assigned a level of severity (the effect on resident outcomes) and scope (the number of residents actually or potentially affected). Table 1 describes the categories of scope and severity. When a facility is deemed noncompliant, CMS issues enforcement remedies based on the scope and severity of the deficiencies and the state agency recommendations. Enforcement remedies vary, based on scope and severity, and examples include a directed plan of correction, denial of payment of new admissions, and Civil Money Penalties.

¹ A Glossary of terms used in this report is provided in Appendix A.

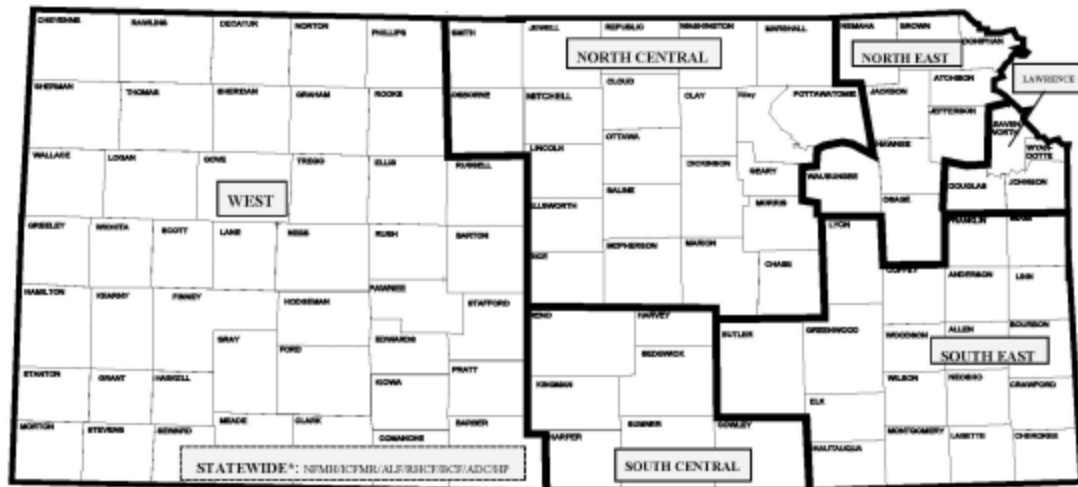
Table 1: Scope and Severity			
	<u>I</u> solated	<u>P</u> attern	<u>W</u> idespread
Immediate jeopardy to resident health or safety	<u>J</u>	<u>K</u>	<u>L</u>
Actual harm that is not immediate jeopardy	<u>G</u>	<u>H</u>	<u>I</u>
No actual harm with potential for more than minimal harm that is not immediate jeopardy	<u>D</u>	<u>E</u>	<u>F</u>
No actual harm with potential for minimal harm	<u>A</u>	<u>B</u>	<u>C</u>

Each survey follows a standardized procedural format that allows for flexibility once a surveyor is inside a nursing facility. This is both a strength and a weakness. The standardized format consists of: offsite preparation including a review of facility Quality Indicators (QIs), entrance conference, initial tour, resident sample selection, information gathering, information analysis, and exit conference. There are detailed written guidelines for each phase of the survey process. Information gathered from interviews, observations of care, and document review during the survey process guide the depth of evaluation into potential problem areas. Information gathered during the survey is used to refine the focus of the survey from one moment to the next. This is a strength in that surveyors can react to and further explore potential problem areas identified during their data collection. The very nature of the flexibility allows for prioritization of problems while on site. However, this flexibility contributes to a potential weakness in the consistency of the survey process, i.e., there are differences from one facility survey to another in the depth of information obtained and in which areas are examined. Prioritization of problem areas for examination can be influenced by a) the interview and observation skills of the surveyor; b) surveyor expertise and familiarity with certain areas such as environment, clinical issues, continence care, or pain management; c) what problem areas are more visible during a survey; and d) the number of problems found.

Kansas survey data do reveal that differences exist in the number and severity of deficiencies between survey regions. Differences or variances between geographic areas may arise from regional variation in facility characteristics such as resident acuity, staff turnover, educational levels of staff and the like; from inconsistencies in the survey process; or a combination of both. A Legislative Post Audit, 2001, “Kansas Nursing Home Inspections,” found general consistency in the survey process.

- A review of documentation from 60 surveys found that over 95% of serious (G level or above) deficiencies were believed to have been classified correctly. However, the report noted, “There was no way for us to ascertain whether those write-ups accurately reflected the situations... at the time.”

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- When observing survey teams in the six regions, there were “a few situations” that may have been indicative of “real or potential” inconsistencies among the surveyors.
- From a sample of 26 inspections of 13 nursing facilities, each facility being inspected once by a team of surveyors from their own region and once by a team of surveyors from another region, yielded “fairly inconclusive” results. The Northeast Region cited more deficiencies than other regions, no other results showed a pattern.

The current study, described in this report, expands upon the Post-Audit report through original data collection and more detailed analyses.

As found in the Post-Audit study, there were significant differences in the average number of deficiencies per facility among the six regions of the state (see Map in Figure 1) and in the scope and severity of deficiencies. The regional differences in survey outcomes have raised the question of whether there are regional differences in the survey process, with some regions being surveyed more strictly or leniently than others. There also are regional differences in the prevalence of facility characteristics that have been shown to be associated with survey outcomes. Some have hypothesized that regional differences in

facility characteristics may be responsible for all or part of the differences in survey outcomes.

The nursing home industry, Kansas Department of Health and Environment (KDHE), and the Kansas Department on Aging (KDOA) believe that generating information regarding the relationship between facility characteristics and survey outcomes will be valuable in improving resident health in two ways. First, the nursing home industry will have information useful for improving resident care and health, and second, the survey agency will have information to assist with a more standardized and targeted survey process, also resulting in improved resident care and health. Therefore, KDOA and KDHE contracted for a study of these factors to be conducted by an independent, interdisciplinary research team.

The **purpose** of this project is to provide evaluative information that can be used by both the nursing home industry and the survey agency to improve resident care and health. The project includes approximately 346 Medicaid- and Medicare-certified nursing facilities located within the six Kansas survey regions.² State facilities that provide nursing care to residents with mental health or development disabilities were excluded from the study.

The **objectives** for **Year 1** included:

1. An in-depth evaluation of survey consistency through
 - a. Focus groups with facility administrators and directors of nursing, with surveyors, and with regional survey managers
 - b. Simultaneous surveys of 12 facilities, pairing in region and out-of region survey teams
 - c. Quantitative analysis of the relationship between facility characteristics and regional deficiencies using data from seven sources
2. An exploration of facility characteristics and their relationship to resident care and health.
 - a. Facility characteristics and resident health were evaluated using existing electronic data.

Research Questions

1. What is the magnitude and nature of regional differences in survey deficiencies?
 - a. Why are there regional differences in deficiencies?
 - b. What role do surveyor characteristics play in regional differences in deficiencies?
 - c. To what extent do regional differences in facility characteristics account for regional differences in deficiencies?
2. Are there regional differences in the survey process?

² A few nursing facilities were excluded from the quantitative analysis because they were missing identifiers on the basis of which we created the merged data file.

3. Are there regional differences in the quality of care in nursing homes? Do regional differences in facility characteristics account for regional differences in quality of care in nursing homes?

Conceptual Framework

The Quality of nursing facilities is “a complex concept, confounded by regulations and debates about what should be measured to assess quality” (Institute of Medicine, 2001). Historically, quality has been measured in one of three ways.

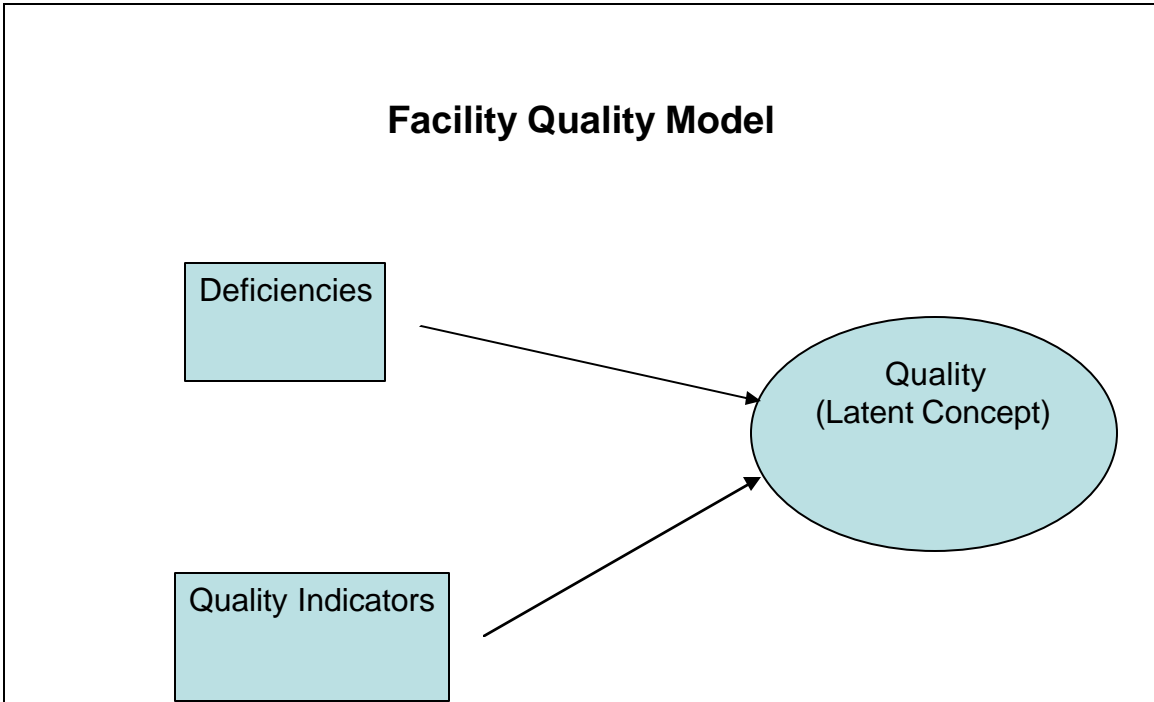
1. Survey Deficiencies. Noncompliance with minimum standards of care, as specified by state or federal regulations.
2. Quality Indicators (QIs). QIs were developed at the University of Wisconsin through a systematic process involving extensive interdisciplinary clinical input, empirical analysis, and field-testing. They indicate either the presence of potentially poor care practices or resident outcomes. Information used to compute the quality indicators comes from resident data in the Minimum Data Set. The QIs are used in the survey process. Thresholds have been established for each QI, at which the likelihood of a problem is sufficient to warrant emphasis or at least further investigation by surveyors. The use of QIs to measure quality is problematic, as they do not account for variation across facilities in resident acuity. For example, a facility may have a high rate of pressure sores because their residents are more frail and not because of poor quality of care.
3. Measures developed for specific research studies. There have been numerous attempts at measuring quality, such as quality of life, resident satisfaction, or functional decline. There has been little consistency across studies in the specification of these measures, inhibiting the adoption of any as consensus measures of nursing facility quality.

In late 2002, CMS identified a new set of quality measures (QMs), which are outcomes of care that have been demonstrated to be reliable and have been adjusted for differences in resident acuity. These quality measures were specifically developed for consumer use and are posted on the CMS Nursing Home Compare website. These measures are just coming into use in the research arena. This project will incorporate the QMs in 2004.

Not only is there inconsistency in the understanding and measurement of quality in nursing facilities, there are inconsistent findings regarding the improvement of resident care. Although there is variation in the number of deficiencies cited from state to state, there has been a clear decline across many states in the number of deficiencies cited over the last eight years. Even though this downward trend is encouraging, findings released from the University of Wisconsin, Abt, and the Government Accounting Office (GAO) suggest quality problems in nursing homes still occur at an alarming rate and are substantially underreported by surveyors.³

³ GAO. California Nursing Homes: Care Problems Exist Despite Federal and State Oversight. GAO HEHS 98 202. Abt. Associates and CHRSA (Center for Health system Research and Analysis). Analysis of the Validity of Quality of Care Determinations. In Evaluation of the Long Term Care Survey Process. Bethesda, MD: Abt Associates, 1996.

Figure 2
Facility Quality Model



Overview of Qualitative Data and Methods

In 2003, qualitative data were collected through focus groups and through a simultaneous survey process. The purpose of the focus groups was to solicit information on reasons why there might be differences in the survey process between regions, between facilities, and over time. The purpose of the simultaneous surveys was to assess how and why there might be differences from facility to facility in the survey process.

Focus Groups

We conducted 18 focus groups to elicit nursing facility administrators' and directors' of nursing (DONs), and surveyors' perspectives on the survey process. Two focus groups were planned for administrators and DONs in each of the 6 survey regions; 11 were conducted. All administrators and DONs were invited to participate. Only one focus group was held in the SE region due to a lower response to our focus group invitation. A total of 141 administrators/DONs participated in the 11 groups. Because administrators/DONs who attended the focus groups chose to do so, findings from our administrator/DON focus groups cannot be generalized to all administrators/DONs in the State of Kansas. In each of the 6 regions, we conducted separate focus groups for surveyors. Regional managers required surveyors to attend. One additional focus group was conducted in Topeka with regional managers and quality improvement staff. A total of 66 survey personnel attended these groups.

In each focus group, participants were invited to share their perceptions of the survey process. We asked broad, open-ended questions. Examples include:

- 1) What have been your experiences with the survey process?
- 2) In your opinion, what do you think influences the outcome of a survey?
- 3) Providers have expressed concern regarding differences between regions in the number and scope and severity of deficiencies. What do you think influences these differences?

Focus groups were tape recorded and transcribed. Qualitative content analysis was used to analyze the focus group data and to generate a description of participants' beliefs, perceptions, and experiences. The resulting list of participants' beliefs and perceptions were further explored through the simultaneous surveys and in the quantitative analysis of facility and regional characteristics.

Broadly speaking, surveyors held more consistent beliefs and perceptions about factors that influence the process and outcomes of a survey than did administrators/DONs. However, there was a lot of consistency between both groups. Insights gained from the focus groups will be provided as each research question is addressed below. A complete narrative analysis of the focus group data can be found in Appendix B.

Simultaneous Surveys

The purpose of the simultaneous surveys was to evaluate the consistency of the survey process between two survey teams or more specifically, to understand when, how, and why two survey teams exposed to the same information *may or may not* interpret it in the same way. The detailed simultaneous survey protocol can be found in Appendix C.

We conducted 12 simultaneous surveys, 2 per region. The protocol for a simultaneous survey was to have an out-of-region team survey a facility at the same time as a regularly scheduled team. The additional team of surveyors, the “simultaneous survey team” (SST), was randomly selected from a different region to follow the regularly scheduled survey team (RST). Each SST member was paired with a RST member. The SST member was to shadow the RST member to see, hear, and read the exact same information as their respective RST member. SST members were not allowed to direct the survey process, for example interview staff on their own, but were allowed to question the RST about the process of the survey such as timing of events, responsibilities of team members, and resident sample focus areas. However, RST and SST members were not allowed to discuss their observations or conclusions and all SST and RST team information analysis meetings were conducted separately. Our goal was to assess the agreement between the two teams exposed to the same environment at the same point in time, comparing the results of their respective group interactions and decision-making. A research staff member observed each simultaneous survey to ensure that the protocol was followed and to witness that there was no communication between the SST and RST in the decision-making phase.

The first eight simultaneous survey sites were randomly selected from a list of scheduled survey sites to include facilities that differed on the following characteristics: urban/rural location, ownership (profit/not-for-profit/faith-based), facility size, and their last survey results. We attempted to select homes over 50 beds to reduce the “burden” of having 6-8 surveyors on site at one time. We did not conduct simultaneous surveys in hospital-based long-term care facilities. The last four simultaneous surveys were purposely selected from a list of scheduled survey sites to adequately represent variation in the criteria listed above. For example, more not-for-profit facilities were needed to adequately represent that group.

There were strengths and weaknesses to the design of the simultaneous survey process. The primary strength was that surveyors were exposed to exactly the same conditions, so that differences in the survey process could be compared directly. While consideration was given to back-to-back surveys, given the dynamic nature of the nursing home environment, there were no guarantees that surveyors would be exposed to exactly the same information even a few days later. These differences would have appeared to be inconsistencies in the survey process. There were weaknesses associated with the simultaneous design. First, the SST did not have the ability to re-direct their exploration of potential problem areas; they had to follow the RST. If they had been allowed to do so, the results might have shown more between-team differences than they did. Second, the fact that two teams were in a facility at one time could have altered everyone’s behavior. The RST could have felt scrutinized and identified more deficiencies than they might have otherwise, although their reports had to contain the usual amount of documentation and were subject to routine

review by the regional manager. The SST could have felt competitive and identified more deficiencies than they would have otherwise. Moreover, as the SST did not have to fully substantiate their findings in a final report, they might have recorded more deficiencies than they would have been able to support had they been the RST. Finally, nursing home staff could have behaved differently toward the surveyors than they would have with a single team.

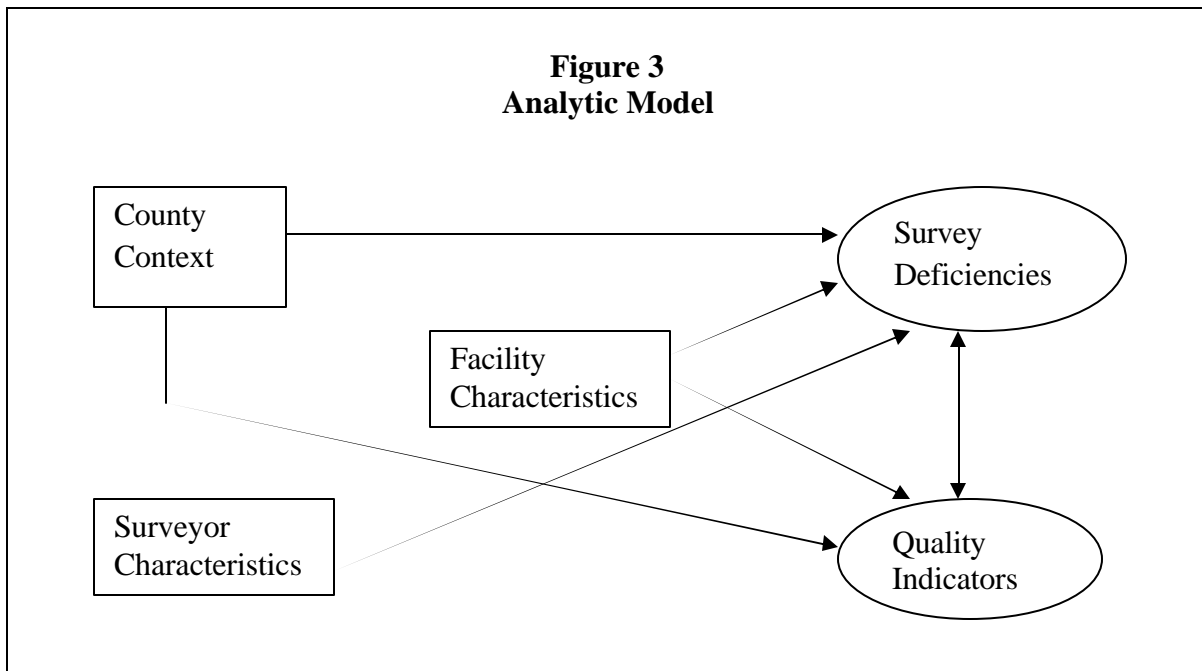
Overview of Quantitative Data and Methods

Model and Analytic Approach

The model underlying this analysis is depicted in Figure 3. According to this model, survey deficiencies are a result of differences in facility characteristics and elements of the county context, such as the local labor market, metropolitan/non-metropolitan character, and the availability of alternatives to nursing home care. They are also related to characteristics of the surveyors, such as educational degrees, training and experience.

The quality of nursing home care, as described by the quality indicators (QIs) from the Minimum Data Set, is also related to facility characteristics and county context, but not to surveyor characteristics.

Finally, there is a bi-directional relationship between survey deficiencies and the QIs. From a theoretical perspective, both deficiencies and QIs may represent features of the underlying concept of facility quality.⁴ From a practical perspective, the relationship would be expected, as surveyors use the QIs in the survey process. Further, deficiencies from a prior survey may influence the QIs, as the process of care changes or as the facility budget is impacted by penalties and increases in insurance premiums. The precise nature of this relationship can only be addressed with longitudinal data.



⁴ Because the QI's are not risk adjusted, they reflect differences in resident acuity across facilities, as well as differences in the outcomes of care.

One of the main questions of this analysis—whether there are regional differences in the survey process—was addressed directly by the qualitative information obtained during the simultaneous surveys. The quantitative analysis addressed regional differences in the survey process by accounting for the effect of facility characteristics and then seeing how much of the regional differences remain. The residual effect of region would include any regional differences in the survey process, but it would also include the effects of related factors that were not included in the regressions.

Data Sources

A significant effort was devoted to developing the analysis file. A dataset was constructed by merging information from seven sources:

1. OSCAR (2001), including a data file with specific F tags from KDOA
2. Medicaid Cost Reports (2001)
3. Minimum Data Set (2001), for QIs and the case mix index
4. Surveyor Characteristic Database (2001)
5. 2000 Census data, with reference to 1999 for the poverty rate
6. Labor Department data (2001)
7. Elder Count data (2001)

The OSCAR, the state F tag file, Cost Reports, and the Minimum Data Set (MDS) were matched on the basis of the federal Medicare/Medicaid facility identifier. Discrepancies in identifiers were resolved according to the following three rules.

- Near-matches (identifiers that differed by a value of 1 in the final digit) were deemed to be a match if the facility names were identical. A 1-digit difference occurred in some datasets when a facility had been sold.
- Records missing an identifier were matched on the basis of facility name and address.
- Facilities that could not be matched using these two approaches were excluded from the analysis.

Overall, 353 different facilities were included in the three datasets, and matches were made for 346 facilities.

Because facility characteristics in hospital-based long term care units were not similar to those in free-standing nursing homes, the analysis was conducted on two subset of facilities: first, on the 287 free-standing nursing homes and, second, on 55 long term care units. It was not possible to determine the status of 4 additional facilities and these were eliminated from the analysis.

The merged file contained one record for each facility. Contextual data for the county in which the facility was located were added to each record from the decennial census, the Labor Department, and Elder Count. Aggregate data on surveyor characteristics was added to each facility record based on the region in which the facility was located.

Variables

Variables included in the analysis were identified from three sources: the KDOA/KDHE request for proposals,⁵ a review of the literature, and ideas generated from the focus groups. In addition to the data elements on the source files, additional variables were constructed for the analysis. For example, the number of F tags with scope/severity of G or higher was summed into a new variable. The record for each facility contained 404 variables: 190 F tags and 219 other variables, including four quarters of the 24 QIs.

Variables used in the analysis were grouped in to three categories:

- Outcomes: Deficiencies and QIs
- Facility characteristics, including nurse staffing
- Contextual (community) characteristics

Appendix D lists the specific data items used in this analysis and their sources.

As reflected in the literature on the quality of care in nursing facilities, there are many alternative ways to categorize deficiencies. Each operationalization may capture a different aspect of the quality of care in a facility. This analysis used seven measures of deficiencies:

- Total deficiencies
- Number of deficiencies with a scope/severity of D or higher (D+)
- Number of deficiencies with a scope/severity of G or higher (G+)
- Presence (yes/no) of Substandard Care deficiencies
- Presence (yes/no) of deficiencies with Quality of Care F tags
- Presence (yes/no) of deficiencies with Quality of Life F tags
- Indiana scale, which is a sum of the number of deficiencies in 45 F tags weighted by a factor for scope and severity (Appendix E)⁶

To the extent that the results for each deficiency measure were the same, the results may be considered more robust.

Twenty-four QIs have been identified by the CMS to monitor nursing home quality. Surveyors use QIs to guide their surveys of nursing facilities. Many facilities use the QIs to enhance their internal quality improvement program. All of the QIs represent aspects of resident functioning. An Abt review of the QIs (2002), states that no single indicator can capture overall facility quality. They recommended 11 of the indicators as being valid.

⁵ Mid-way through the project, July 2003, the Certification and Licensure function of the Kansas Department of Health and Environment was transferred to the Kansas Department on Aging.

⁶ The Indiana methodology is based on a weighted average of three years of data. For this study, only one year was used.

This study used four of those indicators:

- Late-loss activities of daily living (ADLs)
- Pressure ulcer rate
- Fall rate
- Bladder/Bowel Incontinence

The analysis also included the QI for weight loss. Although not recommended by Abt, this measure has been used extensively in studies of resident outcomes in nursing facilities.

The five QIs were highly inter-correlated. Thus, this study also used the average of the five QI scores, which captured 40% of the variance of the five.

Subsequent to Abt's identification of the valid QIs, CMS designated 10 quality measures for public reporting on the Nursing Compare website. The recommended measures were also subject to validation tests and will be used as part of the continuation of this project.

Measures of county characteristics included:

- County employment rate. Facilities in counties with low employment rates may find it easier to recruit staff and may experience lower turnover.
- County nursing home occupancy rate. Counties with low occupancy rates may have higher alternative care settings, such as home care or assisted living.
- Metropolitan/Non-metropolitan status and population density. Together, these two measures embody the concept of urban/rural. Facilities located in rural counties may have lower turnover than in urban counties where there are more job opportunities. Moreover, the focus groups thought facilities in rural areas were more "homey and caring."
- Percent of county population aged 25+ in 2000 with a high school education. Facilities might find it easier to recruit and retain employees in counties with more high school graduates.
- County poverty rate. As poverty is related to lower availability of health care and lower health status in the population, facilities located in counties with higher poverty might have more acute caseloads.

Measures of surveyor characteristics included four measures that would relate to their ability to do a better job of detecting and writing deficiencies.

- Education
- Years experience on the job
- Experience in long term care settings prior to hire
- Completed their surveyor training in a centralized or decentralized location

Measures of facility characteristics included:

- Case mix index, an indicator of resident acuity, from the MDS.
- Total nursing care hours per resident day. Facilities with higher nurse staffing levels should be able to provide better quality of care and have fewer deficiencies.
- Skill mix (% of hours supplied by RNs, or other licensure categories). A higher skill mix has been shown to be related to lower deficiency rates.
- Turnover rates by job title (Administrator, RNs, LPNs, and Aides). Higher turnover has been related to higher deficiencies.
- Number of licensed beds. The focus groups thought that larger facilities were likely to have more deficiencies than smaller facilities.
- % of Resident days paid for by Medicaid. As Medicare reimburses at a higher rate than Medicaid, facilities with a higher percent Medicaid days would be expected to have fewer resources, resulting in more deficiencies and lower quality of care.
- Direct care costs per resident day, or proportion of the facilities costs that are targeted to health care for residents and room and board. Higher direct care costs would be hypothesized to result in better quality of care and fewer deficiencies.
- Ownership, or whether or not a facility was for profit. Part of a for-profit facility's revenue is devoted to profit. It has been hypothesized that for-profit facilities will have higher deficiencies and lower quality of care.
- Faith affiliation. Facilities that are affiliated with a faith community would benefit from volunteers and, potentially, additional cash resources.
- Membership in a multiple-facility chain. May be for profit or not for profit.
- Change in ownership. Number of times during the past year.
- % Occupancy in the facility. Facilities with higher occupancy rates might have the resources to provide higher quality of care.
- Average QI. Facilities with higher levels of QIs might be expected to have more deficiencies.

Validation of Measurement Model

Survey deficiencies and the quality indicators are both measures of nursing home quality. On a theoretical level, both types of measures reflect aspects of the quality of care in the facility. On a practical level, the QIs are used by surveyors to focus their survey activities. But the two types of measures may also be expected to differ. Deficiencies cover a wide range of facility structure and process items, while the QIs are focused solely on residents' health status and facilities' health care practices.⁷

The relationship between the deficiency measures and the QIs demonstrates that they are measuring different aspects of facility quality. There were large and significant

⁷ Unlike the CMS Quality Measures, the QI's have not been subjected to extensive risk adjustment and should be expected to vary with the acuity of each facility's resident population.

correlations between the various measures of deficiencies (Table 2). Indeed, the total number of deficiencies and number of D+ deficiencies were correlated at almost 1.00 and the measures could substitute for one another. The relatively rare Substandard Quality of Care (SQC) deficiencies had the lowest correlations with the other deficiency measures.

The QIs also were inter-correlated, with the average QI having high correlations with the individual QIs. Thus the average measure is a concise way to examine the relationship of QIs with facility characteristics and deficiencies.

All of the correlations between deficiency measures and QIs were modest. That is, they were more closely related to their own domains of measurement than they were to each other. Nonetheless, some of the correlations between deficiency measures and QI measures were significant.

Thus, in looking at the relationship between facility characteristics and nursing home quality, using multiple measures of quality could provide a broader opportunity for understanding the relationship and would contribute to the validation of the results if the same findings occur across measures.

Table 2
Pearson Correlation Coefficients*
Alternative Measures of Deficiencies and Quality Indicators
Kansas Nursing Homes
2001

	QI Ulcers	QI Incont.	QI Avg.	Total Def.	D+ Def.	G+ Def.	QOL Def.	Ind. Score	SQC Def.
QI Ulcers	1.00								
QI Incont.	.33	1.00							
QI Avg.	.61	.71	1.00						
Total Def.	.19	.07	.14	1.00					
D+ Def.	.21	.12	.18	.99	1.00				
G+ Def.	.12	.08	.13	.53	.53	1.00			
QOL Def.	.09	.02	.04	.55	.55	.30	1.00		
Indiana Score	.24	.11	.18	.75	.75	.70	.54	1.00	
SQC Def.	.17	.01	.08	.28	.28	.32	.23	.52	1.00

*Deficiency and QI measures have been transformed to square root scale to make the results linear.
 Bold numbers are significant at or below the .05 level.

Findings

Research Question 1:

What is the magnitude and nature of regional differences in survey deficiencies?

In 2001, there were significant regional differences in the number of survey deficiencies and in their scope and severity. On average, facilities in the Northeast region had the highest average number of deficiencies per facility and more deficiencies with higher scope and severity (Table 3). Nursing homes in the West region had the lowest number of deficiencies—less than one-third the number in the Northeast. This pattern of differences was found across multiple measures of deficiencies, validating the finding.

Hospital based long-term care units in the Northeast also had more deficiencies and a higher scope and severity than units in other regions. Units in the Lawrence region typically had the fewest deficiencies and not as many deficiencies of high scope and severity.

- **Total Deficiencies.** The Northeast region had a significantly higher average number of deficiencies than the other regions for both nursing homes and hospital based long-term care units. The West, Lawrence, and North Central regions had significantly lower total deficiencies than the Southeast and South Central regions for nursing homes.
- **D+ deficiencies.** The Northeast region had a significantly higher number of D+ deficiencies for nursing homes, while the West, Lawrence, and North Central regions had significantly lower number of D+ deficiencies relative to the other two regions. The Northeast region also had more D+ deficiencies than other regions in hospital based long-term care units.
- **G+ deficiencies.** The total number of G+ deficiencies for nursing homes was significantly higher in the South Central and Northeast regions, relative to the other four regions. There were few G+ deficiencies in hospital based long-term care units.
- **Quality of Care Deficiencies.** The number of Quality of Care (QOC) deficiencies was significantly higher in nursing homes in the Northeast region. The West and Lawrence regions had significantly lower number of QOC deficiencies than the other three regions. The Northeast region also had higher average Quality of Care deficiencies in hospital based long-term care units.
- There were no significant regional differences in **Substandard Care deficiencies**, which also were rare.
- **Indiana deficiency Scores.** The Indiana scores weight the number of deficiencies by the scope and severity of each of 45 F tags. The South Central and Northeast regions had significantly higher Indiana scores than nursing homes in the other regions. The West region had the lowest Indiana score. The

Northeast also had higher Indiana scores for long term care units than other regions. The Lawrence region had the lowest Indiana scores for long term care units.

**Table 3
Regional Differences in Mean Number of Deficiencies
Kansas Nursing Facilities, 2001**

Region	Total	D+	G+	Quality of Life	Quality of Care	Substandard Care	Indiana Score
Nursing Homes							
LW	5.58	4.89	0.53	1.84	1.27	0.02	25
NC	5.35	5.04	0.37	2.49	2.16	0.07	30
NE	11.64	11.27	1.15	3.33	6.09	0.12	58
SC	9.25	9.04	1.25	4.06	3.73	0.10	59
SE	8.66	8.52	0.45	3.55	3.48	0.07	42
W	3.69	3.56	0.27	1.67	1.64	0.07	18
State Total	7.19	6.89	0.64	2.84	2.93	0.07	38
Hospital Based Long-term Care Units							
LW	2.60	2.60	0.00	1.80	0.20	0.00	7
NC	4.20	4.10	0.20	1.60	1.30	0.30	31
NE	14.50	14.50	0.50	4.50	8.00	0.00	53
SC	4.30	3.50	0.30	1.80	1.30	0.00	24
SE	4.38	4.00	0.63	1.88	1.63	0.00	22
W	3.45	3.35	0.30	1.65	1.30	0.10	17
State Total	4.20	3.95	0.31	1.82	1.49	0.09	31

Research Question 1a:

Why are there regional differences in deficiencies? To what extent do regional differences in facility characteristics account for the differences in deficiencies?

In the focus groups, surveyors acknowledged there were regional differences in the number and type of deficiencies, but attributed these to differences in facility characteristics. For example, nursing homes in the West region were described as being more home-like with community involvement and lower staff turnover. Administrators/DONs attending the focus groups also cited regional differences in deficiencies, but attributed these to both facility and surveyor team characteristics. However, administrators/DONs believed that regional differences could also be attributed to regional managers' influence on the survey process and to characteristics (personality, years of experience) of the survey teams. Refer to Appendix C for a complete discussion of the focus groups.

The facility characteristics identified by surveyors and administrators/DONs as influencing the survey process and outcomes included:

- Facility appearance
- Facility size
- Rural versus urban location
- Profit versus not-for-profit
- Resident care and appearance
- Resident acuity

The majority of surveyors, but not administrators/DONs, thought the following facility characteristics influenced surveys:

- Facility staff turnover
- Facility staff training
- Facility staff attitudes towards the survey process and surveyors
- Facility knowledge of regulations
- Facility use of or resistance to the regulatory process.

Some of these characteristics were measurable in our quantitative data analysis, i.e., rural/urban, staff turnover, profit/not-for-profit. However, several characteristics deemed important by focus group participants could not be evaluated with existing electronic data and must be evaluated through other means. For example, surveyors and some administrators/DONs believed that the implementation of well-developed care systems differentiated facilities in survey outcomes. For example, they believed that facilities using the Resident Assessment Instrument (RAI) process to guide care planning and the use of resources, and those that had developed effective quality improvement systems would do better in the survey process. The development of more sophisticated care systems is likely a reflection of greater skills on the part of the management team (e.g., administrator, DON, department heads, MDS nurse). Characteristics such as these may very well account for differences between facilities and regions, however we have no quantitative data on the education, training, and experience of facility leaders.

Differences in facility characteristics, including staff knowledge and attitudes, were also observed during the simultaneous surveys. These differences dramatically influenced the “tone” of a survey and some of these differences were also reflected in care processes and outcomes (Example 1).

Example 1
Facility and Staff Characteristics That Influenced the Survey Process
Comments from Simultaneous Surveys

- Administrators/DONs were prepared for the survey and presented the surveyors with a binder (updated weekly in preparation for surveyors) that included most of the information requested during the entrance conference.
- Upon entering the facility, there was a strong odor of urine and a noticeable lack of staff. Staff would increase in numbers within a couple of hours of the survey teams' arrival. Residents would make comments such as, "I have never seen so much staff here."
- During the initial tour, staff were unable to answer many questions about the residents.
- Facility had nonexistent, incomplete, or haphazard systems in place for following important resident concerns, such as weight loss or falls.
- Staff avoided surveyors, did not interact with surveyors, were reluctant to answer questions, and did not provide requested information in a timely manner.

The quantitative analysis of nursing home characteristics showed significant differences across regions facility financial and organizational attributes, including features of nurse staffing. Further, there were differences in the characteristics of counties in which nursing facilities were located—differences that could influence the labor pool for staffing and the health status of residents.

- Number of licensed **nursing home beds**. Facilities in the Lawrence region were significantly larger than facilities in the South Central and Northeast regions. In turn, facilities in those three regions were larger than facilities in the West (Table 4).
- Hospital based long-term care units were smaller than nursing homes. Long term care units in the South Central and Lawrence regions were larger than in the other regions.
- Percent **occupancy**. In 2001, nursing home occupancy rates ranged between 80-90% across the six regions.⁸ Occupancy rates in the Lawrence region were significantly higher than in the North Central, South Central and Northeast regions. There was more variation in occupancy rates in long-term care units, which ranged from 60-90%. Long-term care occupancy was highest in the North Central and West regions.
- **Medicaid** paid for more resident days than Medicare.⁹ In each region, on average, government payments for nursing home residents were attributed

⁸ Occupancy rates were calculated from the Medicaid Cost Reports as Total Residents divided by Total Beds.

⁹ Private payers accounted for a minority of resident days in most free-standing nursing homes and were excluded from this calculation. The data reported herein came from the Medicaid Cost Reports. It should be

approximately 90% to Medicaid and 10% to Medicare. There was more variation among regions in Medicaid days among hospital based long-term care units, ranging from 65% in the Southeast to 100% in the Northeast.

- **Direct costs per resident day.** Facilities in the Lawrence region had the highest average amount spent on resident health care costs and room and board. Facilities in the Southeast region had the lowest average amount.

Table 4
Regional Differences in Mean Financial Characteristics
Kansas Nursing Facilities, 2001

Region	Licensed Beds	% Occupied	% Days Paid by Medicaid*
Nursing Homes			
LW	93	89	92
NC	66	80	93
NE	73	80	92
SC	79	80	94
SE	68	85	92
W	55	84	96
State Total	72	83	93
Hospital Based Long-term Care Units			
LW	66	71	81
NC	35	90	91
NE	45	71	100
SC	86	60	97
SE	40	73	65
W	40	85	92
State Total	42	78	88

*Percent calculated on resident days paid for by government, e.g. Medicare plus Medicaid. Private Pay days excluded from calculation.

- As shown in Table 5, the percentage of nursing homes that were **for profit** was highest in the Lawrence (80%) and Southeast (77%) regions and lowest in the West (22%). Only the Lawrence and South Central regions had hospital based long-term care units that were for profit.
- Many facilities were part of a **multi-facility chain**. The regional distribution of these facilities mirrored the distribution of the for profit facilities.

noted that data from OSCAR differ substantially from the Cost Reports and show that 56% of resident days were paid for by Medicaid.

- Few nursing facilities were operated by a **faith based** organization.¹⁰ The percentage of nursing homes that were faith based was highest in the North Central (12%) and South Central (10%) regions and lowest in the Southeast (2%). Only the South Central and Southeast regions had faith based long term care units.
- Overall, a third of nursing homes experienced at least one **change in ownership** during 2001. There was little regional variation in this characteristic. Change in ownership of hospital based long-term care units was most common in the Northeast (67%) and South Central (60%) regions.

**Table 5
Regional Differences in Mean Organizational Characteristics
Kansas Nursing Facilities, 2001**

Region	% For Profit*	% Faith Based	% Part of Multi-Facility Chain	% Change in Ownership in Last Year
	Nursing Homes			
LW	80	4	71	36
NC	49	12	51	33
NE	70	9	58	27
SC	49	10	45	31
SE	77	2	70	36
W	22	7	53	36
State Total	57	7	58	33
	Hospital Based Long-term Care Units			
LW	40	0	62	37
NC	0	0	67	20
NE	0	0	0	67
SC	20	20	40	60
SE	0	12	25	25
W	5	0	25	10
State Total	9	5	38	29

*Facilities that were not “For Profit” included government run facilities, faith-based not for profit facilities, and non-faith-based not for profit facilities.

¹⁰ A facility was determined to be “faith-based” if the OSCAR file listed the facility as “Nonprofit—Church Related.”

- **Nursing hours per resident day** (Table 6) had a fairly uniform regional distribution for nursing homes. It was in higher hospital based long-term care units (4.20 hours per resident day) than it was in nursing homes (3.14 hours per resident day). There was more regional variation among the hospital based long-term care units, with the Lawrence region having the highest nursing hours per resident day and the North Central region the lowest. Nursing hours included hours provided by RNs, LPNs, and aides.
- **Skill Mix** (% Hours supplied by RNs). Skill mix was higher in the nursing homes in the West than in the other regions. In hospital based long-term care units, skill mix was highest in the Lawrence and Southeast regions and lowest in the North Central and Northeast regions.
- **Turnover** rates are higher in nursing facilities than they are in many organizational settings. Turnover is costly and has been shown to have a detrimental effect on deficiencies and resident outcomes. Nursing home turnover rates for administrators were highest for the Northeast region and lowest in the West.
- Turnover rate for LPNs. LPN Turnover was highest in the Northeast region and lowest in the North Central region.
- In nursing homes, turnover rates among aides were exceptionally high—with more than a complete change in aide employees every year, on average, in all regions but the North Central and the West. Aide turnover rates were lower for hospital based long-term care units, but still very high in the Lawrence region, where many other job opportunities exist.

Table 6
Regional Differences in Mean Nurse Staffing
Kansas Nursing Facilities, 2001

Region	Nursing Hours per Resident Day	% Hours Supplied by RNs	% Turnover			
			Administrator	RN	LPN	Aide
Nursing Homes						
LW	3.00	15	46	66	68	101
NC	3.16	16	39	54	50	79
NE	3.20	15	63	72	91	125
SC	3.34	14	46	75	88	131
SE	3.10	15	39	71	81	137
W	3.06	19	32	52	67	81
State Total	3.14	16	43	65	73	109
Hospital Based Long-term Care Units						
LW	5.74	25	50	42	46	106
NC	3.50	13	22	53	13	65
NE	4.25	12	0	35	12	42
SC	4.94	18	0	33	0	13
SE	5.24	20	0	43	53	54
W	4.03	17	6	22	32	58
State Total	4.20	17	12	34	29	60

- While the differences in the 2001 **county employment rates** were statistically significant, they weren't substantively meaningful—having only a 3-point range.
- County **population density** (number of persons per square mile). Population density in the Lawrence region was significantly higher than in the South Central and Northeast regions. Population density in those regions was significantly higher than in the remaining three regions.
- Percent of county population aged 25 + in 2000 who were **high school graduates**. The percent of adults who were high school graduates was highest in the Lawrence region and lowest in the West.
- Percent of persons in county below **poverty** level in 1999. While poverty rates were highest in the Southeast region and lowest in the Lawrence region, there was only a 3 percentage-point range in the rates.

Table 7
Regional Differences in Mean County Characteristics
Kansas, 2001

Region	% Employed	% Nursing Home Beds Occupied	Population Density	% High School Graduates	% Poor
LW	95	87	556	88	9
NC	97	85	30	86	10
NE	95	85	141	86	10
SC	96	85	208	85	10
SE	94	87	34	83	12
W	97	87	14	81	11
State Total	96	86	156	85	10

Research Question 1b.

What role do surveyor characteristics play in regional differences in deficiencies?

In the focus groups, administrators/DONs had differing opinions on what characteristics good surveyors possess. Most agreed that education and experience of a surveyor were important. In fact, most participants perceived that newer surveyors were more disruptive to a facility and more likely to take information out of context. They believed that more experienced surveyors had a “better way of getting around the facility and making things as friendly as possible,” “better ability to assess things,” and a “good handle on the regulations.” However, some administrator/DON participants held opposing views, believing that newer surveyors were less likely to bring “biases” into a facility. Also, there were differences of opinion on the effect of previous clinical experience. Some believed that surveyors who had never worked in long-term care “didn’t have a clue,” while others believed that surveyors with long-term care experience would view a facility more narrowly, basing it on their personal, past experiences.

In contrast, surveyors were consistent in their views—believing length of surveyor experience was a positive attribute. They also thought that surveyors who had finished the final portion of their training at a centralized location were better prepared than those who had been trained in the regions—a process they believed differed substantially in format and content from one region to another.

As shown in Table 8, there were large differences among the regions in surveyor and regional manager education, training, and experience.

- Regional managers in the Northeast, West, and Southeast had the highest combination of education and experience.
- More surveyors in the Lawrence and Northeast regions had a Bachelors degree. The surveyors in the South Central and Southeast regions had the fewest Bachelors degrees.

- On average, surveyors in the South Central and Southeast had the most years of experience in their jobs.
- The Southeast also had the higher percentage of surveyors who had received the final component of their training in a central location.

**Table 8
Regional Differences in Surveyor Characteristics
Kansas, 2001**

Region	Regional Manager			Surveyors			
	Education	Years Experience	Years LTC	% Bachelors	Median Years Experience	Median Years LTC	% Central Training
LW	Diploma	8.6	n.a.	62	2.5	5.0	56
NC	Diploma	8.3	7.0	45	3.5	5.0	73
NE	Masters	15.0	n.a.	62	2.3	3.0	77
SC	Bachelors	3.6	5.0	33	5.8	5.5	73
SE	Bachelors	21.6	0.2	33	5.4	12.5	92
W	Bachelors	12.2	1.0	40	2.0	4.7	70
State Total	n.a.	11.5	3.3	45	3.8	5.5	74

Note: n.a. indicates that the information was not available in the records.

There were significant correlations between regional manager and surveyor experience and training and the number and level of deficiencies (Table 9).

- The more years of experience surveyors had, the higher the average number of deficiencies in a region and the higher their scope and severity.
- Regions in which a higher percentage of surveyors had received the final component of their initial training in a centralized setting also had higher total deficiencies and more D+ deficiencies.¹¹ As this component of training was decentralized two or more years ago, many of the surveyors who had centralized training also had more years of experience. The effect of centralized training may be due in large part or entirely to this difference in experience.

¹¹ All surveyors attend a week of CMS basic training, complete standardized test, have an orientation in Topeka, and attend three in-service trainings per year. Before 2001, surveyors had an additional training component in Topeka after their CMS training and tests. That is the portion of the surveyor training experience that has been regionalized.

Table 9
Pearson Correlation Coefficients Between
Regional Surveyor Characteristics and Deficiencies
Kansas Nursing Facilities, 2001

	Total Deficiencies	D+ Deficiencies	G+ Deficiencies	Substandard Quality of Care Deficiencies
Regional Manager Education	.36	.38	.20	.01
Regional Manager Median Years Survey Experience	.10	.11	-.09	-.01
Regional Manager Long-term Care Experience	-.00	-.02	.08	.06
% Surveyors with Bachelors' Degree	.01	-.01	.01	-.05
% Surveyors with Centralized Training	.21	.24	.02	.06
Surveyor Median Years Experience	.19	.20	.12	.05
Surveyor Median Years Long-term Care Experience	.07	.08	-.06	.01

Note: Bold correlations were significant at or below the .05 level.

Research Question 1c:**To what extent do regional differences in facility characteristics account for the differences in deficiencies?**

Linear regressions were used to predict the number of deficiencies for nursing homes and hospital based long-term care facilities.¹² Tables showing the detailed results of these regressions can be found in Appendix F. Independent variables (predictors) were entered into the equations in three stages. Altogether, 30 variables were entered into the equations for nursing homes, 6 of them for the regions. The other variables controlled for facility characteristics and county context.

1. **6 Regions** were entered in the first stage. The regional effects were measured relative to the West, which usually had the lowest number of deficiencies.
2. **6 County characteristics** were entered next, estimating the effect that the employment and population context had on deficiencies: employment rate, metropolitan status, population density, percent of the county population who are high school graduates, the poverty rate, and the county nursing facility occupancy rate.
3. **18 Facility Characteristics**, which explain part of the regional differences in deficiencies and QIs, were entered last: case mix index; total nursing care hours per resident day; percent of care hours supplied by registered nurses (RNs); turnover rates for administrators, RNs, LPNs, and aides; total licensed bed size; for-profit ownership; percent of resident days paid by Medicare; direct costs per resident day; faith affiliation; part of a multi-facility chain; change in ownership during the past year; occupancy rate, and the QI average.

Three models of nursing home quality were estimated: total number of deficiencies, quality of care deficiencies, and Indiana score deficiencies.¹³

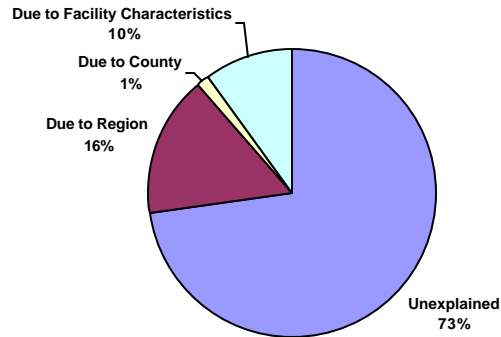
Overall, the independent variables explained 27% of the variance in **total deficiencies** (Table 10 and Figure 4). Regions accounted for over half of the explained variance. Nursing home characteristics explained, on average, one third of the regional effects. The remaining regional effects represent factors not accounted for by the other 24 independent variables, including any differences in the survey process. Facility characteristics explained more of the regional effects in some regions than others. Facility characteristics accounted for 64% of the regional effect for the Lawrence region, but only 16% of the regional effect in the Northeast. In addition to region, two other factors that were significantly related to total deficiencies:

- Larger nursing homes had more deficiencies
- For profit nursing homes had more deficiencies

¹² Due to the skewed nature of the dependent variables, a square root transformation was used to linearize the analysis.

¹³ The information for the substandard quality of care regressions are omitted as none of the independent variables was significant.

Figure 4
Source of Variation in Total Deficiencies
Kansas Nursing Homes, 2001



The regressions explained 32% of the variance in **Quality of Care deficiencies**. Regions accounted for nearly three-quarters of the explained variance. Facility characteristics accounted for 20-46% of the regional effects in the South Central, Southeast, and North Central regions, but only 14% of the effect of the Northeast region. Facility size and for profit status were also significant predictors of Quality of Care deficiencies

The regressions did a poorer job of explaining variation in **Indiana score deficiencies**, accounting for only 20% of the variance. Regions had a significant effect on Indiana scores, as well as for-profit status. On average, facility characteristics accounted for about one-third of the regional effects, ranging for 65% of the effect of being in the North Central region, but only 8% of the effect of being in the Northeast region.

The parameter estimates for regions were highly significant in each equation. Thus, **facility characteristics and county context accounted for approximately one-third of the regional differences in deficiencies.**

Table 10
Explained Variance (Adjusted R²) in Regression Models of Nursing Facility Quality
Kansas, 2001

Stage	Total Deficiencies	Quality of Care Deficiencies	Indiana Score Deficiencies
Nursing Homes			
Regions	.1571	.2348	.1268
Plus County Characteristics	.1664	.2471	.1305
Plus Facility Characteristics	.2668	.3233	.1965
Long Term Care Units			
Regions Plus Facility Size % Ownership	.2758	.3844	-.0377

Research Question 2:
Are there regional differences in the survey process?

There are many ways to characterize the rate of agreement between the RST and the SST. Each method has a limitation. If one includes in the analysis all possible F tags that could be cited by either team, the percent agreement between the two survey teams was **95%**. Although this might seem reassuring, it represented an over inflation of agreement because there is “agreement” for the many F tags that were not used by either team. A more reasonable approach would be to use only the F tags that were cited by at least one team. In this instance the rate of agreement dropped to **53%**. However, there are two, contradictory, limitations on this calculation. First, this could represent an underestimate of the level of agreement, as even when citing different F tags, surveyors potentially could have been describing problems in the same areas of care. On the other hand, this approach could have resulted in an overestimate of agreement, as the calculation did not include whether the teams agreed on scope and severity when citing the same F tag. In reality, the teams frequently disagreed on scope and severity. If the very strict view were taken, that “agreement” would occur only when the two teams of surveyors agreed on both the specific F tag and the level of scope and severity, the percent agreement between the two teams declined to **27%**.¹⁴

¹⁴ CMS Performance Standards specify that up to a 20% disagreement on scope and severity is to be expected between two survey teams looking at the same information. The 2003 Federal Monitoring Survey (FMS) conducted by CMS found only an 8% discrepancy in Kansas, or a 92% agreement, in scope and severity and tags cited by CMS and Kansas Surveyors. The Federal Oversight Support Survey (FOSS) scores for 2003 showed that overall Kansas surveys were conducted in accordance with CMS instructions. On a scale of 1-5, with 5 being Extremely Effective, CMS found that Kansas surveyors scored at or above 4.23 on the survey

As different F tags could have been used to note problems in the same area of care, we further categorized the results to reflect “Distinctly Different F tags.” Two RN researchers independently evaluated all of the written documentation compiled during the survey and categorized the deficiencies in the following manner.

- An F tag cited by one team and not the other was reviewed for content.
- Records of both teams were reviewed independently by both RNs to determine if they cited the same issue or system problem, but under a different F tag or in combination with another tag.
- The two RNs met to resolve any differences they had in categorizing differences as distinctly different system issues. One of the RNs has had formal training in the survey process.
- If the differences remained, the F tag was categorized as “distinctly different.”

Table 11 presents the number of F tags cited by each team; the number of tags that were a “G” level or higher; how many times the two teams cited the same F tag, but with a different scope and severity; and how many times the two teams cited distinctly different F tags. The total number of deficiencies was identical in 2 facilities and similar (differing by only 1 or 2 deficiencies) in 4 of the 12 facilities. In the remaining 6 facilities, the RST and SST teams differed by as many as 10 deficiencies. Many of these differences were for deficiencies having low levels of scope and severity. The two teams were in very close agreement on the number of G+ deficiencies. However, even when the number of deficiencies was close, the two teams frequently cited distinctly different F tags.

process. The disparity in the results from this study and the FMS and FOSS studies are related to differences in study methodology. This study went beyond the determination that the correct process was followed, as in the FOSS, to look at regional differences in the number of F-tags and their scope and severity. Further, this study employed a very strict definition of “agreement,” counting as differences inclusions and omissions of either team, while the FMS takes a uni-directional approach, considering only difference from the Federal team.

Table 11
Differences in Deficiencies as Cited by the
Regular Survey Team and The Simultaneous Survey Team
Kansas Nursing Homes, 2003

Facility	Team	Total Deficiencies Cited	Total Deficiencies G or Higher	Same F tag, Different Scope & Severity	Distinctly Different F tags	% Distinctly Different Tags																																																																																																										
1	RST	22	2	5	14	31%																																																																																																										
	SST	23	2				2	RST	3	0	1	0	0%	SST	3	0	3	RST	30	3	6	14	23%	SST	31	5	4	RST	9	0	4	11	39%	SST	19	1	5	RST	16	0	9	11	27%	SST	24	1	6	RST	17	2	7	6	18%	SST	17	1	7	RST	19	0	4	5	15%	SST	15	1	8	RST	18	1	6	15	39%	SST	23	2	9	RST	8	1	1	7	41%	SST	9	1	10	RST	13	0	6	7	15%	SST	16	0	11	RST	0	0	0	1	100%	SST	1	0	12	RST	6	0	0	5
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	SST	31	5				4	RST	9	0	4	11	39%	SST	19	1	5	RST	16	0	9	11	27%	SST	24	1	6	RST	17	2	7	6	18%	SST	17	1	7	RST	19	0	4	5	15%	SST	15	1	8	RST	18	1	6	15	39%	SST	23	2	9	RST	8	1	1	7	41%	SST	9	1	10	RST	13	0	6	7	15%	SST	16	0	11	RST	0	0	0	1	100%	SST	1	0	12	RST	6	0	0	5	56%	SST	3	0																
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Because there are alternative views of how facility problems are categorized into specific F tags, we evaluated information from the simultaneous surveys by an additional method. Previous research has documented that the same system problem can be cited under different F tags. At this point in time, this is not considered a right or wrong choice, but it complicates an evaluation of “agreement.” In our analysis, we were left wondering, do the areas where there appears to be inconsistency translate into a substantive difference between these two teams? We used a modified scoring methodology adopted by the State of Indiana to investigate this problem.

The Indiana scoring system, (see Appendix E), combines the number of deficiencies (deficiencies in only 45 F tags determined, to be more reflective of quality care by a panel of experts) with a weight for the level of scope and severity. By adding the weighted scores for a facility, a single measure is produced that summarizes the lack of conformity with federal requirements. We calculated the Indiana score for a facility according to each of the RST and SST reviews. The correlation between the Indiana scores from the two teams of surveyors was greater than .90 and, thus, quite good (Table 12). Figure 5 shows that for 9 of the 12 facilities, the Indiana scores were similar. By weighting the number of deficiencies with their scope and severity, the agreement between survey teams on the level of deficiencies in a nursing facility was very good.

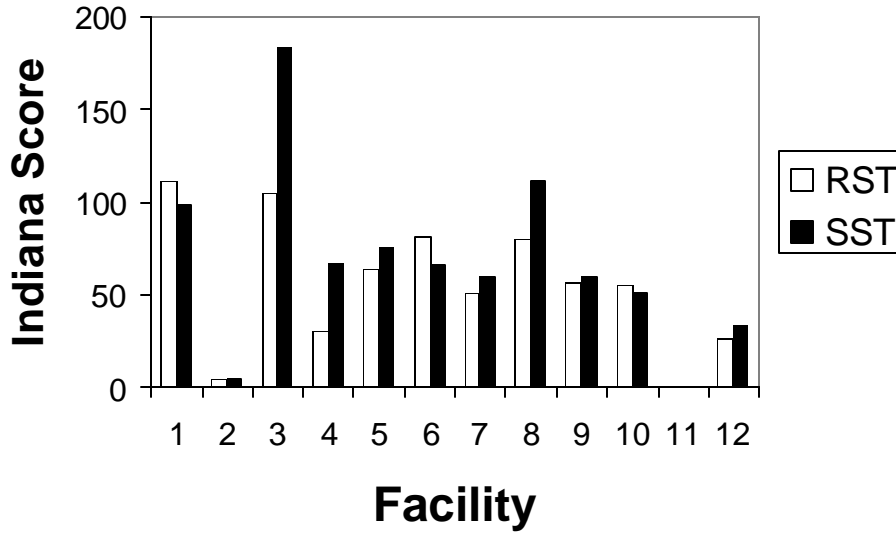
The juxtaposition of the comparing the Indiana score results with the finding that the RST and SST teams frequently differed on the number of number of F tags, distinctly different tags, and scope and severity for each tag is informative. While the two teams differed on the details, they were rating the overall compliance of the nursing facilities similarly.

Table 12
Agreement between Regular Survey Team and Simultaneous Survey Team
Deficiencies Scored by Indiana Method
Intraclass Correlation Coefficients (ICC)*
Kansas Nursing Homes, 2003

	ICC	Upper Confidence Limit	Lower Confidence Limit	Significance Level
Single Measure	.915	.974	.743	.000
Average Measure	.956	.987	.853	.000

*One-way random effect model

Figure 4
Indiana Scores for Facilities Participating in the Simultaneous Survey Process



Facility	RST Indiana Score	SST Indiana Score
1	111	99
2	4	5
3	105	184
4	30	67
5	64	76
6	82	66
7	51	60
8	80	112
9	57	60
10	55	52
11	0	0
12	27	34

*RST = Regular Survey Team
 SST = Simultaneous Survey Team

As part of the simultaneous survey analysis, we also read through surveyor notes to identify patterns and specific areas of inconsistency.¹⁵ In summary, we found:

- In 9 of the 12 facilities, there was agreement on the general level of deficiencies. That is, the teams agreed on whether there were many or few deficiencies.
- In 7 of the 12 surveys, the SST cited more deficiencies than the RST.

¹⁵ Resident ID numbers were used in place of resident names to preserve anonymity and confidentiality.

- In facilities having more deficiencies, there tended to be: a) more discrepancies between the teams in which F tag was used, b) more differences in the scope and severity when using the same F tag, and c) more instances when distinctly different F tags were cited.
- The two types of teams never agreed on the number of medication errors and the scope and severity of medication errors.

Both surveyors and administrators/DON focus groups believed that regional managers played an important role in the implementation of survey procedures, in the interpretation of evidence, and in decisions regarding survey outcomes. As noted by focus group participants and our observations of simultaneous surveys, teams discuss concerns with their regional managers and quality improvement coordinators several times during a survey. Furthermore, teams discuss their findings with these administrative staff following their decision-making meeting. Again, this process has both strengths and weaknesses. The experience of regional managers and quality improvement coordinators allows them to assist more junior surveyors by providing guidance and putting information into perspective. On the other hand, most regional managers and quality improvement coordinators are not on-site and so provide guidance without seeing the evidence first hand. From analysis of the simultaneous survey processes, we conclude that decisions filtered through these senior staff can change findings from the decision-making meeting to the final report. The number of changes ranged from 0 to 14 per team.

Comments made during focus groups and observations of simultaneous surveys further support the conclusion that regional managers have a significant influence on the survey process. A summary of some of our findings are provided:

- Some surveyors were less likely than those with other regional managers to write deficiencies for paper work violations unless there were care problems to go along with the paper work issues.
- Some surveyors noted that their regional managers gave them guidance that hand washing had to be a huge issue before they should cite it.
- One team commented that their regional manager would never let them go into an extended survey for a particular F tag.
- Some teams made a point of staying for the first meal after entering the facility and others did not.
- Some teams were very methodical in their decision making style, going in order through the regulations, whereas others discussed concerns according to their priority or in top of mind order.

Research Question 3:**Are there regional differences in quality of care in nursing facilities?****3.a Do regional differences in facility characteristics account for differences in the quality of care?**

In the focus groups, some administrators/DONs said that they used their QIs as a quality improvement tool. For example, one DON stated, “if you use your QIs and know where your problems are, you can use your time and assets, your people more wisely.” Others reflected that using the QIs for improvement was helpful, but when used in the survey process, they were a “gotcha” tool. Some administrators/DONs believed that surveyors labeled facilities based on QIs and previous survey results prior to entering a facility and that this labeling “biased” the survey process. Surveyors discussed using QIs to identify potential focal areas prior to entering a facility, but quickly acknowledged that the QIs may not be an accurate reflection of the resident population at the time of the survey. Surveyors stated that QIs are only one piece of information and that information (from observation, interviews, and documents review) gathered onsite was more important.

Quality of care is undoubtedly affected by certain facility characteristics, but may not be captured entirely by them. One of the reasons that there might be further regional variation in deficiencies, not accounted for by facility characteristics, is that there could be regional differences in quality of care. As noted previously, quality of care is a multidimensional concept and difficult to measure. This report examines regional variation in the quality indicators (QIs), used by previous research on the quality of care in nursing homes. As surveyors use QIs to guide their initial investigations, they may have a particularly strong influence in explaining regional differences in deficiencies. While the QIs have not been risk adjusted, the regression equations do control for differences in nursing home acuity through a case mix adjustment.

Table 12 presents the regional distribution for five QIs: late loss ADL, pressure ulcers, falls, bladder/bowel incontinence, and weight loss.

- The regional variation in the quality indicators was not as large as it was for deficiencies, nor were there strong regional patterns. The West did not always have the lowest rates, or the Northeast the highest.
- For nursing homes, the rate of **pressure ulcers** was significantly lower in the West region, relative to all other regions.

Table 12
Regional Differences in Selected Quality Indicators (Mean Percents)
Quarter of Survey
Kansas Nursing Facilities, 2001

Region	Late Loss ADL	Pressure Ulcer Rate	Fall Rate	Bladder / Bowel Incontinence	Weight Loss
	Nursing Homes				
LW	10	7	16	45	8
NC	11	6	16	50	8
NE	10	8	19	54	10
SC	11	7	16	56	8
SE	13	9	15	53	8
W	11	4	16	49	8
State Total	11	7	16	51	8
	Hospital Based Long-term Care Units				
LW	18	5	17	62	7
NC	12	2	18	51	9
NE	11	4	17	36	5
SC	11	4	9	53	4
SE	15	17	14	49	9
W	14	6	18	48	9
State Total	14	6	17	49	8

Facilities were ranked on the five quality indicators. If three of the five fell into the **top 25% of all facilities**, the facility was counted as ranking in the top 25% percentile of all facilities. Conversely, if three of the five QIs fell into the bottom 25% of all facilities, the facility was placed into the bottom quartile. All other facilities were placed in the middle 50%.

A higher percentage of nursing homes in the Lawrence, West, and North Central regions fell into the top 25% than those from other regions (Table 13). A higher percentage of hospital based long-term care units in the Northeast, North Central and Southeast region were among the top 25% than units from other parts of the state.

Table 13
Regional Differences in Facility Quality
As Measured by Statewide Rankings on Five Quality Indicators
Kansas Nursing Facilities, 2001

Region	Bottom 25%	Middle 50%	Top 25%
	Nursing Homes		
LW	20	56	24
NC	13	68	19
NE	28	66	6
SC	15	77	8
SE	14	73	12
W	11	69	20
	Hospital Based Long-term Care Units		
LW	0	100	0
NC	11	67	22
NE	0	50	50
SC	0	100	0
SE	20	60	20
W	17	78	6

Chi-Square indicates differences not statistically significant.

Regression models were developed to predict the average of the five QI scores that were identical to the regressions for deficiencies: 6 regional indicators, 6 indicators of county context, and 17 facility characteristics. The regressions explained 32% of the variance in the **average QI score** for nursing homes. The detailed tables for these regressions may be found in Appendix F.

- **Turnover** among administrators was related to higher (worse) QI scores, as was urban location, and a higher percentage of resident days paid by Medicaid.
- Higher **direct care costs** per resident day predicted better QI scores.
- **Regions** were significant predictors of QI scores, with the Lawrence region having better QIs, net of all other factors and the Southeast having worse QIs. The size of the region effect, although significant, was small.
- Unlike the deficiency regressions, urban location and facility size were not significant predictors of QIs.

Table14
Explained Variance (Adjusted R²) in Regression Models of Nursing Facility
Average Quality Indicators
Kansas Nursing Facilities, 2001

Stage	Nursing Homes
Regions	.0390
Plus County Characteristics	.1541
Plus Facility Characteristics	.3153
	Hospital Based Long -term Care Units
Regions Plus Facility Size % Ownership	-.0691

Discussion

Summary

This study has shown that there are regional differences in deficiencies that are only partially accounted for by facility characteristics. There were inconsistencies in the details of the survey process, but not in the general assessment of the overall level of compliance of nursing facilities. There were regional differences in the experience of surveyors, which coincidentally resulted in the most highly experienced surveyors being in the region that also had some of the worst facility characteristics. It is perhaps to be expected that deficiencies would be highest in that region.

Survey Process

Our findings indicate that there are inconsistencies in the Kansas survey process. Our suggestions to improve consistency include:

- Regional managers and quality improvement coordinators currently give guidance to surveyors. They could improve cross-region consistency by establishing processes that generate increased agreement on procedures and interpretation of findings at the regional manager level. The processes could include joint discussion of case studies, joint review of documentation, or conducting surveys that include regional managers and QI coordinators only.
- Although it is difficult to measure decentralized training in our analysis, some surveyors suggested a preference for a more centralized training system that they believe would provide more consistency. Surveyor focus groups in some regions reported their observation that decentralized training consisted of job shadowing a more experienced surveyor, some of who were not adept at training. Further, the content of the decentralized training was based on the specific circumstances that arose in the surveys, rather than an established curriculum.
- From our extensive review of surveyor notes, more training needs to be conducted in two specific areas, i.e., medication review and decision-making regarding scope and severity. Developing more detailed, written guidance for scope and severity determination would contribute to inter-regional consistency.

One of the most important findings from our simultaneous surveys was the difference in the assessment of scope and severity between the two teams regarding the same resident care issue. In a very thorough examination of surveyor notes and rationale for decision-making by three researchers (one researcher is an experienced surveyor and consultant from the State of Missouri), we came across instances when there were no clear “right or wrong” assessments of scope and severity. When teams disagreed on the scope and severity, these differences could be traced to differences in interpretations of the regulations and care interventions provided by the facility. The following example using F 314 illustrates the difficulty with scope and severity determinations.

Example: F 314 Pressure Sores

The following information is from “Facility Guide to OBRA Regulations, and Interpretive Guidelines and the LTC Survey Process.”

“A determination that development of a pressure sore was unavoidable may be made only if routine preventive and daily care was provided. Routine preventive care means turning and proper positioning, application of pressure reduction or relief devices, providing good skin care, (i.e., keeping the skin clean, instituting measures to reduce excessive moisture), providing clean and dry bed linens, and maintaining adequate nutrition and hydration as possible.”

Questions in the guidelines for surveyors to consider (not an exhaustive list) when making a determination include:

- Did the facility identify the resident as being high risk?
- Did the facility provide aggressive/appropriate preventive measures and care to address resident specific risk factors?
- Was this preventive care planned and implemented consistently?

When reviewing surveyor records, it was easy for surveyors to determine whether the facility identified the resident as being at risk. The remaining two questions were more difficult to determine. There were differing perceptions regarding:

- Were the facility interventions aggressive enough?
- Did the facility try enough different interventions – such as different or new pressure relieving devices or a new mattress?
- Did the facility try enough interventions for residents who were noncompliant with repositioning?

During decision-making meetings, surveyors scrutinized the data collected and took their decisions very seriously, but had differing perceptions of when a facility had “done enough.” Surveyors need more specific criteria, in the form of decision-making algorithms, to reduce the influence of individual perceptions. These findings concur with other evaluations of survey consistency. CMS has begun a process of developing and evaluating clearer guidelines for surveyors. Our findings support that effort.

Facility Characteristics

Our findings indicate that ownership (for-profit) and bed size (larger facilities) are related to the total number of deficiencies and total quality of care deficiencies. Higher administrator turnover and higher Medicaid cost per resident day are associated with poorer performance on quality indicators.

- A longitudinal analysis of facility characteristics, including more detailed information from the Cost Reports, and deficiencies and quality measures will provide evidence on these hypotheses.

- How stable are deficiencies and QIs over time? What factors relate to stable outcomes and do these vary by region? Where are the leverage points for changing poor, but stable, outcomes?

There are other factors that we believe influence resident care and outcomes. These will be explored in Year 2.

- Administrator/DON education level and years of experience
- Administrator/DON turnover
- Facility culture
- Administrator/DON leadership and management skill
- Community involvement in daily activities

Identifying Quality of Care

At this point, an accurate, multidimensional measure of nursing home quality does not exist. There is not even agreement among providers and researchers as to what constitutes “quality resident care and health.” Providers, regulators, and consumers have a difficult time describing or identifying quality care.

From our focus groups, it is clear that providers view deficiencies as one very important reflection of quality. Providers view deficiencies as a personal reflection on the quality of their work. Further, deficiencies have legal, financial, and consumer consequences. Given that there are 190 regulations, the odds are against a facility being deficiency free. Assuming that deficiencies are likely and the average number of deficiencies in the State of Kansas is approximately 7, several questions arise:

- What is a good facility?
- Can a good facility have a “G” level deficiency? Many providers and surveyors would say (under some circumstances) yes.
- Is a facility better if they have less than 7 deficiencies? Can a facility be considered “good” if they receive more than 7, but the deficiencies are not in resident quality of life or quality of care?
- Can a facility be considered “good” if they have no substandard care deficiencies?

In Year 2 we will assess another dimension of quality of care: resident satisfaction.

Although they are only one aspect of quality, and are measured imperfectly, many decisions are made on the basis of deficiencies.

- Facility administrators and DONs are fired following “poor” surveys.
- Consumers select facilities based, in part, on the number of deficiencies.
- Facility insurance rates can escalate following certain citations.
- Deficiencies can have legal consequences.

Improving Nursing Home Quality

Information from this study, combined with reports from CMS and the GAO, supports the need for regulatory oversight. There are poorly performing nursing homes in Kansas, as there are across the U.S.—homes that are not even providing a minimal standard of care to a very vulnerable population.

From our focus groups and simultaneous surveys, we have identified several facility practices that appear to promote better resident care outcomes:

- The Resident Assessment Instrument (RAI) process helps facilities to identify resident care issues, and support care planning and decisions on resource use.
- Facilities that integrate the RAI and QIs into care practices and improvement strategies have better outcomes.
- Facility administrators/DONs who are very familiar with the regulatory process and integrate that knowledge into care systems have better outcomes.

APPENDIX A GLOSSARY

2567: Formal document presenting citation of deficiencies to nursing facilities.

CMS: Centers for Medicare and Medicaid Services. Unit of the federal government responsible for overseeing the provision of nursing facility services.

DON: Director of Nursing in a nursing facility.

F tag: One of 190 regulations that must be met for nursing facilities to be in compliance with federal standards of care. Failure to comply with these regulations can result in a variety of penalties for nursing facilities.

Faith-Based Facility: A facility identification code found in the OSCAR database. It represents the segment of nursing facilities that are not-for-profit and are also affiliated with a religious organization.

Hospital Based Long-Term Care Unit: Nursing facility located in or affiliated with a hospital.

MDS: Minimum Data Set. Information tool for care planning in nursing facilities. Use mandated by the Centers for Medicare and Medicaid Services (CMS).

Nursing Facility. Group residence that provides room and board and nursing care to dependent adults.

Nursing Home: Free-standing nursing facility.

OSCAR: Online Survey & Certification Activity Report. A group of reports generated by CMS from data collected during surveys of certified facilities and agencies.

QI: Quality Indicators. Indicator of nursing facility residents' health status or care process. Established by CMS.

QM: Quality Measure. Indicator of nursing facility residents' health status. Risk adjusted for resident acuity. Established by CMS.

Substandard Care: A term used by CMS to identify(1) nursing homes that have been found to have deficient practice(s) related to resident rights, quality of care, and quality of life that placed the resident health and safety in immediate jeopardy or (2) situations in which deficient practices were found to be wide spread and residents were harmed or had the potential for harm.

- RAI:** Resident Assessment Instrument. The RAI directs the resident assessment process mandated by the federal government and Kansas regulations. Included in the RAI process is the MDS, Resident Assessment Protocols (RAPS), and care planning decisions. The RAI assists facility staff in gathering information about a resident's strengths and needs that must be addressed in the care plan. RAI information is entered into the MDS.
- RST:** Regular Survey Team. In the simultaneous survey process, the RST was the team regularly scheduled to survey the nursing facility.
- SST:** Simultaneous Survey Team. In the simultaneous survey process, the SST was a survey team from another region that performed a simultaneous survey. The SST did not document its findings.

APPENDIX B FOCUS GROUP SUMMARY

Following is a narrative analysis of participants' beliefs and perceptions. Three broad categories are used to facilitate organization of the data, i.e., surveyor characteristics, facility characteristics, and the survey process. Please note that the following represents participants' beliefs and "stories;" no attempt has been made to validate or refute perceptions.

Surveyor characteristics

Surveyors described the following characteristics as potentially having positive or negative effects on a survey: length of experience as a surveyor, centralized or decentralized training, knowledge of the regulations coupled with an understanding of the context of the nursing facility industry, continuing education, a love for geriatrics, and common sense.

Administrators/DONs had differing opinions on what characteristics good surveyors possess. Most agreed that education and experience as a surveyor are important. In fact, most participants perceived that newer surveyors are more disruptive to a facility and more likely to take information out of context. More experienced surveyors have a "better way of getting around the facility and making things as friendly as possible," "better ability to assess things," and a "good handle on the regulations." However, some participants had opposing views believing that newer surveyors are less likely to bring "biases" into a facility. Also, there were differences of opinion on the effect of previous clinical experience. Some believed that surveyors who had never worked in long-term care "didn't have a clue," while others believed that surveyors with long-term care experience would view a facility more narrowly basing it on their personal, past experiences. Some administrators/DONS believed surveyors were fair, consistent, collaborative, and helpful while others described surveyors as punitive, adversarial, inconsistent, and not knowledgeable about current trends in long-term care. Although differences of opinion were common, provider participants consistently expressed the desire to have a more collaborative, educative relationship with the survey team.

Facility characteristics

Both surveyors and administrators/DONs described various facility characteristics as influencing the survey process. Between groups there were many similarities in opinion. Facility characteristics include: facility appearance, size, and rural versus urban location; profit versus not-for-profit; resident care, acuity, and appearance; staff turnover, training, and attitudes; facility knowledge of regulations as well as the use of or resistance to the regulatory process. Many of these characteristics overlap, as evident in the summary below.

Appearance

The appearance of a facility including cleanliness and odor was important, but the appearance of residents was more important to surveyors. One surveyor shared, "You can have a horrible little old run down building and they have the best homemade bread smell

coming out and they're laughing and they have the best activities. You know, we all say, you look at the resident. You'll consider the building, but you'll look at the resident first." Others noted that facilities can be new and look beautiful, but the residents are unhappy or the staff caregivers lack caring attitudes.

Administrators/DONs also noted that physical appearance of the building (e.g., cleanliness, age) and the physical appearance of residents as important. One participant shared, "If your residents are happy, well-cared for [and you] keep them busy then I don't think it's the structure." But other participants had differing perceptions, "I think the structural atmosphere does make a difference when you walk into a building and they say, 'oh this is really nice' or you walk into a building and say this kind of looks like a hospital you know. I think it definitely changes the mood of the surveyors and how they look at things."

Rural versus Urban

Surveyors described urban areas as having higher staff turnover and resident acuity. Nursing homes in rural areas were described as "the community center," an "important area industry," a place where "everybody knows everybody," and where "relatives take care of relatives." Smaller homes [smaller described in context of rural] were described as being more "in touch with their residents," having more stable staff, and potentially being easier to manage because DONs are more likely to know the needs of residents and staff. Rural, "community-like" homes were described as "more willing to work" with surveyors and cooperative in providing information to surveyors. Considering size, surveyors believed it to be harder for larger facilities to be deficiency free, "there are just more details to follow up on." "It's harder for a DON in a 100-bed facility to know staff and resident needs than in a 40-bed facility."

Sharing similar views, administrators/DONs cited smaller communities as having less staff turnover. One participant stated, "You have people who work in those facilities that may have worked there for 20 years. There is maybe some more consistent care because it's not the turnover of staff." Participants perceived that surveyors may actually know the residents and staff in rural areas promoting more trust and acceptance of these facilities. Administrators/DONs also described urban homes as potentially having more quality of care issues due to greater staff turnover and resident acuity. Participants believed that surveyors are tougher on larger homes because "surveyors believe larger homes are incapable of giving good care."

Profit versus not-for-profit

Surveyors described corporate homes as being more "money driven," on tighter budgets, and "pushed" to take higher acuity residents even though staffing levels or training may not be adequate. For-profit homes were described as more likely to "beautify the building and forget about the staff." Corporate facilities were characterized as having higher staff turnover and more likely to fire an administrator/DON following a poor survey. "The corporate way of answering deficiencies is to fire the DON and administrator." Not-for-profit homes were described as being "more resident oriented." Faith-based homes were viewed as having "better support behind them," having volunteers that free up nursing staff for resident care, and enjoying community support that adds a home-like dimension. Staff

in faith-based homes, “have a purpose, a reason [resident care] for being there.” Conversely, staff in urban homes “are coming in to punch a clock.” Regardless of size, faith-based homes were viewed positively, described as “not really concerned with having large profits.”

Administrators/DONs also described not-for-profit homes as better staffed and possibly providing better care. One statement illustrates numerous comments, “I have more staffing and a better facility now that I work for a not-for-profit. There are some great for-profit facilities out there and I am not saying there are not. But there are those that cut corners and you see that reflected in staffing and deficiencies.” Administrators/DONs also described corporate facilities as having more staff turnover and more likely to fire an administrator/DON after a poor survey. One participant described the two [profit versus not-for-profit] as having “completely different atmospheres.”

Staff turnover

Surveyors described staff turnover as the biggest contributor to survey outcomes. Facilities with consistent staff provide better resident care. Having consistent “key department heads” with a great deal of experience who “know the regulations” is important for good performance on surveys. Conversely, it is hard as one surveyor stated, “in facilities where the administrator and DON change like you change your socks.” Administrators/DONs agreed, sharing that surveys are more difficult when the surveyor “sees a new DON or administrator every time they walk in.”

Staff attitudes

A recurring theme in both groups was the attitude of administrators/DONs and staff. Attitudes were described as both reactions to the survey itself as well as beliefs and attitudes surrounding the regulatory process. Surveyors believed that the attitude of the administrator/DON sets the tone for the attitude of the staff. A “cooperative” administrator conveys that to the staff, likewise a “defensive” administrator does the same. Staff were characterized as either accepting of the survey process and willing to assist surveyors by providing requested information or reacting negatively to the surveyors and blocking efforts to obtain information. Several comments illustrated this perception, “And you know we walk in and they have gobs and gobs and gobs of people there. They spend a lot of time trying to circumvent the survey process. They want to be ahead of us and be in control of it;” it makes a difference when an administrator “is on the defensive the minute we hit the door;” or it’s a more difficult process when “we have to ask and ask and ask for information;” versus “They have trained their staff on the survey process to be cooperative and work well with us.” Administrators/DONs had differing attitudes within their groups. Some described training their staff to cooperate with surveyors, to walk “side-by-side” with the surveyors, and to continue “care as usual.” Yet, others described telling staff not to speak to surveyors and that you are better off not providing information until you “get to IDR.”

Surveyors contrasted facilities depending on their ability or willingness to utilize the regulatory process to their advantage. [Reference to “regulatory process” refers to the MDS care planning process, quality indicators, and resident care systems necessary to

meet regulations.] Surveyors report some facilities use the survey process as “another set of eyes to help them” improve resident care whereas others are unwilling to acknowledge problems within their facility. Facilities with better surveys have systems in place from key personnel who know the regulations to well-developed QA systems to monitor and improve care. Administrators/DONs expressed similar and contrasting views. Some administrators/DONs reported the MDS process to be nothing more than paper work that actually impedes resident care by removing the RN from the bedside, e.g., “You can spend hours doing paperwork instead of being with residents;” believed the QIs could be used to misrepresent the facility, e.g., the QIs in the hands of the wrong person can be a “gotcha tool;” and reported the survey itself is punitive and that surveyors can “slam dunk a home based on paperwork.” In contrast, other administrators/DONs believed they used the MDS process to enhance care by identify problems and using staff more efficiently. For example, “if you use your QIs and know where your problems are, you can use your time and assets, your people more wisely;” “It can work for you, you can look at each individual person, look who is at risk, use your QA, have your own investigation, and care planned. You can know what they will look at before they come in.”

Surveyors view the constellation of the aforementioned facility characteristics to influence the consistency of survey results from one year to the next or from one region to another. As one surveyor shared, “We are about as consistent as we can be in a market that is so inconsistent.” Differences in facilities, such as staff knowledge, facility QA processes, and care systems are cited as differentiating facilities that “appear” to be similar based on characteristics such as size, ownership, and location. One surveyor shared, “Most of our things go back to standards of practice and those types of issues and even in our homes that are owned by corporations there’s a wide variance in how they interpret compliance and each home is so unique and the residents, the staff, their location, everything plays into that. More of the inconsistencies probably lie within the facilities themselves then in our manner of surveying them.” Conversely, administrators/DONs are frustrated by the belief that they run their nursing facility in the same manner as a sister facility but yet have different survey results. Participants describe getting together with other DONs and “doing things the exact same way,” or being just like facility “down the road,” yet have different survey results.

Survey Process

Administrators/DONs comments about the survey process ranged from very positive to extremely negative. Some described the process as subjective, ambiguous, adversarial, intimidating, punitive and demoralizing while others described the process as fair, thorough, accurate, and collaborative. Additional differences in perceptions included: 1) the focus of the survey - some believed the process had improved greatly since it became outcomes focused while others believed the process would be greatly improved if it had an outcomes focus; and 2) the openness of surveyors to communicate concerns during a survey - some perceiving that surveyors will let you correct a deficiency before they write it and others won’t. Most providers believed the regional manager had a strong influence on whether “surveyors stepped out of their role or not,” and on the number, scope, and severity of deficiencies. Most participants stated the survey process was extremely stressful, “You stand in a quagmire of fear. You have confidence in what the people are

doing, but not the most confidence that they have all of the i's dotted and the t's crossed. And you know they're going to dig and look."

The aforementioned surveyor and facility characteristics were mentioned as factors that influenced the outcome of the survey process, i.e., the number of deficiencies. There were strong beliefs that surveyors labeled facilities based on QIs and previous surveys. This labeling made it more difficult for a facility to improve on subsequent surveys. Others believed that surveyors could write a deficiency on a whim, "they have learned how to use information against you."

Providers were discouraged that the focus of the survey process was "all negative." Surveyors expressed a similar understanding of the process, "Our job is not to come in and tell them everything wonderful that they're doing, which would be nice. But that's not the role of the job. The role of this job is to look for problems. And that is hard for anybody." In addition, there were a variety of complaints regarding the unannounced timing of the survey and the "demands" for information upon entering the facility. Surveyors held a different view, "they know everything that we are going to do and ask for, just that it is unannounced – but they have some kind of idea. They even know or could know the areas we are going to look at." And finally, providers complained that deficiencies could be written for paperwork or the environment, "things that didn't influence resident care."

Surveyors reported there were aspects of their job that have the potential to create inconsistencies. One issue was the prioritization of concerns during a survey. Resident care was described as the top priority, but if facilities are taking care of the important care issues, then surveyors have more time to focus on "smaller issues" such as paper work compliance. Comments included: "If you come in on the first day and they are taking care of the big care issues, then you have time to look at the little things. But if you get a bad survey, the little things are going to go out the door;" "We focus on the highest priority, the most severe issues and know that we will be back in there." Sometimes the time limited nature influenced the process, "Maybe you decide that deficiency is not that important cause you don't have time to write it." Between focus groups there appeared to be some regional differences, for example, "If there are no quality of care issues, we do not write deficiencies for paper work;" as compared to "They don't have a care plan written for pressure sores. The care plan doesn't say a word about pressure sores. But, you know in watching care that they are doing every single thing that should be done is begin done. So, there is not a negative outcome. But there is a regulatory requirement that says you will have a care plan. Well, I might put blinders on and say 'I didn't care if they had a care plan.' But there's a reg that says to have a care plan." Surveyors also reported that regional managers view things differently, "If regional managers can't agree and be consistent, how can we be consistent;" "My regional manager would kill me if I didn't write...;" and another surveyor, when comparing their region to another, stated, "we're not going to touch this...." Some surveyors believed the change from centralized training to decentralized may contribute to differences between regions. Comments included: "training is now with different people even within regions – and if the person you are with is on difficult survey – training can get ignored" and "when you are caught up in survey responsibilities, something's got to go by the way-side, that is usually the education."

Some noted the difficulty with training, “There’s no way to train a surveyor to be consistent as there is no way to train DONs to do the same thing the same way.” Another potential for inconsistency is the breadth of the survey, “Our process is not a 100% inspection, but you know our process is an audit; there is always the possibility that there will be some things in the facility that has multiple problems that we won’t see.”

Providers struggled with the consequences of getting deficiencies. Many described “feeling like a failure”, the demoralization of their staff following a survey, losing staff, or losing their own job. Deficiencies were personalized and perceived as a reflection of “being a bad facility.” Providers expressed frustration that they could receive numerous citations in areas that did not “directly impact resident care”. As expressed by providers, the consequences of these deficiencies (e.g., environment, administration), seemed almost as detrimental to morale and job tenure as quality of care deficiencies. It seemed that *any* deficiencies were a sign of failure. Providers did note that receiving a G level deficiency had serious liability consequences. Providers believed excellent facilities could receive G level deficiencies for such things as pressure sores; and interestingly, surveyors agreed. Regarding how to differentiate good and bad facilities, one surveyor noted, “The number of deficiencies is not a good quality indicator for whether I would put my mom somewhere or not. You know it relates back to what was the scope and severity of those deficiencies and what were those deficiencies really about.” Furthermore, being deficiency free also was a cause for concern. Being deficiency free “brings the feds,” won’t last, and makes life difficult when you “have to explain [the next year] to the board how we went from zero deficiencies to two or three.” There was also the perception that being deficiency free encourages more difficult surveys in subsequent years, “Four years ago we had zero deficiencies. And then the surveyors came in and said, ‘oh let’s see what we can find.’ And we had four deficiencies.”

APPENDIX C SIMULTANEOUS SURVEY PROTOCOL

Guidelines for simultaneous surveys to be conducted as part of the University of Kansas - Kansas Nursing Facility Project

The purpose of the simultaneous surveys is two-fold: 1) to evaluate survey consistency and 2) more importantly to understand when, how, and why two individuals exposed to the same information *may or may not* interpret it the same way. The simultaneous surveys are similar to the QICS process in that information will be generated to enhance quality assurance, training, and improvement of the survey process. However, the simultaneous surveys are not an evaluation of surveyor performance or team performance. Individual surveyor's performance evaluations will not be based on this information. A summary of the simultaneous surveys will be generated by researchers at KU. This report will contain information to guide quality improvement and will not contain information about specific regions, nursing facilities, or surveyors. Information will be written in an aggregate form. For this information to be useful and valid for both surveyors and the nursing facility industry, it is essential that each individual surveyor follow the guidelines established for this exercise. Thank you!

Guidelines

Team Composition:

Regular survey team (RST) are those who are scheduled to conduct the regularly scheduled survey.

The KU Research team will randomly select the region that the simultaneous survey team (SST) will come from. The composition of the simultaneous survey team (SST) will mirror that of the RST. For example, if there are 3 RST members assigned to a survey then there will be 3 SST members or if there is one social worker for the RST, there needs to be one social worker for the SST. The regional manager for the region representing the SST, will select a team coordinator for the SST. Each member of a SST will follow, "shadow" one-on-one a member of the RST.

In an attempt to accommodate schedule changes, regional managers will be given 2-to-4 weeks notice when a SST will come from her region.

Facilities

The KU evaluation team will randomly select, from a list of facilities scheduled for re-survey provided by KDHE, two facilities from each region to be sites for the simultaneous surveys. Facilities will be selected based on the following criteria: 1) 50-beds or greater to reduce burden on the facility; 2) a representation of both profit and not-for-profit; 3)

facilities to represent variation in previous survey results; and 4) both rural and urban facilities.

Facility Briefing

Upon arrival to the facility, the RST and SST team coordinators will notify the facility administrator that a simultaneous survey will be taking place in conjunction with the normal survey. Please explain to the facility administrator:

- The purpose of the simultaneous survey;
- All survey-related information should be directed to the RST and not to the SST; and
- The findings of the SST are not related to the provider's certification and the state licensure survey.

Team members' roles and responsibilities

The RST is to conduct the survey in accordance with normal policies and procedures. The SST will follow the activities, procedures, and schedules established by the RST; the SST does not provide any input into the survey process. The RST will inform members of the SST of schedules and timing of events to take place.

Members of each team, the RST and SST are not to talk with each other prior to the survey or during the survey process, except to coordinate schedules.

Each team will conduct off-site preparation and planning at the same time and place, but teams are not to discuss off-site planning with each other. The SST is to function as a simultaneous, yet different set of eyes and ears. The information generated by the SST will be used for comparison purposes only, but will not guide the survey process. The survey process will be guided by the RST only. The SST member will follow, one-to-one a RST member, documenting and taking notes from observations. Should a SST member notice "an issue" he/she may wish to follow-up on, they are to simply document this issue in their notes – his/her role is observation and documentation only. He/she will not be able to follow-up on "individual observational issues." SST members will follow RST members into residents' rooms, to resident council meetings and interviews, will review the same exact charts that their corresponding RST reviews, and the like.

The SST members will accompany the RST members at all times, except for informal team meetings, formal team meetings, and off-site gatherings. Members of the RST are not to discuss aspects of the current survey (other than the schedule) with the SST. Teams will not share or discuss assessment information with each other. The goal is to see the consistency of assessment between two individuals exposed to the same environment at the same point in time, not to guide the survey process, not to evaluate state surveyor's performance, and not to assess for compliance on required performance factors.

Only one team, the RST generates 2567 – only one team, the RST can cite deficiencies. The SST will write up “mock deficiencies and 2567’s for evaluation purposes only.

A member of the KU team will be on-site in the facility. This measure is to ensure stakeholders (nursing home industry) that this process is being carried out as designed in the evaluation protocol. The KU representative will not observe resident care or look at resident charts, but may observe group activities with surveyors. The KU representative will attend RST meetings. The KU representative will attend all significant information analysis and decision-making meetings (including luncheon and dinner meetings, or in room meetings). The RST team coordinator will need to inform the KU representative of such meetings. The SST will be requested to tape record their meetings and tape recording equipment will be provided at the off-site preparation meeting.

To comply with the new HIPPA guidelines, it will be necessary for team members to discuss residents by their resident reference number and not by name. I realize this will impose an additional burden on surveyors and I apologize for this inconvenience.

RST and SST members are to turn in all hand-written notes, all worksheets, and required forms generated during a survey process to their respective regional manager.

Regional Managers’ Responsibilities

The regional manager for the RST will provide all off-site preparation materials to the regional manager of the SST. Copies of information, such as quality indicator reports, necessary for off-site preparation should be made available to the SST in a timely fashion.

Regional managers of the respective survey teams, RST and SST, will be responsible for copying all documents (all hand-written notes, worksheets, and required forms) and sending them to:

Sarah Forbes-Thompson, RN, PhD
University of Kansas School of Nursing
Mail-Stop 4043
3901 Rainbow Blvd.
Kansas City, KS 66160

Resident names should be removed from all documents (marking with black marker) prior to copying. Resident reference numbers must remain in the documents to allow for comparisons.

Specific Tasks

Both teams, RST and SST, will review same documents. This should be conducted at the same time, preferably in the same place although teams will not confer. Information generated by the SST, such as resident lists, will be used for comparison purposes only.

Both teams will attend the entrance conference. The KU representative will attend the entrance conference to address questions or concerns the administrator may have regarding the simultaneous survey.

Tour will be conducted in normal manner as outlined by RST. SST members will follow respective RST member. Following initial tour, resident numbers are to be assigned and used in notes. This is an important issue – that both teams are using the same resident identification numbers.

SST is to select resident samples based on their interpretation of information provided and their information gathering when following their respective RST member. Phase 1 and 2 samples suggested by SST will be used for comparison purposes only. Following sample selection, the RST will need to share the selected sample and focus areas with their SST partner.

SST will discuss findings and have team meetings at the same time as RST in a separate, but proximate location. SST members are to suggest follow-up procedures as if they were conducting their own survey, but will not follow-up on their own suggestions and interpretations.

SST is to write a 2567 as in a regular survey, but this will not be used for facility certification or licensure.

Copies of all requested written documentation (e.g., policies, procedures, resident weight lists and the like) must be provided to the SST. The SST is not allowed to make requests for information, but should review every piece of documentation requested by the RST.

**APPENDIX D
DATA ELEMENTS BY SOURCE**

Variables	Source	Specification / Variable Name
<u>Deficiencies</u>		
Total Deficiencies	Oscar	TotalDef
D+ Deficiencies	Oscar	DplusTot
G+ Deficiencies	Oscar	GplusTot
Quality of Life Deficiencies	Oscar	
Quality of Care Deficiencies	Oscar	QOCtot
Substandard Care	Oscar	SQCtot
Indiana Score	Derived	
<u>QIs in Analysis - Matched on quarter of survey</u>		
Late loss ADL	QI file	QI17_lateLossADLs
Pressure Ulcers	QI file	QI24_Ulcers
Fall Prevalence	QI file	QI2_Falls
Bladder/Bowel Incontinence	QI file	QI8_Incont
Weight Loss	QI file	QI13_WtLoss
<u>QIs - Not used in this analysis, but in file</u>		
New Fractures	QI file	QI1_NewFracts
Behavioral Symptoms	QI file	QI3_behavior
Behavioral Symptoms - High Risk	QI file	QI3_HR_behavior
Depression	QI file	QI4_depressn
Depression w/o Antidepressant Therapy	QI file	QI5_depress_noTherapy
Nine or More Medications	QI file	QI6_9plusMeds
Cognitive Impairment	QI file	QI7_cogImpair
Bladder/Bowel Incontinence - High Risk	QI file	QI_8_HR_Incont
Incontinence w/no Toilet Pan	QI file	QI9_Incont_nopan
Indwelling Catheters	QI file	QI10_Cath
Fecal Impaction	QI file	QI11_FecalImpac
Urinary Tract Infections	QI file	QI12_UTIs
Tube Feeding	QI file	QI14_TubeFeed
Dehydration	QI file	QI15_Dehydratn
Bedfast Residents	QI file	QI16_bedfast
ROM Decline	QI file	QI18_declineROM
Antipsychotic Use w/No Condition	QI file	QI19_antipsych_nocond

Variables	Source	Specification / Variable Name
Antipsychotic Use w/No Condition - High Risk	QI file	QI19_HR_antipsych_nocond
Antianxiety/Hypnotic Use	QI file	QI20_AntiAnxi_hypnoUse
Antianxiety/Hypnotic Use Above 2X in Past Wk	QI file	QI21_hypno2xlastwk
Physical Restraints	QI file	QI22_restrain
Little or No Activity	QI file	QI23_noActivity
Pressure Ulcers - High Risk	QI file	QI24_HR_Ulcers
Ranks of all Qis, by group(hosp base)	Derived	Actual ranks, ex: RQI_WtLoss
Quartile Ranks of all Qis, by group(hosp base)	Derived	0: 0-25%, 1:25-50%, 2:50-75%, 3:75-100%, ex: R4QI_WTLoss
Surveyor Characteristics		
Region: LW, NC, NE, SC, SE, W		Dummies w/West excluded: Region_LW, Region_NC, etc.
Surveyor/Manager	KDOA	Surveyor_Admin (n/y)
Surveyor Education	KDOA	Surveyor_Education
Surveyor Training	KDOA	Surveyor_Central_Train (N/Y)
Surveyor LTC Experience	KDOA	Surveyor_LTC_ExpAtHire (yrs)
Survey Experience	KDOA	Survey_Exper_yrs
County Context		
County Employment Rate	Labor Dep't	CoEmploymentRate01
County Nursing Home Occupancy Rate	Elder Count	NrsgOccupancy_pc
Metro/Non-metro	Census data	Metro (0-3) vs. Nonmetro
Population Density	Census data	PopDen90
County: % Bachelor's Degree+	Census data	CoBAplusAge25_00
County: % HS Grads	Census data	CoHSgradsAge25_00
County Poverty Rate	Census data	CoPoverty99
Facility Characteristics		
Facility Case Mix Adjustor (<i>matched on quarter of survey</i>)		Casemix (also in ranked version) i.e. Rcasemix & R4casemix
Wage Rate-Administrator	Cost Reports	WageRate_Admin

Variables	Source	Specification / Variable Name
Wage Rate-RNs	Cost Reports	WageRate_RN
Wage Rate-LPNs	Cost Reports	WageRate_LPN
Wage Rate-CNAs	Cost Reports	WageRate_CNA
Total Care Hrs per resident	OSCAR	CareHrs_PerRes_TotNrsg_Oscar, Numerator = sum 3 nursing titles, denom=ResTot
Care Hrs per res for each nrsg category	OSCAR	CareHrs_PerRes_RN_Oscar, LPN, & CNA
Total Care Hrs per Resident Day	Cost Reports	CareHrs_PRD_TotNrsg, Numerator = sum 3 nursing titles, denom=Tot_Inpt_days
CareHrs per Res Day for ea. Nrsg category		CareHrs_PRD_RN, LPN, & CAN
Total Nursing Hours per Resident Day	Cost Reports, OSCAR	Numerator = sum of 3 nursing titles, denom=Tot_Inpt_days (no denom available in Oscar)
Skill Mix: RNs, LPNs, & CNAs	Cost Reports	SkillMix_RN, Skillmix_LPN, Skillmix_CNA
Turnover-Administrator ,RNs, LPNs, & CNAs	Cost Reports Schedule J	Turnover_Admin, Turnover_RN, Turnover_LPN, Turnover_Aides
Total Costs	Cost Reports, Schedule A	Direct_Care_TotCost (used per books)
Direct Care Costs Per Resident Day	Cost Reports, Schedule A	Direct_Cost_PRD = Direct_Care_TotCost/Tot_Inpt_days
Number of Licensed Beds	Cost Reports, OSCAR	Tot_Lic_Beds, CertBeds_Oscar
Total Environmental Deficiencies	Cost Reports, OSCAR	Envir_tot_ftags(#), envir_ftags(0,1,2+)
Ownership: non-profit vs. profit	Cost Reports & OSCAR	Own_type_CostReport, Ownership_Oscar (non-profit / gov't vs. profit)
Faith Affiliation	Oscar	Church_Related (n/y)
% Medicare Days	Cost Reports	Medicare_Days_Pct

Dependent Variables	Source	Specification / Variable Name
% Medicaid Days	Cost Reports	Medicaid_Days_Pct
% Medicare of Total Residents	OSCAR	Medicare_Pct_Oscar: CensMcre / ResTot
% Medicaid of Total Residents	OSCAR	Medicaid_Pct_Oscar: CensMcd / ResTot
% Occupied beds	OSCAR	PctBeds_Occupied_Oscar: ResTot / BedTot
Change in Ownership	OSCAR	Change Owner Counter

**APPENDIX E
INDIANA SCORING METHODOLOGY**

The Indiana State Department of Health, Long Term Care Division, has developed a report card system using data collected through nursing home surveys. The report uses data in five categories: Administration, Care & Services, Resident Rights, Dietary, and Environment. Scores are developed for certified nursing homes that have received a minimum of four standard surveys. The scoring system evaluates 45 requirements of compliance, which were determined by a Delphi process to be most indicative of quality of care of residents in nursing facilities. The scoring system reflects the number of requirements in each category that were not in compliance as weighted by scope and severity of the problem. The best possible score that a facility can achieve is 0 points. This means that no deficiencies were found in the 45 requirements used for scoring for the past three standard surveys, and there have been no findings of Substandard Quality of Care or Immediate Jeopardy for any survey during the time period covered by those three standard surveys. (A facility with a score of 0 may still have been found deficient in one or more requirements outside the set of 45 used for scoring.)

1. For each deficiency found in the 45 requirements assign a point value according to the Scope and Severity found as indicated in the table below.
2. If Substandard Quality of Care was found on any survey in that set (regardless of the number of times), assign a point value of 6.
3. If Immediate Jeopardy was found on any survey in that set (regardless of the number of times), assign a point value of 30.
4. Add all of the above point values together. This is the score for that facility for that survey period.

Scope and Severity Table			
	<u>I</u>solated	<u>P</u>attern	<u>W</u>idespread
Immediate jeopardy to resident health or safety	<u>J</u> 60 points	<u>K</u> 77 points	<u>L</u> 96 points
Actual harm that is not immediate jeopardy	<u>G</u> 21 points	<u>H</u> 32 points	<u>I</u> 45 points
No actual harm with potential for more than minimal harm that is not immediate jeopardy	<u>D</u> 4 points	<u>E</u> 5 points	<u>F</u> 12 points
No actual harm with potential for minimal harm	<u>A</u> 1 point	<u>B</u> 2 points	<u>C</u> 3 points

Calculate the overall score. This is the total of the scores for each of the three survey periods, weighted so that recent surveys count more than older surveys.

1. Multiply the score for the most recent survey period by 1.
Multiply the score for the second most recent survey period by 2/3.
Multiply the score for the third most recent survey period by 1/3.
2. Add the three weighted scores and multiply times 3. This is the overall score for that facility.

**APPENDIX F
DETAILED REGRESSION RESULTS**

**Table F.1
Regressions for Total Deficiencies**

Parameter		B	p	B	p	B	p
Intercept		1.5944	0.0001	1.6935	0.3730	0.9421	0.7555
Region	LW	0.4840	0.0001	0.0324	0.0001	0.1750	0.0001
Region	NC	0.4856		0.4440		0.3322	
Region	NE	1.5695		1.3579		1.3215	
Region	SC	1.1295		0.7184		0.6817	
Region	SE	1.2189		1.1356		0.7759	
Region	W	0.0000		0.0000		0.0000	
CoEmployment01				0.0000	0.2640	0.0000	0.4058
NrsgOccupancy_pc				-0.0162	0.1933	-0.0056	0.6540
metro				0.4205	0.1478	0.4270	0.1246
lpopden90				-0.0512	0.6473	-0.2230	0.0518
CoHSgradsAge25_00				1.1629	0.4896	0.9111	0.5726
CoPoverty99				4.3893	0.1106	4.7664	0.0679
scasemix						-0.1294	0.9503
CareHrs_PRD_TotNrsg						0.0990	0.5197
Skillmix_RN						-1.4212	0.2310
Turnover_Admin						0.1293	0.1588
Turnover_RN						0.0833	0.4764
Turnover_LPN						0.0767	0.5019
Turnover_CNA						0.0844	0.4656
TOT_LIC_BED						0.0062	0.0144
Ownership_Oscar						0.5722	0.0025
Medicaid_Days_Pct						-0.0800	0.9379
Direct_Cost_PRD						-0.0044	0.3829
Church_Related_Oscar						0.0536	0.8404
Chain_oscar						0.1220	0.4326
ChangeOwnerCounter						0.0167	0.6498
Pct_occupied_Oscar						-0.3162	0.5846
sQlavg						0.8520	0.5268
R-squared Adjusted			0.1571		0.1664		0.2668

Table F.1.1
Pairwise Comparisons of Regional Parameter Estimates for Total Deficiencies

Parameter	B	p
LW-NC	-0.1572	0.6071
LW-NE	-1.1465	<.0001
LW-SC	-0.5067	0.0711
LW-SE	-0.6010	0.0525
LW-W	0.1750	0.6256
NC-NE	-0.9893	0.0002
NC-SC	-0.3495	0.1798
NC-SE	-0.4438	0.0477
NC-W	0.3322	0.2049
NE-SC	0.6398	0.0181
NE-SE	0.5455	0.0346
NE-W	1.3215	<.0001
SC-SE	-0.0943	0.7101
SC-W	0.6817	0.0161
SE-W	0.7759	0.0027

Figure F.1.
Estimates of B-hat for Regions (adjusted for all other independent variables) relative to the West (omitted category)

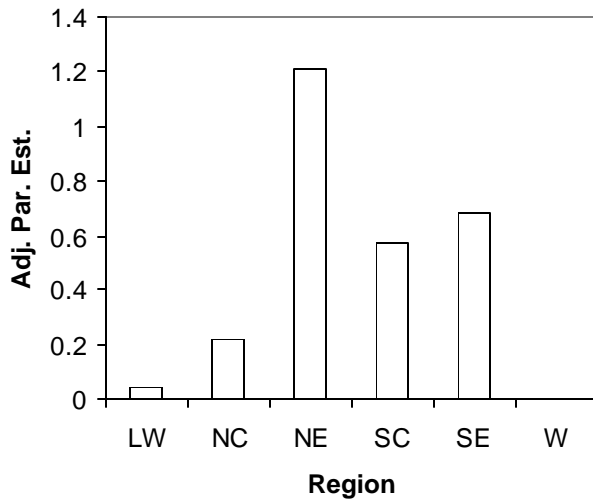


Table F.2
Regressions for Quality of Care Deficiencies

Parameter		B	p	B	p	B	p
Intercept		0.9293	<.0001	0.5986	0.6715	0.3956	0.8640
Region	LW	-0.1710	0.0001	-0.5970	0.0001	-0.3923	0.0001
Region	NC	0.3267		0.2870		0.2275	
Region	NE	1.2940		1.1077		1.1177	
Region	SC	0.7719		0.4278		0.4565	
Region	SE	0.8547		0.7553		0.5429	
Region	W	0.0000		0.0000		0.0000	
CoEmployment01				0.0000	0.2626	0.0000	0.3979
NrsgOccupancy_pc				-0.0041	0.6608	0.0027	0.7737
metro				0.1862	0.3877	0.2028	0.3386
lpopden90				0.0262	0.7528	-0.1234	0.1579
CoHSgradsAge25_00				0.4005	0.7487	-0.0526	0.9660
CoPoverty99				2.6880	0.1882	3.2169	0.1064
scasemix						-0.4217	0.7903
CareHrs_PRD_TotNrsg						0.0954	0.4163
Skillmix_RN						-0.8001	0.3768
Turnover_Admin						0.0904	0.1967
Turnover_RN						0.0028	0.9754
Turnover_LPN						0.0508	0.5602
Turnover_CNA						0.0610	0.4900
TOT_LIC_BED						0.0060	0.0019
Ownership_Oscar						0.3551	0.0137
Medicaid_Days_Pct						-0.2116	0.7871
Direct_Cost_PRD						-0.0034	0.3695
Church_Related_Oscar						-0.0601	0.7677
Chain_oscar						0.0059	0.9602
ChangeOwnerCounter						-0.0002	0.9937
Pct_occupied_Oscar						-0.2310	0.6009
sQlavg						1.6795	0.1031
R-squared Adjusted			0.2348		0.2471		0.3233

Table F.2.1
Pairwise Comparisons of Regional Parameter Estimates for Quality of Care
Deficiencies

Parameter	B	p
LW-NC	-0.6198	0.0084
LW-NE	-1.5100	<.0001
LW-SC	-0.8488	<.0001
LW-SE	-0.9351	<.0001
LW-W	-0.3923	0.1527
NC-NE	-0.8902	<.0001
NC-SC	-0.2290	0.2495
NC-SE	-0.3153	0.0653
NC-W	0.2275	0.2552
NE-SC	0.6612	0.0015
NE-SE	0.5748	0.0037
NE-W	1.1177	<.0001
SC-SE	-0.0864	0.6557
SC-W	0.4565	0.0345
SE-W	0.5429	0.0060

Figure F.2.1
Estimates of B-hat for Regions (adjusted for all other independent variables) relative
to the West (omitted category)

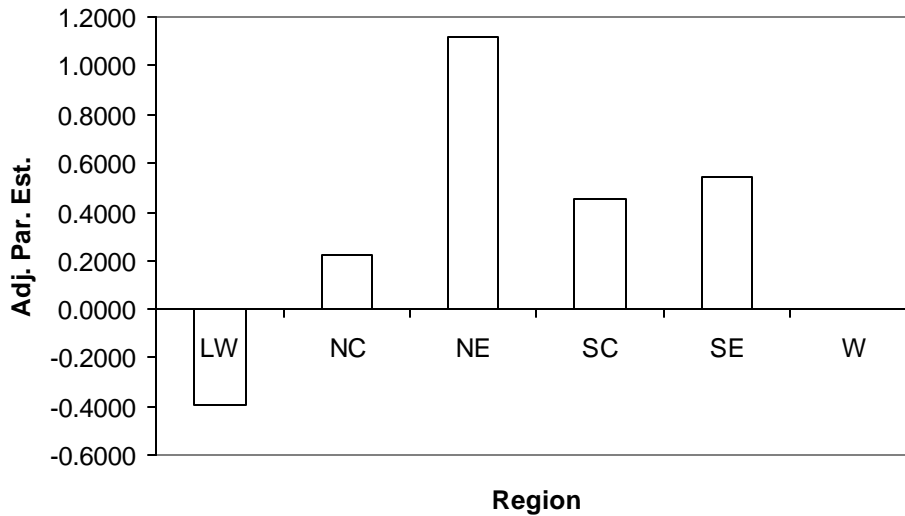


Table F.3
Regressions for Indiana Score Deficiencies

Parameter		B	p	B	p	B	p
Intercept		3.379579	<.0001	9.0380	0.1017	3.0509	0.7271
Region	LW	0.575184	0.0001	-0.0873	0.0001	0.4222	0.0002
Region	NC	0.809746		0.9356		0.2800	
Region	NE	3.368806		3.2956		3.1090	
Region	SC	3.244695		2.3389		2.0101	
Region	SE	2.621951		2.6745		1.7151	
Region	W	0		0.0000		0.0000	
CoEmployment01				0.0000	0.1014	0.0000	0.1596
NrsgOccupancy_pc				-0.0615	0.0894	-0.0284	0.4284
metro				0.8140	0.3334	0.8080	0.3140
lpopden90				-0.2629	0.4182	-0.7018	0.0343
CoHSgradsAge25_00				-1.0041	0.8369	-1.6282	0.7271
CoPoverty99				9.7928	0.2192	10.6896	0.1560
scasemix						6.5775	0.2738
CareHrs_PRD_TotNrsg						-0.0318	0.9429
Skillmix_RN						-5.5384	0.1067
Turnover_Admin						0.3863	0.1451
Turnover_RN						0.1985	0.5568
Turnover_LPN						0.0891	0.7872
Turnover_CNA						0.1406	0.6740
TOT_LIC_BED						0.0095	0.1905
Ownership_Oscar						1.2367	0.0233
Medicaid_Days_Pct						-1.6052	0.5884
Direct_Cost_PRD						-0.0069	0.6310
Church_Related_Oscar						0.5791	0.4520
Chain_oscar						0.3290	0.4638
ChangeOwnerCounter						0.0684	0.5192
Pct_occupied_Oscar						-1.0715	0.5215
sQlavg						2.3581	0.5445
R-squared Adjusted			0.1268		0.1305		0.1965

Table F.3.1
Pairwise Comparisons of Regression Parameter Estimates for Indiana Score
Deficiencies

Parameter	B	p
LW-NC	0.1423	0.8720
LW-NE	-2.6867	0.0015
LW-SC	-1.5878	0.0505
LW-SE	-1.2929	0.1482
LW-W	0.4222	0.6837
NC-NE	-2.8290	0.0002
NC-SC	-1.7301	0.0221
NC-SE	-1.4351	0.0269
NC-W	0.2800	0.7111
NE-SC	1.0989	0.1585
NE-SE	1.3939	0.0614
NE-W	3.1090	0.0008
SC-SE	0.2949	0.6874
SC-W	2.0101	0.0141
SE-W	1.7151	0.0214

Figure F.3.1
Estimates of B-hat for Regions (adjusted for all other independent variables) relative to the West (omitted category)

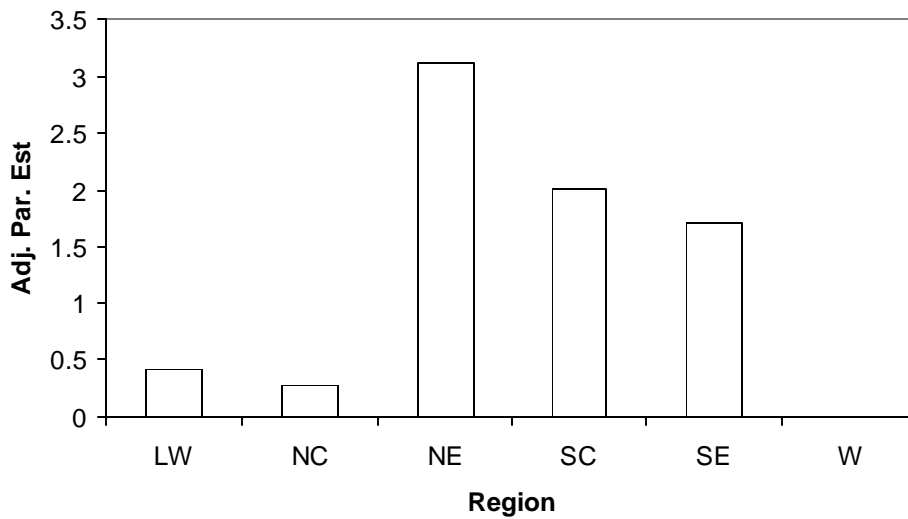


Table F.4
Regressions for Average QIs (average of ADL, Ulcer, Falls, Bladder/Bowel, Weight)

Parameter		B	p	B	p	B	p
Intercept		0.3635	<.0001	0.2980	0.0081	0.4133	0.0014
Region	LW	-0.0049	0.0071	-0.0938	0.0001	-0.0722	0.0001
Region	NC	0.0113		-0.0167		-0.0090	
Region	NE	0.0396		-0.0179		-0.0083	
Region	SC	0.0339		-0.0233		-0.0112	
Region	SE	0.0327		0.0027		0.0169	
Region	W	0.0000		0.0000		0.0000	
CoEmployment01				0.0000	0.4086	0.0000	0.6386
NrsgOccupancy_pc				-0.0013	0.0768	-0.0012	0.0910
metro				-0.0046	0.7885	0.0035	0.8224
lpopden90				0.0264	<.0001	0.0134	0.0376
CoHSgradsAge25_00				0.1537	0.1207	0.0852	0.3518
CoPoverty99				-0.0444	0.7833	0.0625	0.6735
CareHrs_PRD_TotNrsg						0.0057	0.5069
Skillmix_RN						-0.0663	0.3253
Turnover_Admin						0.0140	0.0069
Turnover_RN						0.0012	0.8618
Turnover_LPN						-0.0142	0.0281
Turnover_CNA						0.0050	0.4516
TOT_LIC_BED						0.0002	0.1461
Ownership_Oscar						-0.0149	0.1623
Medicaid_Days_Pct						-0.1146	0.0437
Direct_Cost_PRD						0.0006	0.0221
Church_Related_Osca						0.0077	0.6083
Chain_oscar						0.0157	0.0733
ChangeOwnerCounter						-0.0011	0.5853
Pct_occupied_Oscar						-0.0101	0.7581
sFENV						-0.0025	0.3646
R-squared Adjust			0.0390		0.1541		0.3153

Table F.4.1
Pairwise Comparisons of Regional Parameter Estimates for Average QIs

Parameter B		p
LW-NC	-0.0632	0.0002
LW-NE	-0.0639	<.0001
LW-SC	-0.0610	0.0001
LW-SE	-0.0891	<.0001
LW-W	-0.0722	0.0003
NC-NE	-0.0007	0.9631
NC-SC	0.0021	0.8845
NC-SE	-0.0259	0.0409
NC-W	-0.0090	0.5440
NE-SC	0.0028	0.8533
NE-SE	-0.0252	0.0836
NE-W	-0.0083	0.6412
SC-SE	-0.0280	0.0507
SC-W	-0.0112	0.4845
SE-W	0.0169	0.2503

Figure F.4.1
Estimates of B-hat for Regions (adjusted for all other independent variables) relative to the West (omitted category)

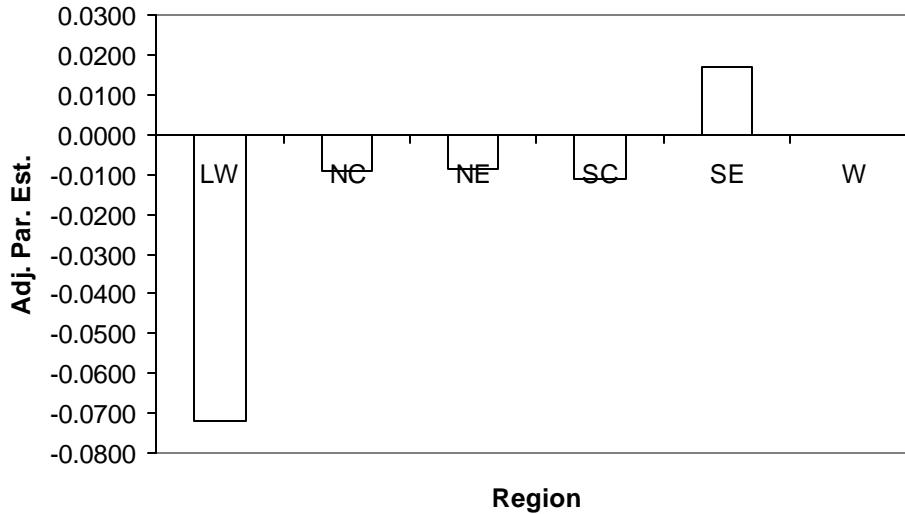


Table F.5
Surveyor Characteristics correlated with Regional Parameter Estimates

Obs	Region	Tot. Adj. Reg. Est.	QOC Adj. Reg. Est.	Ind. Adj. Reg. Est.	Surv Adm_ Educ	Surv Adm_ Exp	Surv_ BAplus_ Pct	Mdn_ Surv SurvExp	Mdn_ Surv LTCexp	Surv_ Cen Train_ pct
1	LW	0.1750	-0.3923	0.4222	1	8.6	0.63	2.52	5	0.56
2	NC	0.3322	0.2275	0.2800	1	8.32	0.45	3.55	5	0.73
3	NE	1.3215	1.1177	3.1090	4	15.05	0.62	2.32	3	0.77
4	SC	0.6817	0.4565	2.0101	3	3.63	0.33	5.77	5.5	0.73
5	SE	0.7759	0.5429	1.7151	3	21.58	0.33	5.37	12.5	0.92
6	W	0.0000	0.0000	0.0000	2	12.16	0.4	1.98	4.75	0.7
Correlation with Total Def. Reg. Parameter Estimates					0.86	0.36	0.15	0.26	0.05	0.55

Table F.6
Regressions for Total Deficiencies Hospital Based Facilities

Parameter		B	p
Intercept		1.0037	0.0137
Region	LW	0.1936	0.0095
Region	NC	0.2984	
Region	NE	1.8353	
Region	SC	-0.1398	
Region	SE	0.7064	
Region	W	0.0000	.
TOT_LIC_BED		0.0184	0.0364
Ownership_Oscar*		.	.

* Not possible to run.

R-square adjusted = 0.3389

Table F.6.1
Pairwise Comparisons of Regional Parameter Estimates for Total Deficiencies
Hospital Based

Parameter	Estimate	p
LW-SC	0.3335	0.7273
NC-NE	-1.5368	0.0062
NC-SE	-0.4079	0.3461
NC-W	0.2984	0.3488
NE-SE	1.1289	0.0538
NE-W	1.8353	0.0006
SE-W	0.7064	0.0761

Figure F.6.1
Estimates of B-hat for Regions (adjusted for all other independent variables) relative
to the West (omitted category) Hospital Based

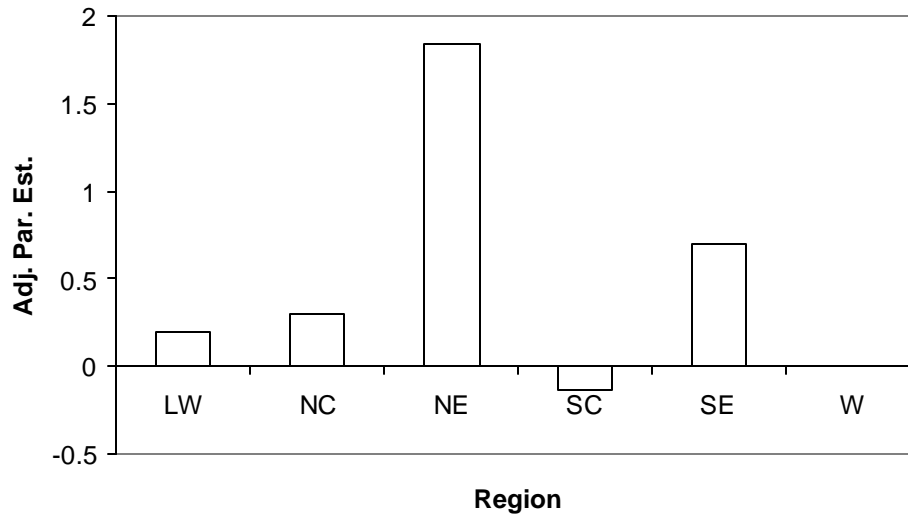


Table F.7
Regressions for QOC Deficiencies Hospital Based Facilities

Parameter		B	p
Intercept		0.4637	0.1147
Region	LW	-0.8379	0.0040
Region	NC	0.1888	
Region	NE	1.4856	
Region	SC	-0.1886	
Region	SE	0.5212	
Region	W	0.0000	
TOT_LIC_BED		0.0132	0.0428
Ownership_Oscar*			

* Not possible to run.

R-square adjusted = 0.3977

Table F.7.1
Pairwise Comparisons of Regional Parameter Estimates for QOC Deficiencies Hospital Based

Parameter	Estimate	p
LW-SC	-0.64929	0.364
NC-NE	-1.29677	0.0022
NC-SE	-0.33245	0.3026
NC-W	0.188787	0.4246
NE-SE	0.964322	0.0282
NE-W	1.485559	0.0002
SE-W	0.521236	0.0783

Figure F.7.1
Estimates of B-hat for Regions (adjusted for all other independent variables) relative to the West (omitted category) Hospital Based

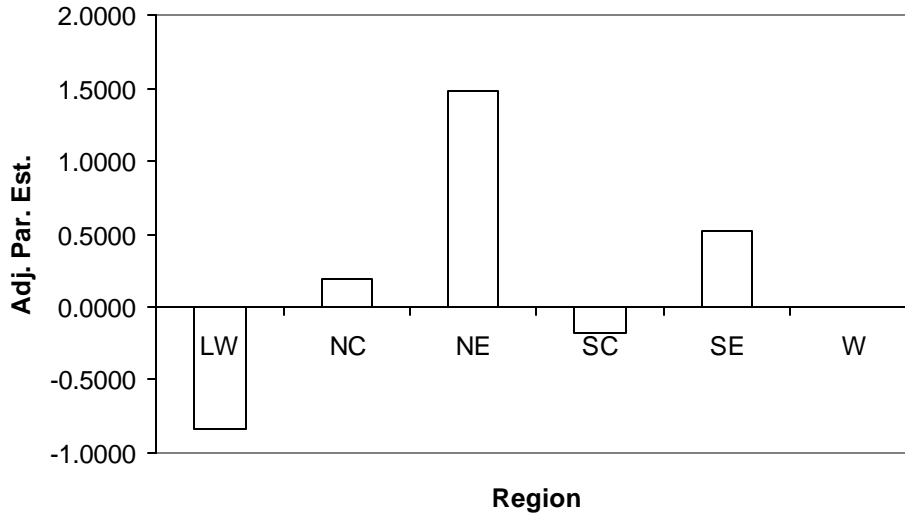


Table F.8
Regressions for Indiana Deficiencies Hospital Based Facilities

Parameter	B	p
Intercept	3.7445	0.0014
Region LW	0.0513	0.4407
Region NC	0.5065	
Region NE	4.0205	
Region SC	2.0818	
Region SE	1.3892	
Region W	0.0000	
lpopden90	-0.2349	0.6476
Ownership_Oscar	1.0870	0.5328

R-square adjusted = -0.0317

Table F.9
Regressions for QI Hospital Based Facilities

Parameter		Estimate	p
Intercept		0.2958	0.0030
Region	LW	0.0114	0.8356
Region	NC	-0.0074	0.8206
Region	NE	-0.0079	0.8500
Region	SC	-0.0363	0.5967
Region	SE	-0.0488	0.2732
Region	W	0.0000	.
Turnover_Admin		-0.0185	0.6814
Turnover_LPN		0.0387	0.3779
Medicaid_Days_Pct		0.0436	0.5116
Direct_Cost_PRD		0.0004	0.1925

R-square adjusted = -0.0873