

# **Culture Change and Turnover in Kansas Nursing Homes**

**For the Kansas Department on Aging**

**By the KANSAS NURSING FACILITY PROJECT**

**Marge Bott, PhD, RN - Principal Investigator  
University of Kansas School of Nursing**

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

**Byron Gajewski, PhD  
University of Kansas Schools of Medicine and Nursing  
Department of Biostatistics**

**Robert Lee, PhD  
University of Kansas Schools of Medicine and Nursing  
Department of Health Policy & Management**

**Diane Boyle, PhD, RN  
University of Kansas School of Nursing**

**Wanda Bonnel, PhD, RN  
University of Kansas School of Nursing**

**Ellen Averett, PhD  
University of Kansas School of Medicine  
And Department of Health Policy & Management**

**Annette Becker, MA - Project Director  
University of Kansas School of Nursing**

**Valorie Coffland, MA - Project Manager  
University of Kansas School of Nursing**

**Marcia Wrona, BSW  
University of Kansas School of Nursing**

**Rosemary Chapin, PhD  
University of Kansas School of Social Welfare**

**Roxanne Rachlin, MHSA  
University of Kansas School of Social Welfare**

**March 31, 2009**

This report was prepared under contract for the Kansas Department on Aging (KDOA). The investigators want to thank the Department on Aging and Secretary Kathy Greenlee for the substantial support provided to the study by many state staff. In particular, we want to acknowledge Dave Halferty, Bill McDaniel, Bob Parker, Patsy Samson, and Vera VanBruggen who provided assistance and information regarding various aspects of the project. We would like to also thank George Dugger for assistance in providing data, documentation, and background information on state data sets.

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

We would like to thank Kansas Adult Care Executives, Kansas Association of Homes and Services for the Aging, Kansas Foundation for Medical Care, and Kansas Health Care Association for their continued support of the project.

As always, we wish to express our sincere gratitude to the nursing homes who participated in our data collection and without whom this project would not have been possible.

**For any questions or comments concerning this report, please contact the Principal Investigator, Marge Bott, at (913) 588-1692 or at [mbott@kumc.edu](mailto:mbott@kumc.edu)**

# Culture Change and Turnover in Kansas Nursing Homes

## Executive Summary

---

### **Objectives:**

The aim of this project was to establish a valid and reliable culture change instrument and to estimate the relationship between the elements of culture change and quality of nursing home care in the state of Kansas. This is the second phase of a project funded by the Kansas Department on Aging (KDOA).

### **Methodology:**

Project goals included:

- Further validate an instrument that was developed in Phase 1 of the project.
- Collect data in all Kansas nursing facilities (free standing nursing homes, hospital-based long term care units, and mental health facilities) that were willing to participate.
  - From a pool of 351 nursing homes, 223 nursing homes participated in this project; an overall response rate of 64%.
  - From a pool of 351 nursing homes, 100 nursing homes were randomly selected using a sample stratified by regional population density proportional to size. Data were collected from both leaders and staff with a 72% response rate.
  - Of the remaining subsample of 251 nursing homes, data were collected from leaders only. From this subsample we received data from 151 homes; a 60% response rate.
- Test the psychometric properties of the instrument that had been modified in Phase I for:
  - Reliability
  - Validity
- Estimate the relationship between the elements and comprehensiveness of culture change and turnover, deficiencies, and quality of care.

Staff ( $n = 2,260$ ) and leaders ( $n = 1,596$ ) completed the *Kansas Culture Change Instrument (KCCI)* following an invitation to nursing home administrators to participate in the project. Based on leaders' average responses to two questions regarding the extent that culture change had been implemented and the number of years nursing home had been involved in culture change, nursing homes were grouped into three culture change categories: limited culture change, partial culture change, and extensive culture change. On a scale of one to five, cut points for the groups were established as limited  $< 2.5$ ; partial 2.5-3.49; and extensive  $\geq 3.5$ .

### **Results:**

- The *Kansas Culture Change Instrument (KCCI)* has undergone sound psychometric testing.

- Content validity was established using a panel of experts in field of culture change.
- Reliability of the instrument was demonstrated at both the individual and facility level.
- Evidence of validity of the instrument's internal structure, including internal consistency, was gathered using confirmatory factor analysis (CFA) that established internal consistency based on an empirical model.
- Construct validity was established by demonstrating differences across the three culture change groups: limited, partial, and extensive.
- There is a relationship between the *Total Culture Change* score and turnover; turnover was lowest for nursing homes with extensive culture change and highest in the limited culture change group.
- Nursing homes in the extensive culture change group had consistently lower deficiencies than the other groups. Thus, engaging in culture change does not disadvantage nursing homes in the survey process.
- There were no appreciable differences across the three culture change groups for the Quality Indicators (QIs).

## Recommendations

KDOA should consider the following recommendations to promote culture change in Kansas nursing homes:

1. Encourage annual data collection from all nursing homes in Kansas with the 2008 data collection serving as a baseline measure of culture change for the nursing homes who participated. The purpose is to: a) to educate nursing home leaders and staff; and b) to measure the adoption of culture change in Kansas nursing homes.
2. Use the *KCCI* to measure culture change in one of three ways:
  - a. Collect information from nursing home leaders and staff using the leader and staff versions of the *KCCI*, respectively.
  - b. Collect information from nursing home leaders only using the leader version of the *KCCI*.
  - c. Collect information using the two questions from the *KCCI* leadership version as a crude measure of the extent that culture change has been implemented (Culture 1) and the numbers of years that the nursing home has been involved in culture change (Culture 2).
3. Examine the relationship of *Total Culture Change* score and subscales with turnover using turnover data that was collected from the same or subsequent year as the data from the *KCCI*.
4. Make the *KCCI* available to Kansas nursing homes and to other states to continue psychometric testing.
5. Continue independent data collection about culture change by a neutral party outside the state survey process.

## Purpose

The objectives of the project were to gather evidence of reliability and validity of a culture change measure, the *Kansas Culture Change Instrument (KCCI)*; to collect data on the specific elements and comprehensiveness of culture change from all Kansas nursing homes; and to estimate the relationship between the elements and comprehensiveness of culture change and quality of care. This was done in a four-stage process:

1. All Kansas nursing homes were mailed the *KCCI* and asked to complete and return the questionnaire.
2. Analyses were conducted on the returned data to gather evidence of reliability and validity of the *KCCI*.
3. Subscale averages were calculated that can be used by nursing homes to compare their results to state averages.
4. Additional analyses were conducted to determine what, if any, impact culture change has on quality of care. Resident outcomes were measured, as in our past work, by selected deficiencies and Quality Indicators (QIs).

## Background

In 2006-2007, an extensive search of literature was conducted along with exploration of the psychometric properties of several existing culture change instruments. Our team found that none of the instruments had been subjected to thorough psychometric testing. Additionally, we determined that in the past there was no consensus definition of culture change; however, common themes emerged, which were embodied in the January 2006 Commonwealth Fund expert panel definition (Doty, 2008). The Commonwealth Fund definition of culture change includes the following six themes:

1. Care and all resident-related activities that are directed by the resident
2. A living environment that is designed to be a home rather than an institution
3. Close relationships existing between residents, family members, staff and community
4. Work organized to support and empower all staff to respond to residents' needs and desires
5. Management enabling collaborative and decentralized decision-making
6. Systematic processes that are comprehensive and measurement-based, and that are used for continuous quality improvement

Of the instruments reviewed, the instrument provided by the Kansas Foundation for Medical Care (KFMC), appeared to provide a basis for what could be a theoretically and psychometrically sound instrument (KFMC, 2005). Using the Commonwealth Fund definition along with culture change constructs and care practices identified by the Colorado Foundation for Medical Care (CFMC) as a theoretical framework, a modified instrument entitled the *Kansas Culture Change Instrument (KCCI)* was developed. The instrument contained six subscales related to culture change including *Resident Care*, *Nursing Home Environment*, *Relationships*, *Staff Empowerment*, *Nursing Home Leadership*, and *Quality*

*Improvement.* The instrument was pilot tested in a subsample of Kansas nursing homes with promising results that included evidence of scale reliability and beginning evidence of validity. Following initial testing a seventh subscale, *Shared Values*, was identified. Further testing of the *KCCI* was conducted in 2008 and these results are contained in this report.

## Methods

Using a cross-sectional design, our primary objective was to conduct confirmatory psychometric testing of the *Kansas Culture Change Instrument (KCCI)* that was developed in Phase I of this project, with nursing home personnel that included both staff and leaders. To establish validity of the *KCCI*, we tested the following hypothesis: Staff and leaders will score higher on the seven constructs of culture change of the *KCCI* in culture change nursing homes.

### Sample and Setting

All Kansas nursing facilities (free standing nursing homes, hospital-based long term care units, and mental health facilities;  $N=351$ ) were invited to participate. A current list of nursing homes was obtained from the Kansas Department on Aging (KDOA); all homes were assigned random identification numbers and mailed paper and pencil scannable questionnaires. Therefore, all Kansas nursing home leaders ( $N \sim 5,100$ ) in 351 homes received questionnaires. Simultaneously, a sample of nursing facility staff ( $N \sim 8,800$ ) in 100 randomly selected nursing homes also received questionnaires. To ensure that respondents from all areas of the state would have an equal chance to participate, homes for the random sample were stratified on regional population density proportional to size (See Appendix A). Nursing homes were excluded from the stratified sample if they currently were participating in a study conducted by the Kansas Foundation for Medical Care (KFMC) that was simultaneously collecting information using the *KCCI*. Table 1 provides information about the number of nursing homes in each population density region.

**Table 1. Nursing Home (NH) Sample by Population Density\***

Population Density (2000 Census)	No. of Nursing Homes (NH)	No. of NHs in Stratified Sample	No. of NHs Participating in Staff & Leader Data Collection	No. of NHs Participating in Leader Only Data Collection
1 – Frontier	41	12	9	20
2 – Rural	83	24	20	36
3 – Densely-Settled Rural	91	25	19	41
4 – Semi-urban	50	14	8	20
5 – Urban	86	25	16	34
Total	351	100	72	151

\*See Population Density Map in Appendix A

From the 351 nursing homes in Kansas, data were provided by 223 nursing homes (response rate = 64%). The nursing homes in our sample had an average of 67 beds ( $SD = 33.25$ ), were predominantly rural (70%) and not for profit (67%) (See Appendix B). Additionally, CMS began piloting the Quality Indicators Survey (QIS) in October 2005, and began implementation of the QIS in Kansas in 2006. Three of the six survey districts have implemented the new QIS. Twenty-nine percent of the nursing homes in our sample resided in survey districts that are now using the new QIS. However, we did not have QIS information from 25 nursing homes in a survey district that had implemented the QIS; thus the proportion may be underestimated.

From the sample of 351 nursing homes a subsample of 100 nursing homes was randomly selected to collect additional data from staff. Staff and leaders from 72 nursing homes provided data for a response rate of 72%. Of the remaining subsample of 251 nursing homes, data were collected from leaders only. From this subsample we received data from 151 homes; a 60% response rate.

A total of 3,856 nursing home employees participated in data collection ( $n = 2,260$ , staff;  $n = 1,596$  leaders). Within nursing homes, the response rates for leaders ranged from 0% (with one home returning staff questionnaires only and no leader questionnaires) to 100% with an average response rate of 51%. The leaders included the administrator, assistant administrator, director of nursing, assistant director of nursing, department heads, and others as identified by the nursing home administrator. Of the nursing home leaders that completed the questionnaires, almost half (47%) had worked at their home for more than five years. Seventy-eight percent of the leaders had post-secondary training, with about a third (32%) of the respondents having a Bachelor's or higher degree. A complete table of leader demographics can be found in Appendix C.

From the subsample, staff response rates ranged from 5% to 100% with an average response rate of 70%. Staff included all nursing home employees that were not identified as part of the leadership team. Of the nursing home staff that completed the questionnaires, about one third (33%) had worked at their nursing home for less than one year. About 45% of the staff had post-secondary schooling, primarily vocational or technical school training. A complete table of staff demographics can be found in Appendix C.

## Measures

The *Kansas Culture Change Instrument (KCCI)* is designed to assess seven conceptual dimensions or constructs: a) *Resident Directed Care and Activities*; b) *Home Environment*, c) *Relationships with Staff, Family, Residents, and Community*, d) *Staff Empowerment*, e) *Collaborative and Decentralized Management*, f) *Measurement Based Continuous Quality Improvement*, and g) *Shared Values Between Staff and Leaders*. Two versions of the *KCCI* were developed—staff and leader.

The **staff version** of the *Kansas Culture Change Instrument (KCCI)* contained 66 items related to culture change and seven demographic items for a total of 73 items. Response options were 1 (never), 2 (sometimes) 3 (often) and 4 (always) for all of the subscales except the *Quality Improvement* subscale. *Resident Care* (9 items) was defined as the care and resident-related activities that were directed by the resident. *Home Environment* (13 items with one item reverse scored) was defined as a living environment that was designed to be home-like rather than an institution. *Relationships* (10 items) were defined as close relationships that existed between residents, family members, staff and

community. *Staff Empowerment* (10 items) was defined as work that was organized to support and empower all staff to respond to residents' needs and desires. *Leadership* contained 9 items with one item reverse scored and was defined as management that enabled collaborative and decentralized decision-making. Seven items represented the *Shared Values* subscale that was defined as the values and common goals that leaders and staff share related to homelike environment, choice and respect for residents and co-workers, decision making, and quality of life/work for residents/staff. *Quality Improvement* contained 8 items using four-point Likert-type response options (1=strongly disagree to 4 = strongly agree). A don't know option was included on the staff version of the *Quality Improvement* scale. It was defined as systemic processes that were comprehensive and measurement-based, and that were used for continuous quality improvement. The final version of the staff *KCCI*, containing 69 items, can be found in Appendix H.

The **leader version** contained the same 66 items related to culture change as the staff version except the leader version contained six additional items (two on *Nursing Home Leadership* and four on *Quality Improvement*) using the same four-point response options, along with seven demographic items. Leaders were asked two additional questions: a) is your nursing home currently engaged in culture change with five response options from 1 (no discussion around culture change) to 5 (culture change has completely changed the way we take care of residents); and b) how many years has your nursing home has been involved in culture change. There were a total of 81 items on the leader version of the questionnaire. The final version of the leader *KCCI*, containing 78 items, can be found in Appendix I.

## Procedures

Prior to study recruitment and data collection, approval was obtained to conduct the study from the Human Subjects Committee at the University of Kansas Medical Center. Packets were mailed to each Kansas nursing home administrator, inviting their nursing home to participate in the project. Each mailing box contained an instruction letter for the administrator, postage-paid return shipping boxes/envelopes, and questionnaire packets. Each questionnaire packet included an information letter (implied consent notice), written instructions, and a sealable envelope that included instructions to the respondent for returning the questionnaire. Through the information letter and questionnaire instructions, personnel were informed that their anonymity would be protected since they were asked not to write their names or any other identifying information on the questionnaires.

In the subsample of 100 homes that received both staff and leader questionnaires, the administrator was asked to assign a site coordinator and have the site coordinator call our research office toll-free to discuss data collection. All nursing homes in the subsample of 100 were contacted by phone except for two that were determined to be closed. During the phone calls, it was ascertained whether or not the nursing homes planned to participate. For those homes that planned to participate, we detailed data collection instructions and asked for the number of personnel in the nursing home, including the number of persons on the leadership team and the number of all other staff in the home. We used the numbers to determine individual facility response rates. We instructed the site coordinator that all staff from all departments in the nursing home should be asked to complete the questionnaires. The exclusion criteria for participation were: a) all agency and hospital personnel, and b) any PRN staff member who worked less than 3 shifts per month. In general, nursing homes reported that they would collect data in one of two ways: a) distribute the questionnaires at an in-service or payday, or b) distribute the questionnaires in mailboxes or with paychecks.

We advised that the questionnaires be returned in the sealed envelopes to a central person in a neutral role, such as a social worker or education coordinator, or be returned to a drop box. As noted above, each individual packet included a sealable envelope with a label to maintain participant anonymity. Sealed questionnaires were returned to us in a pre-paid postage box.

In the homes that received questionnaires for the leadership team only, the administrator was simply instructed via the information letter to ask their leaders to fill out the questionnaires and return them in the postage paid envelope. The individual questionnaire packets that were sent to the leaders included information letters, instructions, and sealable envelopes. Our toll-free phone number was included in both the instruction letter for the administrator and the individual information letters for leadership and staff members.

All Kansas nursing homes received reminder post cards and extra questionnaires were sent to homes that requested them. Additionally, all homes that did not return questionnaires were contacted by phone. Returned completed data sheets were electronically scanned, audited, and compiled into a file for analyses.

## **Databases**

Data from the *KCCI* instruments were merged with facility characteristics and data that were obtained from other existing data sets (e.g., Medicaid Cost Reports, OSCAR, and CMS). Facility characteristics included profit/not-for-profit status (1 = for profit, 0 = not for profit), turnover (percentage), population density regions, bed size, urban or rural location (1 = urban, 0 = rural), and QIS survey region. Nursing homes that had participated in the new QIS were coded as 1 and the remaining nursing homes were coded as 0. Resident outcomes were measured by selected Quality Indicators (QIs) and deficiencies. Descriptions of the data sets are provided below.

Turnover. Turnover data for the nursing homes were obtained from the 2007 Medicaid Cost Reports, the most recent reports available. Turnover was reported as the percent of staff that leave the nursing homes over the course of one year.

Deficiencies. Nursing home deficiencies were taken from the Online Survey Certification and Reporting System (OSCAR). The data were obtained from the F-tag citations that occur through the survey process of nursing homes. Deficiencies were obtained from the most recent survey that was available for the nursing homes up to the 3<sup>rd</sup> quarter data of 2008. Deficiencies included in the analysis were selected based on findings from a literature review from Colorado Foundation for Medical Care (CFMC) which identified resident outcomes that are potentially impacted by culture change practices (CFMC, 2006). The deficiencies that were examined are listed in Appendix D.

Quality Indicators (QIs). Facility level QIs and other measures calculated from 2008 Minimum Data Set (MDS) data were obtained through our data use agreement with KDOA (DUA agreement # 13036). Myers & Stauffer, the agency that manages the data for the State of Kansas, did the calculation and provided the data to the project team. The QIs were selected in the same manner as the deficiencies and are included along with their definitions in Appendix E. The facility level variables represent incidence or prevalence rates calculated through the University of Wisconsin Center for Health Services Research and Analysis (CHSRA) formulas.

## Data Cleaning and Analysis

Data were merged and stored on a secured file server at KUMC. Data were reviewed for accuracy prior to data analysis. Data analyses were performed using SPSS 16.0 to examine the frequencies distributions for the items and scale scores, and conduct the reliability analysis. *Cronbach's alpha* was calculated for the reliabilities at the individual level; alphas above .70 provide evidence of internal consistency across the items for new scale development (Nunnally, 1978). In addition to *Cronbach's alpha*, internal consistency reliability of the subscales was assessed examining the item-to-subscale, item-to-total, and item-to-item correlations. Subscale items were aggregated to the facility level and the *Inter-class Correlations* [ICC (1,1), and ICC (1,k)], along with the eta squared [ $\eta^2$ ] were calculated to determine the appropriateness of aggregating data collected from individuals to the group level or facility level. The purpose is to determine if there are consensual views between individuals in the workgroup and the organization (Kozlowski & Klein, 2000). Generally a 50% response rate of individuals is considered representative of the group (Verran et al., 1995). Elliott (2006) reports that a response rate of greater than 40% yields results similar to the 50% rate. Values for the ICC (1,k) should exceed .60 to provide evidence of reliability at the group level (Glick, 1985, p. 609). Values for the ICC (1,1) are interpreted as having small (.05), medium (.12), or large (.30) effect sizes (James, 1982; Bliese, 2000), and values for the  $\eta^2$  are interpreted as having small (.01), medium (.25) and large (.40) effect sizes (Bliese & Halverson, 1998).

MPLUS software was used to conduct the confirmatory factor analysis. SPSS 16.0 was used to conduct the cluster analysis and MANOVA that was utilized for the hypothesis testing for validity assessment. Examination of the relationships among the culture change subscales and outcome variables of interest was done using multivariate ANCOVA procedures in SPSS 16.0.

## Findings

### Item Analysis and Subscale Reliabilities

The distributions across the response options for each subscale item collected from staff and leaders were reviewed for outliers and missing data. Three items from the *Home Environment* subscale were problematic. It was determined that the response options were not appropriate for the item 'residents live in small households or neighborhoods.' The item was eliminated in scoring the *Home Environment* subscale. However, the item will be retained in a future leader version of the *Culture Change* scale and the response options will be changed to 0 (No) and 1 (Yes) (See Appendix I). Initial item reliabilities revealed there were three additional items that when deleted would improve subscale reliability. Because three items either lacked variability or did not improve the corresponding subscale reliability, the items were eliminated; two from the *Home Environment* subscale and one from the *Nursing Home Leadership* subscale.

Reliability was examined using *Cronbach's alpha*. *Alphas* ranged from .74 to .94 across the seven subscales for the staff version of the *KCCI* (Table 2) and .75 to .94 across the seven subscales for the leader version (Table 3). To make comparisons between leaders and staff, items were aggregated from the individual to the facility level. *Cronbach's alpha's* increased (as one would expect) across all of the subscales,  $\alpha = .85$  to  $.97$  for staff and  $\alpha = .80$  to  $.96$  for leaders. Further evidence of facility level reliability of the items, ICC (1,k), was demonstrated using data collected from individual staff and leaders aggregated to

the facility level. The ICC (1,k) showed strong associations (.79 - .89) for the staff, and moderate to strong associations (.52 - .83) for the leaders; all but two subscales exceeded the criteria of >.60.

**Table 2. Individual and Facility Level Reliabilities for Staff Version of KCCI.**

<b>Staff Subscales</b>	<b><math>\alpha^*</math> (individual level)</b>	<b><math>\alpha^*</math> (facility level)</b>	<b>ICC (1,1)</b>	<b>ICC(1,k)</b>	<b><math>\eta^2</math></b>
Resident Care	.85	.93	.22	.89	.25
Home Environment	.74	.85	.22	.89	.25
Relationships	.84	.89	.12	.80	.15
Staff Empowerment	.87	.92	.15	.84	.18
NH Leadership	.91	.96	.12	.79	.15
Shared Values	.94	.97	.12	.79	.15
Quality Improvement	.90	.93	.12	.80	.15

\* $\alpha$  = Cronbach's alpha

**Table 3. Individual and Facility Level Reliabilities for Leader Version of KCCI.**

<b>Leader Subscales</b>	<b><math>\alpha</math> (individual level)</b>	<b><math>\alpha</math> (facility level)</b>	<b>ICC (1,1)</b>	<b>ICC(1,k)</b>	<b><math>\eta^2</math></b>
Resident Care	.84	.88	.33	.75	.43
Home Environment	.75	.80	.34	.77	.45
Relationships	.81	.84	.24	.66	.36
Staff Empowerment	.84	.88	.25	.67	.37
NH Leadership	.90	.93	.17	.55	.30
Shared Values	.94	.96	.15	.52	.29
Quality Improvement	.85	.90	.22	.63	.34
Culture 1 <sup>a</sup>	NA	NA	.45	.83	.53
Culture 2 <sup>b</sup>	NA	NA	.45	.83	.53

<sup>a</sup>The extent the nursing home was involved in culture change

<sup>b</sup>The number of years the nursing home was involved in culture change

## Validity

**Construct Validity.** When reporting data at the facility level, the inter-class correlation (ICC, 1,1) and the eta squared ( $\eta^2$ ) provide indices of the validity of using the aggregate data as a group phenomena or that there is interdependence of the data within a facility. Across the seven subscales, values for the ICC (1,1) were moderate (.12 to .22) for staff and moderate to large (.15 to .45) for leaders. Similarly, values for the  $\eta^2$  across the subscales were moderate (.15 to .25) for the staff and for the leaders were moderate to large (.29 to .53). Thus, evidence for validity of aggregating the individual data to the facility level was provided. Strong support also was provided for aggregation of the two items assessing the extent that the facility had implemented culture change (Culture 1) and the number of years the facility has been involved in culture change (Culture 2). The ICC (1,1) and the  $\eta^2$  showed large effect sizes (See Table 3).

To show further evidence for validity of the instrument's internal structure, a confirmatory factor analysis was performed using the same factor structure and the seven latent constructs as reported in the pilot study (Bott et al., 2008): *Resident Care, Nursing Home Environment, Relationships, Staff Empowerment, Nursing Home Leadership, Quality Improvement, and Shared Values*. Fit indices of the hypothesized model to the data from the structural equation modeling procedures were adequate ( $\chi^2 = 8,876.27$ ,  $df = 1,802$ ,  $p \leq .001$ ;  $CFI = 0.89$ ;  $RMSEA = 0.04$ , 90%  $CI = 0.041-0.043$ ,  $p RMSEA \leq .05 = 1.00$ ). There were moderate to strong associations between the indicators of the seven culture change constructs ( $r = .55$  to  $.90$ ). Examining the correlations revealed a strong correlation between the *Relationships* construct and the *Nursing Home Environment* construct ( $r = .87$ ; See Appendix F) indicating much overlap between the two constructs. An alternate model that eliminated the *Nursing Home Environment* construct was tested and revealed a slightly better fit of the model to the data ( $\chi^2 = 3,210.58$ ,  $df = 1254$ ,  $p \leq .001$ ;  $CFI = 0.91$ ;  $RMSEA = 0.044$ , 90%  $CI = 0.043-0.045$ ,  $p RMSEA \leq .05 = 1.00$ ).

Additionally, to provide evidence of construct validity, we hypothesized that there would be differences on each of the seven constructs between nursing homes actively engaged in culture change and non culture change nursing homes. To determine an empirical definition of culture change, a cluster analysis was performed using the average scores from two variables collected from leaders: a) Culture 1 (the extent a facility had implemented culture change; range = 1 to 5), and b) Culture 2 (the number of years that a facility has been involved in culture change; range = 1 to 5). Based on the cluster analysis, three groups emerged with the definitions as follows: a) Extensive culture change: the facility had been involved in culture change activities for more than one year and culture change had extensively or completely changed the way residents were cared for in some or all areas; b) Partial culture change: the facility had been involved in culture change activities for at least one year and culture change had partially changed the way residents were cared for in some or all areas; and c) Limited culture change: the facility had either not been involved or involved for less than one year in culture change activities and culture change had not changed or had had limited impact on the way residents were cared for in some areas. Descriptives for the culture change groups are reported in Table 4. Cut points for the three groups are as follows: limited culture change group  $< 2.5$ ; partial culture change group 2.5 to 3.49; and extensive culture change group  $\geq 3.5$ .

**Table 4. Descriptive Culture Change Scores for the Culture Change Groups**

Culture Change Group	<i>n</i>	<i>M</i> *	<i>SD</i>
Limited	39	1.97	.32
Partial	115	3.00	.34
Extensive	67	4.00	.35
Total	221	3.12	.77

\*Possible range of scores = 1 - 5

Because of the moderate to strong correlations among the seven subscales, a Multivariate Analysis of Variance (MANOVA) was used to test for differences across the three groups and to test our hypothesis that leaders would score higher on the seven constructs of culture change of the *KCCI* in culture change nursing homes. There was an overall significant differences among the three groups for leaders (*Wilk's*  $\lambda = .60$ ;  $F = 8.85$ ;  $df = 14, 424$ ;  $p < .001$ ) and staff (*Wilk's*  $\lambda = .61$ ;  $F = 2.55$ ;  $df = 14, 126$ ;  $p < .01$ ). Follow-up tests revealed that there were significant ( $p < .05$ ) differences on all subscales for all three groups except for leaders on the *Home Environment* subscale, and for staff on the *Home Environment*, *Nursing Home Leadership*, and *Shared Values* subscales. Overall, we found that leaders and staff scored higher across the seven subscales in those nursing homes that reported extensive culture change. Additionally, leaders scored significantly higher on all subscales than did staff in nursing homes across all three culture change groups (Myers, Gajewski, Becker, Coffland, & Bott, 2009). Mean scores across the three culture change groups are provided for staff in Table 5. Findings varied for the subscales across the groups for the staff.

**Table 5. Descriptive Statistics for Seven Culture Change Subscales and Total Score for Staff by Culture Change (CC) Groups**

Scale	Limited CC		Partial CC		Extensive CC		<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Resident Care	2.42	.36	2.75	.31	2.95	.26	<.05
Home Environment	2.53	.28	2.69	.29	2.86	.23	.06 <sup>a</sup> <.05 <sup>b</sup>
Relationships	2.67	.20	2.84	.21	3.02	.27	<.05
Staff Empowerment	2.16	.30	2.41	.27	2.56	.26	<.05
Nursing Home Leadership	2.51	.33	2.74	.32	2.83	.25	<.01 <sup>c</sup> .33 <sup>d</sup>
Quality	2.34	.31	2.53	.32	2.69	.19	<.05

Scale	Limited CC		Partial CC		Extensive CC		p
	M	SD	M	SD	M	SD	
Improvement							
Shared Values	2.62	.37	2.87	.35	3.01	.28	.13 <sup>c</sup> <.05 <sup>d</sup>
Culture Change Total Score	2.46	.26	2.69	.26	2.85	.21	<.001

<sup>a</sup>Limited and Partial CC groups not significantly different from each other

<sup>b</sup>Extensive CC significantly different from Limited & Partial CC groups

<sup>c</sup>Limited CC significantly different from Partial & Extensive CC groups

<sup>d</sup>Partial and Extensive CC groups not significantly different from each other

Mean scores across the three culture change groups are provided for leaders in Table 6. With the exception of the *Home Environment* subscale for leaders, there were significant differences ( $p < .05$ ) among all the culture change groups—limited, partial, and extensive (Table 6). These findings provide evidence for construct validity for the seven subscales of culture change.

**Table 6. Descriptive Statistics for Seven Culture Change Subscales and Total Score for Leaders by Culture Change (CC) Groups**

Scale	Limited CC		Partial CC		Extensive CC		p
	M	SD	M	SD	M	SD	
Resident Care	2.61	.28	2.88	.33	3.15	.32	<.001
Home Environment	2.64	.25	2.72	.31	3.05	.29	.11 <sup>a</sup> <.001 <sup>b</sup>
Relationships	2.85	.29	2.97	.24	3.20	.27	<.01
Staff Empowerment	2.30	.30	2.51	.31	2.68	.34	<.001
Nursing Home Leadership	2.90	.34	3.08	.32	3.18	.31	<.01
Quality Improvement	2.46	.29	2.68	.27	2.79	.30	<.01
Shared Values	2.88	.36	3.06	.34	3.26	.31	<.01
Culture Change Total Score	2.66	.25	2.84	.23	3.04	.24	<.001

<sup>a</sup>Limited and Partial CC not significantly different from each other

<sup>b</sup>Extensive significantly different from Limited & Partial groups

## Relationships Among Culture Change Scores and Outcomes

The average for seven subscales and *Total Culture Change* scores along with the standard deviations are given in Table 7. Leaders scored slightly higher than staff on all of the subscales and total scale scores.

**Table 7. Descriptive Statistics for the Seven Culture Change Subscales and the Total Score for Leaders and Staff.**

Scale*	Leaders		Staff	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Resident Care	2.91	.37	2.73	.35
Home Environment	2.81	.34	2.70	.29
Relationship	3.02	.29	2.85	.25
Staff Empowerment	2.52	.34	2.39	.30
Nursing Home Leadership	3.08	.33	2.72	.32
Shared Values	3.09	.36	2.85	.36
Quality Improvement	2.67	.30	2.54	.31
Culture Change Total Scale	2.87	.27	2.68	.27

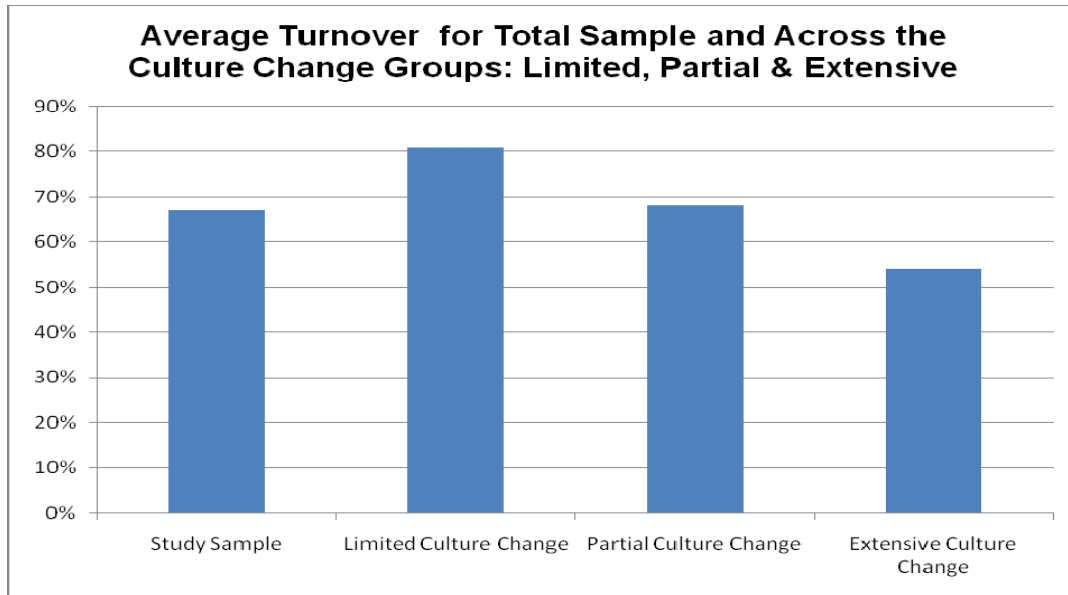
\*Total score and subscale possible range is 1 – 4 with 2.0 as the midpoint

### Outcome Variables.

The associations with the *Total Culture Change* score along with the seven subscales were explored with facility turnover, deficiencies, and the quality indicators (QIs). Additionally, the scores were examined across the three culture change groups: limited, partial, and extensive.

Turnover. The average overall turnover rate across the nursing homes was 67% with a low of 3% to a high of 219% (See Appendix G). However, turnover in nursing homes in the extensive culture change group had the lowest turnover across the three groups (See Figure 1).

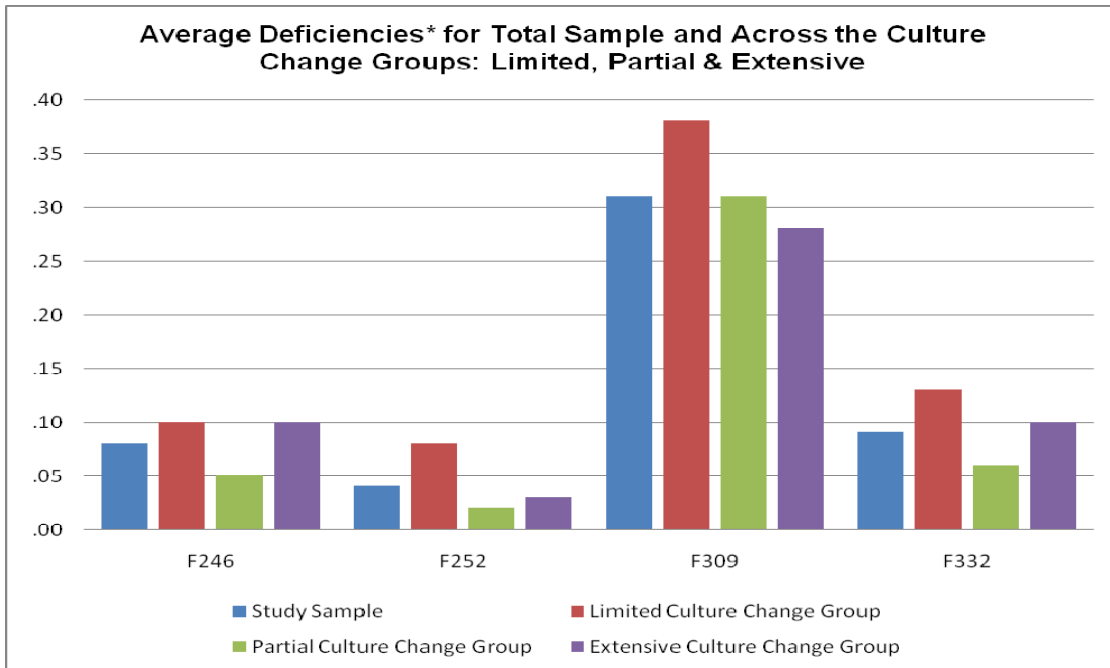
**Figure 1.**



**Deficiencies.** Specific F-tags were selected based on findings from a literature review from Colorado Foundation for Medical Care (CFMC) which identified outcomes that were potentially impacted by culture change practices (CFMC, 2006). For the selected deficiencies the mean represented the average for the number of deficiencies for F-tags 246, 252, 309, and 332 across the nursing homes. The deficiency was either absent (0) or present (1) in each facility with the mean representing the average across the nursing homes. F-tag 309 (resident highest practicable well-being) had the highest average, with 31% of the nursing homes receiving a deficiency for not meeting the requirement that each resident must receive and the facility must provide the necessary care and services to attain or maintain the highest practicable physical, mental, and psychosocial well being, in accordance with the comprehensive assessment and plan of care. (See Appendix G). With the exception of F-tag 246 (accommodation of needs), average deficiencies were lowest across the F-Tags in the extensive culture change group (See Figure 2).

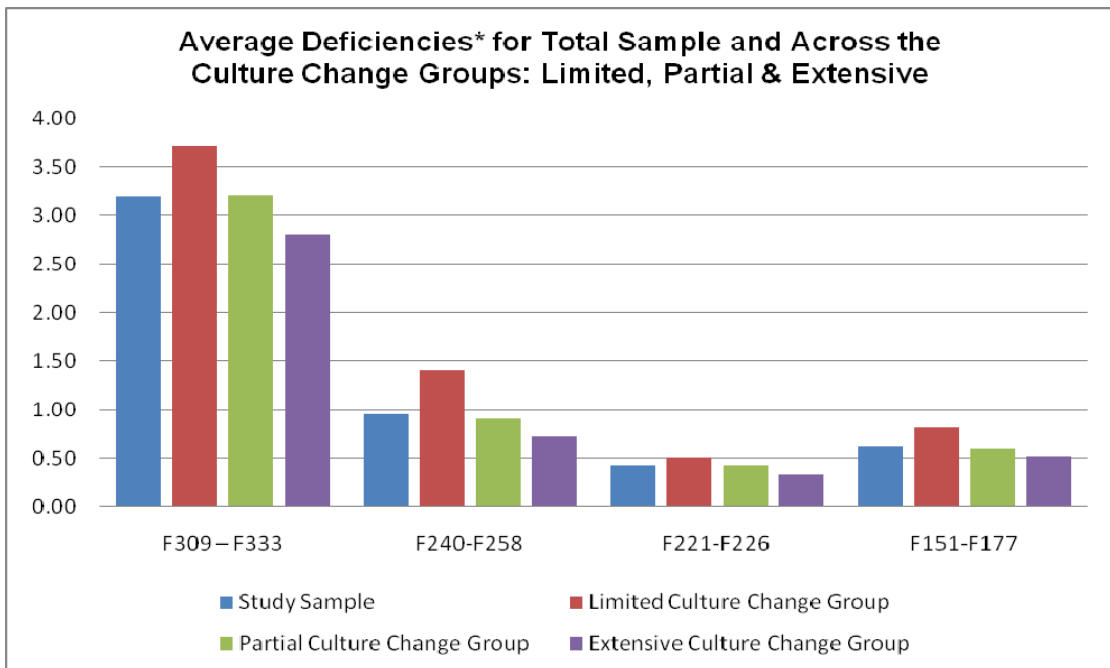
Scores that were summed across multiple items comprised the other four areas of F-tags: F-tags 309-333 (F-tags related to quality of care); F-tags 240-258 (F-tags related to quality of life); F-tags 221-226 (F-tags related to resident and behavior facility practices); and F-tags 151-177 (F-tags related to resident rights). The means represent the average for each facility's summed score (See Appendix G). The averages for the extensive culture change group were lower than for the limited or partial culture change groups (See Figure 3).

**Figure 2.**



\*See Appendix D for F-Tag definitions

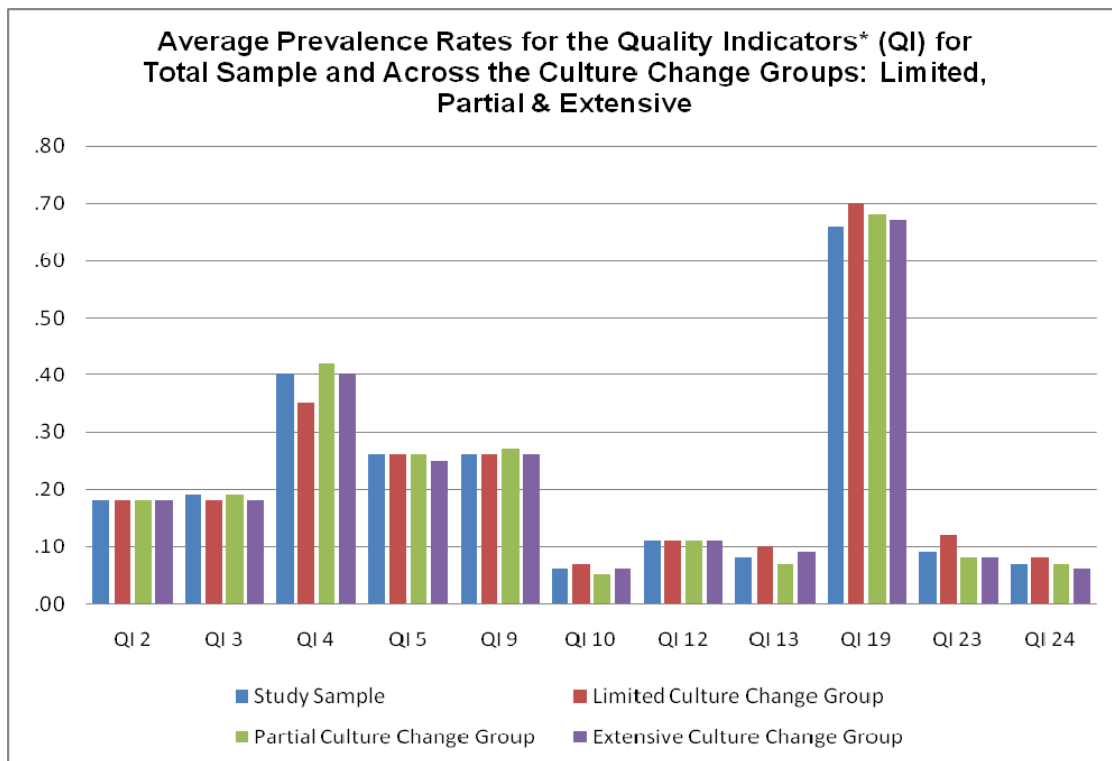
**Figure 3.**



\*See Appendix D for F-tag definitions

**Quality Indicators (QI).** The mean for the QIs represents the average prevalence rates across the nursing homes or the proportion of the residents that exhibit a certain indicator during a time period. Generally prevalence rates refer to the number of residents affected by an indicator such as falls as compared to an incidence rate, which is the number of new individuals who are affected by an indicator such as new fractures. For most of the QIs, there were not differences across the three culture change groups. However, the prevalence rates were highest for symptoms of depression (QI 4) and the use of antipsychotics in the absence of psychotic or related conditions (QI 9). Findings show that the proportion of residents that used antipsychotics in the absence of psychotic or related conditions was lowest in the extensive culture change group; however, the proportion of residents that exhibited symptoms of depression was lowest in the limited culture change group. Thus we have inconsistent findings for the QIs related to culture change groups (See Figure 4 and Appendix G).

**Figure 4.**



\*See Appendix E for QI names and definitions

Multivariate ANCOVA procedures were conducted using the leader data in the larger sample ( $n = 222$ ) treating turnover, deficiencies, and QIs as dependent variables, the facility characteristics as control variables, and the *Culture Change Total* score and subscale scores as independent variables. Only those parameter estimates where the overall multivariate test was significant ( $p < .05$ ) are reported. These parameter estimates are included for the dependent variables turnover, QI 23, QI 24, F-tag 252, and the summed scores for Resident Behavior and Facility Practices, Resident Rights, Quality of Life, and Quality of Care. (See Table 8) All significant relationships were in the expected direction. As culture change scores increased, there were decreases in the relevant QI, deficiency, and turnover.

As the scores on the *Resident Care* subscale increased, there were decreases in the prevalence of little or no activity by residents, fewer residents with pressure ulcers, less quality of care deficiencies, and less resident behavior deficiencies. For the *Relationships* subscale, we see corresponding decreases in prevalence of little or no activity and deficiencies related to safe clean environment, resident behavior problems, residents' rights quality of life, and quality of care. Also for the *Shared Values* subscale, there are decreases in the deficiencies related to safe, clean environment and resident behavior problems.

**Table 8. Significant Parameter Estimates for Deficiencies and QIs using Leader Total Culture Change Score and Selected Subscales.**

	<i>Culture Change Total Score</i>	<i>Resident Care</i>	<i>Relationships</i>	<i>Shared Values</i>
<b>Dependent Variables</b>	<i>B<sup>a</sup></i> ( <i>se</i> ) <sup>b</sup>	<i>B<sup>a</sup></i> ( <i>se</i> ) <sup>b</sup>	<i>B<sup>a</sup></i> ( <i>se</i> ) <sup>b</sup>	<i>B<sup>a</sup></i> ( <i>se</i> ) <sup>b</sup>
<b>Turnover</b>	-.18* (.09)			
<b>Quality Indicators</b>				
Prevalence of little or no activity (QI 23)	-.07* (.03)	-.05* (.02)	-.09*** (.03)	
Residents with pressure ulcers (QI 24)		-.02* (.01)		
<b>Deficiencies</b>				
Safe, clean comfortable environment (F252)	-.14** (.05)	-.09* (.03)	-.11* (.04)	-.12** (.04)
Resident Behavior and Facility Practices Total (F221-F226)	-.47** (.18)	-.47*** (.13)	-.34* (.17)	-.39** (.14)
Resident Rights Total (F151-F177)			-.50* (.21)	
Quality of Life Total (F240-F258)	-.74* (.33)		-1.09*** (.58)	
Quality of Care Total (F309 – F333)	-1.64** (.62)	-1.24** (.46)	-1.65** (.58)	

\**p* <.05  
 \*\* *p*<.01  
 \*\*\**p*<.001

<sup>a</sup>Unstandardized Coefficient  
<sup>b</sup> Standard error

## Discussion

The *Kansas Culture Change Instrument (KCCI)* has undergone sound psychometric testing in Phase I (Bott, Dunton, et. al., 2007; & Bott, Gajewski et al., 2008) and Phase II of the project. In Phase I content validity was established using a panel of experts in field of culture change (Bott, Dunton, et. al., 2007). Internal consistency reliability of the staff and leader version of the *KCCI* was demonstrated at both the individual (Phases I and II) and the facility level (Phase II).

There was good evidence of validity of the instrument's internal structure, including internal consistency, using confirmatory factor analysis (CFA) based on an empirical model developed in the Phase I study. Construct validity was established by demonstrating

differences across the three culture change groups: limited, partial, and extensive. Criterion-related validity was established through the evidence of moderate to strong relationships with the *Artifacts of Culture Change Instrument* (Schoeneman & Bowman, 2006) and the *Observable Indicators of Nursing Home Quality Instrument* (Rantz, Zwygart-Stauffacher, Mehr & Petroski, 2006) in the Phase I study (Bott, Dunton, et. al., 2007).

Focusing on the Phase II findings from this report, the *Total Culture Change* score was related to turnover; as culture change increased, turnover decreased. This relationship between the *Total Culture Change* score and turnover was evident as turnover varied for nursing homes in different culture change groups with the limited group having the highest turnover, the partial group having lower turnover, and the extensive culture change group having the least turnover. However, we must interpret this finding with caution since the available turnover data was from the year prior to the data collection for culture change.

Nursing homes in the extensive culture change group had consistently lower deficiencies than the other groups. Thus, engaging in culture change does not disadvantage nursing homes in the survey process. However, we did not find any appreciable differences across the three culture change groups for any of the Quality Indicators (QIs).

### **Recommendations**

KDOA should consider the following recommendations to ***promote culture change in Kansas nursing homes***:

1. Encourage annual data collection from all nursing homes in Kansas with the 2008 data collection serving as a baseline measure of culture change for the nursing homes who participated. The purpose is: a) to educate nursing home leaders and staff; and b) to measure the adoption of culture change in Kansas nursing homes.
2. Use the *KCCI* to measure culture change in one of three ways:
  - a. Collect information from nursing home leaders and staff using the leader and staff versions of the *KCCI*, respectively.
  - b. Collect information from nursing home leaders only using the leader version of the *KCCI*.
  - c. Collect information using the two questions from the *KCCI* leadership version as a crude measure of the extent that culture change has been implemented (Culture 1) and the numbers of years that the nursing home has been involved in culture change (Culture 2).
3. Examine the relationship of *Culture Change Total* score and subscales with turnover using turnover data that was collected from the same or subsequent year as the data on the *KCCI*.
4. Make the *KCCI* available to Kansas nursing homes and to other states for continued psychometric testing.
5. Continue independent data collection about culture change by a neutral party outside of the state survey process.

## References

- Bliese, P (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. Klein & S. Kozlowski (Eds). *Multilevel theory, research, and methods in organizations*. pp. 349-381. San Francisco, CA: Josey-Bass.
- Bleise, P., & Halverson, R. (1998). Group size and measures of group-level properties: An examination of eta-squared and ICC values. *Journal of Management*, 24, 157-172.
- Bott, M.J., Dunton, N., Gajewski, B., Lee, R., Boyle, D., Bonnel, W., Averett, E., Becker, A., Coffland, V., et al. (December 20, 2007).: Culture change and turnover in Kansas nursing homes, *Kansas Nursing Facility Project Report* submitted to the Kansas Department on Aging, Kansas City, KS: author.
- Bott, M.J., Gajewski, B.J., Boyle, D., Becker, A., Coffland, V., Lee, R., Averett, E., Bonnel, W., & Dunton, N. (2008). Psychometric assessment of staff and leader instruments of culture change in nursing home, Manuscript submitted for publication. *Journal of Nursing Measurement*.
- Colorado Foundation for Medical Care (CFMC). (August 7, 2006). *Report to CMS: Measuring culture change--literature review*. Colorado: author.
- Doty, M. M., Koren, M.J., & Sturla, E. L. (2008). *Culture change in nursing homes: How far have we come? Findings from The Commonwealth Fund 2007 National Survey of Nursing Homes*. Retrieved May 10, 2008 from [http://www.commonwealthfund.org/publications/publications\\_show.htm?doc\\_id=684709](http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=684709)
- Elliott, C. G. (2006). *Using aggregated micro-level data as measures of macro-level phenomena: The case of the NDNQI-RN satisfaction survey*. Ph.D. dissertation. The University of Kansas, United States - Kansas. Retrieved March 31, 2009, from Dissertations & Theses @ University of Kansas database. (Publication No. AAT 3211275).
- Glick, W. (1985). Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research. *Academy of Management Review*, 10, 601-616.
- James, L. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of Applied Psychology*, 67, 219-229.
- Kansas Foundation for Medical Care (KFMC). (2005). *Kansas culture change organizational self assessment*. Topeka, KS: author.
- Myers, S., Gajewski, B., Becker, A., Coffland, V., & Bott, M. (March, 2008). Culture change in nursing homes: The perceptions of leaders versus staff. Conference Abstract accepted for presentation at the *Midwest Nursing Research Society*.
- Nunnally, J.C. (1978). *Psychometric theory*. New York: McGraw-Hill.

Rantz, M.J., Zwygart-Stauffacher, M., Mehr, D.R., Petroski, G.F. (2006) Field testing, refinement, and psychometric evaluation of a new measure of nursing home care quality. *Journal of Nursing Measurement, 14*, 129-148.

Schoeneman, K., Bowman, C.S. (April 21, 2006) Development of the artifacts of culture change tool. *Report of Contract HHSM-500-2005-00076P*.

Verran, J. Gerbert, R., & Milton D (1995). Data aggregation: Criteria for psychometric evaluation. *Research in Nursing & Health, 18*, 77-80.



## Appendix B

Facility Characteristics (*N* = 223)

Facility Characteristics		
	<i>Mean</i>	<i>SD</i>
Bed Size	67	33.25
	<i>%</i>	<i>RANGE</i>
Location/Urban	30	NA
Ownership/For Profit	33	NA
Total Turnover	67	3 – 219
Percent Medicaid Days	54	5 – 100
Percent Medicare Days	10	0 - 90
QIS Survey	29	0 - 1

## Appendix C

### Leader and Staff Sample Demographics

Characteristics	Leaders ( <i>n</i> = 1,596) <sup>a</sup>		Staff ( <i>n</i> = 2,260) <sup>b</sup>	
	Category	%	Category	%
Years in the NH	< 1 year	16.5	< 1 year	32.6
	1-5 years	36.8	1-5 years	40.0
	>5 years	46.7	>5 years	27.4
Role in the NH	Administrator/Assistant	13.2	RN/LPN	13.8
	Director of Nursing/Assistant	15.1	CNA/CMA	44.4
	Department Heads	50.6	Dietary/Activities/Social Services	15.8
	Other	21.1	PT/OT/ST/Restorative Aides	3.2
			Other	22.8
Education	Some High School (HS)	2.5	Some HS	11.2
	HS Diploma	22.2	HS Diploma	43.6
	Technical/AD	46.3	Technical/AD	38.4
	Bachelors or higher	31.5	Bachelors or higher	6.8
Primary Shift Worked	Days	82.4	Days	46.1
	Evening	3.4	Evening	26.1
	Nights	.5	Nights	9.3
	Other	13.7	Other	18.5
Gender	Male	14.3	Male	12.7
	Female	85.7	Female	87.3
Race/Ethnicity	Caucasian	90.2	Caucasian	76.1
	African American	2.2	African American	10.9
	Hispanic	3.1	Hispanic	6.6
	Other	4.5	Other	6.4

<sup>a</sup>Leader data from 222 Kansas Nursing Homes

<sup>b</sup>Staff data from a random sample of 72 Kansas Nursing Homes

## Appendix D

### Deficiency Definitions

Tag Number	Deficiency Definition	Number of Deficiencies in Group
F246	Accommodation of Needs	1
F252	Safe, Clean Comfortable Home-Like Environment	1
F309	Highest Practicable Well-Being	1
F332	Facility Med Error Rate Less Than 5%	1
F309-333	Quality of Care: Each resident must receive and the facility must provide the necessary care and services to attain or maintain the highest practicable physical, mental, psychosocial well-being, in accordance with the comprehensive assessment and plan of care.	23
F240-258	Quality of Life: The intention of the quality of life requirements is to specify the facility's responsibilities toward creating and sustaining an environment that humanizes and individualizes each resident.	19
F221-226	Resident Behavior Facility Practices: The intention of these requirements is for each person to attain and maintain his/her highest practicable well-being in an environment that prohibits the use of unnecessary restraints and limits necessary restraint use and each resident has the right to be free from abuse, corporal punishment, and involuntary seclusion.	6
F151-177	Resident Rights: The resident has a right to a dignified existence, self-determination, and communication with and access to persons and services inside and outside the facility. A facility must protect and promote the rights of each resident.	27

## Appendix E

### Quality Indicators Definitions

QI NUMBER	QI DEFINITION
QI02	Prevalence of falls
QI03 High Risk	Prevalence of behavior symptoms affecting others
QI03 Low Risk	Prevalence of behavior symptoms affecting others
QI04	Prevalence of symptoms of depression
QI05	Prevalence of symptoms of depression without antidepressant therapy
QI09	Prevalence of occasional or frequent bladder or bowel with incontinence without a toileting plan
QI10	Prevalence of in-dwelling catheter
QI12	Prevalence of urinary tract infections
QI13	Prevalence of weight loss
QI19 High Risk	Prevalence of antipsychotic use, in the absence of psychotic or related conditions
QI19 Low Risk	Prevalence of antipsychotic use, in the absence of psychotic or related conditions
QI23	Prevalence of little or no activity
QI24 High Risk	Prevalence of pressure ulcers

## Appendix F

Correlations Among the Seven Subscales of Culture Change

<b><i>Subscale</i></b>	<b><i>Resident Care</i></b>	<b><i>Home Environment</i></b>	<b><i>Relationships</i></b>	<b><i>Staff Empowerment</i></b>	<b><i>Nursing Home Leadership</i></b>	<b><i>Shared Values</i></b>	<b><i>Quality Improvement</i></b>
<b><i>Resident Care</i></b>	–						
<b><i>Home Environment</i></b>	.73	–					
<b><i>Relationships</i></b>	.65	.87	–				
<b><i>Staff Empowerment</i></b>	.64	.74	.74	–			
<b><i>Nursing Home Leadership</i></b>	.58	.67	.70	.86	–		
<b><i>Shared Values</i></b>	.60	.69	.68	.79	.90	–	
<b><i>Quality Improvement</i></b>	.55	.62	.59	.76	.81	.77	–

## Appendix G

Outcome Measure Descriptives for Total Sample and Limited, Partial, and Extensive Culture Change (CC) Groups

Outcome Measures	Total Sample		Limited CC Group		Partial CC Group		Extensive CC Group	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
Turnover	.67	.03-2.09	.81	.09-2.19	.68	.03-1.75	.54	.08-1.07
<b>Deficiencies<sup>a</sup></b>								
Accommodation of Needs (F246)	.08	0-1	.10	0-1	.05	0-1	.10	0-1
Safe, Clean Comfortable Home-Like Environment (F252)	.04	0-1	.08	0-1	.02	0-1	.03	0-1
Highest Practicable Well-Being (F309)	.31	0-1	.38	0-1	.31	0-1	.28	0-1
Facility Med Error Rate Less Than 5% (F332)	.09	0-1	.13	0-1	.06	0-1	.10	0-1
Quality of Care Total (F309 – F333)	3.18	0-12	3.71	0-11	3.20	0-12	2.80	0-9
Quality of Life Total (F240-F258)	.95	0-7	1.41	0-7	.91	0-5	.73	0-4
Resident Behavior and Facility Practices Total (F221-F226)	.43	0-3	.51	0-3	.43	0-3	.34	0-3
Resident Rights Total (F151-F177)	.62	0-4	.82	0-4	.60	0-4	.52	0-2

	<i>Total Sample</i>		<i>Limited CC Group</i>		<i>Partial CC Group</i>		<i>Extensive CC Group</i>	
<b>Outcome Measures</b>	<i>Mean</i>	<i>Range</i>	<i>Mean</i>	<i>Range</i>	<i>Mean</i>	<i>Range</i>	<i>Mean</i>	<i>Range</i>
<b>Quality Indicators<sup>b</sup></b>								
Prevalence of Falls (QI 2)	.18	.03-.45	.18	.03-.35	.18	.04-.45	.18	.06-.33
Prevalence of Behavior Symptoms Affecting Others (QI 3)	.19	.00-.69	.18	.00-.68	.19	.00-.69	.18	.04-.47
Prevalence of Symptoms of Depression (QI 4)	.40	.00-.82	.35	.10-.63	.42	.00-.71	.40	.08-.82
Prevalence of Symptoms of Depression Without Antidepressant Therapy (QI 5)	.26	.00-.59	.26	.11-.54	.26	.07-.59	.25	.06-.42
Prevalence of Bladder/Bowel Incontinence (QI 9)	.26	.00-1.00	.26	.00-1.00	.27	.00-1.00	.26	.00-1.00
Residents Who Have/Had a Catheter (QI 10)	.06	.00-.23	.07	.00-.23	.05	.00-.18	.06	.00-.17
Residents With a Urinary Tract Infection (QI 12)	.11	.00-.40	.11	.00-.25	.11	.00-.40	.11	.00-.33
Residents Who Lose Too Much Weight (QI 13)	.08	.00-.27	.10	.03-.27	.07	.00-.26	.09	.00-.20
Prevalence of Antipsychotic Use, In the Absence of Psychotic or Related Conditions (QI 19)	.66	.00-1.00	.70	.00-1.00	.68	.00-1.00	.67	.00-1.00
Prevalence of Little or No Activity (QI 23)	.09	.00-.60	.12	.00-.60	.08	.00-.55	.08	.00-.38
Residents With Pressure Ulcers (QI 24)	.07	.00-.22	.08	.00-.20	.07	.00-.22	.06	.00-.18
<sup>a</sup> See Appendix D								
<sup>b</sup> See Appendix E								

## Appendix H

### Staff Version of the *Kansas Culture Change Instrument (KCCI)*

## INSTRUCTIONS

### PLEASE CAREFULLY READ THE FOLLOWING

“**Culture change**” is an effort to make a nursing home less like an institution and more like a home while maintaining quality of life for those who live and work there. Core values include choice for residents, improving quality of care, staff empowerment and creating a homelike setting.

Tell us about your nursing home. Please answer each question as you believe it really is, not as you think it should be.

For the following questions please circle the number that best describes the way you feel about each question. For example, if you wish to answer “**Always**” then circle the “4” in the column that is marked “**Always**”.

### RESIDENT CARE

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Residents choose when they eat each meal.	1	2	3	4
2. At mealtime, residents help themselves or tell staff what they want to eat.	1	2	3	4
3. Residents choose the time of day they bathe.	1	2	3	4
4. Residents choose the way they bathe (for example, shower, bed bath or bathtub).	1	2	3	4
5. Care plans are based on residents' requests.	1	2	3	4
6. Residents can sleep late and still get breakfast.	1	2	3	4
7. Residents go to bed for the night at any time they want.	1	2	3	4
8. This nursing home has activities designed for residents with memory problems.	1	2	3	4
9. Residents, who are able, dress themselves even if it takes a long time.	1	2	3	4

## NURSING HOME ENVIRONMENT

Please circle the number in the column that best describes your response.	Never	Some times	Often	Always
1. Residents decorate their own rooms.	1	2	3	4
2. Residents can meet with visitors in a living room shared by a small group of residents.	1	2	3	4
3. Residents eat in a dining room shared by a small group of residents.	1	2	3	4
4. This nursing home has live indoor plants and flowers.	1	2	3	4
5. This nursing home has pets here.	1	2	3	4
6. Children from the community come to visit residents.	1	2	3	4
7. This nursing home looks and “feels” like home.	1	2	3	4
8. Spur of the moment activities happen here.	1	2	3	4
9. This nursing home displays residents’ personal items, such as family photos, in common living areas outside of their rooms.	1	2	3	4
10. Residents can get to outdoor spaces without staff help.	1	2	3	4

## RELATIONSHIPS

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Staff work with the same group of residents.	1	2	3	4
2. Families know who takes care of their loved ones.	1	2	3	4
3. The outside community is involved in nursing home activities.	1	2	3	4
4. We meet with family members to explain their role in their loved one's care.	1	2	3	4
5. Families visit their loved ones.	1	2	3	4
6. This nursing home has community volunteers.	1	2	3	4
7. Children from the community participate in programs with residents in the nursing home.	1	2	3	4
8. This nursing home takes time to remember residents who die.	1	2	3	4
9. Residents and staff are encouraged to talk about their feelings when a resident dies.	1	2	3	4
10. Residents choose to spend time with each other on their own.	1	2	3	4

For the following questions “**Staff**” refers to all employees of the nursing home in all departments. “**Direct care staff**” refers to employees who provide hands-on resident care. For example, the CNAs, CMAs, licensed nurses, social services, activities, dietary workers and therapy staff.

## STAFF EMPOWERMENT

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Direct care staff have input into resident care planning.	1	2	3	4
2. Certified aides take part in resident care plan meetings.	1	2	3	4
3. Direct care staff know when a resident's care plan has been changed.	1	2	3	4
4. Staff teams create their own work schedules.	1	2	3	4
5. Staff work together to cover shifts when someone can't come to work.	1	2	3	4
6. Staff are cross-trained to perform tasks outside of their assigned job duties.	1	2	3	4
7. This nursing home gives raises and other rewards to staff who receive extra training or education.	1	2	3	4
8. Direct care staff take part in quality improvement teams.	1	2	3	4
9. Staff are empowered to contact family directly when a resident has a personal need.	1	2	3	4
10. Staff grow as individuals here.	1	2	3	4

For the next questions, “**Nursing home leaders**” refers to the Administrator, Director of Nursing and Department Heads.

## NURSING HOME LEADERSHIP

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Nursing home leaders value team members from all departments.	1	2	3	4
2. Decisions in the home are made by teams that involve direct care staff.	1	2	3	4
3. Nursing home leaders hire staff who really care, not “just anyone”.	1	2	3	4
4. Nursing home leaders try to improve working conditions.	1	2	3	4
5. Nursing home leaders ignore ideas from staff.	1	2	3	4
6. Nursing home leaders ask questions with an open mind.	1	2	3	4
7. Nursing home leaders are available when staff need to talk.	1	2	3	4
8. Supervisors treat aides with respect.	1	2	3	4

# SHARED VALUES

Please circle the number in the column that best describes your response.	Never	Some times	Often	Always
<b>Nursing home leaders and staff share values and common goals related to:</b>				
1. Homelike environment	1	2	3	4
2. Choice for residents	1	2	3	4
3. Respect for residents	1	2	3	4
4. Respect for co-workers	1	2	3	4
5. Decision making	1	2	3	4
6. Quality of life for residents	1	2	3	4
7. Quality of work life for staff	1	2	3	4

For the following questions “**Staff**” refers to all employees of the nursing home in all departments. “**Direct care staff**” refers to employees who provide hands-on resident care. For example, the CNAs, CMAs, licensed nurses, social services, activities, dietary workers and therapy staff.

For the following questions please circle the number that best describes the way you feel about each question. For example, if you wish to answer “**Strongly Agree**” then circle the “4” in the column that is marked “**Strongly Agree**”.

## QUALITY IMPROVEMENT

Please circle the number in the column that best describes your response.	Don't Know	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Most of my co-workers have been at this nursing home a long time.	0	1	2	3	4
2. This nursing home evaluates our care and services to make improvements.	0	1	2	3	4
3. The data we collect help identify problems with services.	0	1	2	3	4
4. This nursing home has a plan for lowering turnover.	0	1	2	3	4
5. This nursing home actively tries to keep employees working here.	0	1	2	3	4
6. Staff are updated about budget and cost changes.	0	1	2	3	4
7. Direct care staff, including aides, have input into the budget to care for their residents.	0	1	2	3	4
8. Staff ideas are used to reduce wasted time and effort.	0	1	2	3	4

***Please tell us about you.***  
**Please only select one answer for each question below.**

**How long have you worked at this nursing home? (Select only one)**

- |  |   |
|--|---|
| <input type="checkbox"/> Less than 1 month | <input type="checkbox"/> 6-10 years         |
| <input type="checkbox"/> 1-3 months        | <input type="checkbox"/> 11-15 years        |
| <input type="checkbox"/> 4-6 months        | <input type="checkbox"/> 16-20 years        |
| <input type="checkbox"/> 7-11 months       | <input type="checkbox"/> More than 20 years |
| <input type="checkbox"/> 1- 5 years        |   |

**In what role do you spend most of your time at this nursing home? (Select only one)**

- Registered Nurse
- Licensed Practical Nurse
- Certified Nursing Assistant (CNA) / Certified Medical Assistant (CMA)
- Dietary / Dietary Aide
- Activities
- Social Services
- Housekeeping/ Laundry/ Maintenance
- Physical Therapy / Occupational Therapy / Speech Therapy; including Assistants
- Restorative Aide
- Human Resources Personnel
- Secretary / Medical Records Personnel/Business Office
- Supervisor
- Other Role, please explain \_\_\_\_\_

**Which shift do you work most often? (Select only one)**

- |   |  |
|---|--|
| <input type="checkbox"/> 2 hour - 12 hour days    | <input type="checkbox"/> Rotate shifts |
| <input type="checkbox"/> 2 hour - 12 hour nights  | <input type="checkbox"/> Weekends only |
| <input type="checkbox"/> 4 hour - 8 hour evenings | <input type="checkbox"/> PRN           |

**Highest level of education (Select only one)**

- Some High School
- High School Diploma or equivalent
- Technical or vocational school
- Associate Degree
- BS/BA
- Graduate degree (Masters)
- Graduate degree (Doctorate)

**Gender**                     Male                     Female

**Hispanic**                     Yes                     No

**Racial category (Select only one)**

- American Indian                     Black or African American
- Alaska Native                     White
- Pacific Islander or Asian                     Other or more than one race

## Appendix I

### Leader Version of the *Kansas Culture Change Instrument (KCCI)*

## INSTRUCTIONS

### PLEASE CAREFULLY READ THE FOLLOWING

“**Culture change**” is an effort to make a nursing home less like an institution and more like a home while maintaining quality of life for those who live and work there. Core values include choice for residents, improving quality of care, staff empowerment and creating a homelike setting.

Tell us about your nursing home. Please answer each question as you believe it really is, not as you think it should be.

For the following questions please circle the number that best describes the way you feel about each question. For example, if you wish to answer “**Always**” then circle the “4” in the column that is marked “**Always**”.

### RESIDENT CARE

Please circle the number in the column that best describes your response.	Never	Some times	Often	Always
1. Residents choose when they eat each meal.	1	2	3	4
2. At mealtime, residents help themselves or tell staff what they want to eat.	1	2	3	4
3. Residents choose the time of day they bathe.	1	2	3	4
4. Residents choose the way they bathe (for example, shower, bed bath or bathtub).	1	2	3	4
5. Care plans are based on residents' requests.	1	2	3	4
6. Residents can sleep late and still get breakfast.	1	2	3	4
7. Residents go to bed for the night at any time they want.	1	2	3	4
8. This nursing home has activities designed for residents with memory problems.	1	2	3	4
9. Residents, who are able, dress themselves even if it takes a long time.	1	2	3	4

## NURSING HOME ENVIRONMENT

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Residents decorate their own rooms.	1	2	3	4
2. Residents can meet with visitors in a living room shared by a small group of residents.	1	2	3	4
3. Residents eat in a dining room shared by a small group of residents.	1	2	3	4
4. This nursing home has live indoor plants and flowers.	1	2	3	4
5. This nursing home has pets here.	1	2	3	4
6. Children from the community come to visit residents.	1	2	3	4
7. This nursing home looks and “feels” like home.	1	2	3	4
8. Spur of the moment activities happen here.	1	2	3	4
9. This nursing home displays residents’ personal items, such as family photos, in common living areas outside of their rooms.	1	2	3	4
10. Residents can get to outdoor spaces without staff help.	1	2	3	4

## RELATIONSHIPS

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Staff work with the same group of residents.	1	2	3	4
2. Families know who takes care of their loved ones.	1	2	3	4
3. The outside community is involved in nursing home activities.	1	2	3	4
4. We meet with family members to explain their role in their loved one's care.	1	2	3	4
5. Families visit their loved ones.	1	2	3	4
6. This nursing home has community volunteers.	1	2	3	4
7. Children from the community participate in programs with residents in the nursing home.	1	2	3	4
8. This nursing home takes time to remember residents who die.	1	2	3	4
9. Residents and staff are encouraged to talk about their feelings when a resident dies.	1	2	3	4
10. Residents choose to spend time with each other on their own.	1	2	3	4

For the following questions “**Staff**” refers to all employees of the nursing home in all departments. “**Direct care staff**” refers to employees who provide hands-on resident care. For example, the CNAs, CMAs, licensed nurses, social services, activities, dietary workers and therapy staff.

## STAFF EMPOWERMENT

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Direct care staff have input into resident care planning.	1	2	3	4
2. Certified aides take part in resident care plan meetings.	1	2	3	4
3. Direct care staff know when a resident’s care plan has been changed.	1	2	3	4
4. Staff teams create their own work schedules.	1	2	3	4
5. Staff work together to cover shifts when someone can’t come to work.	1	2	3	4
6. Staff are cross-trained to perform tasks outside of their assigned job duties.	1	2	3	4
7. This nursing home gives raises and other rewards to staff who receive extra training or education.	1	2	3	4
8. Direct care staff take part in quality improvement teams.	1	2	3	4
9. Staff are empowered to contact family directly when a resident has a personal need.	1	2	3	4
10. Staff grow as individuals here.	1	2	3	4

For the next questions, “**Nursing home leaders**” refers to the Administrator, Director of Nursing and Department Heads.

## NURSING HOME LEADERSHIP

<b>Please circle the number in the column that best describes your response.</b>	<b>Never</b>	<b>Some times</b>	<b>Often</b>	<b>Always</b>
1. Nursing home leaders value team members from all departments.	1	2	3	4
2. Decisions in the home are made by teams that involve direct care staff.	1	2	3	4
3. Nursing home leaders hire staff who really care, not “just anyone”.	1	2	3	4
4. Nursing home leaders try to improve working conditions.	1	2	3	4
5. Nursing home leaders ignore ideas from staff.	1	2	3	4
6. Nursing home leaders ask questions with an open mind.	1	2	3	4
7. Nursing home leaders are available when staff need to talk.	1	2	3	4
8. Supervisors treat aides with respect.	1	2	3	4
9. Exit interviews are conducted when staff leave.	1	2	3	4
10. Changes in operations are made as a result of exit interview data.	1	2	3	4

## SHARED VALUES

Please circle the number in the column that best describes your response.	Never	Some times	Often	Always
<b>Nursing home leaders and staff share values and common goals related to:</b>				
1. Homelike environment	1	2	3	4
2. Choice for residents	1	2	3	4
3. Respect for residents	1	2	3	4
4. Respect for co-workers	1	2	3	4
5. Decision making	1	2	3	4
6. Quality of life for residents	1	2	3	4
7. Quality of work life for staff	1	2	3	4

For the following questions “**Staff**” refers to all employees of the nursing home in all departments. “**Direct care staff**” refers to employees who provide hands-on resident care. For example, the CNAs, CMAs, licensed nurses, social services, activities, dietary workers and therapy staff.

For the following questions please circle the number that best describes the way you feel about each question. For example, if you wish to answer “**Strongly Agree**” then circle the “4” in the column that is marked “**Strongly Agree**”.

## QUALITY IMPROVEMENT

<b>Please circle the number in the column that best describes your response.</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1. Staff turnover at this nursing home is low.	1	2	3	4
2. This nursing home evaluates our care and services to make improvements.	1	2	3	4
3. The data we collect help identify problems with services.	1	2	3	4
4. This nursing home has a plan for lowering turnover.	1	2	3	4
5. This nursing home actively tries to keep employees working here.	1	2	3	4
6. Staff are updated about budget and cost changes.	1	2	3	4
7. Direct care staff, including aides, have input into the budget to care for their residents.	1	2	3	4
8. Staff ideas are used to reduce wasted time and effort.	1	2	3	4
9. The leadership team discusses staff turnover.	1	2	3	4
10. We have a plan to increase staff retention.	1	2	3	4
11. The leadership team uses MDS reports for quality improvement initiatives.	1	2	3	4
12. Direct care staff attend quality improvement meetings.	1	2	3	4

**Is your nursing home currently involved in culture change? (Select only one)**

- There is no discussion around culture change
- Culture change is under discussion, but we haven't changed the way we take care of residents
- Culture change has partially changed the way we care for residents in some or all areas of the organization
- Culture change has completely changed the way we take care of residents in some areas of the organization
- Culture change has completely changed the way we take care of residents in all areas of the organization

**How many years has your nursing home been involved in culture change activities? (Select only one)**

- |   |  |
|---|--|
| <input type="checkbox"/> Not involved in culture change | <input type="checkbox"/> 3-4 years       |
| <input type="checkbox"/> Less than 1 year               | <input type="checkbox"/> 5 or more years |
| <input type="checkbox"/> 1-2 years                      | <input type="checkbox"/> I don't know    |

**Do residents in your nursing home live in small households or neighborhoods?**

- Yes  No

***Please tell us about you.***

**Please only select one answer for each question below.**

**How long have you worked at this nursing home? (Select only one)**

- |  |   |
|--|---|
| <input type="checkbox"/> Less than 1 month | <input type="checkbox"/> 6-10 years         |
| <input type="checkbox"/> 1-3 months        | <input type="checkbox"/> 11-15 years        |
| <input type="checkbox"/> 4-6 months        | <input type="checkbox"/> 16-20 years        |
| <input type="checkbox"/> 7-11 months       | <input type="checkbox"/> More than 20 years |
| <input type="checkbox"/> 1- 5 years        |   |

**In what role do you spend most of your time at this nursing home? (Select only one)**

- |  |  |
|--|--|
| <input type="checkbox"/> Administrator/CEO                                 | <input type="checkbox"/> Director of Nursing             |
| <input type="checkbox"/> Assistant Administrator                           | <input type="checkbox"/> Assistant Director of Nursing   |
| <input type="checkbox"/> Activities Department Head                        | <input type="checkbox"/> Social Services Department Head |
| <input type="checkbox"/> Dietary Department Head                           | <input type="checkbox"/> Maintenance Department Head     |
| <input type="checkbox"/> Housekeeping Department Head                      | <input type="checkbox"/> Laundry Department Head         |
| <input type="checkbox"/> Therapy Department Head                           | <input type="checkbox"/> Other Department Head           |
| <input type="checkbox"/> Other Role not listed above, please specify _____ |  |

**Which shift do you work most often? (Select only one)**

- |   |  |
|---|--|
| <input type="checkbox"/> 2 hour - 12 hour days    | <input type="checkbox"/> Rotate shifts |
| <input type="checkbox"/> 2 hour - 12 hour nights  | <input type="checkbox"/> Weekends only |
| <input type="checkbox"/> 4 hour - 8 hour evenings | <input type="checkbox"/> PRN           |

**Highest level of education (Select only one)**

- Some High School
- High School Diploma or equivalent
- Technical or vocational school
- Associate Degree
- BS/BA
- Graduate degree (Masters)
- Graduate degree (Doctorate)

**Gender**     Male                       Female

**Hispanic**     Yes                       No

**Racial category (Select only one)**

- |  |  |
|--|--|
| <input type="checkbox"/> American Indian           | <input type="checkbox"/> Black or African American   |
| <input type="checkbox"/> Alaska Native             | <input type="checkbox"/> White                       |
| <input type="checkbox"/> Pacific Islander or Asian | <input type="checkbox"/> Other or more than one race |