

KANSAS NURSING FACILITY PROJECT

For the Kansas Department on Aging

**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 School of Nursing and School of Allied Health
And Center for Biostatistics and Advanced Informatics**

**Robert Lee, PhD
University of Kansas School of Medicine
And 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**

**Sarah Thompson, PhD, RN
University of Nebraska School of Nursing**

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Preface

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

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As always, we wish to express our sincere gratitude to the nursing homes who participated in our data collection and without whom we would be unable to continue our work.

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

Culture Change and Turnover in Kansas Nursing Homes

Executive Summary

Objectives:

The aim this project was to establish a valid and reliable culture change survey instrument.

Methodology:

Project activities included:

- Identify existing culture change instruments and explore their psychometric properties.
- Develop a modified version of an existing instrument.
 - The modified instrument was based on the Kansas Foundation for Medical Care's instrument, the *Kansas Culture Change Organizational Self-Assessment*.
- Collect pilot data on the modified instrument with a small sample of nursing homes.
- Test the psychometric properties of the modified instrument.
 - Reliability
 - Validity

A stratified sample of nursing homes was selected to participate in the pilot test of the new *Kansas Culture Change Instrument*. Three strata were used: turnover, location, and culture change status. Homes were classified into high and low turnover categories, rural and urban location, and culture change or non culture change homes. All nursing home personnel were invited to complete the *Kansas Culture Change Instrument* during a one-time site visit. Two versions of the instrument were administered, one for staff and one for nursing home leaders.

Results:

- 12 nursing homes participated in the survey (6 high and 6 low turnover; 6 urban and 6 rural).
- A total of 515 nursing home employees participated in data collection, 437 staff members and 78 leaders.
- Content validity of the revised instrument was established by using six content experts.
- Seven constructs (resident care, nursing home environment, relationships, staff empowerment, leadership, quality improvement, and shared values) were delineated.
- Psychometric evaluation of the constructs demonstrated reliability as each construct exceeded the minimum criteria coefficient alpha of $\geq .70$.
- Beginning evidence of construct validity was demonstrated through confirmatory factor analysis of the seven factor structure and contrasting culture change homes from non culture change homes. Criterion-related validity was shown through positive, moderate correlations with the *Artifacts of Culture Change* and the *Observable Indicators of Nursing Home Quality* instruments.

Discussion:

With the project described in this report, Kansas is among the leaders testing measures of culture change. The *Kansas Culture Change Instrument*, developed and refined through this study, incorporates state-of-the-science constructs that relate to specific care practices. Further, the *Instrument* has been demonstrated to be reliable with preliminary evidence of validity. Future testing on larger samples will add to our understanding of its measurement properties and its utility for informing practice. Because the *Instrument* was developed in relationship to care practices identified with culture change, future surveys may help identify practices that should be promoted and supported by the Kansas Department on Aging and others interested in promoting culture change.

Introduction

The size of the elderly population has grown over the last two decades and will continue to rise rapidly in the coming years. This fact has been thoroughly documented for Kansas, the nation, and many parts of the developed world. The state of Kansas ranked 9th when compared to other U.S. states in the proportion of elders over the age of 85. Additionally, the number of residents in nursing homes is expected to increase from 1.6 million in 2000 to 4.6 million in 2030 (Forbes-Thompson, Dunton, et al., 2003). These statistics show that the need for nursing home care in Kansas will increase. With the onset of chronic illnesses among this growing number of the oldest old, nursing facilities will be called upon to provide care to unprecedented numbers of the most vulnerable members of our society.

Quality care of nursing home residents has been a long-standing issue across the nation. In response to a landmark Institute of Medicine (IOM) study which cited substandard care in a number of homes, Congress passed the Omnibus Budget Reconciliation Act (OBRA '87) in 1987. As a result of OBRA '87, stricter federal regulations were instituted nationwide. It was believed that increased regulatory oversight would improve resident care and quality of life (Emerzian & Stamp, 1993). Despite increased nursing home accountability, concerns remain about residents' quality of life (Scalzi, et al. 2006). It has become apparent that in addition to more stringent oversight, other measures are needed to improve quality of care.

Culture change, also referred to as resident-focused or resident-centered care, is a rapidly growing grass roots movement to promote higher quality of care in nursing homes, through positive change in areas such as resident choice, community involvement, staff empowerment, and the physical environment (Fagan, 2003). Examples of culture change abound and include allowing residents more choice and autonomy, such as determining when they bathe or have meals. Some facilities have reconfigured their physical plan as cottages or "neighborhoods" to make them more personalized and home-like and less institutional (Thomas, 2003). While intuitively such changes would be expected to improve resident outcomes in both physical and psychosocial status, to date, there has been little evaluation of the effect of culture change on resident outcomes (Scalzi et al., 2006). A barrier to studying this question is the lack of a valid and reliable instrument that measures the degree to which homes are engaging in culture change. Furthermore, culture change needs to be "operationally defined", meaning, a working definition of what constitutes culture change should be adopted with measurement specifications.

There are a number of culture change models and organizations, including Eden Alternative and Green House Project, Wellspring Model, Pioneer Network, and Action Pact (Doll, 2002). Unfortunately, there has been no consensus among these groups as to what constitutes culture change. In January 2006, the Commonwealth Fund assembled a panel of experts to reach agreement on a consensus definition of culture change. The Commonwealth Fund definition of culture change was adopted for this project, including the definitions of six constructs (Appendix A).

Purpose

The objective of this project was to develop a valid and reliable measure of culture change or resident-centered care. This was done in a five-stage process.

- 1) We explored the psychometric properties of existing Kansas culture change instruments including an instrument developed by the Kansas Department on Aging (KDOA) and an instrument developed by the Kansas Foundation for Medical Care (KFMC). We determined that a modified instrument should be developed, using our operational definition of culture change (Appendix A).
- 2) We developed a modified version of the KFMC instrument.
- 3) We collected data on the modified instrument in a pilot test.
- 4) We assessed the reliability of the new instrument.
- 5) We assessed the validity of the new instrument.

Background

An extensive search of current culture change literature was conducted. In addition, several telephone conversations were held with noted experts in the field. Six instruments designed to measure the concept of culture change were identified (Appendix B). Four of these instruments had undergone partial reliability and/or validity testing, but none had been subjected to thorough psychometric testing. After all information was compiled, 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. That definition of culture change includes the following six themes:

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

Stage One: Reliability of Existing Instruments

At the request of the Kansas Department on Aging we evaluated the reliability of the *Culture Change in Kansas Nursing Homes* instrument, a measure of organizational culture change developed by KDOA, and the reliability of the *Kansas Culture Change Organizational Self-Assessment (KCCOSA)*, a measure of nursing home culture change developed by the Kansas Foundation for Medical Care. The results of our analyses are summarized below.

Culture Change in Kansas Nursing Homes

Sample and Procedure

In both 2002 and 2005 KDOA mailed a copy of the *Culture Change in Kansas Nursing Homes* instrument to all free-standing nursing homes in the state and requested that the administrator voluntarily complete the instrument and return it to the Department. In the summer of 2006, our research team received the data collected from these two instruments (2002, $n = 195$; 2005, $n = 197$). The two data files were analyzed separately.

Measure

The 17-item instrument consisted of four subscales entitled Resident Control, Staff Empowerment and Control, Home-like Environment, and Community Involvement. The instrument was designed to “determine the extent to which the social model of care has been adopted in the state.” The items were scored on a 4-point, Likert-type scale with the response options: “Yes,” “Implement,” “Plan to implement,” and “No.” Respondents were instructed to select the option that was most appropriate for their home at the time of the survey. The instrument was designed to be completed by the Administrator or Director of Nursing of the nursing home. The instrument has reasonable face validity, meaning that items appear to measure culture change and seem meaningful to respondents.

Results

We report the reliability data below for each year, in the form of the *Cronbach’s alpha* statistic and provide a brief summary of results. An explanation of the *Cronbach’s alpha* statistic follows:

Cronbach’s alpha is a statistic that can be used to describe the stability of a measurement instrument. Alpha is frequently used to show the level of agreement among items in a scale or as an indication of how well items in a scale group together. Experts recommend using an alpha of 0.70 as a cutoff for a new instrument and 0.80 for an established instrument. (Nunnally and Bernstein, 1994)

2005 Reliability Statistics			2002 Reliability Statistics		
Subscale	<i>Cronbach's Alpha</i>	Number of Items	Subscale	<i>Cronbach's Alpha</i>	Number of Items
Resident control	0.63	6	Resident control	0.55	6
Staff empowerment and control	0.64	4	Staff empowerment and control	0.38	4
Home-like environment	0.46	4	Home-like environment	0.51	4
Community involvement	0.35	3	Community involvement	0.41	3

Using the minimum criteria of *Cronbach's alpha* = .70 for new scale development, the results suggest that, as currently written, the *Culture Change in Kansas Nursing Homes* instrument is not a sufficiently reliable measure of organizational culture in nursing homes. Possible explanations for the low reliability statistics on this measure include the small number of items for each subscale and the possibility that the items within a subscale aren't related to one another in a meaningful way. Potential improvements could be achieved by adding more items and/or rewording existing items. Because sufficient reliability must be established before validity can be assessed, it was determined that validity testing would be premature.

Kansas Culture Change Organizational Self-Assessment (KCCOSA)

Sample and Procedure

In the summer 2006, our research team received data collected by the Kansas Foundation for Medical Care between 2004 and 2006 from nursing home staff across the state ($n = 2757$). The data were collected as part of three separate studies conducted by KFMC. Data collection procedures varied across the studies; staff either completed the KCCOSA questionnaire during an in-service conducted by the KFMC staff; or on their own time, returning the questionnaire to KFMC via mail. No information was received about which respondents fell into each data collection category.

Measure

The 46-item instrument consists of five subscales entitled Leadership, Resident Control, Staff Empowerment, Home Environment, and Community Involvement and was designed to "provide a systematic method to examine progress made in the culture change journey within a nursing home." The items were scored on a 5-point Likert-type scale on which respondents were instructed to select the option that was most appropriate for their facility at the time of the survey. The response options centered on the use of culture change care practices and ranged from "There is no discussion around this objective/activity" to "This

objective/activity is fully implemented in all areas of the organization”. The instrument was designed to be completed by all personnel in the nursing facility.

Results

Upon receiving the data set from KFMC, our team conducted scale reliability analyses. Because such analyses are based upon only complete datasets, the number of subjects for each of the five domains was dependent upon the total number of completed questionnaires received for each of the subscale. Consequently, the sample size varied across the domains (*range* = 2297 to 2471).

We report the reliability data below for each year, in the form of the *Cronbach’s alpha* statistic and provide a brief summary of results.

KCCOSA Reliability Statistics			
Domain	# of Items	# of Respondents	<i>Cronbach’s Alpha</i>
Leadership	8	2451	.92
Resident Control	12	2327	.92
Staff Empowerment	11	2297	.90
Home Environment	8	2471	.89
Community Involvement	7	2357	.92

Although the initial results suggest that the KCCOSA meets the criteria for sufficient reliability for a new instrument, further examination of the instrument revealed necessary modifications. In addition to the *Cronbach’s alpha* statistic, reliability analyses include an examination of item variability across the corresponding response options; examination of items for clarity and readability; and identification of other problematic areas.

First, standard practice in test development is to write questions at an 8th grade or lower reading level; this is especially important for culturally and racially diverse subjects who are taking the test in the health care environment. Our analysis revealed the KCCOSA questionnaire was rated at grade 11.3 reading level.

Second, we found that 15 of the 46 items contained statements that encompassed two, three, and sometimes four concepts (or different questions) within that statement. That made it difficult to know what concept or portion of the item corresponded to the response that was selected. For example, a response to the Resident Control item that reads, “*Residents have options in bathing methods and times*” could be based on the choice of either a bathing method or bathing time or both but we don’t have enough information to know which was most important to the respondent when scoring the item. Certainly it is

foreseeable that a resident might have a choice of one and not the other; consequently, this item should be split into two separate items. These types of statements are both confusing to respondents and problematic when scoring. Therefore, these 15 items would require revision.

Finally, the response options were problematic for many items where the response choices did not correspond to the item. This was particularly true for items in the Leadership domain. For example, for the Leadership item that stated “*Is approachable and available for communication*”; we could not determine how a respondent would choose from responses of “There is no discussion around this objective or activity” to “This objective is fully implemented in all areas of the organization.” A better option might have been to use response options such as “Often” to “Never.” For the Leadership domain in particular, we could not be sure what a respondent was basing answers on in this format.

On the other hand, we found preliminary evidence that suggests there was a negative relationship between staff turnover and the total score on the KCCOSA (i.e. higher scores on the instrument were inversely associated with lower staff turnover). This provided initial support for construct validity.

Based on the findings related to content validity, the reliability scores for the instrument were deemed questionable. Further testing is needed.

Stage Two: Instrument Development

Following analysis of the KDOA and the KFMC instruments, we decided KDOA’s goals would be best met by using the KFMC instrument as a starting point, and revising the subscales on that instrument; incorporating other theoretical ideas.

We revised the instrument using the 2006 Commonwealth Fund’s expert panel definitions and, with their permission, 25 corresponding care practices created by the Colorado Foundation for Medical Care (CFMC). CFMC, through a project funded by CMS, has developed six culture change constructs associated with the Commonwealth Fund definition of culture change (Palmer, personal communication, 2007). Within the six culture change constructs, CFMC further identified 25 key care practices and found evidence in the literature that supports a relationship between a number of these care practices and resident outcomes. The *Kansas Culture Change Instrument* developed for this project includes these six constructs:

- 1) Resident Directed Care and Activities
- 2) Home Environment
- 3) Relationships with Staff, Family, Residents, and Community
- 4) Staff Empowerment
- 5) Collaborative and Decentralized Management
- 6) Measurement-Based Continuous Quality Improvement

See Appendix A for details. In some cases, the KCCOSA original items were divided into more than one question, some were reworded; some were eliminated; and some items were replaced with alternative items. Overall, the new instrument was assessed at a 7.1 grade reading level.

Content Analysis

Kansas Culture Change Instrument

Sample and Procedure. Based on recommendations in the literature (Grant & Davis, 1997), the team hired six content experts from the field of organizational culture in long term care to read and evaluate the items on the modified instrument. The experts were initially contacted via telephone and, after discussing the goals of the project, were invited to review and rate the content and readability of each item and to assess the relevance of the item to its corresponding construct. All six experts who were contacted agreed to receive the materials and complete the review. Packets were mailed to each reviewer that included a cover letter, specific instructions for the review, and the instrument containing the modified items. The surveys were completed and returned by all reviewers within two weeks.

The research team analysis of the information from the expert reviewers indicated that the eight items in the Continuous Quality Improvement domain did not meet the standards necessary for pilot testing. Thus, the items were completely revised and the new set of items for that construct was resubmitted to the expert panel for review and evaluation. The instructions were the same, and we received reviews for this set of items from three of the six reviewers.

Measure. The six experts received a content review form (Appendix C). The form was divided into the six construct domains and included a definition of each. Reviewers were instructed to read the definition of each domain and then use the definition to rate the relevance of each item on a 4-point scale (from 1 = content is not relevant to 4 = content is highly relevant). Additional space was provided for each item for reviewer comments. At the end of the set of items for each construct, three additional questions were posed about the clarity, distinctness, and readability of the items. Additional comments also were elicited in this section.

Results. A commonly used method for determining whether items being developed for an instrument are appropriate is the content validity index (CVI). The indices may be computed as either an item content validity index (I-CVI) or a scale content validity index (S-CVI). We focused our efforts on the I-CVIs for the purposes of identifying specific items that needed revision or replacement. I-CVI was calculated as the proportion of the six experts who rated an item a 3 (quite relevant to construct) or a 4 (highly relevant to construct). An I-CVI of .78 or better was considered acceptable (Polit & Beck, 2006). Items whose content validity index did not meet established criteria were reworded or replaced. We submitted 85 items to the content experts for review. Of those items, 54 met or exceeded the I-CVI criteria, 20 items were deleted from the instrument, 12 items were revised and an additional 23 items were created for a total of 88 items for pilot testing (Appendix D).

STAGE 3: Pilot Testing

Two versions of the revised *Kansas Culture Change Instrument* were created, one for nursing home staff and one for nursing home leaders. The staff version contained 88 items related to the six constructs of culture change and seven demographic items, for a total of 95 items. The leader version contained 88 items related to the six constructs of culture change plus an additional eight items and seven demographic items for a total of 103 items.

Pre-Pilot Testing

Following the revision of the instrument based on expert panel input we conducted a “pre-pilot” test in 2 Missouri nursing homes, one that was identified as being actively involved in culture change and one that was not. The goals of the pre-pilot were as follows:

- 1) To further test reading level and clarity of specific questions
- 2) To test appropriateness of response options
- 3) To test acceptability of instructions
- 4) To time how long it took respondents to complete the instrument

Most staff were able to complete the survey instrument in 15-20 minutes. In the pre-pilot phase, research team members interviewed staff individually or in small groups after they had completed the instrument to elicit staff reaction to the questionnaire. Based on staff feedback, slight modifications were made to the survey. Specifically, they suggested that we should use the term direct care staff instead of categorically identifying aides. Therefore, the term “including aides” was deleted from six items. Additionally, Item 10 on the Quality Improvement scale was reworded for clarity. Finally, a definition of culture change was added to the instructions because even staff members who worked in the culture change home and had heard of culture change requested a clear definition. Following these revisions, the instrument was ready for pilot testing in Kansas nursing homes.

Pilot Test

Sample

The sample was stratified based on turnover and location. Because preliminary data analysis for the *KCCOSA* instrument showed a potential relationship between culture change and turnover, Kansas nursing homes with “high” and “low” turnover were selected. When ranked based on turnover rates, the homes in the top quartile of the state were designated as having high turnover, while those in the bottom quartile were designated as having low turnover. Previous work on the Kansas Nursing Facility Project has shown that location (rural versus urban) is also related to measures of quality, such as number of deficiencies. Therefore, homes were also selected based on rural or urban location. The goal of using a stratified sample, based on turnover rates and location, was to allow us to capture homes at different points along the culture change continuum. Of the sixteen Kansas free-standing nursing homes who were invited to participate in the pilot study, 12 nursing homes agreed (*response rate* = 75%). Three were high turnover rural homes, three were high turnover urban homes, three were low turnover rural homes, and three were low turnover urban homes. Of the 12 homes, five were designated as “actively engaging in culture change” and seven were not. A home was considered to be actively engaging in culture change if it had won a PEAK award or was a member of the Kansas Culture Change

Coalition (KCCC). While on site, we verified that these homes appeared to be engaging in culture change based on physical environment and informal conversations with leaders and staff. A list of nursing home characteristics for the sample can be found in Appendix E.

All leaders and staff in the sampled nursing homes were invited to participate. A total of 515 nursing home employees participated in data collection (437 staff and 78 leaders). Leaders included Administrator, Assistant Administrator, Director of Nursing, Assistant Director of Nursing, and Department Heads. Staff included all other nursing home employees. Of the nursing home leaders that completed the questionnaire, 27% had worked at their nursing home for less than 1 year, 51% had worked at their home for 1-5 years, and 22% had worked at their home for 6 years or more years. Eighty-three percent of the leaders had post-secondary training, with the majority of respondents having a Bachelor's as their highest degree. Of the nursing home staff that completed the questionnaire 40% had worked at their nursing home for less than 1 year, 38% had worked at their home for 1-5 years, and 22% had worked at their home for 6 years or more. Forty-five percent of the staff had post-secondary schooling, primarily vocational or technical school training. A complete table of leader and staff demographics can be found in Appendix E.

Measures

The **staff version** of the *Kansas Culture Change Instrument* contained 88 items related to the six constructs of culture change (See Appendix A for definitions) and seven demographic items for a total of 95 items. Resident Care had 17 items with 4-point response options: 1 (never), 2 (sometimes) 3 (often) and 4 (always); two items were reversed scored (1 = always to 4 = never). Reverse scoring is used to identify response set biases. Nursing Home Environment had 12 items with 4-point response options (1=never to 4=always); one item was reverse scored. Relationships had 16 items with 4-point response options (1=never to 4=always). Staff Empowerment had 13 items with 4-point response options (1=never to 4=always). Nursing Home Leadership contained 20 items with 4-point response options (1=never to 4=always); one item was reverse scored. Quality Improvement contained 10 items with 4-point Likert-type response option (1=strongly disagree to 4 = strongly agree). A don't know option was added to the Quality Improvement scale.

The **leader version** contained the same 88 items related to culture change as the staff version except the nursing home leader version contained six additional items using the same 4-point response options (1=never to 4=always), and seven demographic items. Additionally, leaders were asked if their nursing home was 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 the number years the nursing home has been involved in culture change. There were a total of 103 items on the leader version questionnaire.

Procedures

Nursing home administrators were contacted by telephone and invited to participate. Data was collected on-site. Prior to data collection, we offered an educational in-service on a topic completely unrelated to culture change. All nursing home personnel present were requested to complete a questionnaire. Leaders and staff were given separate versions of the *Kansas Culture Change Instrument* and leaders were asked to complete their questionnaire in a location separate from the staff. In addition to completing the *Kansas Culture Change Instrument*, each nursing home administrator was also asked to complete

the *Artifacts of Culture Change* instrument, which was mailed to the home prior to our arrival (Appendix F – please note, scoring has been removed from this instrument for the purposes of our study). Upon arrival at the home, one of two members of the research team also completed the *Observable Indicators of Nursing Home Quality Instrument* (Appendix G). Inter-rater reliability for the two research team members was conducted on the *Observable Indicators of Nursing Home Quality Instrument* at the beginning, middle and end of the pilot testing phase with scores ranging from .72 to .96.

Stage 4: Reliability Assessment

Data were entered twice and double checked for accuracy prior to analysis. Reliability was examined, in the form of the *Cronbach's alpha*. Initial *Cronbach's alpha* ranged from .73 to .94 across the six subscales for the leader version and .74 to .95 across the six subscales for the staff version. It is standard practice when developing a new instrument to include more items on the pilot instrument than will be on the final version of the instrument. Items are reduced following pilot testing based on item performance. Therefore, 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. Items that varied little across response options or that appeared to be measuring the same concept as another item were eliminated. The Item Content Validity Index (I-CVI) was used to aide in determining what items to retain when two items were similar in response pattern and content. The resulting *Cronbach's alpha* for the revised instrument ranged from .75 to .96 for the leader version and to .79 to .94 for the staff version. In addition to the six subscales, a seventh subscale, entitled Shared Values, was identified that measured the similarity of staff and leader views of culture change. A brief summary of results is presented in the tables below.

Kansas Culture Change Instrument Leader Version Reliability Statistics			
Domain	# of Items	# of Respondents	<i>Cronbach's Alpha</i>
Resident Care	9	71	.88
Nursing Home Environment	11	68	.75
Relationships	10	74	.89
Staff Empowerment	10	69	.83
Nursing Home Leadership	10	74	.90
Quality Improvement	11	68	.86
Shared Values	6	75	.96

Kansas Culture Change Instrument Staff Version Reliability Statistics			
Domain	# of Items	# of Respondents	<i>Cronbach's Alpha</i>
Resident Care	9	315	.87
Nursing Home Environment	11	337	.79
Relationships	10	346	.85
Staff Empowerment	10	321	.87
Nursing Home Leadership	8	331	.88
Quality Improvement	7	187	.89
Shared Values	6	331	.94

Stage 5: Validity Assessment

Construct Validity

To show evidence for construct validity, a confirmatory factor analysis was performed. Culture change was operationalized as seven latent constructs: Resident Care, Nursing Home Environment, Relationships, Staff Empowerment, Nursing Home Leadership, Quality Improvement, and Shared Values. There were moderate to strong associations between the indicators of the seven culture change constructs ($r = .35$ to $.85$). Fit indices from the structural equation modeling procedures were adequate ($\chi^2 = 2978.59$, $df = 1796$, $p \leq .001$; $CFI = 0.90$; $RMSEA = 0.039$, $90\% CI = 0.036-0.041$, $p RMSEA \leq .05$, $= 1.00$). There were two items that crossloaded on more than one construct (i.e., an item from the Nursing Home Leadership construct crossloaded on the Resident Care construct and an item from the Resident Care construct crossloaded on the Staff Empowerment construct). Examining the correlations revealed a strong correlation between the Relationships construct and the Nursing Home Environment construct ($r = .85$; See Appendix H) indicating much overlap between the two constructs. An alternate model that eliminated the Nursing Home Environment construct was tested and revealed a borderline fit of the model to the data ($\chi^2 = 2261.66$, $df = 1200$, $p \leq .001$; $CFI = 0.89$; $RMSEA = 0.045$, $90\% CI = 0.042-0.047$, $p RMSEA \leq .05$, $= 0.999$). However, all items loaded on the hypothesized constructs and there were no crossloadings in this model. It was decided that we should not eliminate the cross-loaded items and to leave the Nursing Home Environment items in the instrument for additional testing and analysis in Phase II of the study.

To show further 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. For our purposes, a home was considered to be actively engaging in culture change if it had won a PEAK award or was a member of the Kansas Culture Change Coalition (KCCC). Additionally, a member of the research team verified while on-site that the home appeared to be engaging in culture change. Five of the twelve nursing homes were considered to be engaging in culture change based on these criteria.

Overall, we found that the staff and leaders scored higher across the seven constructs in those nursing homes that were engaged in culture change than those who were not (See Appendix I). Staff reported significantly higher ($p \leq .05$) scores for Resident Care and Nursing Home Environment in nursing homes engaging in culture change relative to non culture change homes. Leaders reported significantly higher ($p \leq .05$) scores for Resident Care and Quality Improvement in nursing homes engaging in culture change versus non culture change homes. Although our sample size was small, the analyses provide preliminary evidence of validity. We are encouraged by these results. With a larger sample we might be able to detect a substantial difference between culture change and non culture change homes across all the constructs. Additionally, leaders in culture change nursing homes ($M = 3.91$, $SD = 0.95$) responded significantly more positively ($p = .01$) than non culture change nursing homes ($M = 2.55$, $SD = 0.89$) when asked if their nursing home currently was involved in culture change. Eighty two percent of the leaders in culture change homes reported they had been involved in culture change for *one year or more* while 65% of leaders in non culture change homes reported they had been involved in culture change for *less than one year or not at all*. There were no significant or meaningful differences between high and low turnover homes for any of the constructs of culture change.

Criterion-related validity

Evidence of criterion-related validity can be established by comparing scores on focal instruments with other external measures of the construct. For the purpose of evaluating the criterion-related validity of the *Kansas Culture Change Instrument*, nursing home administrators completed the *Artifacts of Culture Change* and a research team member completed the *Observable Indicators of Nursing Home Quality Instrument* while onsite.

Observable Indicators of Nursing Home Quality Instrument is a 30-item scale designed for use by researchers, consumers, and regulators. The scale has been tested in 407 nursing homes in 3 states with internal consistency on seven factors ranging from .77 to .93. The seven domains include:

- 1) Communication consisting of 6 items with a range of 0 to 30
- 2) Care Delivery consisting of 6 items with a range of 0 to 30
- 3) Grooming consisting of 2 items with a range of 0 to 10
- 4) Odor consisting of 2 items with a range of 0 to 10
- 5) Environment-Basics consisting of 5 items with a range of 0 to 25
- 6) Environment-Access consisting of 4 items with a range of 0 to 20
- 7) Environment-Homelike consisting of 5 items with a range of 0 to 2

The *Observable Indicators of Nursing Home Quality Instrument* has a maximum total score of 148 points. Analysis of construct validity has shown an association between deficiencies and subscale and total scores. The instrument also demonstrates acceptable test-retest and inter-rater reliabilities (Rantz, et al, 2006).

Artifacts of Culture Change is a 79-item questionnaire designed to capture concrete changes the nursing home made in regard to culture change. The instrument was created under contract with Centers for Medicare and Medicaid Services (CMS). The developers have suggested that it be used in conjunction with other traditional indicators of nursing home quality, such as deficiencies. The instrument was previously tested in four focus facilities and reviewed by an expert panel. (Schoeneman & Bowman, 2006). The *Artifacts of Culture Change* instrument contains six sections including:

- 1) Care Practice Artifacts consisting of 14 items with a range of 0 to 70
- 2) Environment Artifacts consisting of 27 items with a range from 0 to 320
- 3) Family and Community Artifacts consisting of 6 items with a range from 0 to 30
- 4) Leadership Artifacts consisting of 5 items with a range of 0 to 25
- 5) Workplace Practice Artifacts consisting of 15 items with a range from 0 to 70
- 6) Outcomes Artifacts consisting of 13 items with a range from 0 to 65

The maximum total score of on the *Artifacts* instrument is 580 points. The *Artifacts of Culture Change* instrument has not undergone reliability or validity testing. However, this instrument was selected because, much like the *Observable Indicators of Nursing Home Quality Instrument* that has established psychometric properties, the items on the scale are observable measures of nursing home culture. The *Artifacts of Culture Change* was assumed to have face validity because the items represent concrete aspects of culture change. The *Artifacts of Culture Change* and the *Observable Indicators of Nursing Home Quality Instrument* were included as additional measures of construct validity.

Both subscale and total scores were used to analyze relationships between the *Kansas Culture Change Instrument* and the other measures. Our hypothesis was that the *Kansas Culture Change Instrument* should be moderately and positively associated with the *Artifacts of Culture Change* and the *Observable Indicators of Nursing Home Quality* instruments. Correlations were moderate to high between five of the seven constructs and *Artifacts of Culture Change* for staff and for all seven construct for nursing home leaders. Similarly, all seven scales for staff and six of the seven scales for leaders were moderately to highly correlated with the *Observable Indicators of Nursing Home Quality Instrument* (Appendix J).

Summary

Our research team examined the psychometric properties of two existing instruments: the *Culture Change in Kansas Nursing Homes* instrument, a measure of organizational culture change developed by KDOA, and the *Kansas Culture Change Organizational Self-Assessment (KCCOSA)*, a measure of nursing home culture change developed by KFMC. The analysis revealed inadequate reliabilities for the KDOA instrument; consequently validity testing was not pursued. Although the items on the KCCOSA instrument demonstrated more than adequate reliabilities, further evaluation revealed several problematic measurement issues: reading level that exceeded the recommended level of 8th grade or below; items that contained statements that encompassed multiple concepts or different questions within a single statement; and response options that did not correspond with the question.

The KCCOSA instrument was revised, and new items were added based on the 25 care practices developed by the Colorado Foundation for Medical Care (CFMC), corresponding

to the six culture change constructs (resident care, nursing home environment, relationships, staff empowerment, nursing home leadership, and quality improvement). Establishing the reliability and validity of the revised instrument was the essential next step.

Content validity of the revised instrument was established by using six content experts. Eighty-eight items that were written at grade level 7.1 or below were retained for testing for the staff version. Of these 54 met the criteria, 12 were revised, and 22 new items were added. Additionally, a leader version was developed that contained additional items related to the Nursing Home Leadership and Quality Improvement scales.

Following pilot data collection, examination of the items frequencies and the reliabilities resulted in the delineation of seven constructs (Resident Care, Nursing Home Environment, Relationships, Staff Empowerment, Nursing Home Leadership, Quality Improvement, and Shared Values). The seven constructs for both the leader and staff versions exceeded the minimum criteria coefficient alpha of .70 for new scale development. Consequently, internal reliability was established for all of the constructs of the revised instrument.

The confirmatory factor analysis results from fitting the seven construct factor analysis model to the data revealed satisfactory evidence of construct validity for the hypothesized structure. The moderate to strong correlations among the constructs of the *Kansas Culture Change Instrument* and the *Artifacts of Culture Change* and the *Observable Indicators of Nursing Home Quality Instrument*, provide further evidence of validity. We found preliminary evidence of construct validity, as there were two constructs for staff (Resident Care and Nursing Home Environment) and two constructs for leaders (Resident Care and Quality Improvement) that differentiated the non culture change homes from the culture change homes. All constructs showed the potential for differentiating between non culture change and culture change homes with a larger sample. The lack of differences among the seven constructs between low and high turnover homes was disappointing, but not definitive. It may take a longer period of time for the effects of culture change to affect turnover. Future research might assess the relationship between turnover and the length of time since culture change was implemented.

Based on the psychometric evaluation of the revised staff and leader versions of the *Kansas Culture Change Instrument* (Appendices K and L), we have developed an instrument that has demonstrated reliability and early evidence of validity. We plan to further test this instrument in Kansas nursing homes in 2008.

Discussion

Culture change, or resident centered care, is an emerging practice environment aimed at improving the quality of life and quality of care in nursing homes. Theoretical constructs and operational definitions have been specified only recently and field tests of instruments based on these constructs and definitions are now taking place. With the project described in this report, Kansas is among the leaders testing measures of culture change. The *Kansas Culture Change Instrument*, developed through this study, incorporates state-of-the-science constructs that relate to specific care practices. Further, the *Instrument* has been demonstrated to be reliable with preliminary evidence of validity. Future testing on larger samples will add to our understanding of its measurement properties and its utility for

informing practice. Because the *Instrument* was developed in relationship to care practices identified with culture change, future surveys can help identify practices that should be promoted and supported by KDOA and others interested in promoting culture change. Results may also be useful to individual facilities, as they compare their results to regional or statewide results, or to results based on facilities using best-practices.

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Appendix A

Culture Change Adopted Definitions with Associated Culture Change Constructs

Commonwealth Fund Expert Panel Adopted Definition of Culture Change January 6, 2006	Associated Culture Change Construct Developed by Colorado Foundation for Medical Care (used with permission)	Associated Culture Change Construct Kansas Culture Change Instrument
1) Care and all resident-related activities that are directed by the resident.	Construct 1: <i>Resident-Directed Care and Activities</i>	Construct 1: <i>Resident Care</i>
2) A living environment that is designed to be a home rather than an institution.	Construct 2: <i>Home Environment</i>	Construct 2: <i>Nursing Home Environment</i>
3) Close relationships existing between residents, family members, staff, and community.	Construct 3: <i>Relationships with Staff, Family, Resident, and Community</i>	Construct 3: <i>Relationships</i>
4) Work organized to support and empower all staff to respond to residents' needs and desires.	Construct 4: <i>Staff Empowerment</i>	Construct 4: <i>Staff Empowerment</i>
5) Management enabling collaborative and decentralized decision-making.	Construct 5: <i>Collaborative and Decentralized Management</i>	Construct 5: <i>Nursing Home Leadership</i>
6) Systematic processes that are comprehensive and measurement-based, and that are used for continuous quality improvement.	Construct 6: <i>Measurement-Based Continuous Quality Improvement Processes</i>	Construct 6: <i>Quality Improvement</i>

Appendix B
Culture Change Tool List

Tool	Developer	Purpose	# Items	Response options	Reliability
Artifacts of Culture Change 2006	Edu-Catering, LLP under CMS contract	To identify concrete evidence of changes related to organizational culture in long term care	79	Various; yes/no, percent, all-some-none	Not tested
Culture Change Staging Tool 2005	Leslie Grant LaVrene Norton Brian Zupan	To assess the degree of culture change from an organizational development perspective	up to 60 based on previous answers	Various multiple choice responses	Scale alpha .96 Subscale alphas ranging from .33-.96
Culture Change Indicators Survey*	Institute for Caregiver Education	To assess to what degree a home has committed to culture change	48	5 pt Likert: "not considered" to "fully implemented"	Not tested
Kansas Culture Change Organizational Self-Assessment 2005	Kansas Foundation for Medical Care	To examine progress made in the culture change journey	46	5 pt Likert: "not considered" to "fully implemented"	Subscale alphas range from .89-.92
Culture Change in Kansas Nursing Homes 2002	Kansas Department on Aging	To assess the extent to which the "social model" of care has been adopted	17	4 pt Likert: "yes" to "no"	2002: Subscale alphas range from .38-.55 2005: Subscale alphas range from .35-.64
Eden Warmth Surveys 2003	Texas Long Term Care Institute and Eden Alternative	A measure of the "warmth" of organization and a view of how prepared it is for culture change	staff =46; elder=20; family=20	5 pt Likert: "strongly agree" to "strongly disagree"	Scale alphas range from .8-.91
* Per Lisa Stiltner of the Institute for Caregiver Education, this product was discontinued in 2005					

Appendix C
Sample Content Review Form

<p align="center">Resident Directed Care Domain</p> <p align="center">Conceptual and Theoretical Definitions:</p> <p>Care and all resident-related activities that are directed by the resident.</p> <ul style="list-style-type: none"> Resident individuality and independence are encouraged as nursing home staff help the residents maintain self care capacities to the highest extent possible. <p>RESPONSE OPTIONS: ALWAYS, OFTEN, SOMETIMES, NEVER</p>	<p align="center">Relevance to Domain</p> <p>1= item <u>is not relevant</u> to the Domain</p> <p>2= item <u>is somewhat relevant</u> to the Domain</p> <p>3= item <u>is quite relevant</u> to the Domain</p> <p>4= item <u>is highly relevant</u> to the Domain</p> <p align="center">PLEASE CIRCLE YOUR CHOICE BELOW</p>			
1. Menus are based on resident requests.	1	2	3	4
2. Residents choose when they eat lunch.	1	2	3	4

Are the **Resident Directed Care** items clear, distinct, and at an appropriate reading level for individuals who work in a nursing home, especially direct care staff such as certified aides?

Yes, the items are clear

No, the items are unclear

COMMENTS: _____

Yes, the items are distinct

No, the items are too similar to one another

COMMENTS: _____

Yes, the items are at an appropriate reading level

No, the items are not at an appropriate reading level for this group

COMMENTS: _____

Appendix D
Item Content Validity Index Results

Scale	Number of original Items	Number of items that met I-CVI criteria	Number of items deleted	Number of items revised for pilot testing	Number of new items added for pilot testing	Final number of items for pilot testing
Resident Care	20	15	4	4	1	17
Nursing Home Environment	12	5	3	1	3	12
Relationships	17	11	5	2	4	16
Staff Empowerment	12	8	2	4	3	13
Nursing Home Leadership	13	8	4	1	11	20
Quality Improvement	11	7	2	0	1	10
Total Scale	85	54	20	12	23	88

Appendix E

Nursing Home Characteristics

Location	Turnover Rate	Actively Engaging in Culture Change
Rural	Low	No
Rural	Low	No
Rural	Low	Yes
Rural	High	No
Rural	High	No
Rural	High	No
Urban	Low	No
Urban	Low	Yes
Urban	Low	Yes
Urban	High	No
Urban	High	Yes
Urban	High	Yes

Staff and Leader Demographics

Leader by %		Staff by %	
Length of Employment		Length of Employment	
Less than 1 year	27.0%	Less than 1 year	40.0%
1 to 5 years	51.3%	1 to 5 years	37.5%
6 or more years	21.9%	6 or more years	22.2%
Role in Nursing Home		Role in Nursing Home	
Administrator	12.8%	Direct care staff*	76.2%
Director of nursing	44.9%	Support staff**	22.9%
Department head	12.8%		
Highest Education Level		Highest Education Level	
Some high school	2.6%	Some high school	9.4%
High school diploma/GED	11.5%	High school diploma/GED	39.6%
Technical or vocational school	24.4%	Technical or vocational school	26.1%
Associate's degree	21.8%	Associate's degree	11.7%
Bachelor's degree	25.6%	Bachelor's degree	6.9%
Master's degree	10.3%	Master's degree	0.7%
Doctorate's degree	1.3%	Doctorate's degree	0.0%
Gender		Gender	
Female	78.2%	Female	82.2%
Male	19.2%	Male	13.0%
Race/Ethnicity		Race/Ethnicity	
American Indian	1.3%	American Indian	4.1%
Alaska Native	0.0%	Alaska Native	0.0%
Black of African American	0.0%	Black of African American	11.7%
Hispanic	0.0%	Hispanic	4.1%
Pacific Islander	0.0%	Pacific Islander	0.2%
White	93.6%	White	70.9%
Other or more than one race	0.0%	Other or more than one race	2.7%

*Direct care staff are categorized as activities, CNAs, CMAs, MDS coordinator, occupational therapy, physical therapy, restorative aide, speech therapy, staff licensed practical nurse, staff registered nurse.**Support staff are categorized as dietary, housekeeping, human resources, laundry, maintenance, medical records, secretary, shift supervisor, social services, supply clerk.

Appendix F
Artifacts of Culture Change

Home Name _____ Date _____

City _____ State _____ Current number of residents _____

Ownership: _____ For Profit _____ Non-Profit _____ Government

Care Practice Artifacts	
<p>1. Percentage of residents who are offered any of the following styles of dining:</p> <ul style="list-style-type: none"> • restaurant style where staff take resident orders; • buffet style where residents help themselves or tell staff what they want; • family style where food is served in bowls on dining tables where residents help themselves or staff assist them; • open dining where meal is available for at least 2 hour time period and residents can come when they choose; and • 24 hour dining where residents can order food from the kitchen 24 hours a day. 	<p>_____ 100 – 81 % _____ 80 – 61% _____ 60 – 41% _____ 40 – 21% _____ 20 – 1% _____ 0</p>
<p>2. Snacks/drinks available at all times to all residents at no additional cost, i.e., in a stocked pantry, refrigerator or snack bar.</p>	<p>_____ All residents _____ Some _____ None</p>
<p>3. Baked goods are baked on resident living areas.</p>	<p>_____ All days of the week _____ 2-5 days/week _____ < 2 days/week</p>
<p>4. Home celebrates residents' individual birthdays rather than, or in addition to, celebrating resident birthdays in a group each month.</p>	<p>_____ Yes _____ No</p>
<p>5. Home offers aromatherapy to residents by staff or volunteers.</p>	<p>_____ Yes _____ No</p>
<p>6. Home offers massage to residents by staff or volunteers.</p>	<p>_____ Yes _____ No</p>
<p>7. Home has dog(s) and/or cat(s).</p>	<p>_____ At least one dog or one cat lives on premises _____ The only animals in the building are when staff bring them during work hours _____ The only animals in the building are those brought in for special activities or by families _____ None</p>

Appendix F
Artifacts of Culture Change

8. Home permits residents to bring own dog and/or cat to live with them in the home.	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Waking times/bedtimes chosen by residents.	<input type="checkbox"/> All residents <input type="checkbox"/> Some <input type="checkbox"/> None
10. <i>Bathing without a Battle</i> techniques are used with residents.	<input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None
11. Residents can get a bath/shower as often as they would like.	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Home arranges for someone to be with a dying resident at all times (unless they prefer to be alone) - family, friends, volunteers or staff.	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Memorials/remembrances are held for individual residents upon death.	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. "I" format care plans, in the voice of the resident and in the first person, are used.	<input type="checkbox"/> All care plans <input type="checkbox"/> Some <input type="checkbox"/> None
Environment Artifacts	
15. Percent of residents who live in households that are self-contained with full kitchen, living room and dining room.	<input type="checkbox"/> 100 – 81 % <input type="checkbox"/> 80 – 61% <input type="checkbox"/> 60 – 41% <input type="checkbox"/> 40 – 21% <input type="checkbox"/> 20 – 1% <input type="checkbox"/> 0
16. Percent of residents in private rooms.	<input type="checkbox"/> 100 – 81 % <input type="checkbox"/> 80 – 61% <input type="checkbox"/> 60 – 41% <input type="checkbox"/> 40 – 21% <input type="checkbox"/> 20 – 1% <input type="checkbox"/> 0
17. Percent of residents in privacy enhanced shared rooms where residents can access their own space without trespassing through the other resident's space. This does not include the traditional privacy curtain.	<input type="checkbox"/> 100 – 81 % <input type="checkbox"/> 80 – 61% <input type="checkbox"/> 60 – 41% <input type="checkbox"/> 40 – 21% <input type="checkbox"/> 20 – 1% <input type="checkbox"/> 0
18. No traditional nurses' stations or traditional nurses' stations have been removed.	<input type="checkbox"/> No traditional nurses stations <input type="checkbox"/> Some traditional nurses' stations have been removed <input type="checkbox"/> Traditional nurses' stations remain in place
19. Percent of residents who have a direct window view not past another resident's bed.	<input type="checkbox"/> 100 – 51% <input type="checkbox"/> 50 – 0 %

Appendix F
Artifacts of Culture Change

<p>20. Resident bathroom mirrors are wheelchair accessible and/or adjustable in order to be visible to a seated or standing resident.</p>	<p><input type="checkbox"/> All resident bathroom mirrors <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>21. Sinks in resident bathrooms are wheelchair accessible with clearance below sink for wheelchair.</p>	<p><input type="checkbox"/> All resident bathroom sinks <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>22. Sinks used by residents have adaptive/easy-to-use lever or paddle handles.</p>	<p><input type="checkbox"/> All sinks <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>23. Adaptive handles, enhanced for easy use, for doors used by residents (rooms, bathrooms and public areas).</p>	<p><input type="checkbox"/> All resident-used doors <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>24. Closets have moveable rods that can be set to different heights.</p>	<p><input type="checkbox"/> All closets <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>25. Home has no rule prohibiting, and residents are welcome, to decorate their rooms any way they wish including using nails, tape, screws, etc.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>26. Home makes available extra lighting source in resident room if requested by resident such as floor lamps, reading lamps.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>27. Heat/air conditioning controls can be adjusted in resident rooms.</p>	<p><input type="checkbox"/> All resident rooms <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>28. Home provides or invites residents to have their own refrigerators.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>29. Chairs and sofas in public areas have seat heights that vary to comfortably accommodate people of different heights.</p>	<p><input type="checkbox"/> Chair seat heights vary by 3" or more <input type="checkbox"/> Chair seat heights vary by 1-3" <input type="checkbox"/> Chair seat heights do not vary in height</p>
<p>30. Gliders which lock into place when person rises are available inside the home and/or outside.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>31. Home has store/gift shop/cart available where residents and visitors can purchase gifts, toiletries, snacks, etc.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Appendix F
Artifacts of Culture Change

<p>32. Residents have regular access to computer/Internet and adaptations are available for independent computer use such as large keyboard or touch screen.</p>	<p><input type="checkbox"/> Both Internet access and adaptations <input type="checkbox"/> Access without adaptations <input type="checkbox"/> Neither</p>
<p>33. Workout room available to residents.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>34. Bathing rooms have functional and properly installed heat lamps, radiant heat panels or equivalent.</p>	<p><input type="checkbox"/> All bathing rooms <input type="checkbox"/> Some <input type="checkbox"/> None</p>
<p>35. Home warms towels for resident bathing.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>36. Protected outdoor garden/patio accessible for independent use by residents. Residents can go in and out independently, including those who use wheelchairs, e.g. residents do not need assistance from staff to open doors or overcome obstacles in traveling to patio.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>37. Home has outdoor, raised gardens available for resident use.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>38. Home has an outdoor walking/wheeling path which is not a city sidewalk or path.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>39. Pager/radio/telephone call system is used where resident calls register on staff's pagers/radios/telephones and staff can use it to communicate with fellow staff.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>40. Overhead paging system has been turned off or is only used in case of emergency.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>41. Personal clothing is laundered on resident household/neighborhood/unit instead of in a general all-home laundry, and residents/families have access to washer and dryer for own use.</p>	<p><input type="checkbox"/> Available to all residents <input type="checkbox"/> Some <input type="checkbox"/> None</p>

Appendix F
Artifacts of Culture Change

Family and Community Artifacts	
42. Regularly scheduled intergenerational program in which children customarily interact with residents at least once a week.	<input type="checkbox"/> Yes <input type="checkbox"/> No
43. Home makes space available for community groups to meet in home with residents welcome to attend.	<input type="checkbox"/> Yes <input type="checkbox"/> No
44. Private guestroom available for visitors at no, or minimal, cost for overnight stays.	<input type="checkbox"/> Yes <input type="checkbox"/> No
45. Home has café/restaurant/tavern/canteen available to residents, families, and visitors at which residents and family can purchase food and drinks daily.	<input type="checkbox"/> Yes <input type="checkbox"/> No
46. Home has special dining room available for family use/gatherings which excludes regular dining areas.	<input type="checkbox"/> Yes <input type="checkbox"/> No
47. Kitchenette or kitchen area with at least a refrigerator and stove is available to families, residents, and staff where cooking and baking are welcomed.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Leadership Artifacts	
48. CNAs attend resident care conferences.	<input type="checkbox"/> All care conferences <input type="checkbox"/> Some <input type="checkbox"/> None
49. Residents or family members serve on home quality assessment and assurance (QAA) (QI, CQI, QA) committee.	<input type="checkbox"/> Yes <input type="checkbox"/> No
50. Residents have an assigned staff member who serves as a “buddy,” case coordinator, Guardian Angel, etc. to check with the resident regularly and follow up on any concerns. This is in addition to any assigned social service staff.	<input type="checkbox"/> All new residents <input type="checkbox"/> Some <input type="checkbox"/> None
51. Learning Circles or equivalent are used regularly in staff and resident meetings in order to give each person the opportunity to share their opinion/ideas.	<input type="checkbox"/> Yes <input type="checkbox"/> No
52. Community Meetings are held on a regular basis bringing staff, residents and families together as a community.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Appendix F
Artifacts of Culture Change

Workplace Practice Artifacts	
53. RNs consistently work with the residents of the same neighborhood/household/unit (with no rotation).	<input type="checkbox"/> All RNs <input type="checkbox"/> Some <input type="checkbox"/> None
54. LPNs consistently work with the residents of the same neighborhood/household/unit (with no rotation).	<input type="checkbox"/> All LPNs <input type="checkbox"/> Some <input type="checkbox"/> None
55. CNAs consistently work with the residents of the same neighborhood/household/unit (with no rotation).	<input type="checkbox"/> All CNAs <input type="checkbox"/> Some <input type="checkbox"/> None
56. Self-scheduling of work shifts. CNAs develop their own schedule and fill in for absent CNAs. CNAs independently handle the task of scheduling, trading shifts/days, and covering for each other instead of a staffing coordinator	<input type="checkbox"/> All CNAs <input type="checkbox"/> Some <input type="checkbox"/> None
57. Home pays expenses for non-managerial staff to attend outside conferences/workshops, e.g. CNAs, direct care nurses. Check yes if at least one non-managerial staff member attended an outside conference/workshop paid by home in past year.	<input type="checkbox"/> Yes <input type="checkbox"/> No
58. Staff is not required to wear uniforms or “scrubs.”	<input type="checkbox"/> Yes <input type="checkbox"/> No
59. Percent of other staff cross-trained and certified as CNAs in addition to CNAs in the nursing department.	<input type="checkbox"/> 100 – 81 % <input type="checkbox"/> 80 – 61% <input type="checkbox"/> 60 – 41% <input type="checkbox"/> 40 – 21% <input type="checkbox"/> 20 – 1% <input type="checkbox"/> 0
60. Activities, informal or formal, are led by staff in other departments such as nursing, housekeeping or any departments.	<input type="checkbox"/> Yes <input type="checkbox"/> No
61. Awards given to staff to recognize commitment to person-directed care, e.g. Culture Change award, Champion of Change award. This does not include Employee of the Month.	<input type="checkbox"/> Yes <input type="checkbox"/> No
62. Career ladder positions for CNAs, e.g. CNA II, CNA III, team leader, etc. There is a career ladder for CNAs to hold a position higher than base level.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Appendix F
Artifacts of Culture Change

63. Job development program, e.g. CNA to LPN to RN to NP.	<input type="checkbox"/> Yes <input type="checkbox"/> No
64. Day care onsite available to staff.	<input type="checkbox"/> Yes <input type="checkbox"/> No
65. Home has on staff a paid volunteer coordinator in addition to activity director.	<input type="checkbox"/> Full time (30 hours/week or more) <input type="checkbox"/> Part time (15-30 hours/week) <input type="checkbox"/> No paid volunteer coordinator
66. Employee evaluations include observable measures of employee support of individual resident choices, control and preferred routines in all aspects of daily living.	<input type="checkbox"/> All employee evaluations <input type="checkbox"/> Some <input type="checkbox"/> None

Outcomes	
67. Average longevity of CNAs. Add length of employment in years of permanent CNAs and divide by number of staff.	<input type="checkbox"/> Your CNA average longevity
68. Average longevity of LPNs (in any position). Add length of employment in years of permanent staff LPNs and divide by number of staff.	<input type="checkbox"/> Your LPN average longevity
69. Average longevity of RN/GNs (in any position). Add length of employment in years of all permanent RNs/GNs and divide by number of staff.	<input type="checkbox"/> Your RN/GN average longevity
70. Longevity of the Director of Nursing (in any position).	<input type="checkbox"/> Longevity as DON <input type="checkbox"/> Longevity at home
71. Longevity of the Administrator (in any position).	<input type="checkbox"/> Longevity as NHA <input type="checkbox"/> Longevity at home

Appendix F
Artifacts of Culture Change

<p>72. Turnover rate for CNAs.</p>	<p>TO CALCULATE: Number of CNAs who left, voluntary or involuntary, in previous 12 months divided by number of total CNAs employed = turnover rate</p> <p>Your home's figure _____</p>
<p>73. Turnover rate for LPNs.</p>	<p>TO CALCULATE: Number of LPNs who left, voluntary or involuntary, in previous 12 months divided by number of total LPNs employed = turnover rate</p> <p>Your home's figure _____</p>
<p>74. Turnover rate for RNs.</p>	<p>TO CALCULATE: Number of RNs who left, voluntary or involuntary, in previous 12 months divided by number of total RNs employed = turnover rate</p> <p>Your home's figure _____</p>
<p>75. Turnover rate for DONs.</p>	<p>_____ Number of DONs in the last 12 months</p>
<p>76. Turnover rate for Administrators (NHAs).</p>	<p>_____ Number of NHAs in the last 12 months</p>

Appendix F
Artifacts of Culture Change

<p>77. Percent of CNA shifts covered by agency staff over the last month.</p>	<p>TO CALCULATE: Total number of CNA shifts in a 24 hour period (all shifts regardless of hours in a shift) = _____</p> <p>Multiplied by number of days in the last full month = _____</p> <p>Of this number, the number of shifts covered by an agency CNA = _____</p> <p>_____ Your percentage (agency shifts ÷ total number × days × 100)</p>
<p>78. Percent of nurse shifts covered by agency staff over the last month.</p>	<p>TO CALCULATE: Total number of nurse shifts in a 24 hour period (all shifts regardless of hours in a shift) = _____</p> <p>Multiplied by number of days in the last full month = _____</p> <p>Of this number, the number of shifts covered by an agency nurse = _____</p> <p>_____ Your percentage (agency shifts ÷ total number × days × 100)</p>
<p>79. Current occupancy rate.</p>	<p>_____ Your home's figure</p>



Developed by the Centers for Medicare and Medicare Services and Edu-Catering, LLP. For more information contact Karen Schoeneman at karen.schoeneman@cms.hhs.gov or Carmen S. Bowman at carmen@edu-catering.com.

Appendix G

Observable Indicators of Nursing Home Quality Instrument

Observable Indicators of Nursing Home Care Quality Instrument Nursing Home Quality Improvement Version

Facility Location

Date

Time of day (check one): morning afternoon

Observed mealtime (check one): yes no

General Directions for Observation and Instrument Use

The Observable Indicators of Nursing Home Care Quality Instrument is designed to measure the multidimensional concept of nursing home care quality. Consider completing the Instrument quarterly within your quality improvement program. There are ranges provided to assist you to compare your quality scores with those of other nursing homes and to monitor improvements in your facility from one quarter to the next.

Answer the questions after 20 to 30 minutes of walking through your nursing home.

Plan the observation time during usual visiting hours, such as 10am to 4pm. Begin by walking outside of the facility. Upon entering the facility, make observations of the facility such as noise level, presence of odors, if residents are calling out, if staff are paying attention to residents who are calling out, if staff stop and speak to residents, if residents are smiling at staff, if staff are ambulating residents, how the home's environment appears, and if staff are focused on caring for residents. Be aware and think about what you see, hear, smell, and feel. Watch for staff helping residents with eating or encouraging them to drink. If possible, conduct the walk through near a mealtime.

Complete the instrument after walking through the general living spaces, hallways, and areas generally available to the public. If you have difficulty scoring a particular item, you may need to walk through some areas a second time to answer all items. For best results, total all the scores on each page and transfer them to page 8 immediately after completing the instrument to be sure all items are scored.

The reliability of the instrument is improved if more than one person completes the instrument. Have another staff member, family member, or resident accompany you during the tour and each person should complete a separate instrument. Do not talk with each other about your answers until you have both answered all the questions.

A note about choosing your answers: Scores for each item from 1 to 5, with 1 being the worst and 5 indicating the best care quality. But the answers themselves vary, so be sure to read them carefully. Some items may require asking staff about the care and services - such as items 7 & 8. **IT IS NECESSARY THAT ALL QUESTIONS BE ANSWERED FOR THE TOTAL SCORE TO BE OF VALUE.**

CIRCLE all the answers on each page, add the scores on each page, and write the total for the page in the box at the bottom of each page. After you have answered all 30 questions, follow the directions on Page 8.

Appendix G

Observable Indicators of Nursing Home Quality Instrument

The Observable Indicators of Nursing Home Care Quality Instrument
Nursing Home Quality improvement Version

1. Were the conversations between staff and residents friendly?

1 2 3 4 5
Most were not A few were Some were Many were Most were

2. When staff talked to residents, did they call them by name?

1 2 3 4 5
Most did not A few did Some did Many did Most did

3. Did residents and staff acknowledge each other and seem comfortable with each other (for example, smile, eye contact, touch, etc.)?

1 2 3 4 5
Most did not A few did Some did Many did Most did

4. Did residents and staff interact with each other in positive ways (for example, conversation, humor, touch, eye contact, etc.)?

1 2 3 4 5
Most did not A few did Some did Many did Most did

5. Did staff appear caring (compassionate, warm, kind)?

1 2 3 4 5
Most did not A few did Some did Many did Most did

6. Did staff treat residents as individuals with dignity and respect?

1 2 3 4 5
Most did not A few did Some did Many did Most did

PAGE 2 TOTAL

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Observable Indicators of Nursing Home Quality Instrument

7. Were registered nurses (RNs) visible? (Look at name badges of staff to identify RNs. May need to ask staff.)

1	2	3	4	5
Rarely seen	Occasionally	Sometimes	Often	Very Often

8. Did registered nurses (RNs) seem to know the residents so that they are able to direct their care? (May need to ask staff)

1	2	3	4	5
Did not seem to	Occasionally	Sometimes	Often	Very Often

9. Did staff help residents with food or fluids?

1	2	3	4	5
Rarely seen	Occasionally	Sometimes	Often	Very often

10. Were residents walking or independently moving about the facility with or without assistive devices such as canes, walkers, wheelchairs?

1	2	3	4	5
Rarely seen	Occasionally	Sometimes	Often	Very Often

11. Were staff helping some residents walk or move about the facility?

1	2	3	4	5
Rarely seen	Occasionally	Sometimes	Often	Very Often

12. Did staff communicate with confused residents in positive ways (for example, talk, touch, sit with, etc.)?

1	2	3	4	5
Rarely seen	Occasionally	Sometimes	Often	Very Often

PAGE 3 TOTAL

Appendix G

Observable Indicators of Nursing Home Quality Instrument

13. Were residents dressed and clean?

1	2	3	4	5
Most were not	Some were	Many were	Most were	All were

14. Were residents well groomed (shaved, hair combed, nails clean and trimmed)?

1	2	3	4	5
Most were not	Some were	Many were	Most were	All were

PAGE 4 SUBTOTAL 1

15. Were odors of urine or feces noticeable in the facility?

1	2	3	4	5
Pervasive throughout	In most areas	Occasionally	Hardly at all	Not at all

16. Were other unpleasant odors noticeable in the facility?

1	2	3	4	5
Pervasive throughout	In most areas	Occasionally	Hardly at all	Not at all

PAGE 4 SUBTOTAL 2

Appendix G

Observable Indicators of Nursing Home Quality Instrument

17. Were hallways and common areas uncluttered?

1	2	3	4	5
Very Cluttered	Frequently Cluttered	Somewhat cluttered	Neat and uncluttered	Very neat and uncluttered

18. Were resident rooms, hallways, and common areas clean?

1	2	3	4	5
Dirty	Somewhat dirty	More or less clean	Clean	Very clean

19. Were buildings, grounds, and furniture in good condition?

1	2	3	4	5
Very poor condition	Poor condition	Fairly good condition	Good condition	Very good condition

20. Were the hallways well lighted?

1	2	3	4	5
Poorly lighted	Some light but not enough	Moderately lighted	Well lighted	Exceptionally well lighted

21. Were resident rooms well lighted?

1	2	3	4	5
Poorly lighted	Some light but not enough	Moderately lighted	Well lighted	Exceptionally well lighted

PAGE 5 TOTAL

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Observable Indicators of Nursing Home Quality Instrument

22. Did confused residents have a safe place to wander indoors? (May need to ask staff.)

1	2	3	4	5
No apparent safe place	Very small	Small	Moderate	Large safe place

23. Did confused residents have a safe place to wander outdoors? (May need to ask staff.)

1	2	3	4	5
No apparent safe place	Very small	Small	Moderate	Large safe place

24. Did confused residents have access to outdoor space? (May need to ask staff.)

1	2	3	4	5
No apparent access	Occasional access with assistance	Some access with assistance	Frequent access	Access any time

25. Did other residents have access to outdoor spaces? (May need to ask staff.)

1	2	3	4	5
No apparent access	Occasional access with assistance	Some access with assistance	Frequent access	Access any time

PAGE 6 TOTAL

Appendix G

Observable Indicators of Nursing Home Quality Instrument

26. Were residents' rooms personalized with furniture, pictures, and other things from their past?

1	2	3	4	5
Most were not	A few were	Some were	Many were	Most were

27. Were there pets (dogs, cats, birds, etc.) and/or live plants in the facility?

1	2	3	4	5
None or rarely seen	Occasionally	Sometimes	Often	Very often

28. Were the pets and/or live plants in good condition?

1	2	3	4	5
None seen or very poor condition	Fair condition	Average	Good	Very good condition

29. Was there a home-like appearance about the facility?

1	2	3	4	5
Not at all home-like	Somewhat	Moderately	Quite home-like	Very home-like

30. Were visitors visible in the facility (family members, volunteers, community members, etc.)?

1	2	3	4	5
Rarely seen	Occasionally	Sometimes	Often	Very often

PAGE 7 TOTAL

Appendix G

Observable Indicators of Nursing Home Quality Instrument

TRANSFER THE SCORES FROM PAGES 2 THROUGH PAGE 7 TO THE BOXES BELOW AND ADD THE PAGE SCORES FOR A TOTAL SCORE

	SCORES	DOMAIN	BELOW Range	AVERAGE Range	ABOVE Range
PAGE 2 TOTAL		Communication	7-22	23-28	29-30
PAGE 3 TOTAL		Care Delivery	6-17	18-25	26-30
PAGE 4 SUBTOTAL 1		Grooming	2-6	7-8	9-10
PAGE 4 SUBTOTAL 2		Odor	2-6	7-8	9-10
PAGE 5 TOTAL		Environment- Basics	10-18	19-21	22-25
PAGE 6 TOTAL		Environment- Access	4-12	13-16	17-20
PAGE 7 TOTAL		Environment- Homelike	6-14	15-21	22-25
TOTAL SCORE (Add page scores)			56-103	104-127	128-148
Process		Questions 1-14, 22-30	37-76	77-97	98-114
Structure		Questions 15-21	14-26	27-30	31-35

INTERPRETATION:

- **A SCORE EQUAL TO OR ABOVE 128 SUGGESTS A QUALITY NURSING HOME.**
- **A SCORE EQUAL TO OR BELOW 103 SUGGESTS A NURSING HOME WITH QUALITY ISSUES.**
- **SCORES BETWEEN THESE NUMBERS ARE TYPICAL OF MOST NURSING HOMES.**

Note: This Questionnaire is officially titled, "OBSERVABLE INDICATORS OF NURSING HOME CARE QUALITY" VERSION 10 (Revised - February, 2005) MU MDS and Quality Research Team © 1998, 1999, 2000, 2002, 2003, 2004, 2005

Appendix H

Pearson (*r*) Correlations Among the Seven Constructs of Culture Change

Variable	Resident Care <i>r</i>	Nursing Home Environment <i>r</i>	Relationships <i>r</i>	Staff Empowerment <i>r</i>	Nursing Home Leadership <i>r</i>	Quality Improvement <i>r</i>	Shared Values <i>r</i>
Resident Care	1.00						
Nursing Home Environment	0.71	1.00					
Relationships	0.62	0.85	1.00				
Staff Empowerment	0.50	0.71	0.72	1.00			
Nursing Home Leadership	0.40	0.58	0.61	.80	1.00		
Quality Improvement	0.42	0.56	0.52	0.70	.075	1.00	
Shared Values	0.35	0.51	0.56	0.72	0.77	0.63	1.00

Appendix I

Comparisons on the Seven Constructs of Culture Change between Nursing Homes Actively Engaged in Culture Change and Nursing Homes Not Engaged^a

Construct	Statistic	Staff Version			Leader Version		
		No Culture Change	Culture Change	<i>p</i> value	No Culture Change	Culture Change	<i>p</i> value
Resident Care	<i>M</i> (<i>SD</i>) <i>n</i>	2.49 (0.53) 137	3.00 (0.66) 202	0.03	2.58 (0.57) 39	3.12 (0.54) 32	0.04
Nursing Home Environment	<i>M</i> (<i>SD</i>) <i>n</i>	2.52 (0.48) 144	2.88 (0.53) 194	0.05	2.48 (0.50) 36	2.91 (0.46) 32	0.12
Relationships	<i>M</i> (<i>SD</i>) <i>n</i>	2.80 (0.53) 159	2.91 (0.55) 202	0.09	2.85 (0.55) 41	3.25 (0.57) 33	0.18
Staff Empowerment	<i>M</i> (<i>SD</i>) <i>n</i>	2.41 (0.60) 137	2.57 (0.65) 196	0.19	2.25 (0.53) 38	2.69 (0.53) 31	0.07
Nursing Home Leadership	<i>M</i> (<i>SD</i>) <i>n</i>	2.88 (0.63) 169	2.87 (0.63) 201	0.80	3.06 (0.59) 40	3.39 (0.43) 34	0.15
Quality Improvement	<i>M</i> (<i>SD</i>) <i>n</i>	2.65 (0.64) 86	2.75 (0.68) 120	0.23	2.67 (0.53) 39	3.24 (0.53) 29	0.04
Shared Values	<i>M</i> (<i>SD</i>) <i>n</i>	2.95 (0.74) 172	3.12 (0.68) 220	0.16	2.99 (0.64) 41	3.47 (0.57) 34	0.07

^aHomes were considered to be actively engaged in culture change if they had won a PEAK award or are a member of the Kansas Culture Change Coalition (KCCC) and if while on-site a member of the research team verified that the home appeared to be engaging in culture change.

Appendix J

Correlations among Staff and Leader Versions of the Kansas Culture Change Instrument with Artifacts of Culture Change and Observable Indicators of Nursing Home Quality Instrument

Culture Change Tool Subscale	Staff Version		Leader Version	
	Artifacts of Culture Change Total Score	Observable Indicators Total Score	Artifacts of Culture Change Total Score	Observable Indicators Total Score
Resident Care	.651(*)	.599(*)	.513	.306
Nursing Home Environment	.561	.485	.630(*)	.373
Relationships	.397	.652(*)	.456	.634(*)
Staff Empowerment	.506	.756(**)	.700(*)	.515
Nursing Home Leadership	.172	.707(*)	.320	.181
Shared Values	.294	.610(*)	.560	.554
Quality Improvement	.426	.750(**)	.552	.432

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Appendices K and L have been removed from this document because the *Kansas Culture Change Instrument (KCCI)* has been revised since this publication. To view the final staff and leader versions of the *KCCI*, see the Year 5 report (dated March 31, 2009).