Appendix G

Development of Staffing Quality Measures - Phase I: Continuation

Task 5.1: Feasibility Test for Obtaining Payroll Data from Nursing Facilities According to Reporting Requirements

Final Subtask Report
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Table of Contents

Page

1. Acknowledgements

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2. Introduction

The National Quality Forum (NQF), the Institute of Medicine (IOM), and the Centers for Medicare & Medicaid Services (CMS) have all called for nursing facility staffing measures that are based on accurate data and associated with quality. The NQF Nursing Home Steering Committee recommended the development of a nurse staffing quality measure suitable for public reporting (1). The Institute of Medicine's 2004 report entitled "Keeping Patients Safe: Transforming the Work Environment of Nurses" cited evidence for a relationship between nurse staffing and quality of care, recommending the collection and reporting of staffing data (2). On November 15, 2007, individuals representing long-term care research, the National Association of State Long-Term Care Ombudsman Programs, and a long-term care employees union, testified before the Senate Select Committee on Aging, recommending that CMS collect payroll data from nursing facilities to monitor staffing levels, turnover, and retention.

In 2003, CMS funded the Development of Staffing Quality Measures - Phase I (SQM) project, contracting with the Colorado Foundation for Medical Care (CFMC) This project was designed to investigate staffing measures that may be related to quality of care, including staffing levels (staff hours per resident day), staff turnover, staff tenure, and staff mix. The Colorado Foundation for Medical Care (CFMC) partnered with the University of Colorado at Denver and Health Sciences Center (UCDHSC) to carry out the SQM project. Following the recommendations of the SQM Technical Expert Panel to develop staffing measures based on payroll information for the highest level of accuracy, the project team collected payroll data from eight national nursing home corporations. A database was constructed with payroll records from 1,453 nursing facilities representing 48 states and more than 11.6 million individual payroll records and 172,563 individual personnel records. Analysis of the records demonstrated that payroll data can be used to generate uniformly defined staffing quality measures (3). In July 2006, CMS provided funding for the continuation of the SQM project. Again partnering with UCDHSC, CFMC is evaluating the relationship between the staffing measures and quality as well as testing the feasibility of collecting payroll data according to detailed specifications. After finalizing draft census and payroll data specifications in January 2007 (4), the project team began testing the feasibility of collecting payroll data in two phases. First by interviewing facilities, corporations, and vendors to learn more about their payroll systems, similarities, and differences; and second, by providing the specifications to a sample of facilities to determine their capacity to generate and submit data based on detailed specifications. This report describes the activities and findings from the second phase of the feasibility testing

3. Methods

3.1 Selection of nursing facilities and recruitment strategies

The selection process for the study participants began with the identification of nursing facilities that met the following selection criteria, as outlined in the SQM Statement of Work:

- Ownership type – corporate ownership and free-standing nursing facility
- Bed size – large (greater than 120), medium (61-120), and small (60 or less)
- Location - urban and rural status

- Profit Status - for-profit and not-for-profit
- Involvement in culture change
- Type of payroll system and/or payroll vendor in place

After receiving approval by CMS, a convenience sample of nine nursing facilities was selected to participate in the study. The majority of the nursing facilities were located in Colorado. This selection was designed to capitalize on the positive relationships already present between the nursing facilities and the Quality Improvement Organization, CFMC. This approach also provided the project team with the opportunity to conduct on-site visits with some of the facilities and maximized the potential to obtain the most comprehensive data collection for the study.

The initial phase of the SQM project determined that large nursing home corporations with sophisticated in-house IT departments were capable of delivering census and payroll data to the project team. This feasibility test was designed to determine if a more diverse group of nursing facilities were capable of producing census and payroll data using a draft set of specifications. Two large corporations with in-house IT departments were included in the study because of their ownership of two of the feasibility study participants, but the remainder of the participants consisted of nursing facilities from smaller corporations and free standing nursing facilities.

The facility characteristics of the nine participant facilities chosen for the study are listed in Table I.

Table 1. Characteristics of Nursing Facilities Participating in the Feasibility Test

Nursing Facility	Ownership Type	Bed Size	Location	Profit Status	Culture Change	Payroll System Production
A	Corporation (182 facilities)	44	Rural	For-profit	No	In-house by corporation
B	Corporation (2 facilities)	93	Urban	Not-for-profit	Yes	In-house by corporation
C	Independent	132	Rural	Not-for-profit	Yes	Payroll vendor
D	Hospital-based corporation (TCU/facility)	TCU-18 Facility-120	Urban	Not-for-profit	Yes	In-house by corporation
E	Independent	54	Rural	For-profit	No	In-house by facility
F	Independent	133	Urban	For-profit	Yes	Payroll vendor
G	Corporation (160 facilities)	104	Urban	Not-for-profit	Yes	In-house by corporation
H	Corporation (3 facilities)	140	Urban	For-profit	Yes	Payroll vendor
I	Corporation (16 facilities)	60	Rural	For-profit	Yes	Payroll vendor

Following completion of the selection process, each nursing home administrator was contacted by project staff and recruited to participate in the feasibility test. The initial contact was made via a telephone call from the project staff and consisted of a discussion of the project objectives and activities. The telephone communication was followed by an email of the recruitment materials listed below. The project staff conducted on-site visits with four of the nursing facilities. The materials used in the recruitment process included:

- Feasibility Study Introductory Letter (see Appendix A)
    - Overall picture of the project
    - Outline of the project activities
- Data Use Agreement (see Appendix B)
    - Between CFMC and nursing facility or corporation
    - Assured the facility of confidential handling of all project data
- Pre-Study Interview form (see Appendix C)
    - Provided project team with overall view of census and payroll data collection processes
    - Completed by SQM project staff during initial nursing facility conference call or on-site visit.
- Executive Summary from initial phase of the SQM project (see Appendix D)
- List of Technical Expert Panel members who participated in SQM project (see Appendix E)
- List of stakeholders that participated in SQM project (see Appendix F)
- Copy of draft pay period payroll data specifications (see Appendix G)
- Copy of draft census data specifications (see Appendix H)
- Copy of Cost and Burden Tracking Sheet (see Appendix I)
    - Used by study participants to track time and cost associated with study data collection activities

The recruitment package was delivered to each nursing home administrator by email or in-person during an on-site visit. The nursing home administrators typically discussed participation in the project with their respective nursing facility ownership or corporate management staff. Members of the SQM project team were available to explain any facet of the project to ownership or corporate management. Once the nursing facility made the final decision to participate, the project team processed a Data Use Agreement between the nursing facility or nursing facility corporation and CFMC.

3.2 Feasibility tasks

The feasibility study consisted of four steps as the project team worked with the participants. The initial step in the feasibility test consisted of a pre-study conference call or on-site visit with each nursing facility to explain the objectives of the project. The nursing facilities were requested to provide five quarters of retrospective census and payroll data (January 2006 to March 2007) using the draft set of data specifications. Depending on the organizational structure of the nursing facility, the participants attending the call or on-site visit included: the nursing home administrator, in-house payroll staff, in-house HR staff, in-house business office manager, corporate payroll staff, corporate HR staff, corporate IT staff, and the payroll vendor. During the

conference call or on-site visit the SQM project staff responded to questions from the participants, completed the Pre-Study Interview Form, outlined the support the project team would provide to the facilities throughout the study, and distributed the SQM project team contact information.

During the second step of the feasibility study, the project team supported the nursing facilities as they reviewed the data specifications and considered the processes that needed to be put in place to create the census and pay period payroll files according to the data specifications. Emails and conference calls were exchanged between staff from the nursing facilities, nursing facility corporations, and /or payroll vendors and members of the project team to clarify any issues. The project team created sample census and payroll files for the study participants (see Appendices J, K, L, M).

In the third step, the nursing facilities or corporations forwarded the payroll and census data to CFMC on a compact disc (CD) using well established confidentiality methods. The receipt of the data took anywhere from one month to several months depending upon the individual nursing facility's ability to contact and engage their independent contractors and payroll vendors, or dedicate their in-house staff to the task. Once received, the data were circulated to project team members from both the UCDHSC and CFMC for review and analysis.

Following receipt of the census and payroll data files, CFMC distributed a Post-Study Questionnaire (see Appendix N) to the nursing facility and/or corporate participants as the last step in obtaining information for the study.

The Post-Study Questionnaire captured a variety of critical information:

- Payroll process for the nursing facility, including exempt, non-exempt, and contract staff
- Processes the nursing facility or nursing facility corporation implemented to collate, create, process, and send the census and payroll data
- Feedback from the nursing facility and nursing facility corporate staff on the clarity of the definitions and data elements in the census and payroll data specifications
- Burden and cost the nursing facilities, nursing facility corporations, or payroll vendors encountered collating and creating the data
- Recommendations from the participants concerning any alternative approaches for gathering and/or formatting the data

Study participants were asked to complete the questionnaire and return it by email to CFMC. Once the completed questionnaires were returned, conference calls were scheduled with all nursing facility and/or nursing facility corporate staff who participated in gathering, assembling, or formatting the data. Post-study conference calls were conducted to provide an opportunity to review information obtained from the Post-Study Questionnaire and to discuss any outstanding questions related to the payroll or census data submissions. The project team collected additional information regarding the processes the nursing facilities employed to comply with the data specifications and further details on the barriers and costs encountered during the payroll file creation. The calls also afforded the project team with an opportunity to express their gratitude to the participants for their generous contributions to the project.

4. Results

4.1 Results of the nursing facility's, nursing facility corporation's, and payroll vendor's ability to aggregate, format, and deliver the census and payroll data according to the Submission of Census and Payroll Data Specifications

Most of the study participants were able to understand the data specifications after a review call that addressed any questions. The majority of questions from the participants related to transferring the data from in-house databases to the expected flat file format in the specifications.

Four of the nine nursing facilities have succeeded in providing census data for the project according to the specifications. Four others have provided the census data via an Excel file. Two of these facilities were independent facilities that worked with IT consultants. The IT consultants could not understand the flat file format, even after a sample file was provided. The other two facilities were part of a small and moderately-sized corporation, and both used an IT consultant. Again, one of the corporate consultants could not understand the formatting requirements, even after a sample file was provided. The other consultant indicated the ability to generate the flat file, but the process required the creation of a new program to produce the file with an associated cost of $1200. The remaining ninth facility is a freestanding facility in a rural area. This facility uses a time clock for payroll data collection, produces its own payroll files, and prints its own paychecks. They do not have a payroll company and sporadically contract with an IT consultant. Their IT consultant has not been able to produce the census or payroll data according to the data specifications.

Five of the nursing facilities have succeeded in providing payroll data for the project. Other than a few exceptions, the payroll data that the five participants submitted to CFMC was in full accordance with the data specifications. Specification adherence errors included several records with a one day pay period that were not flagged for deletion, missing employee start dates, and consecutive pay period end and start dates overlapping. Four of these facilities were part of a small or large corporation and were supported by their in-house IT departments. One of the nursing facilities was a freestanding facility supported by a national payroll vendor. Unlike the remaining four participants, these facilities, again with corporate or payroll vendor support, were able to submit the data in the requested flat file format with relative ease. A few minor errors were made in the creation of the flat files, such as invalid dates, incorrect facility ids, or spacing errors in some of the fields, but these errors may have been due to data entry errors on the part of the nursing facilities.

The post-study conference call with the national payroll vendor supporting Nursing Facility F identified that the payroll data specifications need to be revised to address the handling of employees who work more or less than a complete hour (i.e., one and one-half hours).

The national payroll vendor participating in the feasibility study services nursing facilities across the United States. The post-study conference call with the vendor also revealed that the process, burden, and cost for creating a payroll report might be different for each nursing facility. The situation would vary depending on the type of software that the individual nursing facility

purchased from the payroll vendor and the amount of support that the nursing facility would require from the vendor. The nursing facility participating in the feasibility test had the most appropriate software in place. The payroll vendor effort to create the report was billed at $500.00. Other nursing facilities using this vendor might need to purchase additional software and/or put other processes into place to produce the same report. Payroll vendor corporate staff attending the study conference call stated that if the reporting of nursing facility payroll data became a regulation they would take the necessary steps to streamline the reporting process for the nursing facilities.

Barriers to the data submissions will be discussed later in this report. Appendix O contains two tables that outline the ability of each of the nine participants to adhere to data specifications and flat file formats. Appendix P contains two tables that provide specific detail about who was involved with the process and the specific steps taken by the five nursing facilities that were able to generate payroll data for the project. Appendix Q contains a complete explanation of the process used by the national payroll vendor to create the pay period payroll file for Facility F.

Listed below are additional findings pertinent to the creation of census and payroll data files:

Data specifications:

- All of our study participants were capable of assigning a unique employee identifier that does not contain the Social Security Number.
- The majority of nursing facilities correct their missed time clock punches within the same pay period. One of our nine study participants makes payroll adjustments in the following payroll.
- All but one of the participants makes changes in job categories in subsequent pay periods, while the other facility records changes on the exact date it occurs.
- One nursing facility participant does not retain a returning employee's original employee identifier in their payroll records. The facility would need to add a field to an existing custom table to capture the initial identifier. The level of effort to create this additional field was estimated at eight hours.
- All participants were capable of assigning CNA hours worked in another department to the nursing payroll data under CNA hours.
- All nursing facilities calculate their census at midnight rather than 6:00 a.m. as defined in the specifications.

Advanced Nurse Practitioners (ANP):

- One nursing facility, located on a campus with an independent living and assisted living facility, shares two ANPs among the three facilities. Their hours are not tracked by the nursing facility. The nursing home administrator said it would be difficult to track their hours because they "float" in and out of the various settings. If necessary, the nursing home administrator would establish a process to track the hours.

Transitional Care Units (TCU):

- The TCU that participated in the study indicated staff is shared with the rest of the hospital facility. The shared staff is non-nursing personnel such as consultants,

dietary managers, social service managers, chaplains, etc. Currently, the TCU manager would have difficulty identifying which of their hours are allocated to the nursing department.

- The participant noted that in smaller hospitals with TCUs, nursing staff are also shared with the rest of the hospital. The director of nurses is usually required to manually correct the time records to reflect the hours dedicated to the nursing facility alone.

Contract/pool staff:

- Non-nursing contract staff hours are contained in monthly invoices. The hours for the majority of this group are not found within the payroll system of our participants. The project team did not request that the participants hand enter the data into the payroll data files.
- Nursing contract (pool) staff hours are found on weekly or monthly invoices. The TCU manager in this study manually added contract/pool hours to the payroll data file. In the future, she will have access to an "At Staff" computer program that will perform this function.
- One nursing facility stated that they would need to maintain a generated id in their records for contract staff.
- One nursing facility said they would need access to non-productive as well as productive hours supplied in an electronic format to process nursing pool hours.
- If pool data were to be collected, consideration would be needed to determine the best approach for assigning a start date for pool staff.
- One nursing facility commented that it would be very difficult to include pool hours unless they developed an interface between their accounting and payroll software.

Alternative staffing patterns:

- The project team attempted to include nursing facilities with alternative staffing patterns in the study. Many of the nursing facilities in the project were engaged in culture change, but none used the "Universal Worker" designation as a job category. All culture change facilities that participated in the feasibility study indicated that their current job descriptions would fit within the job categories identified in the specifications.
- Representatives from the Eden Alternative, Wellspring Institute, and Green House Project, as well as a resource person working with culture change nursing homes across the United States were contacted to discuss the management of payroll data for these groups. The following information was obtained:
    - The Wellspring Institute uses the standard job categories outlined in the data specifications
    - The Eden Alternative permits their certified nursing facilities to use traditional job categories contained in the specifications or other less traditional job categories such as:
        - Universal Worker – the resident caregiver is a certified CNA and performs a number of roles including personal care giver, housekeeper, laundress, dietary and activity person. The payroll

system recognizes the employee as one individual and they are paid under one job category.
        - Versatile Worker – the resident caregiver is a CNA. Other workers, such as housekeepers and activity staff are also CNAs but they are recognized by the payroll system under their individual job categories, such as CNA, housekeeper, etc.
        - Green House Job Categories – The Green House model uses a number of non-traditional job categories such as shabaz, guide, and clinical support team to identify all their staff categories. The payroll system recognizes the employee using a variety of job categories depending on the individual Green House involved.
    - The definitions and payroll methodologies for Universal Worker and Versatile Worker are labile and are determined by the individual nursing facility corporation or nursing facility.
    - Nursing facilities that are divided into households may recognize the individual household to be a separate cost center.
    - The ability to identify workers under certain job categories may be determined by state reporting requirements.
- One corporate study participant currently uses the Universal Worker job designation in their assisted living facilities. This participant indicated that as competition for scarce workers increases in the coming years, they will consider adopting the Universal Worker job classification for their nursing facilities.

4.2 Feedback on the data elements in the Submission of Census and Payroll Data Specifications

Each study participant was asked to comment on whether the Data Element Definitions contained in the Submission of Census and Payroll Specifications were clearly stated, and if there were any recommendations for change. The feedback was obtained via the Post-Study Questionnaire and through discussion and interview on the final conference call.

The participants indicated that most of the definitions were clearly stated. A few of the IT staff participants had specific comments that are noteworthy and provided below:

- One of the corporate IT participants indicated that someone without a technical background or who was not a Data Base Administrator (DBA) may have a difficult time creating the header and trailer records.

- This IT staff member also recommended that a training manual and file template be made available if the project moves forward.

- The business office manager at one of the participating facilities compiled the census data and felt that many of the definitions were not easy to understand and contained too much definition. She made the following recommendations for specific wording changes:
    - Facility Medicare Provider Number should say - Enter your six-digit Medicare number.

- State Assigned Unique Facility ID Code should say - Enter your MDS code.
- Resident Census should say – Enter total number of residents – do not include "Bed Hold".
- General Data Specification Notes should say – The top line is the header record, followed by the ID and census data. The last line is the trailer record.

- A facility IT staff member had several comments:
  - The "General Data Specification Notes" should be the first information that the user sees. The recommendation continued to specify that the definition should read, "There will be two files submitted; a census file and a payroll file. Both files will consist of a header record, data records, and a trailer record. The following record layout pages show the information required in each field for each specific record type. The fields on the record layout pages are separated by dotted lines."
  - The CORRECTION_NUM and DELETE fields were easy to enter but there was no clear purpose for their use.
  - The layout pages are very confusing. Way too verbose. The census layout has both Payroll and Census in the title. Recommendations for more appropriate titles included "Header Record for Census File" or "Data Record Layout for Payroll File".

This feasibility study required nursing facilities to provide daily census data and pay period payroll data for five retrospective quarters in a particular format. After working with the nine participants of various skill mix and capacities, the project team made six summary observations:

1) All nursing facilities have daily census data and pay period payroll data, but the ability to access these data (and access these data retrospectively) varies by facility. Depending upon the technological capability of the nursing facility, obtaining these data were easy for some facilities, while others struggled to assemble the data. Nursing facilities associated with corporations or with individuals who possessed reasonable IT skills generally fared better. With access to seasoned IT professionals, the data request was straightforward, but without such help, the data request posed a substantial burden. More often than not, the typical nursing facility in our feasibility test relied upon some manipulation of Microsoft Excel to assemble the census data. Depending on how the nursing facility managed its payroll process, the pay period payroll data may not be available on-site (e.g., a third-party vendor for payroll).

2) The ability to provide daily census and pay period payroll data electronically was generally possible, but the ability to match the data according to the specifications did not always exist.

3) Without assistance, most of the nursing facilities struggled with the data specifications (even though the specifications were explained to the facility that the format was similar to the files submitted for MDS submissions. This activity brought to light an interesting gap in the MDS submission process and in understanding the format of the MDS submission file and what is meant by a flat file). Hence, the specifications should be as transparent as possible if the submission of daily census and pay period payroll data becomes a requirement.

4) The elements in the data specifications were clearer for the daily census submission (i.e., provide your census for a given day, month, and year) than with the pay period payroll data. The structure of the pay period data specifications became more obvious to participants after additional explanation (i.e., we want employees by our nine category job listing, his/her start date in that job category, the start of the pay period, end of the pay period, and productive and nonproductive hours).

5) For both data specifications, it was easier for the participants once they saw a sample flat file as a text file and were "instructed" on how to create one from Microsoft Word.

6) Both the census and payroll data specifications will have to be modified after this feasibility test that tested real world situations (e.g., census at midnight rather than 6 a.m. and payroll specifications for non-negative nonproductive hours).

Table 2. Feedback on burden and cost to collect and format census and payroll data

Nursing Facility	Census (C) or Payroll (P) Data	ESTIMATE OF BURDEN			ESTIMATE OF COST		
		Minimal Burden *(Definition: All data elements are currently available & easily accessible in electronic format)*	**Moderate Burden** *(Definition: Some but not all data elements are available electronically)*	**Significant Burden** *(Definition: Data are not collected electronically and/or data are not available)*	**Minimal Cost** *(Definition: Currently have staff &databases in place to produce data)*	**Moderate Cost** *(Definition: Would need to increase staff hours and/or create/combine additional databases to produce data)*	**Significant Cost** *(Definition: Would need to hire additional staff and/or purchase additional computers or software to produce data)*
A	C	X			X		
	P	X				• For the job categories, need to create crosswalk to decode our existing categories into the nine required • Start up = 40 hours for both census and payroll ($1680.00) • Maintenance = 1 hour per month ($42.00)	
B	C		• Need to provide manual entry for Census Date and Resident Census • Need to convert to more automated process, & create Access database to format the data. • Set-up time = 8 hours			• Need to transport data from one system into the file; depending on the length of the information requested decides how long it would take to manually enter the data • Start-up = 10 hours ($186.50) • Maintenance = 2 hours ($37.30)	
	P	X					

Nursing Facility	Census (C) or Payroll (P) Data	ESTIMATE OF BURDEN			ESTIMATE OF COST		
		Minimal Burden *(Definition: All data elements are currently available & easily accessible in electronic format)*	**Moderate Burden** *(Definition: Some but not all data elements are available electronically)*	**Significant Burden** *(Definition: Data are not collected electronically and/or data are not available)*	**Minimal Cost** *(Definition: Currently have staff &databases in place to produce data)*	**Moderate Cost** *(Definition: Would need to increase staff hours and/or create/combine additional databases to produce data)*	**Significant Cost** *(Definition: Would need to hire additional staff and/or purchase additional computers or software to produce data)*
D	C		• Some data elements are confusing			Nursing Facility: • Time to gather the data = 20 minutes • Start –up = 12 hours ($288.00) • Maintenance = 6 hours ($144.00) TCU: • Must adapt in- house computer to enable access to retro daily census data beyond 3 mos. • Unable to determine cost at this time. • Start up = 15 hours ($550.00)	
	P		• Payroll/HR systems are on IBM machines using EBCIDC character set • Creates difficulty with carriage return & line feed items • For job categories – the mapping is not clean in our system	• For employee ID Number – Unique ID not part of contractor data • For employee start date – Will need to modify code to use hire date and/or transfer date into job category • Start date not part of contractor data		• Start up = 43 hours ($2150.00) • Maintenance = a few hours per week ($100.00)	

Nursing Facility	Census (C) or Payroll (P) Data	ESTIMATE OF BURDEN			ESTIMATE OF COST		
		Minimal Burden *(Definition: All data elements are currently available & easily accessible in electronic format)*	**Moderate Burden** *(Definition: Some but not all data elements are available electronically)*	**Significant Burden** *(Definition: Data are not collected electronically and/or data are not available)*	**Minimal Cost** *(Definition: Currently have staff &databases in place to produce data)*	**Moderate Cost** *(Definition: Would need to increase staff hours and/or create/combine additional databases to produce data)*	**Significant Cost** *(Definition: Would need to hire additional staff and/or purchase additional computers or software to produce data)*
F	C	Unable to produce census data in a flat file format. Submitted data via an Excel file.					
	P		• This nursing facility employs the services of a national payroll company. • The nursing facility had to provide the payroll vendor with information concerning the facility identification information, the codes the facility uses for productive and non-productive hours, and a job category crosswalk.			• Nursing facility required by their national payroll vendor to have a Reportsmith Feature with Super Data Access. The usual cost for this feature is approximately $495.00. • The payroll report was considered to be a Custom Report. The fee for the report was $500.00. • Estimated time is 5 – 6 hours per report.	

Nursing Facility	Census (C) or Payroll (P) Data	ESTIMATE OF BURDEN			ESTIMATE OF COST		
		Minimal Burden *(Definition: All data elements are currently available & easily accessible in electronic format)*	**Moderate Burden** *(Definition: Some but not all data elements are available electronically)*	**Significant Burden** *(Definition: Data are not collected electronically and/or data are not available)*	**Minimal Cost** *(Definition: Currently have staff &databases in place to produce data)*	**Moderate Cost** *(Definition: Would need to increase staff hours and/or create/combine additional databases to produce data)*	**Significant Cost** *(Definition: Would need to hire additional staff and/or purchase additional computers or software to produce data)*
G	C	X				• Currently have no automated census process in place • Looking at purchasing scheduling software package that would perform this function • Need to increase staff hours & create or combine databases • Start up = 5 hours ($63.24) • Maintenance = 15 minutes per report ($3.50)	
	P	X				• Start up = 20 hours ($660.00) • Maintenance = 15 minutes per report ($9.00)	

Only five of the nine facilities were able to submit payroll data according to the specifications during our allotted project timeframe. Three of the five participants indicated that the burden of producing the data was minimal. Two of the nursing facilities indicated that changes to their payroll machine and data files would be a moderate or significant burden. Costs associated with these two file creations ranged to less than one hundred dollars to nearly $2,200 in start up fees. Participants viewed these costs as moderate.

Considerable burden was associated with formatting the file submissions into the required flat file format for all participants. The following quote from a corporate IT staff member exemplifies the burden placed on the participants:

"In general, I think it is unacceptable, given current technology, to request data in a COBOL record format. This format is exceedingly difficult for a non-IS person to understand and accommodate. I would strongly recommend requesting the information in a standard CSV format. I have built a large number of external interfaces over the last couple of years and it has been a long time since I have seen one requiring header and trailer records. A simple user or provider id tied to stored contact/facility information could circumvent the header requirements. I understand, for balancing purposes, the purpose of trailer records but I think that they are unnecessary. Repetitious identifying information (record id, version code, fed id, submission dates…) in the employee records is also unnecessary. Finally, these specifications appear to be written for ease of processing and not for ease of creation for the end-user. I have no idea how the little Mom and Pop facilities are going to be able to comply. I had the benefit of working with computer literate but non-IS partners on this project that provided census data. Without a doubt they could have provided their data in one-tenth the time if they could have supplied a date and census number in a simple CSV file. As for the payroll data, I would have used a simple query, instead of multiple RPG (Report Program Generator) programs, had all that had been required was to report employee id, start dates, category, and non-productive hours".

The business office manager for Facility D stated that she did not have time to process a report in this format. She indicated that it took her 20 minutes to gather the census data but 20 hours to create the report.

5. Discussion

The objective of this feasibility study was to distribute the draft census and payroll data specifications to a sample of nursing facilities and determine if the nursing facilities and/or their payroll vendors were able to generate a census data file and pay period payroll data file according to the specifications. In addition, the burden associated with generating these files was assessed. This study engaged a small number of nursing facilities, selected as a convenience sample, but they provided a significant amount of information to assess the feasibility of implementing a national program for the collection of staffing data.

This study confirmed the earlier assumption that nursing facilities located within large corporations and with support from sophisticated in-house IT departments, could be successful in producing the census and pay period payroll data according to the specifications. There were some issues identified, especially with the payroll data but these issues were not insurmountable.

The study discovered that nursing facilities associated with smaller corporations, with in-house IT departments, and with a national payroll vendor could also be successful. Nursing facilities within small or moderate sized corporations and freestanding nursing facilities, without in-house IT support, struggled to produce both census data and payroll data. These facilities were capable of producing the census data in an Excel format but could not transpose the data into the specified flat file format even after receiving sample files, support from the project team, and/or access to their IT consultants. Only one freestanding nursing facility, working with a national payroll vendor, was able to produce the payroll data according to specifications. Payroll vendors were not easy or quick to engage in the project, however more time, reimbursement for their efforts, and/or a related federal rule may drive the vendors to generate programs that will contribute to the collection of needed data.

The study participants provided a significant amount of information about the data specifications. While they understood most of the definitions and terms contained in the specifications, the nursing facilities without in-house IT or payroll vendor support could not understand how to format the data according to the specifications. The successful nursing facilities pulled data from several databases, converted the data into interim files, and then finally transferred it into the final flat file format. Others requested a template within which they could place their data with a training manual to support the process. Several of the facilities indicated that alternative approaches to submitting the census and tabs, or something similar, would indeed be practical alternatives. The complicating factor was the data specifications that were written to emulate a flat file submission, similar to MDS submissions. While the project team agrees that alternative systems such as properly labeled Excel files or text files that are separated by commas, would indeed be practical alternatives, our understanding is that the current CMS system does not have the capability to accept files other than in a flat file format. Furthermore, each of the alternatives would have to be explored to determine their own strengths and weaknesses with respect to data submissions. It is critical however, that further consideration be given to the file structure requirements to minimize the burden and cost associated with processing the data.

Consideration should be given to the value of collecting hours for “Other” non-nursing staff. Inclusion of this category of staff increases the opportunity for non-comparable and invalid data. Some non-nursing staff are reimbursed by the nursing facility via invoice and others are reimbursed by the corporations directly. Still others are included as part of a management fee paid by the nursing facility to the corporation. Accurate tracking of these data can be problematic. Further information pertaining to this issue should be uncovered during our analysis of the data, and will subsequently be included in the SQM project’s final report in March 2008.

The inclusion of nursing contract (pool) labor presented certain barriers. Study participants that used contract nursing staff reimbursed the vendors via invoice, paid weekly or monthly. None of the participants had provisions for the automatic inclusion of nursing contract hours in their payroll hours. The pool hours acquired during the feasibility study were actually entered into the corporate database manually. It is imperative that contract nursing staff hours be included in the payroll data file. Further study is needed to address the issues pertaining to this group, such as, the inclusion of non-productive hours and the identification of start and end dates. The process

to include contract nursing staff hours with the payroll hours should be investigated to make this as efficient and accurate as possible. One nursing facility mentioned merging the accounts payable roster with the payroll roster to produce the required information. If it is determined that payroll data are going to be used for the staffing quality measures, the nursing facilities will perceive the importance of including this group within their staffing hours and may be motivated to resolve this issue.

This report has attempted to provide details regarding the areas of success for payroll data collection, as well as those areas found to present barriers necessitating further consideration. Interactions with the nursing facilities and corporations were interpreted as positive and supportive of the project. A second feasibility test that engages additional payroll vendors and tests alternate file formats should be undertaken as next steps.

6. References

(1) National Quality Forum. National Voluntary Consensus Standards for Nursing Home Care. 2005

(2) Institute of Medicine of the National Academies. Keeping Patients Safe: Transforming the Work Environment of Nurses. Ann Page, editor. 2004 Washington, DC, National Academies Press

(3) Andrew Kramer, Theresa Eilertsen, Nancy Donelan-McCall et al. Development of Staffing Quality Measures – Phase I, Final Report. July 25, 2004

(4) Nancy Donelan-McCall. Development of Staffing Quality Measures – Phase I, Specifications for Submission of an Electronic Extract File. June 30, 2007

7. Appendices

Appendix A

Date

Name
Address
Address
City, State, Zip

Dear,

The Centers for Medicare & Medicaid Services (CMS), the National Quality Forum (NQF), and the Institute of Medicine (IOM) have called for nursing home staffing measures that are rigorously defined, based on accurate data, and associated with quality. The Colorado Foundation for Medical Care (CFMC) has been awarded a contract from CMS to develop a nursing home staffing measure(s) that can be appropriately used as a quality measure for public reporting. The contract is entitled the "Development of Staffing Quality Measures – Phase I: Continuation" (SQM). The University of Colorado at Denver and Health Sciences Center (UCDHSC) has joined CFMC in this effort.

Specifically the SQM project is addressing:

- Analysis of the relationship of staffing measures to outcome measures for the short stay population in Medicare approved nursing facilities
- Analysis of the relationship of staffing measures to outcome measures for the long stay population in Medicare approved nursing facilities
- Development of specifications for payroll data requirements
- Investigation of the feasibility for obtaining payroll data to meet reporting requirements as directed by CMS
- Analysis of contract staff hours

Please note that it is not the intent of the SQM project to address the issue of minimum staffing levels.

In March 2004, a Technical Expert Panel and 42 long term care Stakeholders met in Baltimore, Maryland to consider the project. The result was to suggest to CMS that the project use payroll data to generate the staffing quality measures. Payroll data was chosen because of its potential to generate the most accurate staffing quality measures with the lowest possible burden for nursing homes. OSCAR data was considered for this use. It was determined that OSCAR data lacked the necessary information to generate measures other than staffing ratios. It was also limited to a

two-week time period and had been found to be inaccurate, particularly in smaller nursing homes. In the months following the meeting, eight national nursing home corporations participated in the project by contributing their payroll and personnel data to support the development of the staffing quality measures.

By July 2005, a database was constructed with payroll records from 1,453 nursing homes representing 48 states. Over 11.6 million individual payroll records and 172,563 individual personnel records were received. Analysis of the records demonstrated that payroll data can be used to generate uniformly defined staffing quality measures.

Currently, the SQM team is asking nine nursing homes to participate in a feasibility study. The objectives of the feasibility study are to:

- Determine the ability of nursing homes and/or their payroll systems to collect and report payroll and census data elements electronically using identified specifications provided by the SQM team
- Evaluate the ability of the nursing homes and/or their payroll systems to deliver the payroll and census data elements electronically to an identified source
- Identify the cost and burden of these activities to the nursing homes and/or their payroll systems
- Investigate the development of a measure of staff immunization for influenza

As part of the feasibility study we are asking the nine individual nursing homes to:

- Participate in one 60 to 90 minute pre-study conference call or face-to-face meeting with CFMC to discuss:
    - The details of the feasibility study
    - The effort required to capture and send the information
    - Any anticipated barriers and the resolutions to the identified barriers
    - The identification of the time required for completion of the data submission
- Submit payroll and census data for five retrospective quarters, specifically January 2006 to March 2007
    - Data Use Agreements would be executed as needed
    - Data may be submitted to CFMC on CD, DVD, or flash drive. Files should be sent to CFMC via UPS. A CFMC billing number will be provided. We recommend that you use "three day select" for the UPS mailing. We would request that you please place the CD/DVD/flash drive in a double envelope marked confidential and mail it to:

Ann Romaglia

Colorado Foundation for Medical Care

23 Inverness Way East, Suite 100

Englewood, Colorado 80112-5708

- Respond in writing to a ”Cost and Burden” questionnaire outlining the anticipated costs and burden relative to the data collection and transmission activities. Areas to be included in the questionnaire are:
    - Cost of computer hardware
    - Any anticipated increases in staff personnel
    - Any anticipated increases in staff time
    - Any additional fees paid to payroll vendors for programming/reporting
    - Other issues identified by the nursing home during the study
- Participate in one 60 minute post-study conference call or face-to-face meeting with CFMC to discuss the nursing homes response to the “cost and burden” questionnaire

Your participation in the feasibility study will give you the opportunity to provide CMS with invaluable insights into the issues, benefits, and challenges associated with the collection and transmission of payroll and census data. CMS is eager to learn from the experiences you have during the study. Your feedback will provide vital information as the process moves forward.

All data submitted to CFMC during the feasibility study will be kept confidential. Numbers will be assigned to the payroll, census, and immunization data from each nursing home to protect your anonymity. However, CFMC would like to include the name of your nursing home and contact person in the final Feasibility Study Report to CMS so that you may receive proper recognition for your efforts.

CFMC is very grateful that you have volunteered to participate. We look forward to working with you on this groundbreaking study.

Sincerely,

Ann Romaglia, RN, NHA, MEd

Project Manager

(303) 669-2689

aromaglia@coqio.sdps.org

Appendix B

Development of Staffing Quality Measures
Data Use Agreement

This Data Use Agreement is between _____ and the Colorado Foundation for Medical Care ("CFMC").

_____ is willing to disclose and CFMC is willing to receive certain information from _____ represented to be confidential and proprietary information (collectively "Information").

CFMC wishes to receive and _____ wishes to disclose the Information solely for use as part of CFMC's Development of Staffing Quality Measures Project ("Project").

Agreement:

Therefore, _____ and CFMC agree as follows:

1. CFMC agrees to maintain the Information disclosed by _____ in strictest confidence and:

   A. Not further disclose the Information to any other person or entity, other than the Development of Staffing Quality Measures Project Team, without the written consent of _____.

   B. Use at least the same degree of care to maintain the Information confidential as CFMC uses in maintaining its own confidential/proprietary information, but always at least a reasonable degree of care.

   C. Use the Information only for the Development of Staffing Quality Measures Project.

   D. Destroy or return the Information to _____ at the completion of the project.

2. This Agreement is applicable to all disclosures and communication of Information, pertaining to this project, between _____ and CFMC in any form whatsoever, including oral, written or any other form.

3. The Information disclosed shall remain the sole property of _____.

4. This Agreement is binding upon _____ and CFMC, and upon the directors, officers, employees and agents of each party. This Agreement is effective as of the later date of execution and will continue indefinitely, unless terminated on thirty (30) days written notice by either party. However, CFMC's obligations of confidentiality and restrictions on use of the Information disclosed by _____ shall survive termination of this Agreement.

Corporation/Nursing Home	Colorado Foundation for Medical Care
By: _____	By: _____ Arja P. Adair, Jr.
Title: _____	Title: President/CEO_____
Date: _____	Date: _____

Appendix C

Development of Staffing Quality Measures – Phase I: Continuation
Task 5 Feasibility Study

Pre-Study Conference Sheet

Name of Nursing Home:
_____

Names and Contact Information (Telephone Number, Email Address) for the Conference Participants:
_____

_____

_____

_____

Questions:

1. Please explain your current payroll process? (In-house, outsourced to an independent payroll service, a combination of in-house processing and outsourcing?)
   _____
   _____

2. Do you track employee hours electronically? If so, what time clock, software systems, or payroll companies do you use to track data and generate payroll records?

Time clock _____
Software systems_____
Payroll companies_____

3. If you do not track employee hours electronically, what process do you use to track payroll hours?
   _____
   _____

4. Please describe the payroll process in your nursing home. Please track how an employee at your nursing home gets paid from punch in to receipt of a payroll check. Please include how many times per shift your employees punch in and out.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

5. How frequently do your employees get paid? (Every 7 days, every 14 days, bi-monthly, other)

_____
_____
_____

6. What happens if an employee fails to punch in or out? How and when is it corrected and by whom?

_____
_____
_____

7. How do you track payroll data for

- Salaried staff? _____
- What staff are considered salaried? _____
- Are salaried staff paid for 8 hours regardless of the number of hours they work? _____
- Regular employees who work in more than one department - how are their hours reflected?

  _____
- Contract labor? _____
  - Are the hours tracked by job category? _____
  - How often do you pay for contract labor? _____
- Advanced nurse practitioners (APN) employed by the nursing home or corporation? *

  _____
- Staff shared with other nursing homes (infection control nurses, MDS Coordinators, floaters), etc.?
- Medical Director? _____
- Consultants? _____

* Definition of an APN is a person licensed as an RN, and certified as a NP or CNS by a recognized national body. The APN must be engaged in direct resident care.

8. Are there any employees that are not included in your payroll records? If so, would you be able to provide payroll data for these employees?

_____

_____

9. Does your payroll system capture non-productive hours (sick-time and vacation/leave)? If your system does not capture non-productive hours, would you be able to create a "filler" or "dummy" record for these individuals?

_____

_____

_____

10. Are you able to collapse your existing job classifications into the nine categories listed in the specifications?

_____

11. Are you able to categorize individuals who work in various job areas into the highest job category? For example, the CNA who performs both housekeeping and CNA tasks should be classified as a CNA.

_____

12. If an employee is promoted, are you able to report the employee's original job classification during the pay period that the promotion occurred and the new job classification during subsequent pay periods?

_____

13. Productive hours need to be reconciled/corrected hours for the pay period and should not include hours that correct for over or under payments in prior pay periods. Are you able to do this?

_____

14. Are you able to submit productive and non-productive hours separately?

_____

_____

15. Is an employee's start date retained in your payroll system?

_____

16. If not, can this information be merged into the payroll data for submission?

_____

17. When does your nursing home calculate the daily census?

_____

18. Are you able to compute the census at 6:00 a.m. for the purposes of this study?

_____

19. In considering the data elements, what resources would you need to provide the requested payroll and census data? Would these resources occur at the nursing home level or the corporate level?

_____

_____

On behalf of the entire Development of Staffing Quality Measures Team, I would like to thank you for participating in this Pre-Study Conference Call/Meeting.

Ann Romaglia
Project Manager
(303) 669-2689
aromaglia@coqio.sdps.org

Appendix D

Development of Staffing Quality Measures – Phase I
Final Report

Executive Summary

Introduction

The Centers for Medicare & Medicaid Services (CMS), the National Quality Forum, and the Institute of Medicine (IOM) have all called for nursing home staffing measures that are rigorously defined, based on accurate data, and associated with quality of care. Although short-term modifications to the Online Survey Certification and Reporting System (OSCAR) are being implemented to improve the existing nurse staffing data, limitations exist in this system that cannot be overcome even with these interim modifications. OSCAR data lack the necessary information to generate measures other than staffing ratios (e.g., turnover/retention, tenure), that many argue are critical markers for nursing home quality. In addition, OSCAR data that are limited to a two-week period have been found to be inaccurate particularly for the lowest staffed facilities, and discrepancies exist in reporting certain elements. The purpose of this project was to investigate a wider array of staffing measures, and to assess alternative data sources that could be used for reporting staffing measures in the future. Early in the project, the decision was made to collect payroll data from several national corporations so that a large payroll record database could be constructed to test quality measures derived from payroll data. This report presents the methods and results from the initial analysis of staffing measures derived from payroll data, which examined measure properties across all facilities in which data were obtained.

Methods

An initial project task was to specify a set of staffing constructs (or attributes) that were considered to be associated with nursing home quality and meaningful to consumers and nursing home providers. The focus was not on precise definitions, rather identifying the constructs such as staffing ratios, staff turnover, presence of registered nurse (RN) staff, etc. These constructs were identified through a comprehensive literature review that served as the basis for a stakeholder meeting with 42 stakeholders including representatives from national organizations, nursing home corporations, and individual nursing facilities. Stakeholders addressed the

following issues: 1) the aspects of nursing home staffing most important to their constituencies; 2) how improvements could be made to the measures of staffing information currently presented on CMS's Nursing Home Compare; and 3) how staffing measures could be presented to the public. Following the stakeholder meeting, the nine-member technical expert panel (TEP) met and generated a list of constructs for the research team to pursue. In addition, the TEP was instrumental in the decision to pursue payroll data as the preferred data source for development of staffing measures because of its potential to generate the most accurate staffing measures with the lowest possible burden on nursing facilities.

Eight national nursing home corporations agreed to provide payroll data from their systems to support the development of staffing quality measures for this project. As a result, a database was constructed with payroll records from 1,453 facilities representing 48 states. Due to the receipt of annual census data from two corporations, staffing ratio measures could only be computed for 1,028 facilities. In total, over 11.6 million individual payroll records and 172,563 individual personnel records were received. Although data extraction specifications were sent to each corporation, construction of the database was complicated by the fact that no standards currently exist for job title categorization, duration of pay periods, and reporting of daily census data. Nevertheless, even with this lack of standardization, we were able to construct an identical set of measures for all facilities that provided the necessary data for the measures. Because this was the first time payroll data had been collected for computing staffing measures, unanticipated difficulties arose in constructing the database and associated measures. For example, we requested data for calendar year 2003; however, to compute turnover for the entire year of 2003, data from the first quarter of 2004 were necessary to determine if an employee was no longer being paid and thus employed by the facility. Through these analyses, we learned a great deal about payroll data systems and how to structure a data request that would eliminate many of the difficulties we encountered.

We were able to construct a wide array of measures pertaining to staffing ratios, staff mix, full-time employees, RN shift coverage, turnover/retention, and tenure. Many of these measures have never been calculated before or have not been calculated with the level of precision that we were able to obtain because prior studies lacked the raw data from which to construct the

measures. However, other measures of interest to policy makers required data items that simply could not be provided by the corporations. These measures include: direct hands-on nursing care hours distinguished from indirect activities (e.g., documentation, reporting, phone calls, etc.), hours worked by contract agency staff (except for one corporation), staffing ratios by shift or day of week, staffing levels by unit, and frequency of use of overtime for nursing staff. We are therefore unable to report these measures for the facilities in our database. However, we did receive data from one corporation that allowed us to investigate shift-level measures relating to coverage by RNs, though we could not calculate staffing ratios by shift because appropriate census data could not be obtained from that facility. Analysis of the data from the one corporation regarding the use of contract agency nursing staff is beyond the scope of this report.

Results

The analyses presented in this report were aimed at determining if equivalent measures could be computed across payroll systems, testing various measure definitions, and examining distributions of the measures and associations between measures. Highlights of these findings are presented below, organized by the different types of measures that were computed across all facilities.

Staffing ratio measures: The payroll data findings suggest that nurse staffing ratios can be captured most efficiently in three measures including CNA hours per resident day, all licensed nursing hours per resident day, and RN hours per resident day for direct care staff. Based on payroll data, hours per resident day averaged 1.97 for CNAs and 1.10 for licensed nursing staff including all RNs and LPNs in the facility (including management staff). One advantage of payroll data is that we were able to exclude nurse managers, such as directors of nursing (DONs) and assistant directors of nursing (ADONs) from some of the computations in order to calculate RN ratios that included only those RNs involved in resident care. This staffing ratio of 0.29 hours per resident day for RNs involved in resident care is considerably lower than estimates of RN time from other sources (that include DONs and ADONs), and yet is important to examine because these individuals have a different functional role than management staff. A substantial inverse correlation between RN and LPN hours per resident day ($r = -0.45$) suggests that considerable substitution occurs between these two types of licensed staff providing direct

patient care. The finding that higher RN hours per resident day was associated with lower turnover in all types of nursing staff as well as all nursing home employees highlights the importance of RN direct care time. Payroll data provided the first opportunity to examine all nursing home employees, of which approximately two-thirds of the FTEs are nursing staff. Although staffing levels for all employees are highly correlated with nurse staffing levels ($r = 0.86$), the database provides an opportunity to identify and examine facilities that may substitute non-nursing staff time for CNAs.

Measures of percent of full-time employees: Payroll records provided a unique opportunity to examine the proportion of full-time employees relative to the proportion of part-time employees. Using a definition of greater than 35 hours per week, approximately 50% of nursing staff were full-time, and these full-time staff provided about 75% of all nursing hours. These proportions were relatively similar on average for all staff, with the exception of management, which had a higher proportion of full-time employees. An important finding in these analyses was that turnover rates for part-time employees were far greater than turnover rates for full-time employees, twice as high for several categories of staff. These findings suggest that facilities ought to specifically consider the needs of part-time employees when trying to reduce turnover and perhaps consider incentives to encourage staff to commit to full-time employment. Because of the high turnover for part-time staff and the wide distribution in percent of staff that are part-time ranging from approximately a third of staff in the top 10^{th} percentile to three-quarters of staff in the bottom 10^{th} percentile, further investigation of a measure of percent full-time employees seems warranted. Only a database derived from payroll records, however, can be used to uniformly compute such a measure.

RN shift coverage measures: Measures of RN shift coverage were examined for one corporation that provided shift-level data. A unique finding from this analysis was that RN coverage was greater on average than might be expected, with one RN available in three-quarters of daytime hours, two-thirds of evening hours, and almost half of nighttime hours (excluding DONs, ADONs, other nurse managers, and contract staff). However, these measures varied substantially with 10% of facilities having RN coverage less than 25% of evening hours and less than 10% of nighttime hours, whereas 10% of facilities had RN coverage about 90% of the time.

An RN was covering the floor an average of 61% of the time for every 24-hour period, and this finding was consistent for both weekdays and weekends. Although 10% of facilities had less than 8 hours of coverage per 24-hour period, this analysis did not include coverage from contract nurses and management nurses who may have been covering these shifts. Because coverage was highly correlated across shifts and days, a single variable of RN coverage might be adequate for reporting purposes. These illuminating results are not available from any data source other than payroll data, and many extant payroll systems cannot readily extract these data at this time. However, payroll systems do contain the necessary data if each employee's work hours are submitted for each day they work and presumably could be extracted.

Turnover/Retention measures: Payroll data provided an opportunity to calculate turnover and retention using several methods, including the most traditional measure calculated as the rate of departures during a time period relative to the average number of positions. Rates of CNA turnover reported here (about 80%) were comparable to other findings for CNA turnover in previous studies (CMSO "Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes, Phase II", 2001). Unlike in previous studies, however, RN turnover was higher than CNA turnover at 88%. Several issues may explain this result including: the more current data available in this study during a time of nursing shortages; the more accurate nature of RN payroll data in contrast to other unaudited surveys; the exclusion of administrative nurses (e.g., DONs) who generally have lower turnover; and the possibility that corporations move nurses from one site to the next fairly frequently increasing RN turnover based on payroll data. Interestingly, the higher rate of RN turnover was not associated with an exceptionally high rate of very short-term employees (<60 days), i.e., "short-term turnover", a new turnover measure we were able to construct from payroll data. LPN turnover was lower than both CNA and RN turnover, with somewhat lower turnover in administrative nursing.

Using payroll data to compute turnover measures has multiple advantages relative to other methods. Use of personnel data were problematic because of variation in the way facilities defined termination of an employee, whereas we were able to use a uniform definition based on whether an employee received any salary for a period of 60 days or more. Personnel records also were not adequate for tracking an employee through multiple departures, rehires, or job

classification changes. Finally, payroll data included employees who were employed by the facility during the time period of interest rather than measuring historically how many employees had terminated from personnel files. Nevertheless, even with payroll data the complexity of the turnover/retention construct requires that a precise measure definition is followed or the measures will not be comparable across facilities. If properly computed, turnover measures offer an important dimension of staffing for public reporting and quality improvement.

Tenure measures: To calculate tenure, only hire/rehire dates were used from the personnel data because facilities had different definitions of termination and held files open for varying periods after employees stopped working. Thus, payroll data were matched with the personnel data files and termination information was obtained from payroll records using a uniform definition. One-year and five-year tenure measures were calculated for both departed staff and employed staff. Of the employed staff, about 60% of CNAs and two-thirds of licensed staff were employed at least one year, with figures in the 20%-30% range when looking at tenure of five years or more. DONs and ADONs had longer tenure: 80% at 1 year and 40% at 5 years. Although the numbers were much lower in total for departed staff, they followed the same trend. The correlation between these tenure measures and turnover measures ($r = -0.19$ for 1 year and $r= -0.12$ for 5 years) shows that these measures capture a different dimension of staffing than turnover; however, they are modestly associated with one another. The stronger associations between the employed staff tenure measures and turnover ($r = -0.46$ for 1 year and -0.25 for 5 years) suggest that employed staff measures may be more beneficial in characterizing current quality of care.

Conclusions And Recommendations

Strengths of payroll as a data source for staffing quality measures: These analyses demonstrated that payroll data can be used to generate uniformly defined quality measures that are not available from other data sources. Staffing measures that were unique because of payroll data included: RN staffing ratios for RNs providing direct resident care (non-management); staffing ratios for all employees; percent of staff that were full-time; turnover and retention measures defined in new ways (e.g., short-term turnover); and turnover and tenure measures with uniform termination definitions. Because payroll data originate from employees and are used to pay their salaries, there is an incentive for both the employers and employees to ensure accurate

data, and therefore they are more accurate than reporting systems such as OSCAR where facilities calculate and report the required information. Payroll data are susceptible to audit and would be extremely difficult to alter based on incentives. By building on raw data elements in payroll records to construct the measures, variation in definitions and non-comparability between sites can be avoided. Thus, CMS should consider pursuing payroll data in generating staffing measures for public reporting, quality monitoring, research, and demonstrations.

Feasibility of using a payroll record database for computing nursing home staffing measures: Our major difficulties encountered in using payroll data resulted from lack of standards for data extraction and problems with our data specifications. For the most part, payroll systems collect the same raw information and are typically capable of extracting the set of data that is necessary to compute the various staffing measures included here. Although this project involved nursing homes affiliated with chains, survey findings from the continuation of the CMSO "Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes, Phase II" (2001) study supported the ability to provide payroll data among nursing home facilities that were not affiliated with major nursing home chains. Furthermore, these 180 facilities from five states that varied in size and payroll systems reported that they would be able to report resident census, nursing hours by licensure type, distinguishing hours worked and hours paid, and provide the information necessary to calculate turnover and retention. Thus, reporting staffing data through standardized extraction from all systems likely offers the least burdensome and most accurate method that would not require survey agency audit.

Because of the exploratory nature of this study, we accepted payroll data in any format we could obtain it and encountered problems that could have been prevented by tighter specifications. If CMS were to use payroll data, a set of requirements or standards could be prepared based on our current knowledge from this study so that facilities extracted the same information in the same format rendering the calculations more uniform. For example, we collapsed 1,551 job classifications from facilities into 11 categories, which could be defined so that all payroll systems could map to the standard job categories while retaining whatever job classifications the nursing home or payroll company chose. The actual number of data elements required in the extract would be relatively modest for each employee payroll record. The experience gained in

this analysis could be used to generate data requirements for payroll data extraction that would standardize the necessary data elements across facilities, corporations, and payroll companies. Because a requirement would standardize the extraction of payroll data without necessarily changing payroll systems, we believe that most systems could adapt without much burden. However, we recommend that a feasibility study be conducted of a payroll-based reporting system to examine the feasibility, burden, and costs associated with extracting payroll data from various nursing homes and companies according to uniform specifications, obtaining standardized contract staff data from invoices or other sources, and establishing and maintaining a payroll database.

Use of staffing quality measures developed from payroll data for public reporting and quality improvement: The findings from these analyses suggest that an array of measures are possible for examining nursing home staffing. Many of the staffing measures calculated from payroll data have never been generated precisely in a sample of over 1000 facilities because the necessary data were never available. This initial phase of the project has resulted in the identification and construction of many candidate measures that will need to be further analyzed in order to identify the optimal measures for public reporting. This essential work, planned for Phase II of this study, would address issues such as comparisons among facilities, relationships between facility characteristics and staffing measures, the use of these measures in nursing homes that utilize alternative types of staffing models, and the association between various staffing measures and nursing home quality of care measures. Furthermore, the multiple dimensions of staffing (e.g., staffing ratios, turnover, tenure, proportion of full-time staff) suggest that an array of measures may be of interest for in-depth understanding of staffing problems and staffing improvement activities, even if a more parsimonious selection of measures is used for public reporting. One could envision a profile of staffing measures for facility use in quality improvement. Thus, we have a unique opportunity to build on the substantial investment made to produce this rich data file by conducting a more rigorous analysis than has been possible of staffing differences across corporations, regions, and facilities and of the association between staffing and quality of care.

Appendix E

Development of Staffing Quality Measures – Phase I
Technical Expert Panel Member Contact List

Name	Title/Organization	Contact Information
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Name	Title/Organization	Contact Information
Jack Schnelle, PhD	Director, UCLA-Jewish Home for the Aging, Los Angeles	UCLA-Jewish Home for the Aging Borun Center for Gerontological Research UCLA Borun Center JHA, 7150 Tampa Avenue Reseda, California 91335 Phone: 818 774-3234 Fax: 818 774-3346 Email: jschnell@ucla.edu
Janet K. Specht, RN, PhD	Associate Professor, University of Iowa College of Nursing	University of Iowa 432 Nursing Building Iowa City, Iowa 52242-1121 Phone: 319 335-6518 Fax: 319 335-7106 Email: janet-specht@uiowa.edu
Robyn I. Stone Dr. P. H.	Executive Director, American Association of Homes and Services for the Aging	Institute for the Future of Aging Services 2519 Connecticut Avenue, N.W. Washington, D.C. 20008 Phone: 202 508-1206 Fax: 202 783-4266 Email: rstone@aahsa.org
Mary Zwygart-Stauffacher, RN, PhD	Professor and Chairperson, Department of Nursing Systems	University of Wisconsin, Eau Claire N 8311 627th Street Colfax, Wisconsin 54730 Phone: 715 836-4904 Fax: 715 836-3477 Email: zwygarmc@uwec.edu

Appendix F

Development of Staffing Quality Measures – Phase I
March 2, 2004 Stakeholder Meeting – CMS Headquarters, Baltimore, Maryland
Participant List

Stakeholder	Contact Person	Will Attend	In Person	Via Telephone	Will give an oral presentation or send written materials
Alliance for Quality Nursing Home Care	Brad Shiverick, 617 646-5504 Bshiverick@hbrside.com	Yes	X		
Alzheimer's Association	Jane Tilly, 202 393-7737 x224 jane.tilly@alz.org	Yes	X		
American Association of Homes and Services for the Aging	Ruta Kadonoff, 202 508-9450 rkadonoff@aahsa.org	Yes	X		Oral Presentation and written materials
American Association of Retired Persons	Nanne Eliot, 202 434-3779 Ndeliot@aarp.org	Yes	X		
American College of Health Care Administrators	Mary Tellis-Nyak, 703 739-7930 mtn@ACHCA.org	Unable to attend			
American Health Care Association – Washington Office	Sandy Fitzler, 202 898-6307 sfitzler@ahca.org	Yes	X		Oral Presentation and written materials
American Health Quality Association	David Adler, 202 331-5790 x312 dadler@ahqa.org	Yes	X		

Stakeholder	Contact Person	Will Attend	In Person	Via Telephone	Will give an oral presentation or send written materials
American Hospital Association	Jo Ann Webb, 202 626-2321 jwebb@aha.org	Yes	X		
American Medical Directors' Association	Kathleen Wilson, 410 964-1907 kathleenmwilson@cs.com	Yes	X		Will submit written materials
American Nurses Association	Patricia Rowell, 202 651-7058 prowell@ana.org Pam Hagan, 202 651-7059 phagan@ana.org	Yes	X		Ms. Hagan will give an oral presentation.
Association of Health Facility Survey Agencies Office of Health Care Quality – State of Maryland	William Vaughan, 410 402-8140 wvaughan@dhmh.state.md.us	Yes	X		
Center for Medicare Advocacy	Toby Edelman, 202 216-0028 x104 tedelman@medicareadvocacy.org	Yes	X		
Eden Alternative	Lori Slick, 301 582-1628 ljslick@hmwd.org Mary Sue Cochran, 301 582-1628	Yes	X		
Friends of Residents in Long-Term Care	Ann Duvoisin, 919 403-8110 duvoisina@mindspring.com	Yes		X	Oral Presentation

Stakeholder	Contact Person	Will Attend	In Person	Via Telephone	Will give an oral presentation or send written materials
Institute of Aging – University of North Carolina	Thomas R. Konrad	Yes	TBD	TBD	
Joint Commission on Accreditation of Healthcare Organizations	Sharon Sprenger, 630 792-5968 ssprenger@jcaho.org	Yes	X		
National Association of Directors of Nursing Administration in Long Term Care	Sherrie Dornberger, 513 791-3679 Bzynurse1@aol.com	Yes	X		Will submit written materials
National Association of Subacute/Post Acute Care	Diane Brown, 617 306-1800 dbrown@mds2.com Jo Walters, 888 669-8123	Yes	X		May submit written information.
National Citizens Coalition for Nursing Home Reform	Alice Hedt, 202 332-2275 ahedt@nccnhr.org Janet Wells, 202 332 2275 Jwells@nccnhr.org	Yes	X		Ms. Hedt will give an oral presentation
National Gerontological Nurses Association	Robin Remsburg, 301 458-4416 rqr3@cdc.gov	Yes	X		Oral Presentation
National Hospice and Palliative Care Organization	Cherry Meier, 512 252-2843 cmeier@austin.rr.com	Yes	X		
National Long Term Care Ombudsman Organization	Sharon Wilder, 919 733-8395 sharon.wilder@ncmail.net	Yes		X	Oral Presentation

Stakeholder	Contact Person	Will Attend	In Person	Via Telephone	Will give an oral presentation or send written materials
National Network of Career Nursing Assistants	Genevieve Gipson, 330 825-9342 cnajeni@aol.com Martha Mohler MohlerMM@aol.com	Yes			
Paraprofessional Healthcare Institute	Julie Trocchio, 202 721-6320 jtrocchio@chausa.org	Yes	X		May submit written materials.
Pioneer Network – Providence Mount St. Vincent	Beth Schultz, 206 938-6033 elizabeth.schultz@providence.org	Yes		X	
QIO - Delmarva Foundation for Medical Care	Catherine West, 410 712-7408 westc@dfmc.org	Yes	X		
Service Employees International Union	Lee Goldberg, 202 326-0850 goldberl@seiu.org	Yes	X		Oral Presentation and written material
The Commonwealth Fund	Mary Jane Koren, 212 606-3849 mjk@cmwf.org	Yes	X		
Wellspring Innovative Solutions for Integrated Health Care Good Shepherd Services, Ltd.	Mary Ann Kehoe, 920 833-1833 mak@goodshepherdservices.org	Yes		X	Oral Presentation

Stakeholder	Contact Person	Will Attend	In Person	Via Telephone	Will give an oral presentation or send written materials
Nursing Home Corporations					
Beverly Enterprises	Dave Devereaux, 877 823-8375 x5276 Dave_Devereaux@beverlycorp.com	Yes	X		Oral Presentation
Extendicare Health Services	Rick Gurka, 414 908-8407 rgurka@extendicare.com Debbie Howe, 502 423-0332 dhowe@extendicare.com	Yes	X		May submit written materials.
Genesis HealthCare	David Almquist, 410 494-8964 dave.almquist@genesishcc.com	Yes	X		Will submit written materials
HCR, Manor Care	Joyce Smith, 419 252-5726 jsmith@hcr-manorcare.com Maureen Hines 800 427-1902 x5151 Mhines@hcr-manorcare.com	Yes	X		Will submit written materials prior to meeting.
Kindred Healthcare	Barbara Baylis, 502 596-7920 Barbara.Baylis@kindredhealthcare.com	Yes		X	
Mariner Health Care	Dale Valentine, 678 443-6696 Dvalentine@marinerhealthcare.com Jennifer Scully, 678 443-7133 Jkulla@marinerhealthcare.com	Yes	X		Ms. Kulla-Scully is also representing the Sr. Clinicians
SunBridge Healthcare Corporation	Mary Ousley, 925 335-9980 Mary.Ousley@sunh.com	Yes	X		

Stakeholder	Contact Person	Will Attend	In Person	Via Telephone	Will give an oral presentation or send written materials
The Evangelical Lutheran Good Samaritan Society	Bill Kubat, 605 362-3130 bkubat@good-sam.com	Yes	X	X other staff on one phone	Oral Presentation
Trans Health Incorporated (formerly IHS)	David Juba, 410 773-5518 david.juba@thicare.com Patricia Kalan	Yes	X		
Nursing Homes					
Diakon Lutheran Social Ministries	Garry Hennis, 610 682-1491 hennisg@diakon.org	Yes	X		
Friendship Village of Dublin	Alyson Hover, 614 734-2133 alysonh@fvdublin.org	Yes	X		May submit written materials.
Glade Valley Nursing and Rehabilitation Center	Carol Grissom 301 898-4300 cgrissom@adventisthealth.com	Yes		X	
Good Samaritan Nursing Center	Elliott Cahan, 410 532-5600 x132 Elliott.cahan@medstar.net	Yes	X		
Gurwin Jewish Geriatric Center	Diane Mertz-Hart, 631 715-2610 Dmertz-hart@Gurwin.org	Yes	X		
Kendal-Crosslands Communities	Sherry Outten, 610 388-5628 soutten@xlands.kendal.org	Yes	X		
William Hill Manor	Donna Taylor, 410 822-8888 d.taylor@williamhillmanor.net	Unable to attend			

Appendix G

Submission of Census Data from Nursing Homes (Version 1.00)
Data Element Definitions

NOTE: Data specifications are subject to modifications pending full-scale use by participants in the feasibility study.

FACILITY IDENTIFIERS

Facility Medicare Provider Number

The Facility Medicare Provider Number is a six-digit number where the first two digits identify the state (e.g., Colorado is 06) and the 3rd-6th digits uniquely identify the facility and range from 5000 to 6399 (the 3rd digit can be a U, W, Y, or Z, if the facility is a swing-bed unit in a hospital).

State Assigned Unique Facility ID Code

This facility ID code is assigned by the state to each facility for submission of MDS data to the state system. The same facility ID code should be used for submission of nursing home facility payroll data.

CENSUS DATA

Census Date

The Census Date is the date the census was taken for the reported record. Census is submitted for each day separately.

Resident Census

Resident Census is the total number of residents, regardless of payer source, in the nursing facility at 6:00am on the day the census is taken. Resident census does not include those residents for whom a bed is maintained due to absence from the nursing home for hospitalization or leave (i.e., does not include "bed holds").

GENERAL DATA SPECIFICATIONS NOTES:

Each data submission will consist of a header record, a series of data records, and a trailer record. There are separate entries for each field in the header record, data record, and trailer record. Entries (fields) are separated by dotted lines. Each record within a data file is 325 characters in length. The following information is provided for each entry:

ITEM IDENTIFIER/DESCRIPTION. The "Item Identifier/Description" column gives a standard label (e.g., "Rec_ID") for the field and a short description (e.g., "Record ID").

LEN. The "Len" column gives the length of the field in characters (bytes).

START. The "Start" column is the starting position for the field in the data record.

END. The "End" column is the ending position for the field in the data record.

SPECIFICATIONS. The "Specifications" column gives a variety of information concerning the data requirements for the field. If a specifications item in this column is tagged with an asterisk (*), then failure to comply with the specification will result in a record REJECTION. If a specification is not tagged with an asterisk (*), then failure to comply will result in a warning (non-fatal error) and the record will be ACCEPTED.

PICTURE. The "Picture" section provides basic format information for the field. A picture of "X" indicates a single alpha-numeric character, while "XX" or "X(2)" indicate two alpha-numeric characters. A picture of "9" represents a numeric character, while "99" or "9(2)" indicate two numeric characters. A picture of "YYYYMMDD" is used for fields indicating year (including century), month, and then day format and a picture of HHMMSS is used for fields indicating hour (0-24), minutes (0-59), and seconds (0-59.

TYPE. The "Type" section gives the type of data in the field. Types are CODE, COUNT, TEXT, DATE, and TIME.

RANGE. The "Range" section lists the permissible values for a field.

FORMAT INFO. The "Format Info" section indicates additional specifications for the required formatting of values for a field. Examples are requirements that text entries be upper case and left-justified, and that numeric count entries be right-justified and leading-zero filled.

CONSISTENCY. The "Consistency" section indicates when pairs of fields or groups of fields must have consistent values. For example, the consistency requirement for the Record Submission Date includes the specification:

"*1) Sub_Date cannot be greater than current date."

Uniform Data Specifications For Nursing Home Payroll Census Data Submission
Header Record Layout for Submission of Payroll Census Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case A followed by 1.		
Record ID				Format Info:			
				Consistency:			
FED_ID	12	3	14	Picture:	X(12)	Type:	CODE
				Range:	Valid code, sp(12)		
Facility Medicare Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicare provider number (FED_ID) must match the facility Medicare provider number in each record of the submission file.		
ST_ID	15	15	29	Picture:	X(15)	Type:	CODE
				Range:	Valid code, sp(15)		
Facility Medicaid Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicaid provider number (ST_ID) must match the facility Medicaid provider number in each record of the submission file.		
FAC_ID	16	30	45	Picture:	X(16)	Type:	TEXT
				*Range:	Valid Code		
State Assigned Unique Facility ID Code				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	*1) This facility ID code (FAC_ID) must match the facility ID in each record of the submission file.		
FAC_NAME	30	46	75	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Name				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ADDR_1	30	76	105	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Address Line 1				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ADDR_2	30	106	135	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Address Line 2				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_CITY	20	136	155	Picture:	X(20)	Type:	TEXT
				Range:	Text		
Facility City				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ST	2	156	157	Picture:	X(2)	Type:	CODE
				Range:	Valid Code		
Facility State				Format Info:	Valid 2 character state code; upper case.		
				Consistency:			
FAC_ZIP	11	158	168	Picture:	X(11)	Type:	CODE
				Range:	Valid numeric ZIP code		
Facility ZIP Code				Format Info:	Left justified; no embedded dashes or spaces.		

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:			
FAC_CNTCT	30	169	198	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Contact Person Name				Format Info:	Left Justified; any letters must be upper case		
				Consistency:			
FAC_PHONE	10	199	208	Picture:	9(10)	Type:	TEXT
				Range:	Valid phone number		
Facility Contact Person Phone Number				Format Info:	Area code included; no embedded nonnumeric characters		
				Consistency:			
FAC_EXTEN	5	209	213	Picture:	X(5)	Type:	TEXT
				Range:	Valid extension, sp(5)		
Facility Contact Person Phone Extension				Format Info:	Left justified.		
				Consistency:			
FILE_DT	8	214	221	Picture:	YYYYMMDD	Type:	DATE
				Range:	Valid Date		
File Creation Date				Format Info:			
				Consistency:	*1) Cannot be greater than current date.		
TEST_SM	1	222	222	Picture:	X	Type:	CODE
				Range:	0 (zero), 1Valid Code		
Test/Production Indicator				Format Info:			
				Consistency:	1) Value = 0 for test submissions to the State; value = 1 for production submission		
FILLER	100	223	322	Picture:	X(100)	Type:	FILLER
				Range:	Sp(100)		
Blank Filler				Format Info:	Always blank.		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %.		
				Consistency:	1) Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Uniform Data Specifications For Nursing Home Payroll Census Data Submission
Data Record Layout for Submission of Payroll Census Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	Code
				*Range:	Upper case C followed by 1.		
Record ID				Format Info:			
				Consistency:			
VERSION_CD	5	3	7	Picture:	X(5)	Type:	CODE
				*Range:	1.00		
Data Specification Version Code				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FED_ID	12	8	19	Picture:	X(12)	Type:	CODE
				Range:	Valid code, sp(12)		
Facility Medicare Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicare provider number (FED_ID) must match the facility Medicare provider number in each record of the submission file.		
FAC_ID	16	20	35	Picture:	X(16)	Type:	TEXT
				*Range:	Valid Code		
State Assigned Unique Facility ID Code				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	*1) This facility ID code (FAC_ID) must match the facility ID in each record of the submission file.		
SUB_DATE	8	36	43	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Record Submission Date				Format Info:			
				Consistency:	*1) Sub_Date cannot be greater than current date.		
CORRECTION_NUM	2	44	45	Picture:	XX	Type:	COUNT
				*Range:	00-99		
Correction number for record				Format Info:	Right justify; pad left with zero.		
				Consistency:			
DELETE	1	46	46	Picture:	X	Type:	CODE
				*Range:	0,1		
Deletion Flag				Format Info:			
				Consistency:			
Census_DT	8	47	54	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Census Date				Format Info:			
				Consistency:	* 1) Census_DT cannot be prior to start of data reporting requirement. * 2) Census_DT cannot be greater than Sub-Date.		
Res_Census	4	55	58	Picture:	9(4)	Type:	COUNT
				*Range:	0001-9999		
Resident Census				Format Info:	Right justify; pad left with zero.		
				Consistency:			
FILLER	264	59	322	Picture:	X(264)	Type:	FILLER
				Range:	sp(264)		
Blank Filler				Format Info:	Always blank		

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %		
				Consistency:	1. Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Uniform Data Specifications For Nursing Home Payroll Census Data Submission
Trailer Record Layout for Submission of Payroll Census Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case Z followed by 0.		
Record ID				Format Info:			
				Consistency:			
TOT_REC	6	3	8	Picture:	9(6)	Type:	COUNT
				*Range:	Valid number		
Total Records Submitted				Format Info:	Right justified and leading zero filled.		
				Consistency:	*1) This field should include the total number of records in the submission file, including the header record, all Census records, and the trailer record.		
FILLER	314	9	322	Picture:	X(314)	Type:	FILLER
				*Range:	sp(314)		
Blank Filler				Format Info:	Always blank.		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %.		
				Consistency:	1) Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Submission of Pay Period Payroll Data from Nursing Homes (Version 1.00)
Data Element Definitions

NOTE: Data specifications are subject to modifications pending full-scale use by participants in the feasibility study.

FACILITY IDENTIFIERS

Facility Medicare Provider Number

The Facility Medicare Provider Number is a six-digit number where the first two digits identify the state (e.g., Colorado is 06) and the 3rd-6th digits uniquely identify the facility and range from 5000 to 6399 (the 3rd digit can be a A, U, W, Y, or Z, if the facility is a swing-bed unit in a hospital).

State Assigned Unique Facility ID Code

This facility ID code is assigned by the state to each facility for submission of MDS data to the state system. The same facility ID code should be used for submission of nursing home facility payroll data.

EMPLOYEE IDENTIFIERS

Employee ID

A unique employee identifier must be submitted with each payroll record. The unique employee identification should not contain identifying information such as employee names or social security numbers. The same unique Employee ID must be used for an employee's tenure within a nursing home. If the employee leaves the nursing home and returns to its employ at a later point in time the facility may choose to retain the original employee ID or assign a new employee ID. A new employee ID should not be assigned when an employee changes job positions within a nursing home facility.

Employee Start Date

The Employee Start Date is the date the employee began their employment at the nursing home. If the employee has left the nursing home for a period of time and returned as an employee the date provided should be the most recent start date.

STAFF JOB CATEGORIES

The data specification requires nursing home facilities to classify staff into one of nine job categories as defined below. Staff should be assigned to the appropriate job category based on their job title on the first day of the pay period being reported.

Registered Nurse – Those persons licensed to practice as registered nurses in the State where the facility is located. This category includes RN/ADONs whose primary[1] responsibilities involve direct patient care[2].

Licensed Practical/Vocational Nurse – Those persons licensed to practice as licensed practical/vocational nurses in the State where the facility is located. This category includes LPN/ADONs whose primary responsibilities involve direct patient care.

Certified Nurse Aide – Individuals who have completed a State approved training and competency evaluation program, or competency evaluation program approved by the State, or have been determined competent as provided in 483.150(a) and (3) and who are providing nursing or nursing-related services to residents. This category includes Medication Aides and Restorative Aides. CNAs in training should be classified as Non-Certified Nurse Aides (see below). If an individual works in two positions (e.g., CNA and housekeeping) all hours for this employee should be reported as CNA hours.

Non-Certified Nurse Aide – Individuals who are in training as a certified nurses aide or who are non-certified assistants/aides. This category includes Bathing Aide, Caregiver, Day Center Attendant, Feeding Assistant, Non-certified Aide, Nursing Assistant, Personal Care Assistant, and Resident Assistant. If an individual works in two positions (e.g., Nurse Assistant and Receptionist) all hours should be reported as Non-Certified Aide hours.

Advanced Practice Nurse (APN) – Those persons licensed as a registered nurse in the State where the facility is located and certified as a Nurse Practitioner or Clinical Nurse Specialist by a recognized national certifying body. This category includes only APNs whose primary responsibilities involve direct patient care. APNs performing physician-delegated tasks should be categorized into the Other Staff category and APNs whose primary responsibilities involve administrative duties should be categorized into the Nurse Administrator category.

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[1] Primary refers to greater than 50% of time.

[2] Involved in direct patient care is defined to mean that an individual is providing direct care to residents or is directly responsible for care provided to residents. Providing direct care means that an individual has responsibility for the residents' total care or some aspect of the residents' care. Resident contact is an intrinsic part of direct care. Directly involved in patient care includes, but is not limited to, such activities as assisting with activities of daily living (ADLs), performing gastro-intestinal feeds, giving medications, supervising the care given by CNAs, and performing nursing assessments to admit residents or notify physicians about a change in condition. [Final Rule – 42 CFR Part 483]

Director of Nursing[3] – Professional registered nurse(s) administratively responsible for managing and supervising nursing services within the facility.

Nurse Administrator – This category includes RNs and LPN/LVNs whose primary responsibilities are administrative and who do not perform direct patient care functions for the majority of their time (51% or more time in administrative duties). This category also includes other nurses whose principal duties are spent conducting administrative duties including, Assistant DON, Case Manager[4], CNA Instructor, CNA Supervisor, Coordinator of Wound Care, Director of Nurses in Training, Infection Control Nurse, Manager of Clinical Services, Medicare Coordinator, Nurse Liaison, Nurse Manager, Nurse Scheduler, Shift Supervisor, Patient Care Coordinator, Quality Improvement and/or Assurance Coordinator, Resident Assessment/MDS Coordinator, Staff Development Manager, and Unit Manager/Director.

Administrator – This category includes the Individual(s) responsible for all nursing home operations including the Administrator, Executive Director, Medical Director, and President. This category does not include vice presidents or other senior administrators, these job titles should be classified as Other staff. Administrator should be assigned to those positions that are responsible for the overall administration and patient care provided at the nursing home.

Other Staff – All staff not assigned to one of the eight categories listed above.

PAY PERIOD

Pay Period Start Date

The Pay Period Start Date is the first day of the pay period being reported. The date cannot overlap with prior pay periods submitted for the same employee working at the same nursing home.

Pay Period End Date

The Pay Period End Date is the last day of the pay period being reported. The date cannot overlap with prior pay periods submitted for the same employee working at the same nursing home. The pay period length (number of days between pay period start and end dates) cannot exceed 15 days and must be equal to a 7-day, 14-day, or a bi-monthly (15-day) pay period.

[3] The Director of Nursing and Nurse Administrator definitions may be modified, if warranted, to comply with the Fair Labor Standards Act.
[4] The words coordinator, manager, and director are used interchangeably for the various Nurse Administrator positions.

Productive Hours

Productive Hours includes the total number of hours worked during the pay period at the nursing home for the employee identified in the record. This number cannot include hours for vacation leave, sick leave, corrections to reconcile errors from previous pay periods, etc. This number does reflect hours worked in both direct and non-direct patient care. If an employee covers a shift at a facility within a nursing home corporation, the hours worked should be assigned to the respective facility and not allocated to a "home" or "primary" facility. If no productive hours were worked during the pay period the data element should be submitted with zero hours.

Nonproductive Hours

Nonproductive Hours includes the total number of hours paid during the pay period for leave (sick, vacation, administrative), bonuses, employee payouts, etc. If no nonproductive hours were paid during the pay period the data element should be submitted with zero hours.

GENERAL DATA SPECIFICATIONS NOTES:

Each data submission will consist of a header record, a series of data records, and a trailer record. There are separate entries for each field in the header record, data record, and trailer record. Entries (fields) are separated by dotted lines. Each record within a data file is 325 characters in length. The following information is provided for each entry:

ITEM IDENTIFIER/DESCRIPTION. The "Item Identifier/Description" column gives a standard label (e.g., "Rec_ID") for the field and a short description (e.g., "Record ID").

LEN. The "Len" column gives the length of the field in characters (bytes).

START. The "Start" column is the starting position for the field in the data record.

END. The "End" column is the ending position for the field in the data record.

SPECIFICATIONS. The "Specifications" column gives a variety of information concerning the data requirements for the field. If a specifications item is this column is tagged with an asterisk (*), then failure to comply with the specification will result in a record

REJECTION. If a specification is not tagged with an asterisk (*), then failure to comply will result in a warning (non-fatal error) and the record will be ACCEPTED.

PICTURE. The "Picture" section provides basic format information for the field. A picture of "X" indicates a single alpha-numeric character, while "XX" or "X(2)" indicate two alpha-numeric characters. A picture of "9" represents a numeric character, while "99" or "9(2)" indicate two numeric characters. A picture of "YYYYMMDD" is used for fields indicating year (including century), month, and then day format and a picture of HHMMSS is used for fields indicating hour (0-24), minutes (0-59), and seconds (0-59.

TYPE. The "Type" section gives the type of data in the field. Types are CODE, COUNT, TEXT, DATE, and TIME.

RANGE. The "Range" section lists the permissible values for a field.

FORMAT INFO. The "Format Info" section indicates additional specifications for the required formatting of values for a field. Examples are requirements that text entries be upper case and left-justified, and that numeric count entries be right-justified and leading-zero filled.

CONSISTENCY. The "Consistency" section indicates when pairs of fields or groups of fields must have consistent values. For example, the consistency requirement for the Pay Period End Date includes the specification:

"*1) The date must be at least 7 days after the pay period start date but no more than 15 days after."

Uniform Data Specifications For Nursing Home Payroll Pay Period Data Submission
Header Record Layout for Submission of Payroll Pay Period Data from Nursing Homes (Version 1.00)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case A followed by 1.		
Record ID				Format Info:			
				Consistency:			
FED_ID	12	3	14	Picture:	X(12)	Type:	CODE
				Range:	Valid code, sp(12)		
Facility Medicare Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicare provider number (FED_ID) must match the facility Medicare provider number in each record of the submission file.		
ST_ID	15	15	29	Picture:	X(15)	Type:	CODE
				Range:	Valid code, sp(15)		
Facility Medicaid Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicaid provider number (ST_ID) must match the facility Medicare provider number in each record of the submission file.		
FAC_ID	16	30	45	Picture:	X(16)	Type:	TEXT
				*Range:	Valid Code		
State Assigned Unique Facility ID Code				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	*1) This facility ID code (FAC_ID) must match the facility ID in each record of the submission file.		
FAC_NAME	30	46	75	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Name				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ADDR_1	30	76	105	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Address Line 1				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ADDR_2	30	106	135	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Address Line 2				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_CITY	20	136	155	Picture:	X(20)	Type:	TEXT
				Range:	Text		
Facility City				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ST	2	156	157	Picture:	X(2)	Type:	CODE
				Range:	Valid Code		
Facility State				Format Info:	Valid 2 character state code; upper case.		
				Consistency:			
FAC_ZIP	11	158	168	Picture:	X(11)	Type:	CODE
				Range:	Valid numeric ZIP code		
Facility ZIP Code				Format Info:	Left justified; no embedded dashes or spaces.		

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:			
FAC_CNTCT	30	169	198	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Contact Person Name				Format Info:	Left Justified; any letters must be upper case		
				Consistency:			
FAC_PHONE	10	199	208	Picture:	9(10)	Type:	TEXT
				Range:	Valid phone number		
Facility Contact Person Phone Number				Format Info:	Area code included; no embedded nonnumeric characters		
				Consistency:			
FAC_EXTEN	5	209	213	Picture:	X(5)	Type:	TEXT
				Range:	Valid extension, sp(5)		
Facility Contact Person Phone Extension				Format Info:	Left justified.		
				Consistency:			
FILE_DT	8	214	221	Picture:	YYYYMMDD	Type:	DATE
				Range:	Valid Date		
File Creation Date				Format Info:			
				Consistency:	*1) Cannot be greater than current date.		
TEST_SM	1	222	222	Picture:	X	Type:	CODE
				*Range:	0 (zero), 1Valid Code		
Test/Production Indicator				Format Info:			
				Consistency:	1) Value = 0 for test submissions to the State; value = 1 for production submission		
FILLER	100	223	322	Picture:	X(100)	Type:	FILLER
				*Range:	Sp(100)		
Blank Filler				Format Info:	Always blank.		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %.		
				Consistency:	1) Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Uniform Data Specifications For Nursing Home Payroll Pay Period Data Submission
Data Record Layout for Submission of Payroll Pay Period Data from Nursing Homes (Version 1.00)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case B followed by 1.		
Record ID				Format Info:			
				Consistency:			
VERSION_CD	5	3	7	Picture:	X(5)	Type:	CODE
				*Range:	1.00		
Data Specification Version Code				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FED_ID	12	8	19	Picture:	X(12)	Type:	CODE
				Range:	Valid code, sp(12)		
Facility Medicare Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicare provider number (FED_ID) must match the facility Medicare provider number in each record of the submission file.		
FAC_ID	16	20	35	Picture:	X(16)	Type:	TEXT
				*Range:	Valid Code		
State Assigned Unique Facility ID Code				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	*1) This facility ID code (FAC_ID) must match the facility ID in each record of the submission file.		
SUB_DATE	8	36	43	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Record Submission Date				Format Info:			
				Consistency:	*1) SUB_DATE cannot be greater than current date.		
CORRECTION_NUM	2	44	45	Picture:	XX	Type:	COUNT
				*Range:	00-99		
Correction number for record				Format Info:	Right justify; pad left with zero.		
				Consistency:			
DELETE	1	46	46	Picture:	X	Type:	CODE
				*Range:	0,1		
Deletion Flag				Format Info:			
				Consistency:			
EMP_ID	16	47	62	Picture:	X(16)	Type:	TEXT
				Range:			
Unique Employee Identifier				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	1) The same employee ID must be used across pay periods during a contiguous employment period. 2) The number should not contain identifying information such as employee names or social security numbers. 3) *This item cannot be blank.		
EMP_ST_DT	8	63	70	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Employee Start Date				Format Info:			

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:	1) Should be most recent start date for the employee *2) Must be prior or equal to the pay period start date *3) Must be prior or equal to the SUB_DATE		
JOB_CAT	2	71	72	Picture:	XX	Type:	CODE
				*Range:	01-09		
Employee Job Category				Format Info:	Right justify; pad left with zero. 01= Registered Nurse 02=Licensed/Vocational Nurse 03=Certified Nurses Aide 04=Non-Certified Nurse Aide 05=Advanced Practice Nurse 06=Director of Nursing 07=Nurse Administrator 08=Administrator 09=Other Staff		
				Consistency:			
PAY_P_ST_DT	8	73	80	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Pay Period Start Date				Format Info:			
				Consistency:	*1) The date must be at least 7 days prior to the pay period end date but no more than 15 days prior. *2) The date cannot overlap with an existing pay period for the same employee working within the same nursing home.		
PAY_P_END_DT	8	81	88	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Pay Period End Date				Format Info:			
				Consistency:	*1) The date must be at least 7 days after the pay period start date but no more than 15 days after. *2) The date cannot overlap with an existing pay period for the same employee working within the same nursing home. *3) The date cannot be prior to the SUB_DATE.		
PROD_HOUR	3	89	91	Picture:	999	Type:	NUMBER
				*Range:	000-180		
Total Productive Hours for the pay period				Format Info:	Right justify; pad left with zero. No embedded dashes or spaces		
				Consistency:	*1) The total number of productive hours cannot exceed an average of twelve hours per day over the pay period.		
NPROD_HOUR	3	92	94	Picture:	999	Type:	NUMBER
				*Range:	000-999		
Total Non productive hours for the pay period				Format Info:	Right justify; pad left with zero. No embedded dashes or spaces		
				Consistency:			
FILLER	228	95	322	Picture:	X(228)	Type:	FILLER
				Range:	sp(228)		
Blank Filler				*Format Info:	Always blank		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %		

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:	1. Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Uniform Data Specifications For Nursing Home Payroll Pay Period Data Submission
Trailer Record Layout for Submission of Payroll Pay Period Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case Z followed by 0.		
Record ID				Format Info:			
				Consistency:			
TOT_REC	6	3	8	Picture:	9(6)	Type:	COUNT
				*Range:	Valid number		
Total Records Submitted				Format Info:	Right justified and leading zero filled.		
				Consistency:	*1) This field should include the total number of records in the submission file, including the header record, all Census records, and the trailer record.		
FILLER	314	9	322	Picture:	X(314)	Type:	FILLER
				Range:	sp(314)		
Blank Filler				*Format Info:	Always blank.		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %.		
				Consistency:	1) Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Appendix H

Submission of Census Data from Nursing Homes (Version 1.00)
Data Element Definitions

NOTE: Data specifications are subject to modifications pending full-scale use by participants in the feasibility study.

FACILITY IDENTIFIERS

Facility Medicare Provider Number

The Facility Medicare Provider Number is a six-digit number where the first two digits identify the state (e.g., Colorado is 06) and the 3rd-6th digits uniquely identify the facility and range from 5000 to 6399 (the 3rd digit can be a U, W, Y, or Z, if the facility is a swing-bed unit in a hospital).

State Assigned Unique Facility ID Code

This facility ID code is assigned by the state to each facility for submission of MDS data to the state system. The same facility ID code should be used for submission of nursing home facility payroll data.

CENSUS DATA

Census Date

The Census Date is the date the census was taken for the reported record. Census is submitted for each day separately.

Resident Census

Resident Census is the total number of residents, regardless of payer source, in the nursing facility at 6:00am on the day the census is taken. Resident census does not include those residents for whom a bed is maintained due to absence from the nursing home for hospitalization or leave (i.e., does not include "bed holds").

GENERAL DATA SPECIFICATIONS NOTES:

Each data submission will consist of a header record, a series of data records, and a trailer record. There are separate entries for each field in the header record, data record, and trailer record. Entries (fields) are separated by dotted lines. Each record within a data file is 325 characters in length. The following information is provided for each entry:

ITEM IDENTIFIER/DESCRIPTION. The "Item Identifier/Description" column gives a standard label (e.g., "Rec_ID") for the field and a short description (e.g., "Record ID").

LEN. The "Len" column gives the length of the field in characters (bytes).

START. The "Start" column is the starting position for the field in the data record.

END. The "End" column is the ending position for the field in the data record.

SPECIFICATIONS. The "Specifications" column gives a variety of information concerning the data requirements for the field. If a specifications item in this column is tagged with an asterisk (*), then failure to comply with the specification will result in a record REJECTION. If a specification is not tagged with an asterisk (*), then failure to comply will result in a warning (non-fatal error) and the record will be ACCEPTED.

PICTURE. The "Picture" section provides basic format information for the field. A picture of "X" indicates a single alpha-numeric character, while "XX" or "X(2)" indicate two alpha-numeric characters. A picture of "9" represents a numeric character, while "99" or "9(2)" indicate two numeric characters. A picture of "YYYYMMDD" is used for fields indicating year (including century), month, and then day format and a picture of HHMMSS is used for fields indicating hour (0-24), minutes (0-59), and seconds (0-59.

TYPE. The "Type" section gives the type of data in the field. Types are CODE, COUNT, TEXT, DATE, and TIME.

RANGE. The "Range" section lists the permissible values for a field.

FORMAT INFO. The "Format Info" section indicates additional specifications for the required formatting of values for a field. Examples are requirements that text entries be upper case and left-justified, and that numeric count entries be right-justified and leading-zero filled.

CONSISTENCY. The "Consistency" section indicates when pairs of fields or groups of fields must have consistent values. For example, the consistency requirement for the Record Submission Date includes the specification:

"*1) Sub_Date cannot be greater than current date."

Uniform Data Specifications For Nursing Home Payroll Census Data Submission
Header Record Layout for Submission of Payroll Census Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case A followed by 1.		
Record ID				Format Info:			
				Consistency:			
FED_ID	12	3	14	Picture:	X(12)	Type:	CODE
				Range:	Valid code, sp(12)		
Facility Medicare Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicare provider number (FED_ID) must match the facility Medicare provider number in each record of the submission file.		
ST_ID	15	15	29	Picture:	X(15)	Type:	CODE
				Range:	Valid code, sp(15)		
Facility Medicaid Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicaid provider number (ST_ID) must match the facility Medicaid provider number in each record of the submission file.		
FAC_ID	16	30	45	Picture:	X(16)	Type:	TEXT
				*Range:	Valid Code		
State Assigned Unique Facility ID Code				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	*1) This facility ID code (FAC_ID) must match the facility ID in each record of the submission file.		
FAC_NAME	30	46	75	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Name				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ADDR_1	30	76	105	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Address Line 1				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ADDR_2	30	106	135	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Address Line 2				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_CITY	20	136	155	Picture:	X(20)	Type:	TEXT
				Range:	Text		
Facility City				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FAC_ST	2	156	157	Picture:	X(2)	Type:	CODE
				Range:	Valid Code		
Facility State				Format Info:	Valid 2 character state code; upper case.		
				Consistency:			
FAC_ZIP	11	158	168	Picture:	X(11)	Type:	CODE
				Range:	Valid numeric ZIP code		
Facility ZIP Code				Format Info:	Left justified; no embedded dashes or spaces.		

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:			
FAC_CNTCT	30	169	198	Picture:	X(30)	Type:	TEXT
				Range:	Text		
Facility Contact Person Name				Format Info:	Left Justified; any letters must be upper case		
				Consistency:			
FAC_PHONE	10	199	208	Picture:	9(10)	Type:	TEXT
				Range:	Valid phone number		
Facility Contact Person Phone Number				Format Info:	Area code included; no embedded nonnumeric characters		
				Consistency:			
FAC_EXTEN	5	209	213	Picture:	X(5)	Type:	TEXT
				Range:	Valid extension, sp(5)		
Facility Contact Person Phone Extension				Format Info:	Left justified.		
				Consistency:			
FILE_DT	8	214	221	Picture:	YYYYMMDD	Type:	DATE
				Range:	Valid Date		
File Creation Date				Format Info:			
				Consistency:	*1) Cannot be greater than current date.		
TEST_SM	1	222	222	Picture:	X	Type:	CODE
				Range:	0 (zero), 1Valid Code		
Test/Production Indicator				Format Info:			
				Consistency:	1) Value = 0 for test submissions to the State; value = 1 for production submission		
FILLER	100	223	322	Picture:	X(100)	Type:	FILLER
				Range:	Sp(100)		
Blank Filler				Format Info:	Always blank.		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %.		
				Consistency:	1) Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Uniform Data Specifications For Nursing Home Payroll Census Data Submission
Data Record Layout for Submission of Payroll Census Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	Code
				*Range:	Upper case C followed by 1.		
Record ID				Format Info:			
				Consistency:			
VERSION_CD	5	3	7	Picture:	X(5)	Type:	CODE
				*Range:	1.00		
Data Specification Version Code				Format Info:	Left Justified; any letters must be upper case.		
				Consistency:			
FED_ID	12	8	19	Picture:	X(12)	Type:	CODE
				Range:	Valid code, sp(12)		
Facility Medicare Provider Number				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case. Allow + in first character to indicate pending		
				Consistency:	*1) This facility Medicare provider number (FED_ID) must match the facility Medicare provider number in each record of the submission file.		
FAC_ID	16	20	35	Picture:	X(16)	Type:	TEXT
				*Range:	Valid Code		
State Assigned Unique Facility ID Code				Format Info:	Left Justified; no embedded dashes or spaces; any letters must be upper case.		
				Consistency:	*1) This facility ID code (FAC_ID) must match the facility ID in each record of the submission file.		
SUB_DATE	8	36	43	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Record Submission Date				Format Info:			
				Consistency:	*1) Sub_Date cannot be greater than current date.		
CORRECTION_NUM	2	44	45	Picture:	XX	Type:	COUNT
				*Range:	00-99		
Correction number for record				Format Info:	Right justify; pad left with zero.		
				Consistency:			
DELETE	1	46	46	Picture:	X	Type:	CODE
				*Range:	0,1		
Deletion Flag				Format Info:			
				Consistency:			
Census_DT	8	47	54	Picture:	YYYYMMDD	Type:	DATE
				*Range:	Valid Date		
Census Date				Format Info:			
				Consistency:	* 1) Census_DT cannot be prior to start of data reporting requirement. * 2) Census_DT cannot be greater than Sub-Date.		
Res_Census	4	55	58	Picture:	9(4)	Type:	COUNT
				*Range:	0001-9999		
Resident Census				Format Info:	Right justify; pad left with zero.		
				Consistency:			
FILLER	264	59	322	Picture:	X(264)	Type:	FILLER
				Range:	sp(264)		
Blank Filler				Format Info:	Always blank		

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %		
				Consistency:	1. Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Uniform Data Specifications For Nursing Home Payroll Census Data Submission
Trailer Record Layout for Submission of Payroll Census Data from Nursing Homes (Version 1.0)

Item Identifier/Description	Len	Start	End	Specification (* Indicates Fatal Error)			
REC_ID	2	1	2	Picture:	X(2)	Type:	CODE
				*Range:	Upper case Z followed by 0.		
Record ID				Format Info:			
				Consistency:			
TOT_REC	6	3	8	Picture:	9(6)	Type:	COUNT
				*Range:	Valid number		
Total Records Submitted				Format Info:	Right justified and leading zero filled.		
				Consistency:	*1) This field should include the total number of records in the submission file, including the header record, all Census records, and the trailer record.		
FILLER	314	9	322	Picture:	X(314)	Type:	FILLER
				*Range:	sp(314)		
Blank Filler				Format Info:	Always blank.		
				Consistency:			
DATA_END	1	323	323	Picture:	X	Type:	CODE
				*Range:	%		
End of Data Termination Code				Format Info:	Must always = %.		
				Consistency:	1) Used to indicate end of data.		
CRG_RTN	1	324	324	Picture:	X	Type:	CODE
				*Range:	ASCII(013)		
Carriage Return (ASCII 013)				Format Info:	Must always be a carriage return (ASCII 013)		
				Consistency:			
LN_FD	1	325	325	Picture:	X	Type:	CODE
				*Range:	ASCII(010)		
Line Feed (ASCII 010)				Format Info:	Must always be a line feed (ASCII010)		
				Consistency:			

Appendix I

Development of Staffing Quality Measures – Phase I: Continuation Project

Task 5 Feasibility Study

Nursing Home Cost and Burden Tracking

Please use this form to track the time you spend working with the Development of Staffing Quality Measures Project. We will ask you to return the sheet at the end of the study. CFMC will take responsibility for tallying all times.

Thank you very much.

Title of Staff Person	Time-In	Activity	Time - Out	Total Hours (CFMC use)	Cost

Title of Staff Person	Time-In	Activity	Time - Out	Total Hours (CFMC use)	Cost

Appendix J

Sample Census Text File

```
A1000123489ABC0001237789325DE996789  HCPR NURSING HOME  1313 MOCKINGBIRD LANE  DENVER  CO802200045  SID BREAM  30355512121234 200708311  %
C11.00 000123489ABC996789  20070831000200708220056                                                                                          %
C11.00 000123489ABC996789  20070831000200708230056                                                                                          %
C11.00 000123489ABC996789  20070831000200708240054                                                                                          %
Z0000005                                                                                                                                    %
```

Appendix K

Sample Census Word File

```
A1000123489ABC0001237789325DE996789        HCPR NURSING HOME   1313 MOCKINGBIRD LANE    DENVER     CO802200045  SID BREAM   30355512121234 00708311                    %
C11.00 000123489ABC996789         200708310002007082200056                                                                                                           %
C11.00 000123489ABC996789         200708310002007082300056                                                                                                           %
C11.00 000123489ABC996789         200708310002007082400054                                                                                                           %
Z0000005                                                                                                                                                             %
```

Appendix L

Pay Period Sample Text File

```
A1000123489ABC0001237789325DE996789     HCPR NURSING HOME     1313 MOCKINGBIRD LANE               DENVER     C0802200045  SID BREAM          30355512121234 200708311            %
B11.00 000123489ABC0001237789325DE 20070831000ABC123     20070102012007070120070714080000                                                                                          %
B11.00 000123489ABC0001237789325DE 20070831000ABC123     20070102012007071520070728040040                                                                                          %
B11.00 000123489ABC0001237789325DE 20070831000DEF456     20050102012007070120070714080000                                                                                          %
B11.00 000123489ABC0001237789325DE 20070831000DEF456     20050102012007071520070728080000                                                                                          %
Z0000006                                                                                                                                                                           %
```

Appendix M

Sample Template for Flat File Submission of *Pay Period Payroll Data* from Nursing Homes (Version 1.00)

Notes:

- This guide should be used in conjunction with the document entitled "Submission of Pay Period Payroll Data from Nursing Homes (Version 1.00) – Data Element Definitions."
- The *header*, *data*, and *trailer* records are each 325 characters long (including spaces and decimals).
- Each record is one continuous line that is 325 characters long (including spaces and decimals).
- Records are separated by a carriage return (i.e., a hard return) and a line feed.

The carriage return (ASCII character 013) and line feed (ASCII character 010) are non-printing control characters that instruct peripheral devices (e.g., printers) to move to the next line (ASCII character 013, "¶") and read a new line (ASCII character 010, " "). In a Microsoft Word document, these two characters are represented together as a single carriage return (i.e., "¶").

Appendix N

Development of Staffing Quality Measures Phase I: Continuation
Task 5 Feasibility Study
Nursing Facility Post Study Questionnaire

Dear (add participants names),

On behalf of the project staff from the Colorado Foundation for Medical Care (CFMC) and the University of Colorado at Denver and Health Sciences Center (UCDHSC), I would like to thank you for the contributions you have already made to the Development of Staffing Quality Measures Feasibility Study. This post-study questionnaire is critical information for the project and is designed to seek your additional input concerning the collection and use of nursing facility payroll and census data in the development of staffing quality measures. This post study questionnaire is intended to:

- Section 1 - Ensure that all information already collected from your nursing facility is accurate
- Section 2 - Request that you provide the project team with a comprehensive outline of the processes you used and the barriers you encountered in creating, collating, processing, and sending the payroll and census data to CFMC
- Section 3 - Seek your feedback on the definitions and data elements used in the census data specifications
- Section 4 - Assess the effort, burden, and cost that you encountered gathering and submitting the census data
- Section 5 - Seek your feedback on the definitions and data elements used in the payroll data specifications
- Section 6 - Assess the effort, burden, and cost that you encountered gathering and submitting the payroll data
- Section 7 - Seek your additional comments or suggestions concerning the collection of census and payroll data

We request that you complete this questionnaire as thoroughly as possible and send it to Ann Romaglia prior to our wrap-up conference call or nursing facility visit. We will use the questionnaire as a focus for our discussion during the conference call or on-site visit. If you have any difficulty with a section, please include as much information as possible, and we will discuss the rest of the information during the final call or visit. Please use one of the following methods for returning the questionnaire.

Email to: aromaglia@coqio.sdps.org
Fax to Ann Romaglia: (303) 695-3350

Section 1 – Data Collected During the Pre-Study Conference Call or On-Site Visit

Listed below, please find the information collected during the original interview with you and your staff. Please change any incorrect information and add any missing information.

Nursing Facility:

Corporation:

Staff Participating in the Feasibility Study:

- Nursing Facility Staff:
- Corporate Staff:
- Other:

Nursing Facility Characteristics:

- Type of Corporation if any
- Profit Status
- Location
- Number of beds
- Medicare/Medicaid Certified

Payroll System Elements:

- Clock
- Software used to obtain payroll data
- Payroll system
- Paycheck produced by?
- Employees paid every two weeks?

Productive/non-productive hours:

- Able to capture non-productive hours
- Able to submit non-productive and productive hours separately
- Employees start date is their original employment date and that date is retained in the payroll system?

Payroll Process:

- Non-exempt employees
  - Employees punch in and out at the beginning and end of each shift?
  - Employees punch in and out for each 30-minute meal break?
  - Missing or inaccurate punches are corrected daily?
- Exempt Employees:
  - NHA, DON, Housekeeping Manager, Dietary Manager, Social Service/Admissions Manager, Business Office Manager? Please make necessary corrections and include any missed exempt staff.

    _____
    _____
    _____
- Staff Paid Via Invoice:
  - Medical Director
  - Rehabilitation Staff
  - Consultants
  - Pool/Contract Staff
    - If you use pool/contract labor how do they invoice you? Weekly? Monthly? Other, please explain:

      _____
      _____
    - If the pool/contract staff does not show up in the payroll data what would it take to add the invoiced information to the payroll data?

      _____
      _____
      _____
      _____
  - Please list any additional staff that are reimbursed via invoice here.

    _____
    _____
- Advanced Nurse Practitioner?

Census Data:

- Calculate the daily census at midnight?

Section 2 – Nursing Facility/Corporate Process Followed to Collate, Create, Process, and Send Census and Payroll Data to CFMC

Please indicate the steps you followed in gathering, creating, formatting, and sending the payroll and census data to CFMC. Please include the staff members by department and title that you interacted with, the databases that you accessed, the types of files that you created, and the barriers that you encountered. Please be as inclusive as possible when completing this section.

Census Data Process

Step	Department/Staff Member Used For example – Director of HRIS	Databases Accessed For example – Point Click Care	Types of Files Created For example – Access Database	Barriers Encountered For example – we needed to combine the data from several different databases.
1				

Step	Department/Staff Member Used For example – Director of HRIS	Databases Accessed For example – Point Click Care	Types of Files Created For example – Access Database	Barriers Encountered For example – we needed to combine the data from several different databases.

Payroll Data Process

Step	Department/Staff Member Used For example – Director of HRIS	Databases Accessed For example - PeopleSoft	Types of Files Created For example – Access Database	Barriers Encountered For example – we needed to combine the data from several different databases.

Step	Department/Staff Member Used For example – Director of HRIS	Databases Accessed For example - PeopleSoft	Types of Files Created For example – Access Database	Barriers Encountered For example – we needed to combine the data from several different databases.

Section 3 – Feedback on Census Specification Definitions and Data Elements

Please review the "Submission of Census Data from Nursing Homes (Version 1.0) specifications. The first three pages of the specifications contain an explanation of the data element definitions. Please indicate your comments concerning the clarity and usefulness of the definitions. Please include any suggestions that you might have for changing or rephrasing the definitions.

Data Element Definition	The definition is understandable. There is no need to change it.	The definition is not clear because…	I suggest that you revise it to say…
Facility Medicare Provider Number - The Facility Medicare Provider Number is a six-digit number where the first two digits identify the state. (e.g., Colorado is 06) and the 3rd-6th digits uniquely identify the facility and range from 5000 to 6399 (the 3rd digit can be U, W, Y, or Z, if the facility is a swing-bed unit in a hospital).			
State Assigned Unique Facility ID Code – This facility code is assigned by the state to each facility for submission of MDS data to the state system. The same facility ID code should be used for submission of nursing facility payroll data.			
Census Date – The census date is the date the census was taken for the recorded report. Census is submitted for each day separately.			

Data Element Definition	The definition is understandable. There is no need to change it.	The definition is not clear because…	I suggest that you revise it to say…
Resident Census – Resident census is the total number of residents, regardless of payer source, in the nursing facility at 6:00 a.m. (midnight for the study purposes) on the day the census is taken. Resident census does not include those residents for whom a bed is maintained due to absence from the nursing home for hospitalization or leave (i.e., does not include "bed holds").			
General Data Specification Notes – Each data submission will consist of a header record, a series of data records, and a trailer record. There are separate entries for each field in the header record, data record, and trailer record. Entries (fields) are separated by dotted lines. Each record within a data file is 325 characters in length. The following information is provided for each entry:			
Item Identifier/Description – The Item Identifier/Description column gives a standard label (e.g., "Rec_ID") for the field and a short description (e.g., "Record ID").			
Len – The "Len" column gives the length of the field of characters (bytes).			

Data Element Definition	The definition is understandable. There is no need to change it.	The definition is not clear because…	I suggest that you revise it to say…
Start – The "Start" column is the starting position for the field in the data record.			
End – The "End" column is the ending position for the field in the data record.			
Specifications – The specifications column gives a variety of information concerning the data requirements for the field. If a specifications item in this column is tagged with an asterisk (*), then failure to comply with the specifications will result in a record rejection. If a specification is not tagged with an asterisk (*), then failure to comply will result in a warning (non-fatal error) and the record will be accepted.			

Data Element Definition	The definition is understandable. There is no need to change it.	The definition is not clear because…	I suggest that you revise it to say…
Picture – The "Picture" section provides basic format information for the field. A picture of "X" indicates a single alpha-numeric character, while "XX" or "X(2)" indicate two alpha numeric characters. A picture of "9" represents a numeric character, while "99" or "9(2) indicate two numeric characters. A picture of "YYYYMMDD" is used for fields indicating year (including century), month, and then day format and a picture of "HHMMSS" is used for fields indicating hour (0-24), minutes (0-59), and seconds (0-59).			
Type – The "Type" section gives the type of data in the field. Types are CODE, COUNT, TEXT, DATE, and TIME.			
Range – The "Range" section lists the permissible values for a field.			
Format Info – The "Format Info" section indicates additional specifications for the required formatting of values for a field. Examples are requirements that text entries be upper case and left justified, and that numeric count entries be right justified and leading-zero filled.			

Data Element Definition	The definition is understandable. There is no need to change it.	The definition is not clear because…	I suggest that you revise it to say…
Consistency - The "Consistency" section indicates when pairs of fields or groups of fields must have consistent values. For example, the consistency requirement for the Record Submission Date includes the specification: "1) Sub_Date cannot be greater than current date."			

Section 4 – Assessment of the Effort, Burden, and Cost Encountered When Gathering the Census Data

Using the following scale, please rank how burdensome it was for you to provide the requested census data? Please refer to the "Nursing Home Cost and Burden Tracking" log given out at the beginning of the study. This information is very important to the feasibility study. Please be as inclusive as possible in responding to the "Burden and Cost" section of this questionnaire.

1	2	3
Minimal Burden All data elements are currently available and easily accessible in electronic format	Moderate Burden Some but not all data elements are available electronically	Significant Burden Data are not collected electronically and/or the data are not available

Ranking	Data Elements		Comments on the Burden
	Header Record Layout		
	1.1	REC_ID (Record ID)	
	1.2	FED_ID (Facility Medicare Provider Number)	
	1.3	ST_ID (Facility Medicaid Provider Number)	
	1.4	FAC_ID (State Assigned Unique Facility ID Code)	
	1.5	FAC_NAME (Facility Name)	
	1.6	FAC_ADDR1 (Facility Address Line 1)	
	1.7	FAC_ADDR2 (Facility Address Line 2)	
	1.8	FAC_CITY (Facility City)	
	1.9	FAC_ST (Facility State)	
	1.10	FAC_ZIP (Facility ZIP Code)	
	1.11	FAC_CNTCT (Facility Contact Person Name)	
	1.12	FAC_PHONE (Facility Contact Person Phone Number)	
	1.13	FAC_EXTEN (Facility Contact Person Phone Extension)	
	1.14	FILE_DT (File Creation Date)	
	1.15	TEST_SM (Test/Production Indicator)	
	1.16	FILLER (Blank Filler)	
	1.17	DATA_END (End Of Data Termination Code)	
	1.18	CRG_RTN (Carriage Return, ASCII Code 013)	
	1.19	LN_FD (Line Feed, ASCII Code 010)	

Ranking	Data Elements		Comments on the Burden
	Data Record Layout		
	2.1	REC_ID (Record ID)	
	2.2	VERSION_CD (Data Specification Version Code)	
	2.3	FED_ID (Facility Medicare Provider Number)	
	2.4	FAC_ID (State Assigned Unique Facility ID Code)	
	2.5	SUB_DATE (Record Submission Date)	
	2.6	CORRECTION_NUM (Correction Number For Record)	
	2.7	DELETE (Delete Flag)	
	2.8	Census_DT (Census Date)	
	2.9	Res_Census (Resident Census)	
	2.10	FILLER (Blank Filler)	
	2.11	DATA_END (End of Date Termination Code)	
	2.17	CRG_RTN (Carriage Return, ASCII Code 013)	
	2.18	LN_FD (Carriage Return, ASCII Code 010)	

Ranking	Data Elements		Comments on the Burden
	Trailer Record Layout		
	3.1.1	REC_ID (Record ID)	
	3.1.2	TOT_REC (Total Records Submitted)	
	3.1.3	FILLER (Blank Filler)	
	3.1.4	DATA_END (End of Data Termination Code)	
	3.1.5	CRG_RTN (Carriage Return, ASCII Code 013)	
	3.1.6	LN_FD (Line Feed, ASCII Code 010)	

This is a very important part of the questionnaire and will provide significant information to the project team. We realize that the information you provide in this section is your best estimate but we ask that you be as inclusive as possible in your explanations.

1	2	3
Minimal Cost	Moderate Cost	Significant Cost
We currently have the staff and databases in place to produce the data	We would need to increase staff hours for existing personnel and/or create/combine additional databases to produce the data	We would need to hire additional staff and/or purchase additional computers or software to produce the data

Cost Ranking (1,2,3)	If you indicated a rank of 2, please approximate the number of staff hours you would need to add, and/or the databases that you would need to create/combine to produce the data	If you indicated a rank of 3, please approximate the number and type of additional staff that you would need to employ and the software and hardware that you would need to purchase to produce the data

Please add any additional comments here that you may have concerning the census data specifications: _____

_____

_____

_____

_____

_____

Section 5 - Feedback on Payroll Specification Definitions and Data Elements

Please review the "Submission of Pay Period Payroll Data from Nursing Homes (Version 1.0) specifications. The first five pages of the specifications contain an explanation of the data element definitions. Please respond to the following questions concerning each definition. Please include any suggestions that you might have for rephrasing of the definitions. The areas you already evaluated under census data have been eliminated from this section.

Data Element Definition

Employee ID – A unique employee identifier must be submitted with each payroll record. The unique employee identification should not contain identifying information such as employee names or social security numbers. The same unique Employee ID must be used for an employee's tenure within a nursing home. If the employee leaves the nursing home and returns to its employ at a later point in time the facility may choose to retain the original employee ID or assign a new employee ID. A new employee ID should not be assigned when an employee changes job positions within a nursing home facility.

1. Is this data element definition clearly stated and understandable? If not, how could it be better stated?
   _____
   _____
   _____
   _____

2. Was your nursing facility able to assign a unique employee identifier that did **not** contain the employee's name or social security number? Yes _____ No _____

3. If your nursing facility was **not** able to assign a unique employee identifier that did not contain the employee's name or social security number, how difficult would it be for your organization to change your system to accomplish this?
   _____
   _____
   _____
   _____

4. If you have an employee that leaves your employment and then returns to you do you retain this employee's original employee identifier in your payroll records? Yes _____ No _____

5. If you currently change the employee's original employee identifier when you re-hire her/him, how difficult would it be for you to retain the original employee identifier in your database? What would you need to do to accomplish this?

_____
_____
_____
_____

Data Element Definition

Employee Start Date The Employee State Date is the date the employee began their employment at the nursing home. If the employee has left the nursing home for a period of time and returned as an employee the date provided should be the most recent start date.

1. Is this data element definition clearly stated and understandable? If not, how could it be better stated?

_____
_____
_____
_____

2. When your nursing facility rehires an employee do you identify the most recent employment date as the employee start date?
   Yes _____ No _____

3. If your nursing facility retains the original start date in your data base what would you need to do to change it to the most recent employment date?

_____
_____
_____
_____

Staff Job Categories

The payroll data specifications require that nursing home facilities classify staff into one of nine job categories as defined below. Staff should be assigned to the appropriate job category based on their job title on the first day of the pay period being reported.

Registered Nurse – Those persons licensed to practice as registered nurses in the State where the facility is located. This category includes RN/ADONs whose primary[5] responsibilities involve direct patient care[6].

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

   _____
   _____
   _____

2. Are you able to easily identify if this category is appropriate for the RN/ADONs job description using the greater than 50% of time definition? If not, how could this category be more clearly defined?

   _____
   _____
   _____

3. Is the definition of "direct patient care" clearly understood in relation to this question? If not, how could this definition be stated more clearly?

   _____
   _____
   _____

Licensed Practical/Vocational Nurse – Those persons licensed to practice as licensed practical/vocational nurses in the State where the facility is located. This category includes LPN/ADONs whose primary responsibilities involve direct patient care.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

   _____
   _____
   _____

[5] Primary refers to greater than 50% of time.

[6] Involved in direct patient care is defined to mean that an individual is providing direct care to residents or is directly responsible for care provided to residents. Providing direct care means that an individual has responsibility for the residents' total care or some aspect of the residents' care. Resident contact is an intrinsic part of direct care. Directly involved in patient care includes, but is not limited to, such activities as assisting with activities of daily living (ADLs), performing gastro-intestinal feeds, giving medications, supervising the care given by CNAs, and performing nursing assessments to admit residents or notify physicians about a change in condition. [Final Rule – 42 CFR Part 483]

2. Are you able to easily identify if this category is appropriate for the LPN/LVN job description using the greater than 50% of time definition? If not, how could this category be more clearly defined?

_____

3. Is the definition of "direct patient care" clearly understood in relation to this question? If not, how could this definition be stated more clearly?

Certified Nurse Aide – Individuals who have completed a State approved training and competency evaluation program, or competency evaluation program approved by the State, or have been determined competent as provided in 483.150(a) and (3) and who are providing nursing or nursing-related services to residents. This category includes Medication Aides and Restorative Aides. CNAs in training should be classified as Non-Certified Nurse Aides (see below). If an individual works in two positions (e.g., CNA and housekeeping) all hours for this employee should be reported as CNA hours.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

2. If you have a CNA that works in more than one department (for example nursing and housekeeping) how difficult would it be for you to assign all their hours to the CNA position? What processes would you need to apply?

Non-Certified Nurse Aide – Individuals who are in training as a certified nurses aide or who are non-certified assistants/aides. This category includes Bathing Aide, Caregiver, Day Center Attendant, Feeding Assistant, Non-certified Aide, Nursing Assistant, Personal Care Assistant, and Resident Assistant. If an individual works in two positions (e.g., Nurse Assistant and Receptionist) all hours should be reported as Non-Certified Aide hours.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

   _____
   _____
   _____

2. Does your nursing facility have additional job titles that you would add to this category? If so, please add them here?

   _____
   _____
   _____

3. If you have a non-certified nurse aide that works in more than one department (for example day care attendant and housekeeping) how difficult would it be for you to assign all their hours to the non-certified nurse aide position? What processes would you need to apply?

   _____
   _____
   _____

Advanced Practice Nurse (APN) – Those persons licensed as a registered nurse in the State where the facility is located and certified as a Nurse Practitioner or Clinical Nurse Specialist by a recognized national certifying body. This category includes only APNs whose primary responsibilities involve direct patient care. APNs performing physician-delegated tasks should be categorized into the Other Staff category and APNs whose primary responsibilities involve administrative duties should be categorized into the Nurse Administrator category.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

   _____
   _____
   _____
   _____

2. If you have or ever intend to have an APN on staff would they be paid out of the corporate payroll or out of the nursing facility payroll?

   Corporate payroll _____ Nursing facility payroll _____

3. If you have or ever intend to have an APN in your building how would you track their hours?
   - They would have a time card and we would track their hours via the payroll _____

- They would send us an invoice on a weekly, monthly basis _____
- Other – please explain

_____
_____
_____

Director of Nursing[7] – Professional registered nurse(s) administratively responsible for managing and supervising nursing services within the facility.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

_____
_____
_____

Nurse Administrator – This category includes RNs and LPN/LVNs whose primary responsibilities are administrative and who do not perform direct patient care functions for the majority of their time (51% or more time in administrative duties). This category also includes other nurses whose principal duties are spent conducting administrative duties including, Assistant DON, Case Manager[8], CNA Instructor, CNA Supervisor, Coordinator of Wound Care, Director of Nurses in Training, Infection Control Nurse, Manager of Clinical Services, Medicare Coordinator, Nurse Liaison, Nurse Manager, Nurse Scheduler, Shift Supervisor, Patient Care Coordinator, Quality Improvement and/or Assurance Coordinator, Resident Assessment/MDS Coordinator, Staff Development Manager, and Unit Manager/Director.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

_____
_____
_____

2. Does your nursing facility have additional job titles that you would add to this category? If so, please add them here?

_____
_____
_____

[7] The Director of Nursing and Nurse Administrator definitions may be modified, if warranted, to comply with the Fair Labor Standards Act.
[8] The words coordinator, manager, and director are used interchangeably for the various Nurse Administrator positions.

Administrator – This category includes the Individual(s) responsible for all nursing home operations including the Administrator, Executive Director, Medical Director, and President. This category does not include vice presidents or other senior administrators, these job titles should be classified as Other staff. Administrator should be assigned to those positions that are responsible for the overall administration and patient care provided at the nursing home.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

_____
_____
_____

Other Staff – All staff not assigned to one of the eight categories listed above.

1. Is this instruction clearly stated and understandable? If not, how could it be better stated?

_____
_____
_____

2. If your employee moves from one job category to another (for example, LPN to RN or Housekeeper to CNA) how do you reflect their change in job category in the payroll system?
   a. It is reflected on the exact date they change positions _____
   b. It is reflected on the first day of the next pay period _____

3. Does your payroll system have different department numbers that identify employees within that department?
   a. Yes _____
   b. No _____

Section 6 - Assessment of the Effort, Burden, and Cost Encountered When Gathering the Payroll Data

Payroll Data

Please review the "Draft Payroll Data from Nursing Homes (Version 1.0) specifications. Using the following scale, how burdensome would it be for you to provide the requested data?

1	2	3
Minimal Burden All data elements are currently available and easily accessible in electronic format	Moderate Burden Some but not all data elements are available electronically	Significant Burden Data are not collected electronically and/or the data are not available

Ranking	Data Elements		Comments on the Burden
	Facility Identifiers		
	1.1	Facility Medicare Provider Number	
	1.2	State Assigned Unique Facility ID Code	
	Employee Identifiers		
	1.3	Employee ID Number	
	1.4	Employee Start Date	
	1.5	Staff Job Categories	
	Pay Period		
	1.6	Pay Period Start Date	
	1.7	Pay Period End Date	
	1.8	Total Productive Hours for the Pay Period	
	1.9	Total Non Productive Hours for the Pay Period	

Ranking	Data Elements		Comments on the Burden
	Header Record Layout		
	1.1	REC_ID (Record ID)	
	1.2	FED_ID (Facility Medicare Provider Number)	
	1.3	ST_ID (Facility Medicaid Provider Number)	

	1.4	FAC_ID (State Assigned Unique Facility ID Code)	
	1.5	FAC_NAME (Facility Name)	
	1.6	FAC_ADDR1 (Facility Address Line 1)	
	1.7	FAC_ADDR2 (Facility Address Line 2)	
	1.8	FAC_CITY (Facility City)	
	1.9	FAC_ST (Facility State)	
	1.10	FAC_ZIP (Facility ZIP Code)	
	1.11	FAC_CNTCT (Facility Contact Person Name)	
	1.12	FAC_PHONE (Facility Contact Person Phone Number)	
	1.13	FAC_EXTEN (Facility Contact Person Phone Extension)	
	1.14	FILE_DT (File Creation Date)	
	1.15	TEST_SM (Test/Production Indicator)	
	1.16	FILLER (Blank Filler)	
	1.17	DATA_END (End Of Data Termination Code)	
	1.18	CRG_RTN (Carriage Return, ASCII Code 013)	
	1.19	LN_FD (Line Feed, ASCII Code 010)	

Ranking	Data Elements		Comments on the Burden
	Data Record Layout		
	2.1	REC_ID (Record ID)	
	2.2	VERSION_CD (Data Specification Version Code)	
	2.3	FED_ID (Facility Medicare Provider Number)	
	2.4	FAC_ID (State Assigned Unique Facility ID Code)	
	2.5	SUB_DATE (Record Submission Date)	
	2.6	CORRECTION_NUM (Correction Number For Record)	
	2.7	DELETE (Delete Flag)	
	2.8	EMP_ID (Unique Employee Identifier)	

	2.9	EMP_ST_DT (Employee Start Date)	
	2.10	JOB_CAT (Employee Job Category)	
	2.11	Pay Period Start Date	
	2.12	Pay Period End Date	
	2.13	Total Productive Hours for Pay Period	
	2.14	Total Non Productive Hours for Pay Period	
	2.15	FILLER (Blank Filler)	
	2.16	DATA_END (End Of Data Termination Code)	
	2.17	CRG_RTN (Carriage Return, ASCII Code 013)	
	2.18	LN_FD (Carriage Return, ASCII Code 010)	

Ranking	Data Elements		Comments on the Burden
	Trailer Record Layout		
	3.1.1	REC_ID (Record ID)	
	3.1.2	TOT_REC (Total Records Submitted)	
	3.1.3	FILLER (Blank Filler)	
	3.1.4	DATA_END (End of Data Termination Code)	
	3.1.5	CRG_RTN (Carriage Return, ASCII Code 013)	
	3.1.6	LN_FD (Line Feed, ASCII Code 010)	

Again, this is a very important part of the questionnaire and will provide valuable information to the project team. We realize that the information you provide in this section is your best estimate but we ask that you be as inclusive as possible in your explanations.

1	2	3
Minimal Cost	Moderate Cost	Significant Cost
We currently have the staff and databases in place to produce the data	We would need to increase staff hours for existing personnel and/or create/combine additional databases to produce the data	We would need to hire additional staff and/or purchase additional computers or software to produce the data

Cost Ranking (1,2,3)	If you indicated a rank of 2, please approximate the number of staff hours you would need to add, and/or the databases that you would need to create/combine to produce the data	If you indicated a rank of 3, please approximate the number and type of additional staff that you would need to employ and the software and hardware that you would need to purchase to produce the data

Section 7 - Additional Comments or Suggestions Pertaining to the Collection of Payroll and Census Data

Please list additional comments that you would like to make concerning the census and payroll specifications and the processes for their creation, collation, and transmission to CFMC. If you have suggestions on how the specifications could be modified or the processes made more efficient we would certainly welcome your suggestions.

_____
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Please let me express the appreciation of the entire project team for the time and energy you have expended on this final piece of the feasibility study. This questionnaire is a very comprehensive document, but along with our conference call or on-site visit, will provide the project team with in-depth knowledge of how the collection and sending of payroll and census data might impact nursing facilities across the United States. Please accept our sincere thanks.

Colorado Foundation for Medical Care

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Appendix O – Nursing Facility Adherence to the *Census* Data Specifications

Nursing Facility	Delivered Census Data	Followed census data specifications
A (lg. corp., in-house IT)	Yes	• Followed specifications exactly
B (sm. corp., in-house IT)	Yes	• Had initial difficulty understanding the specification formatting • Sample file and conference call provided by project staff • Result – one wrong facility id (fac_id); wrong date in the header. • Remainder of the file is correct
C (independent facility, IT consultant)	No	• Could not understand the census specifications even after sample file provided • Sent census data in an Excel file
D (sm. corp., in-house IT)	Yes	• Followed specifications exactly
D TCU	Yes	• Followed specifications exactly
E (independent facility, IT consultant)	No	• Neither nursing facility staff nor their IT consultant were able to produce a census file
F (Independent facility, IT consultant)	No	• IT consultant was not able to produce the census file according to specifications • Sent census data in an Excel file
G (lg. corp., in-house IT)	Yes	• Followed specifications exactly
H (sm. corp., IT consultant)	No	• Could not understand the specifications even after sample file provided. • Sent census data in an Excel file
I (mod. corp., IT consultant company)	No	• Consultant company states that they are capable of pulling the data from the clinical side, writing a program, and placing it in the required format for $1200.00. • Sent census data in and Excel file

Nursing Facility Adherence to the *Payroll* Data Specifications

Nsg Fac	Delivered Payroll Data	Followed payroll data specifications
A (lg. corp., in-house payroll)	Yes	• 10 records with a one day pay period (not flagged for deletion) o 9 records have '000' for both productive and non-productive hours o The remaining record has 046 productive hours and 044 non-productive hours • Employee start date after pay period start date but before pay period end date (suspect that the specification is not correct, perhaps it should read that the employee start date should be prior to the pay period end date. This might also be explained by a group of employees hired between pay periods). • All pay period end dates are prior to sub_date. In the payroll data specifications for pay period end date, this date cannot be prior to sub_date. All records are failing this criteria.
B (sm. corp., in-house payroll)	Yes	• Had initial difficulty understanding the formatting. • Sample file and conference call provided by project staff. • Remainder of file is correct • All pay period end dates are prior to sub_date. In the payroll data specifications for pay period end date, this date cannot be prior to sub_date. All records are failing this criteria.
C (independent facility, national payroll vendor)	*	• Still working with payroll vendor to obtain payroll data*
D (sm. corp., in-house payroll) Nursing Facility	Yes	• 2 missing employee start dates • Negative non-productive hours. This may be an ongoing issue and require how the hours are defined in the specifications • All pay period end dates are prior to sub_date. In the payroll data specifications for pay period end date, this date cannot be prior to sub_date. All records are failing this criteria.
D TCU	Yes	• 123 out of 145 employees are missing employee start dates
E (independent facility, IT consultant)	No	• Neither nursing facility staff nor their IT consultant were able to produce a payroll file

Nsg Fac	Delivered Payroll Data	Followed payroll data specifications
F (Independent facility, IT consultant, national payroll vendor)	Yes	• Payroll vendor capable of providing the pay period payroll report for a $500.00 fee • Facility must also purchase a ReportSmith feature with Super Data Access (approximate cost for a one-time user fee would be $495.00 per user) • Facility needed to provide hours and earnings codes and define if each code is defined as productive or non-productive hours • Facility needed to provide a job description crosswalk
G (lg. corp., national payroll vendor)	Yes	• Consecutive pay period end and start dates overlap • All pay period end dates are prior to sub_date. In the payroll data specifications for pay period end date, this date cannot be prior to sub_date. All records are failing this criteria.
H (sm. corp., national payroll)	*	• Still working with payroll vendor to obtain payroll data*
I (mod. corp., national payroll vendor)	*	• Still working with payroll vendor to obtain payroll data*

Appendix P

Census Data Creation Processes

Nsg. Fac.	Step	Staff Member Involved	Database Accessed	Type of File(s) Created	Barriers Encountered
A	1	Manager IS	PointClickCare	CSV	
	2	Outcomes Manager	CSV File	Access Database	Modified the column headings to meet the provided specifications
	3	Manager IS		Text file	Currently this corporation lacks the software to quickly create the final files for transmission In the future this would be automated through their new data warehouse
B	1	Health Information Services Coordinator	Montana Clinical	Accessed census report	Could not transport information out of the system into the required file format
	2	Health Information Services Coordinator	JC Facility Tracking Data	Accessed monthly/ daily census report	Had to print out each monthly report (15 months) of census to obtain the data
	3	HI Services Coord. And MIS Coord.	Used formatting file from UCDHSC	Accessed and set up format information for entering the census data	Had questions on setting up the format with correct spacing and information Support provided by UCDHSC Successful following support

Nsg. Fac.	Step	Staff Member Involved	Database Accessed	Type of File(s) Created	Barriers Encountered
	4	HI Coordinator	Census data file	Entered information manually for YYYY/MM/DD	Very time consuming Data could not be transferred from our system Each required field entered manually Took a total of eight hours to enter and check the entries
	5	MIS Coord	Reviewed and completed file data	Census data file	
D	1	Business Office Manager	Achieve/Pathlinks	Excel/Word	Originally set up the file in Excel as a single cell entry with counted spaces. Then copied cell and pasted into word Space count did not match from one file to the other Instructions were difficult to understand Received help from corporate IS
G	1	HRIS staff person	Census data was received from the nursing facility	Excel	Census data was manually entered into the Excel spreadsheet
	2	Director of HRIS	Lawson	Saved Excel file as a CSV file.	
	3	Director of HRIS	Lawson	Saved data as a flat file	

Payroll Data Creation Processes

Fac	Step	Staff Member Involved	Database Accessed	Type of File(s) Created	Barriers Encountered
A	1	Director of HRIS and HR Data Analyst	PeopleSoft	CSV file	
	2	Outcomes Manager	CSV file	Access database	Required the creation of a decode table to code the corporate titles in a manner that matched the nine categories The column heading was modified to meet the specifications of the data file
	3	Manager IS	Text file	Final text file	Currently this corporation lacks the software to quickly create the final files for transmission In the future this would be automated through their new data warehouse
B	1	Payroll Manager	Ceridian	Crystal Report	Used Crystal report writer to pull the needed information from the Ceridian databases into a format that I could manipulate
	2	Payroll Manager	Crystal Reports	Excel	Exported the Crystal report to Excel and formatted each column per the specs provided
	3	HR Coordinator	Excel	Excel	Sent the information to HR Manager to convert our job codes to the job categories provided in the specs
	4	Payroll Manager	Excel	Access	Imported the formatted Excel sheet into Access to set the appropriate spacing for each field
	5	Payroll Manager	Access	Text	Exported the access file as a text file with the spacing set for each field. Added the header and trailer record
D	1	Business Office Manager, TCU Manager, HRS Analyst	None	Analysis notes	

	2	Business Office Manager, TCU Manager, HRS Analyst, HRS Manager (Create job category crosswalk)	Infinium HR	Analysis notes	Had difficulty mapping our existing codes to the specification job categories In some cases needed to hard-code individuals into some categories
	3	Hospital Admin. Staffing Analyst, HRS Analyst (Request and format TCU contractor hours)	Excel	DB2	Excel format had to be cleansed and converted Employee start date was not easily available. Unique ID had to be generated
	4	HRS Analyst (Create extract programs)	Infinium HR	DB2	Date format conversion, numeric field conversions RPG programs (report program generator)
	5	HRS Analyst (Download files)	DB2	Flat ASCII	Many manual steps involved
F		Nursing Facility Business Office Manager National Payroll Vendor Technical Support Staff Member	Nursing Facility Pay Detail Downloads Reportsmith Feature with Super Data Access	Flat file	Please refer to Appendix Q for a complete explanation of the processes used to create the pay period payroll file for Facility F.

G	1	Director of HRIS	Lawson file	Payroll hours and dates	Needed a programmer to pull this information Commented that it would be nice if the information could be pulled into Excel instead of a flat file, so HRIS could do this themselves
	2	Programmer	Lawson	Payroll hours and dates	If this process is to be repeated in the future, it would take a couple of hours to modify the programs that pulled that data if the format of the files remained the same

Appendix Q

Nursing Facility F – National Payroll Vendor Payroll Data Creation Process

The report requested by Facility F required several hours of report creation and testing by the national payroll vendor.

- There were several fields required in this report that were not stored in the payroll database
  - These fields included:
    - Federal ID
    - State ID
    - Facility ID
    - Facility Name
    - Facility Address (including Street, City and Zip)
    - Facility Contact
    - Facility Phone

  Each of these items required that the payroll vendor setup a derived field (calculation) with a field name for each as a constant.

- There were also several fields which were not stored that were required as part of the output.
  - These fields included:
    - Record ID for each respective record type
      - Set up respectively as "A1", "B1" and "Z0"
    - Test_SM
      - Set up as a constant with a value of 1
    - Filler
      - This was set up as a calculated field – simply as a place holder – the formatting in the "B" records was controlled by a report macro (mini-program) that outputs according to specification set up in the field header on each field
    - Data End
      - This was set up as a constant with a value of "%"
    - Version Code
      - Again, a constant was used here with a value of 1.00
    - Delete

        - This is currently set as a constant with a value of 0
- Once these fields were taken care of the next step was to determine which fields currently existed in the required form in the database. These items could then be pulled by referencing the correct view and field in the database.
    - These fields included:
        - Emp_ID – which is the field File #
        - Pay_P_END_DT – which is the Pay Period End date stored in Checkview for the employee's checks

- The remainder of the fields required a derived field calculation or a macro (sub-program) to output onto the report:
    - These fields included:
        - File Date
            - This field is formatted and pulled from a Variable that is populated by a question the user running the report answers at run time.
        - Sub_Date
            - Again this field is formatted and pulled from a Variable that is populated by a question the user running the report answers at run time.
        - Correction_num
            - This field was also populated by a Variable the user responds to at run time. Since the field requirement here is that this number be the incremented occurrence for the report run for the time period there is no other way to populated this, unless we default it and ignore the rule.
        - Emp_ST_Date
            - This field is pulled as a derived (calculated field). The logic here actually looks at the field rehire date in the client database, and if that field is null (empty) it defaults to the employee hire date, otherwise it returns the rehire date.
        - Job_Cat
            - This field was pulled as a derived field. As the client was able to classify the required categories based on the Home Department of the Employee this required two separate sets of logic to accomplish
                - A field was created to display the appropriate category based on the file #s of the exceptions that the client listed. So the logic on this calc returned the appropriate code, or if the file # on that particular record did not match the list, a null
                - A field was created that would display the appropriate job category based on the Home Department.
                - Finally a field was created that looked at the calc based on file #, if blank (null) it would return the value of the 2nd calculation based on Home Department.

        - Pay_P_ST_DT
            - This field was based on the period end date field stored in the client database for check information. The day portion of this date was extracted, and then evaluated for condition. Since Nursing Facility F's period end dates all fall on the 15th or the last day of the month, if the day extracted was equal to 15, the Pay Period Start Date was the first of the month; otherwise the Pay Period Start Date had to be the 16th of the month.
        - PROD_HOUR and NPROD_HOUR
            - These fields were calculated based on the coding received from Nursing Facility F for the particular definitions.
                - Productive hours was defined as Regular Hours, Overtime Hours, Worked Holiday Hours and Retro Worked Hours
                - Non-Productive Hours was defined as Bonus Hours, Vacation Hours, Advance Hours, Juror Hours, Mentor Hours, Baylor Hours and Employee of the Month Hours.
        - TOT_REC
            - This calculation was set up as a constant "1" to allow us to count the actual output line.
- Macros (sub-routines) were created for the following items:
    - Header Record
        - All fields required in the header were combined in a subroutine to output as one line
    - Trailer Record
        - Similar to Header Record Above.
    - Fixed Field/Output File Macros
        - Our corporate office assisted with an output macro that allows for output of a header and trailer record with our detail. There are special formatting requirements for each field header to identify the field length and padding requirements. The Output portion of this macro set is tied to the report completion, so that it automatically formats and outputs based on the field specifications into a text file called Facility F.txt. This field is output to the root of the C: drive on the computer the report is run on.

Development of Staffing Quality Measures - Phase I: Continuation

Task 5.1: Feasibility Test for Obtaining Payroll Data from Nursing Facilities According to Reporting Requirements

Final Subtask Report Addendum
May 2, 2008

Submitted on May 2, 2008 to:
Dr. Jean Scott, CMS, Government Task Leader
Mr. Martin Rice, CMS. Government Task Leader
Mr. Randy Poulsen, CMS, Project Officer

Prepared by:
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University of Colorado at Denver and Health Sciences Center

Colorado Foundation for Medical Care
CMS Contract: HHSM-500-2005-CO001C; Modification No. CO0027

Calculation of Staffing Quality Measures from Payroll and Census Data Obtained from Nursing Facilities Participating in the Feasibility Test

The final report on the "Feasibility Test for Obtaining Payroll Data from Nursing Facilities According to Reporting Requirements" was submitted to CMS on November 30, 2007. This Addendum to the report contains information pertaining to the calculation of the staffing measures using payroll and census data obtained from the nursing facilities during the feasibility test. This report also addresses the survey results for the participating nursing facilities. Five of the six nursing facilities that participated in the feasibility study (three not-for-profit and two for-profit) provided both payroll and census data in compliance with the data specifications. The sixth entity, a not-for-profit facility, included data from both their nursing facility and Transitional Care Unit (TCU). There was appreciable heterogeneity among the size of the nursing facilities, ranging from 18 beds to 120 beds.

The performance of these six facilities on four quality measures (high-risk pressure ulcers, physical restraints, chronic care pain, and post-acute care pain) depicted a cross-section of the provider population, in that their scores fell both below and above the national mean, and both improvement and deterioration were demonstrated on the various quality measures during the reporting period. The number of deficiencies cited among these six providers was generally low, however, ranging from zero to six deficiencies.

The SAS programs for calculating staffing ratio and turnover/tenure measures from SQM Phase I were adapted to the data specifications used during the feasibility test in SQM Phase I: Continuation. The original programs were not intended for general use beyond the requirements of Phase I; they were originally written as a sequence of data management steps specific to the Phase I participants and idiosyncrasies of data from specific facilities. The primary contrasts between the management of Phase I data and the management of uniform feasibility data in Phase I: Continuation are the following:

- Reporting period: The Phase I data represented four quarters (2003 Q1 through Q4), while feasibility data represented five quarters (2006 Q1 through 2007 Q1). Collecting five quarters of staffing data allowed for the calculation of one full year (4 quarters) of staff retention measures.
- Variable names: Some variable names used in the Phase I code were changed in the feasibility data specifications. For example, Medicare provider number "mednum" became "fed_id."
- Job categories: Feasibility data specifications collapse ADON and DON categories into a single category ("DON"), and the general nursing and therapy categories were eliminated. Also, job categories were recoded.
- Shift information: Phase I data contained some staffing variables stratified by shift (e.g., evenings, night, 24-hour, weekend, holiday). Information about shift was not available in the feasibility data.
- Census data: Feasibility data specifications required daily, non-stratified census reporting. Phase I census data were not uniformly reported in terms of period (daily versus annual average), and were stratified by payer type.

- General: Provider identifiers and reporting period dates were hard-coded into the Phase I programs, reducing the utility of the programs for subsequent staffing datasets. Also, several data management steps in the Phase I programs were made obsolete by the requirements of the feasibility data specifications (e.g., merging personnel hire dates).

The Phase I programs were revised according to the following objectives:

- Account for a shifted and expanded reporting period (i.e., 2006 Q1 through 2007 Q1).
- Make variable names and formats consistent with those of the data specifications.
- Eliminate obsolete and redundant code to reduce opportunities for error.
- Make the programs generalizable to any provider submitting data in compliance with the data specifications.

The SAS programs produced outputs consistent with the definitions of the staffing quality measures listed in the Nursing Home Staffing Database and Data Dictionary. The majority of the variables specified were calculable directly from the feasibility study data. Some variables related to tenure and turnover were not directly produced, nor were any of the variables stratified by full-time versus part-time status. However, there was sufficient information in the feasibility study data to calculate a variety of these variables. None of the staffing variables related to shift were calculated given that shift level data were not requested in the data specifications. Due to the preliminary status of the programs used to calculate the measures, further verifications would be required to ensure accuracy and additional SAS programming would be required to obtain the variables that were not immediately calculable. Code refinements would also be needed to maximize efficiency and flexibility (e.g., varying date ranges for reporting period) if the programs are to be used in a broader application.

Appendix H

Development of Staffing Quality Measures- Phase I: Continuation

Task 6: Analysis of Contract Staff Hours

Final Subtask Report
August 31, 2007

Submitted on August 31, 2007 to:
Ms. Terry Ng, CMS, Government Task Leader
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Development of Staffing Quality Measures - Phase I: Continuation

Task 6: Analysis of Contract Staff Hours

Final Subtask Report

Contents

1. Introduction

Inadequate nurse staffing has been implicated as a potential cause of quality problems in nursing homes[1-4]. Researchers have associated low nurse staffing levels in nursing homes with poor quality of care[5-7], and the Centers for Medicare & Medicaid Services (CMS) reports facility nurse staffing levels on its public website Nursing Home Compare (http://www.medicare.gov/NHCompare). Nursing homes face numerous challenges trying to maintain adequate staffing levels, including relatively low salaries, low job satisfaction, high turnover rates, over-time demands, administrative duties, and workforce shortages[8-10]. One strategy to filling staff vacancies in such difficult circumstances is to turn to contract (agency) staff.

Although information on nursing home use of contract staff is available on the Online Survey Certification and Reporting (OSCAR) system, there is little published literature investigating the use of contract staff in nursing homes. A recent analysis of OSCAR-reported contract staff conducted by Bourbonniere and colleagues[9] divided nursing homes into high (≥ 5% of total) and low (< 5%) categories of percentage of total RN and LPN time accounted for by contract staff. They found that use of contract staff has increased over time, and that nursing homes in the high group were more likely to be urban, chain, non-profit, have low occupancy rates, and have more health deficiency citations than nursing homes in the low group. In the hospital setting, researchers collecting primary data in one unit of one hospital found differences in nursing care quality delivered by contract nurses versus employed staff nurses versus float pool staff nurses[11-12]. No such investigation of contract staff in nursing homes using primary data was found in the published literature.

The Development of Staffing Quality Measures (SQM) – Phase I and Phase I Continuation projects, conducted by the Colorado Foundation for Medical Care (CFMC) and the University of Colorado at Denver and Health Sciences Center (UCDHSC) under contract to CMS, were designed to develop measures of nursing home nurse staffing quality that could be used for public reporting. The study requested 2003 payroll data from eight nursing home corporations (n=1453 facilities) to investigate payroll-based measures of staffing levels, turnover, retention, and staff mix. One corporation, comprising 52 individual facilities, also provided limited information on the use of contract staff during the same period. Those data are the basis for this report. The mean, distribution, and variability of contract hours and non-contract staffing levels are presented for RNs, LPNs, and CNAs, as well as RN+LPN and RN+LPN+CNA. The percent of total hours accounted for by contract staff is also examined for each group. The associations between contract staff measures and other staffing and facility characteristics are explored as well.

2. Methods

Data acquisition

During Phase I, nursing home corporations were invited to provide staffing information for their constituent nursing facilities. Although the request was specific to staff employed by the facilities at any time during calendar year 2003, one corporation representing 52 individual nursing homes also provided information on contract staff used in 2003. The data consisted of the number of hours of care provided by contract registered nurses (RNs), licensed practical nurses (LPNs), and certified nurse assistants (CNAs) during each two-week pay period. The hours were summaries of total hours used during the pay period and did not identify the number of individuals used, nor the specific days that they were in the facility.

Measure creation and definitions

Consistent with procedures developed during Phase I (see SQM Phase I final report[13] for details), measures of hours per resident-day were calculated for RN, LPN, and CNA, as well as for RN+LPN and RN+LPN+CNA. Pay periods with days falling outside of 2003 were prorated to reflect only 2003 dates. For each of the five staff categories, pay period contract hours were disaggregated to the day level. For example, if a pay period record showed that 112 hours of contract RN time was used over the 14 days in the pay period, each day was assigned eight hours of contract RN time.

To calculate hours per resident-day for the five staff categories, contract hours for each day were divided by the census for that day. The Phase I analyses utilized a rule for missing data that set both hours and census to missing if the number of hours worked by all staff on any given day was 15% or less of the annual mean for that facility. That rule was developed to identify and appropriately resolve data that appeared to be suspiciously low and that may have reflected incomplete reporting. For the analysis of contract data, however, the original census data were used, as the completeness of reported employed staff hours should not influence the completeness of reported contract staff hours.

Pay period data for employed staff obtained during Phase I were assigned to standardized staff categories based on job title. Job titles that spanned more than one category were placed into the "higher level" category. For example, the job title "RN/DON" was placed into the Director of Nursing (DON) category. In contrast, the contract job titles were already collapsed into the three basic categories of RN, LPN, and CNA. If a contract RN had served as the DON, that information was not retained in the data provided. Therefore, in order to make job classifications consistent between contract and employed staff, the employed staff hours were re-categorized so that DON and Assistant Director of Nursing (ADON) hours were captured in the RN category instead of in a separate group. Hours per resident-day for employed RNs were then recalculated using the Phase 1 methodology including DON and ADON in the RN group.

Employed staff hours per resident-day and contract staff hours per resident-day were then combined to create measures of the percentage of nursing time provided by contract staff. Contract hours were considered more similar to productive hours than to total hours (which included vacation pay, sick leave, etc.), therefore productive hours were used in this comparison. Five measures were created: the percentage of combined contract and employed RN time spent by contract RNs; the percentage of combined contract and employed LPN time spent by contract LPNs; the percentage of combined contract and employed CNA time spent by contract CNAs; the percentage of combined contract and employed licensed nursing time spent by contract RNs and LPNs; and the percentage of combined contract and employed total nursing time spent by contract RNs, LPNs, and CNAs. From Phase I, "licensed nursing" included DON, ADON, other nursing administration, advance practice nurse, RN, and LPN; "total nursing" included DON, ADON, other nursing administration, advance practice nurse, RN, LPN, CNA, non-certified nurse aide, and other nursing. In instances when either employed staff or contract staff data were missing, the percentage was defined as missing as well.

Additional staff measures developed during Phase I were added to the contract and employed staff measures. These included measures of staff mix, turnover, retention, and short-term employees, which are defined in detail in the final report[13] and the database documentation report[14]. Two versions of turnover were used: cohort turnover which measured the percent of staff employed at the beginning of the year that departed by the end of the year, and position turnover which measured the percent of staff that departed during the year based on the average number of positions during the year. The first is a measure of employee turnover, while the second captures multiple turnovers in the same position, or employee churn. Cohort retention is simply the reverse of cohort turnover: the percent of staff employed at the beginning of the year that were still employed at the end of the year. Short-term employees were defined as those who departed within 60 days from their employment date. The original Phase I methodology for splitting apart RN and DON/ADON time was retained for these measures of staffing. Because the corporation did not provide personnel data, measures of tenure could not be assessed.

Facility characteristics were obtained from the OSCAR database for 2003 and included hospital-based/freestanding, urban/rural, chain membership, ownership, size, state, and region. Employed and contract staffing levels from the two-week period prior to the survey were also extracted. Facility case mix measures were obtained for 2003 from the national DataPRO SNF Stay File [(15)] and included mean resident age, mean 5-day Barthel Index score, mean 5-day Cognitive Performance Scale (CPS) score, mean length of stay (LOS), mean LOS of preceding qualifying hospital stay, and percentages of residents that were female, married, white, black, other race, with do not hospitalize (DNH) orders, or with do not resuscitate (DNR) orders. The Barthel Index is a measure of functional ability, ranging from 0 indicating maximum dependence to 100 indicating maximum independence. In the nursing home setting, it is not possible to measure one of the components of the Barthel Index (ability to climb stairs), which

results in a maximum score of 90. The CPS is a measure of cognitive impairment, and ranges from 0 indicating least impaired to 6 indicating maximum impairment.

In addition to the corporation's 52 facilities, two comparison groups were also identified: 1304 facilities that participated in Phase I of the SQM project but that did not provide contract data, and 14,653 facilities from the DataPRO SNF Stay File that did not participate in Phase I. The DataPRO SNF Stay File contains detailed information regarding Medicare SNF stays in nursing homes across the country for 1996 through 2005. For the facilities that participated in Phase I but which provided staffing in terms of total hours instead of productive hours, total hours were multiplied by 0.93 to approximate productive hours. See the SQM Phase I final report[13] for details of this procedure.

Analysis

Because the contract data were limited to only 52 facilities, all owned by the same corporation, the analysis was descriptive in nature; no hypothesis testing was conducted. The 52 facilities were compared to both comparison groups to assess general representativeness across all measures. Distributional statistics were examined for both daily contract hours and daily contract hours per resident-day for all five staff types. Facilities that reported using no contract staff at all during 2003 were compared to facilities that used at least some contract staff. Contract RN, LPN, and CNA mean hours and hours per resident-day for each day were graphed and the daily variation in the measures visually inspected. For each of the five staff types (RN, LPN, CNA, RN+LPN, RN+LPN+CNA), contract hours per resident-day were divided into quartiles and facilities within each quartile were compared across all measures. Correlations of contract hours per resident day between different staff types were examined. Lastly, the contract staff data provided was compared to the OSCAR-reported contract staff data for the same time period.

3. Results

The 52 study facilities were compared to non-study SQM facilities across all staffing measures, as shown in Table 1a. The comparison group for all staffing measures (staffing levels, staff mix, turnover, retention, short term employees) was the 1304 facilities that participated in Phase I that did not provide contract data. The study facilities had higher staffing levels; CNA staffing levels were markedly higher. Study facilities also had higher turnover and lower retention for all positions, particularly for RNs, LPNs, DONs, and ADONs. Study facilities also had higher percentages of short-term employees, especially for RNs, LPNs, DONs, ADONs, and administrators.

The 52 study facilities were then compared with all Medicare-certified SNFs. The comparison group for facility characteristics, OSCAR staffing levels, and case mix was the 14,653 facilities from the DataPRO SNF Stay File for 2003. In comparison to national facilities, study facilities were more likely to be urban and located in the Northeast, and less likely to be located in the

South or West. Although all study facilities were members of a for-profit chain, the OSCAR data did not always reflect that; suggesting the values for chain and ownership shown in Table 1b for the 52 study facilities are not completely accurate. The study facilities also reported using more contract staff and less employed staff than other facilities, though reported total staffing levels were approximately comparable. The case mix in the two facility groups was generally similar, though residents in the study facilities were less likely to have do not resuscitate orders and had longer SNF stays.

Table 2 presents distributional statistics of daily contract staff use in terms of hours and hours per resident-day in the 52 study facilities. On average, approximately 6.7 hours of RN, 13 hours of LPN and 9 hours of CNA contract staff were used each day. For RN hours, the distribution was skewed such that the maximum value (33.6 hours) was approximately 5 times the mean. For CNA hours, the distribution was skewed with 13 facilities using no contract CNAs at all during the year.

The seven facilities that used no contract RNs were the same seven that used no contract LPNs, and six of the seven also used no contract CNAs; six facilities used no contract staff at all during the year. Those six facilities had higher staffing levels for employed staff, particularly for LPNs (2.82 hours per resident-day versus 0.63 hours per resident-day in the 46 facilities with non-zero contract hours). Additionally, facilities that used no contract staff had greater percentages of staff employed as RNs and LPNs, (5.6% and 20.4%, respectively versus 5.8% and 14.3% in facilities that utilized contract staff) and had lower position turnover for all staff and especially for RNs and DONs/ADONs (99.8% and 25.0%, respectively versus 129.7% and 70.5%). Four of the six facilities were located in rural areas.

The coefficient of variation (CV) shown in Table 2 allows the variation of measures with different means to be compared more easily. The CVs for hours per resident-day were lower than the CVs for hours, indicating that, as expected, once census was accounted for through the use of the measure hours per resident-day, the variation in hours was diminished. The CV for LPN hours per resident-day decreased substantially when compared to the CV for LPN hours, while the CVs for RN and CNA did not experience such a large drop. This suggests that the impact of census was greater for LPNs than it was for RNs or CNAs.

These results are shown graphically in Figures 1 through 3. Figures 1 through 3 show the mean and standard deviation of daily hours and hours per resident-day for contract RNs, LPNs, and CNAs. Data were not provided for all facilities for two pay periods (March 13 – March 26 and December 18 – December 31). For one pay period (September 25 – October 8), 50 of 52 facilities recorded zero contract hours, in contrast to their typical use during the rest of the year. Because of concern about the accuracy of these data, they were set to missing. Thus missing data account for the three gaps in the graph.

Because contract hours were provided at the pay period level, contract hours are constant across each 14-day pay period. Census data were provided for each individual day, so hours per

resident-day vary somewhat within pay period. While substantial variation was observed in daily contract staff use, there did not appear to be an association with holidays or season.

Comparing the graphs of hours to the graphs of hours per resident-day, the overall pattern did not change significantly for RN or for CNA. For LPN, however, there were pronounced differences in the two graphs. The daily standard deviation was much closer to the daily mean for hours per resident-day, again suggesting that variation in use of contract LPNs was reduced once census was taken into account. Such reduction was not seen for contract RNs or contract CNAs.

Tables 3 through 7 compare the characteristics of facilities that used various amounts of contract staff. Table 3 divides the 52 facilities into quartiles based on RN contract hours per resident-day, and describes the facilities that fall into each quartile. Facilities in the lowest quartile used an average of < 0.01 hours per resident-day, while facilities in the highest quartile used 0.17 hours per resident-day. As a percentage of total RN use, facilities in the lowest quartile used contract RNs for only 0.3% of total RN hours, while facilities in the highest quartile used contract RNs for 34% of total RN hours. Use of contract LPNs and contract CNAs also increased with increased contract RN use. That is, facilities in the lowest quartile of contract RN utilization used one-sixth the contract LPNs and CNAs that facilities in the highest quartile of contract RN utilization used. Overall, facilities in the highest quartile used contract RNs, LPNs, and CNAs for 14% of total nursing hours, compared to less than 2% for facilities in the lowest quartile. Of note, when staff RN+LPN hours per resident-day were added to contract RN+LPN hours per resident-day, facilities in the lowest quartile used the same amount of total RN+LPN time as facilities in the highest quartile. For total RN+LPN+CNA, facilities in the lowest quartile used slightly more staff hours than facilities in the highest quartile (4.21 versus 4.03 hours per resident-day).

The percent of staff employed as LPNs decreased as contract RN use increased (18.2% for facilities in the lowest quartile versus 11.3% for facilities in the highest quartile). Turnover was also associated with contract RN use; facilities with the most contract RN use had higher turnover rates than facilities that used the least contract RNs, especially for DONs and ADONs. The same was true for percentage of short-term employees. There was a greater percentage of Midwestern facilities in the highest quartile and of Southern facilities in the lowest quartile than expected, given the overall geographic distribution of facilities. There were also fewer Northeastern facilities in the highest quartile than expected. Facilities that used the least contract RN time were less likely to be in urban settings than facilities that used more contract RN time. Case mix across the quartiles was not dramatically different, though residents of facilities in the highest quartile had the highest Barthel score (most independent) and the longest hospital length of stay, while residents of facilities in the lowest quartile had the longest SNF length of stay.

Table 4 provides characteristics of facilities that used various amounts of contract staff. Facilities in the lowest quartile used on average 0.01 hours per resident-day, while facilities in

the highest quartile used 0.26 hours per resident-day. As a percentage of total LPN use, facilities in the lowest quartile used contract LPNs for 1.4% of total LPN hours, while facilities in the highest quartile used contract LPNs for 37% of total LPN hours. Use of contract RNs and contract CNAs also increased with increased contract LPN use: facilities in the highest quartile of contract LPN utilization used 14 times the contract RN and CNA hours that facilities in the lowest quartile of contract LPN utilization used. Overall, facilities in the highest quartile used contract RNs, LPNs, and CNAs for 13.5% of total nursing hours, compared to 0.5% for facilities in the lowest quartile. For each of the five staff groups, when employed staff hours per resident-day are added to contract staff hours per resident-day, facilities in the lowest quartile used approximately the same amount of total time as facilities in the highest quartile.

The percent of staff employed as LPNs decreased as contract LPN use increased (17.5% for facilities in the lowest quartile versus 12.9% for facilities in the highest quartile). Turnover was also associated with contract LPN use; facilities with the most contract LPN use had higher turnover rates than facilities that used the least contract LPNs, especially for RNs, DONs and ADONs, and CNAs to a lesser extent. The same was true for percentage of short-term employees. Geographically, there was a greater percentage of Midwestern facilities in the highest quartile and of Southern facilities in the lowest quartile than expected, and fewer Northeastern facilities in the highest quartile than expected. Facilities that used the least contract LPN time were less likely to be in urban settings than facilities that used more contract LPN time. Case mix across the quartiles was not dramatically different, though residents of facilities in the highest quartile were more likely to be black, less likely to be married, and had the longest qualifying hospital length of stay, while facilities in the lowest quartile had the longest SNF length of stay. In sum, the associations with contract LPN use were similar to those with contract RN use.

The quartiles of contract CNA hours per resident-day are shown in Table 5. The relationships with contract CNA utilization were similar to those found for RN and LPN, though somewhat less pronounced. All 13 facilities in the lowest quartile used no contract CNA staff at all, while facilities in the highest quartile used 0.26 hours per resident-day. As a percentage of total CNA use, facilities in the highest quartile used contract CNAs for 9.3% of total CNA hours. Use of contract RNs and contract LPNs also increased with increased contract CNA use: facilities in the highest quartile of contract CNA utilization used 8 to 13 times the contract RN and LPN hours that facilities in the lowest quartile of contract CNA utilization used. Overall, facilities in the highest quartile used contract RNs, LPNs, and CNAs for 13.3% of total nursing hours, compared to 0.6% for facilities in the lowest quartile. For each of the five staff groups, the sum of employed and contract staff hours per resident-day for facilities in the lowest quartile were within 0.22 of summed hours per resident-day for facilities in the highest quartile; the greatest difference was found in LPNs.

The percent of staff employed as LPNs decreased as contract CNA use increased (17.6% for facilities in the lowest quartile versus 13.2% for facilities in the highest quartile). Turnover was also associated with contract CNA use; facilities with the most contract CNA use had higher

turnover rates than facilities that used the least contract CNAs, for RNs, LPNs, and especially CNAs. There was a modest association with percentage of short-term employees, though the percentage of short-term DONs and ADONs was highest in the highest quartile. Geographically, there was a greater percentage of Midwestern facilities in the highest quartile and of Southern facilities in the lowest quartile than expected, and fewer Northeastern facilities in the highest quartile than expected. Facilities that used the least contract CNA time were less likely to be in urban settings than facilities that used more contract CNA time. Case mix across the quartiles was not dramatically different, though residents of facilities in the highest quartile had the highest Barthel score, while facilities in the lowest quartile had the shortest qualifying hospital length of stay.

Table 6 presents the quartiles for contract RN+LPN hours per resident-day, and Table 7 presents the quartiles for contract RN+LPN+CNA hours per resident-day. While these findings generally mirror what has been shown separately for RNs, LPNs, and CNAs, there are a few new points to note. For RN+LPN+CNA, the sum of contract and employed staff hours per resident-day was not equivalent across the quartiles. Facilities in the lowest quartile of contract staff use had lower total RN staffing than facilities in the highest quartile (0.38 versus 0.56 hours per resident day). However, facilities in the lowest quartile of contract staff use had higher total staffing for other types of staff (0.91 versus 0.68 for LPN, 3.16 versus 2.82 for CNA). Overall, the total staffing levels for licensed staff and all nursing staff were relatively similar between the lowest and highest quartile (1.29 versus 1.22 for RN+LPN, and 4.46 versus 4.05 for RN+LPN+CNA). Additionally, the associations with case mix were diminished to only modest relationships with age (youngest in highest quartile), married (lowest in highest quartile), and race (more black in highest quartile).

Simple correlations between RN, LPN, and CNA contract hours per resident-day showed moderately high positive associations: RN with LPN = 0.61, RN with CNA = 0.52 and LPN with CNA = 0.40. Correlations between quartile membership were similar: RN with LPN = 0.69, RN with CNA = 0.49 and LPN with CNA = 0.66. The correlations were higher for quartile membership because variation was reduced. That the effect was most pronounced for the CNA-LPN relationship suggests that there was significant variation within quartile for those groups.

Table 8 compares OSCAR-reported contract hours per resident-day to that calculated from the data provided for the 52 study facilities. There was substantial agreement between the two data sources for all five staff groups. Of the 13 facilities that indicated no contract CNA use, 12 facilities also reported no contract CNA use on OSCAR. Six of the seven facilities that indicated no contract RN and no contract LPN use reported the same on OSCAR. It should be noted, however, that the corporation that owned these facilities had an advanced information technology application, which tracked hours paid for contract staff by job category and automatically extracted that information to the Form 671 completed during the facilities' survey. It was therefore not surprising that the two data sources were in substantial agreement.

4. Discussion

Nursing homes may sometimes require temporary additional nursing staff to fill in on a short-term basis, such as when too many staff members are on sick leave or on vacation, or on a longer-term basis such as when permanent staff are unavailable because of shortages in the labor supply. Accordingly, the strategies that nursing homes employ to fill staff vacancies depend on whether the need is expected to be of short or long duration. The options available include asking existing staff to fill in as needed, which may require overtime pay; using in-house float pool staff, who fill in staffing gaps when and where needed across departments; contracting with staffing agencies to bring in temporary staff; or simply allowing the staff to cover the shortage to the degree possible. Nursing homes decide among these alternatives after weighing factors related to cost, perceived quality of care, availability and mix of existing employed staff, and expected duration of need. And some facilities maintain a policy of never using contract staff.

In this analysis, use of contract LPNs was associated with changes in daily census while use of contract RNs and CNAs was not. Federal staffing regulations state that a nursing home must have an RN on site for eight hours a day. If a facility is in a situation where it cannot meet that requirement with employed staff, then the facility must bring in an RN to meet the regulatory requirements, regardless of the number of residents that are in the facility. In the case of CNAs, facilities are more likely to have sufficient capacity (e.g., other CNAs or other staff) to manage brief periods of CNA shortages, and contract CNAs aren't brought in until that capacity is exceeded. This model is supported by the finding that one-fourth of facilities in this analysis used no contract CNAs.

LPNs, on the other hand, were the staff type most frequently contracted, and the use of contract LPNs changed with changes in census. Federal regulations require nursing homes to have licensed nursing on every shift. Since contract RNs can choose among many work settings, and since contract RNs command higher salaries, it is likely that a nursing home would fill the licensed nursing requirement with a contract LPN rather than a contract RN. Furthermore, the use of contract staff of any type was negatively associated with the percentage of in-house staff employed as LPNs. That is, the fewer LPNs on staff, the more a facility used contract staff.

The use of contract staff was generally consistent across types of nursing staff; if a facility used large amounts of one type of contract staff, it also used large amounts of other types of contract staff. Facilities in the highest quartile of contract staff used contract staff to fill one-quarter to one-third of their total RN and LPN needs, and 13% to 15% of total nursing needs. Use of contract staff was associated with turnover rates, especially in skilled and leadership positions. While it is intuitive that high turnover would result in staff shortages that would necessitate the use of contract staff, there may also be a causal relationship in the other direction. Facilities with workforce instability in leadership staff (DONs and other RNs) that choose to fill these positions with contract staff may create an unstable or stressful work environment for other nursing staff, resulting in higher turnover.

At the other end of the spectrum, facilities that used very little contract staff had low turnover rates and a high percentage of staff employed as LPNs. These facilities tended to be located in the Southern states and were less likely to be urban than facilities that used more contract staff. Of the six facilities that used no contract staff, four were in rural areas. This is consistent with findings by Bourbonniere et al.[9] that market characteristics related to worker availability greatly influence the ability of rural nursing homes to utilize contract staff. Low use of contract staff therefore may be influenced both by factors within and outside facilities' ability to control.

Facilities that were high users of contract staff had a total number of nursing staff hours per resident day and total licensed nursing hours per resident day that were similar to the number of hours in facilities that used little contract staff. However, the staff mix was somewhat different with few RN hours and more LPN and CNA hours in facilities with low contract staff use. Whether hours spent by contract staff are equivalent in quality to hours spent by employed staff is an unanswered question. The little research conducted on this issue has conflicting results. Higher use of contract staff in nursing homes has been associated with a higher number of survey deficiencies in some studies[9], but others have found no differences in observed care delivered by contract versus employed nurses[8]. In the hospital setting, one study reported that contract and float pool staff provided worse care than employed nurses[11], while another found that employed nurses provided worse care than float pool staff[12]. While there is a general perception that contract staff provides poorer quality care, research supporting that conclusion is lacking.

This analysis was, by necessity, descriptive, and restricted to a group of 52 individual facilities from one nursing home corporation. As such, it is not representative of the general nursing home population. The corporation studied was more technologically advanced than many nursing homes in its ability to track contract staff use in detail. Because of this, the high degree of similarity with the CMS OSCAR contract data is not likely to be replicated in future studies. Furthermore, while the study facilities faced the same staffing challenges as all nursing homes, their higher staffing levels and higher turnover rates may have influenced their decision to use contract staff. Indeed, OSCAR data indicated that these facilities relied on contract staff to a greater extent than other facilities. Within the 52 facilities, those with the greatest use of contract staff used far more than the 5% cut-off used by Bourbonniere et al.[9] to identify "heavy users" of contract staff.

In light of the current interest in and focus on nurse staffing levels in nursing homes, this report provides important new information and insight into the use of contract staff. As research related to nursing home staffing continues, new opportunities for capturing contract staff data will be created, and the movement towards payroll-based measures of staffing will naturally lead to questions regarding contract staff that should be pursued. Given the ongoing difficulties of staff recruitment and retention, the use of contract staff will continue to be an important issue.

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6. Tables and Figures

Table 1a: Comparison of staffing measures between 52 study facilities and SQM non-study facilities (n=1304)

Measure	Study facilities (n=52)	Non-study facilities (n=1304)
Staffing levels, hours/resident-day		
RN	0.33	0.29
LPN	0.68	0.63
CNA	2.82	1.95
RN+LPN	1.01	0.92
Licensed nursing staff	1.25	1.09
All nursing staff	4.07	3.13
Staff mix, percent of staff employed as:		
RNs	5.75%	6.14%
LPNs	15.04%	16.25%
CNAs	38.93%	38.27%
Combined RNs and LPNs	20.79%	22.39%
Administrators	0.84%	0.95%
DONs	0.86%	0.97%
Combined DONs and ADONs	1.61%	1.40%
Licensed nursing staff	21.63%	21.39%
All nursing staff	59.54%	61.06%
Cohort turnover		
RNs	50.40%	40.31%
LPNs	38.31%	32.59%
CNAs	41.55%	38.86%
Combined RNs and LPNs	42.34%	35.23%
Combined DONs and ADONs	40.00%	31.64%
Licensed nursing staff	37.84%	32.03%
All nursing staff	38.24%	36.79%
All staff	35.86%	32.93%
Cohort retention		
RNs	49.60%	59.69%
LPNs	61.69%	67.41%
CNAs	58.45%	61.14%
Combined RNs and LPNs	57.66%	64.77%
Combined DONs and ADONs	60.00%	68.36%
Licensed nursing staff	62.16%	67.97%
All nursing staff	61.76%	63.21%
All staff	64.14%	67.07%
Position turnover		
RN	126.29%	84.63%
LPN	59.90%	44.71%
CNA	86.39%	77.32%
Combined RN and LPN	73.75%	53.04%
Combined DON and ADON	65.28%	49.72%
Licensed nursing staff	70.37%	56.65%

Table 1a: Comparison of staffing measures between 52 study facilities and SQM non-study facilities (n=1304) (continued)

All nursing staff	72.26%	69.95%
All staff	67.04%	60.35%
Short term employees		
Percent of short term RNs	30.52%	20.66%
Percent of short term LPNs	23.66%	16.27%
Percent of short term CNAs	25.30%	21.33%
Percent of short term RNs and LPNs	26.33%	18.02%
Percent of short term administrators	14.00%	5.69%
Percent of short term DONs	8.33%	7.28%
Percent of short term DONs and ADONs	14.33%	8.72%
Percent of short term licensed nursing staff	19.95%	15.74%
Percent of short term all nursing staff	21.12%	19.59%
Percent of short term all staff	20.15%	17.62%

Table 1b: Comparison of facility characteristics and case mix between 52 study facilities and national Medicare-certified SNFs (n=14,653)

Measure	Study facilities (n=52)	National facilities (n=14,653)
Facility characteristics		
Hospital-based facility	0%	9.73%
Chain	84.62%	55.22%
For-profit	98.08%	67.00%
Non-profit	1.92%	28.06%
Government-owned	0%	4.94%
Number of beds (total beds)	123.94	112.36
Number of stays	196.29	145.41
Urban	92.31%	67.29%
Northeast	44.23%	18.71%
Midwest	34.62%	32.10%
South	21.15%	33.24%
West	0%	15.95%
OSCAR staffing levels, hours/resident-day		
Contract RNs	0.08	0.01
Contract LPNs	0.13	0.03
Contract CNAs	0.11	0.03
Contract RN DON	<0.01	<0.01
Contract licensed nursing staff	0.21	0.04
Contract all nursing staff	0.33	0.07
Staff RNs	0.31	0.46
Staff LPNs	0.71	0.82
Staff CNAs	2.20	2.34
Staff RN DON	0.06	0.10
Staff licensed nursing staff	1.35	1.58
Staff all nursing staff	3.61	4.19
Total RNs	0.39	0.47
Total LPNs	0.84	0.84
Total CNAs	2.32	2.37
Total RN DON	0.06	0.11
Total licensed nursing staff	1.56	1.62
Total all nursing staff	3.94	4.26
Case Mix		
Age, years	78.81	79.85
Female	62.13%	65.57%
Married	30.58%	26.18%
White	91.06%	86.91%
Black	7.79%	9.95%
Other race	1.16%	3.13%
Do not hospitalize orders	1.03%	1.87%
Do not resuscitate orders	33.02%	41.65%
Barthel Index score (0-90)[1]	37.12	36.39
Cognitive Performance Scale (0-6)[2]	1.85	2.01
LOS of qualifying hospitalization, days	8.85	8.92
LOS of SNF stay, days	34.56	28.65

[1] Measured on 5-day MDS assessment; higher scores indicate greater independence
[2] Measured on 5-day MDS assessment; higher scores indicate more severe impairment

Table 2: Distributional statistics of daily contract hours and contract hours/resident-day (n=52)

Measure	Mean	CV[1]	Min	P25[2]	Median	P75[3]	Max	Number with 0 hours
Hours								
RN	6.67	123.85	0	0.36	3.87	10.19	33.56	7
LPN	12.92	110.10	0	2.56	10.33	18.26	72.46	7
CNA	9.15	118.46	0	0.01	4.25	17.75	38.83	13
RN+LPN	19.59	104.75	0	4.50	13.03	28.20	103.19	6
RN+LPN+CNA	28.74	93.53	0	6.88	21.72	45.82	105.41	6
Hours/resident-day								
RN	0.06	116.65	0	<0.01	0.03	0.11	0.36	7
LPN	0.11	90.68	0	0.03	0.10	0.18	0.37	7
CNA	0.09	116.77	0	<0.01	0.05	0.18	0.33	13
RN+LPN	0.18	89.90	0	0.05	0.14	0.29	0.56	6
RN+LPN+CNA	0.27	86.41	0	0.06	0.21	0.46	0.87	6

[1] CV = Coefficient of variation = standard deviation / mean * 100
[2] P25 = 25th percentile
[3] P75 = 75th percentile

Figure 1: Daily RN contract hours and contract hours/resident-day (n=52)

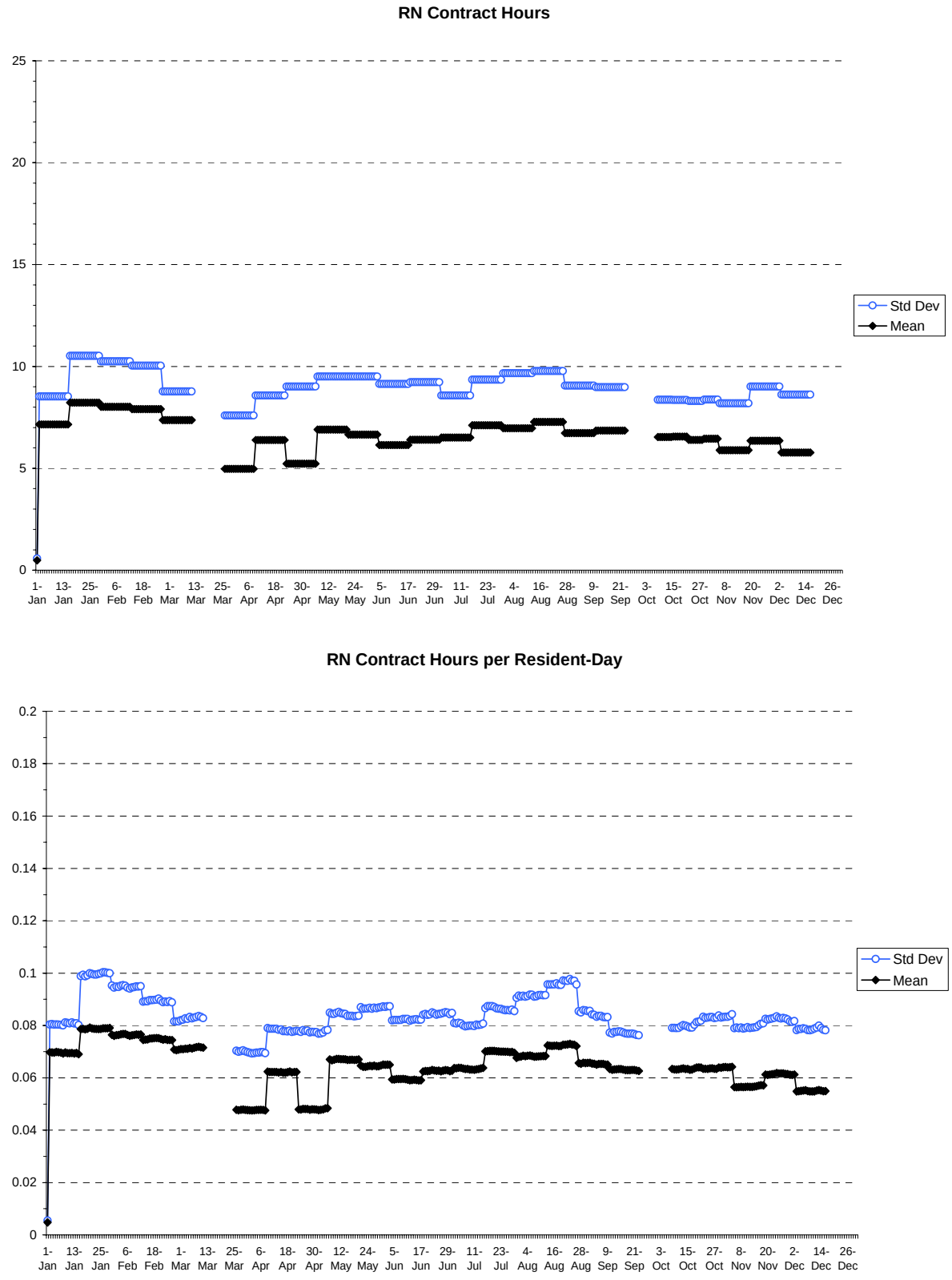
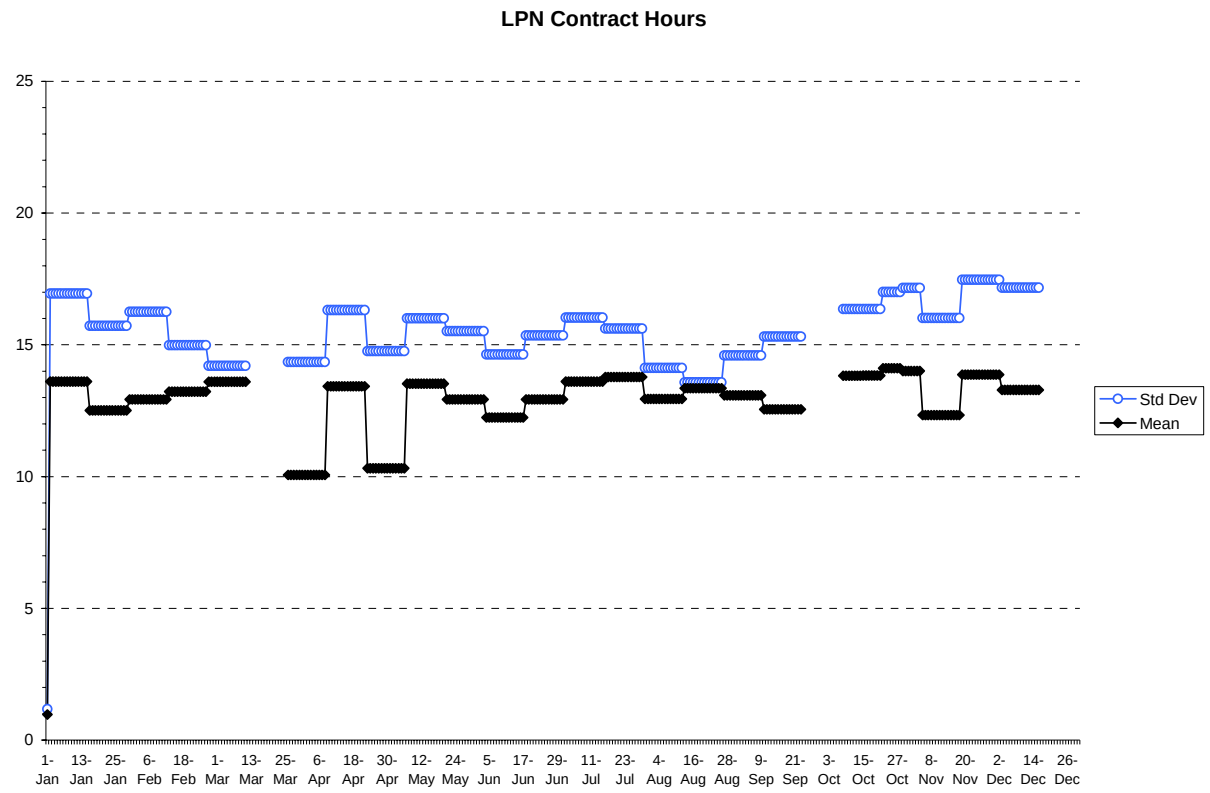


Figure 2: Daily LPN contract hours and contract hours/resident-day (n=52)



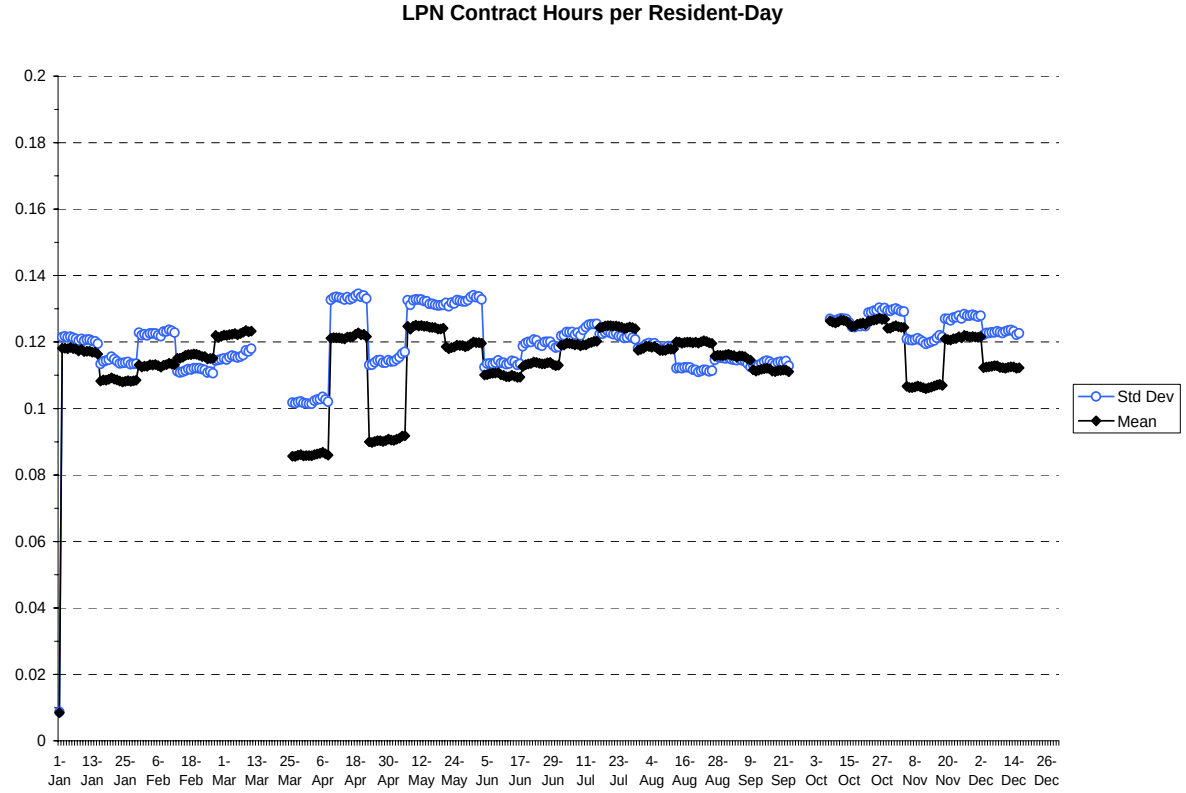
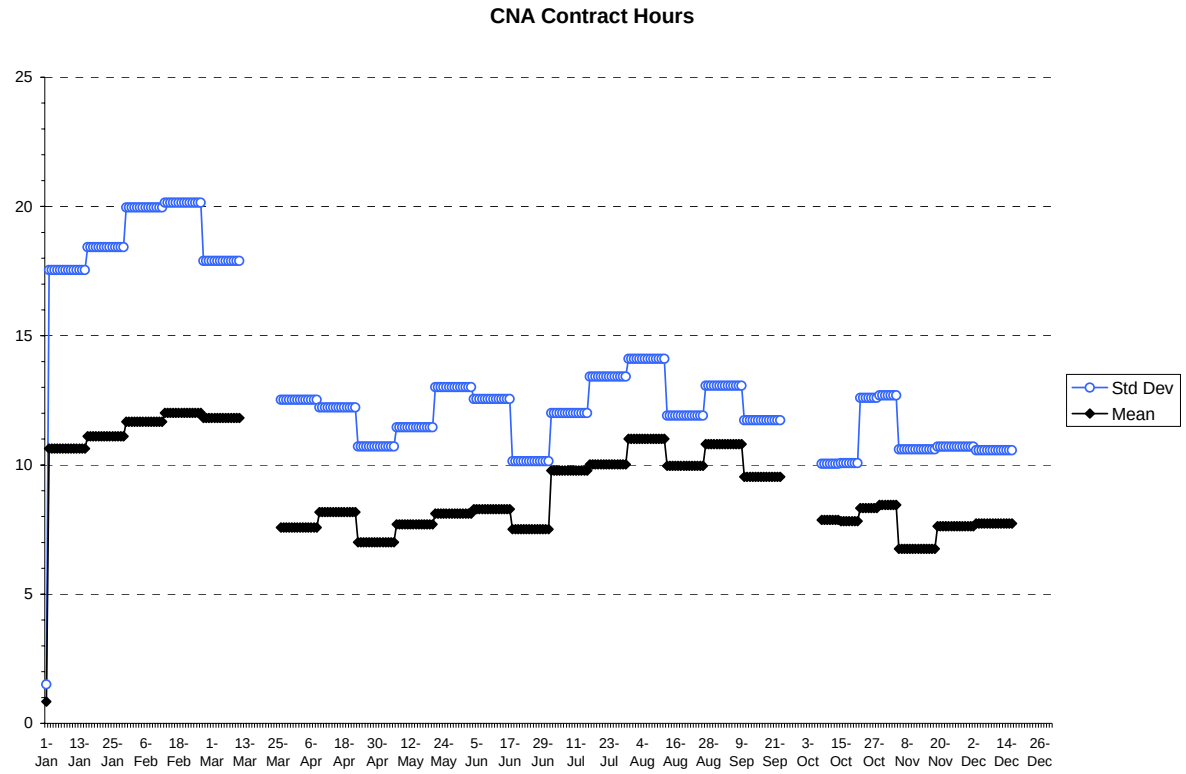


Figure 3: Daily CNA contract hours and contract hours/resident-day (n=52)



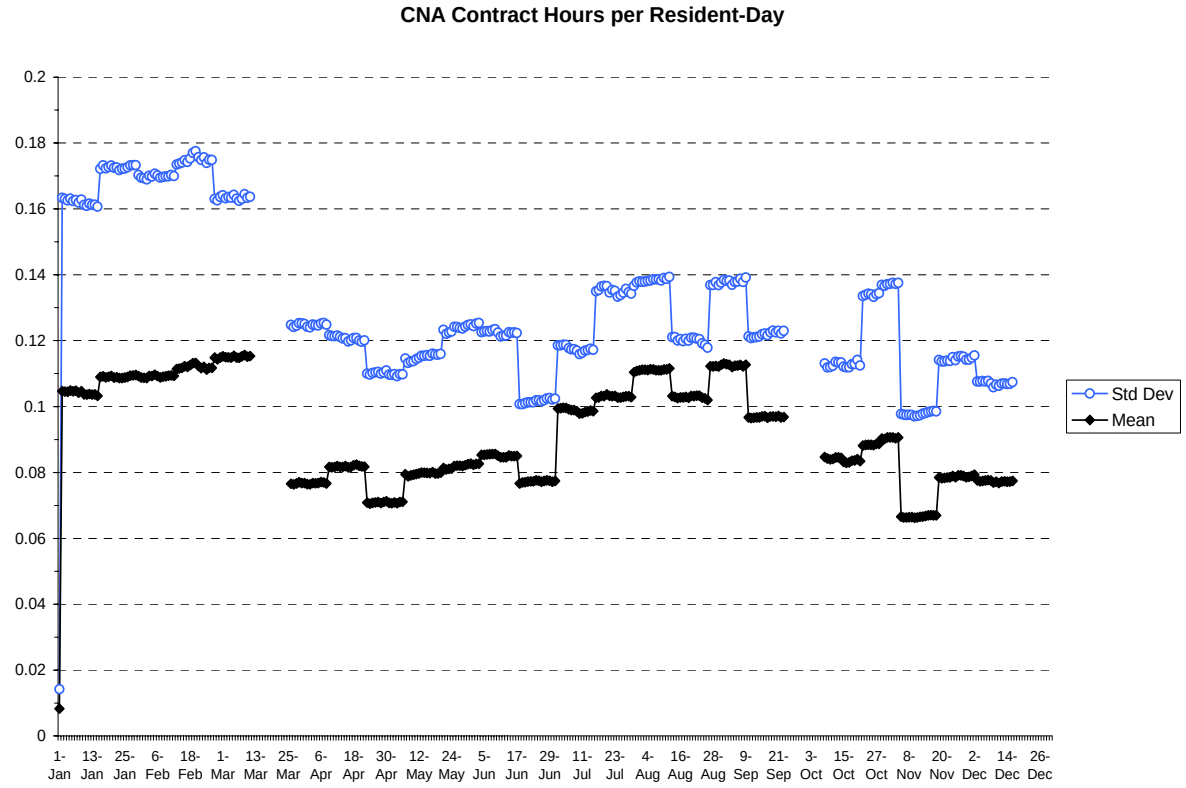


Table 3: Facility characteristics by quartile of contract RN hours/resident-day (n=52)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0-0.004	0.004-0.033	0.034-0.107	0.115-0.361
Contract staffing levels and percentages				
Contract RN hours/resident-day	<0.01	0.02	0.07	0.17
Staff RN hours/resident-day	0.36	0.34	0.50	0.40
Percent of RN hours by contract	0.29%	5.98%	12.96%	33.67%
Contract LPN hours/resident-day	0.04	0.08	0.11	0.22
Staff LPN hours/resident-day	0.84	0.65	0.78	0.44
Percent of LPN hours by contract	5.20%	15.22%	13.71%	35.20%
Contract CNA hours/resident-day	0.03	0.06	0.09	0.18
Staff CNA hours/resident-day	2.94	3.10	2.61	2.61
Percent of CNA hours by contract	1.31%	2.04%	3.66%	6.52%
Contract RN+LPN hours/resident-day	0.04	0.10	0.18	0.40
Staff RN+LPN hours/resident-day	1.19	0.99	1.28	0.84
Percent of licensed nursing by contract RNs+LPNs	3.46%	9.94%	11.25%	30.27%
Contract RN+LPN+CNA hours/resident-day	0.07	0.16	0.27	0.58
Staff RN+LPN+CNA hours/resident-day	4.14	4.09	3.89	3.45
Percent of all nursing by contract RNs+LPNs+CNAs	1.88%	3.79%	6.53%	14.38%
Staff mix, percent of staff employed as:				
RNs	5.72%	5.11%	6.15%	6.04%
LPNs	18.24%	16.05%	14.53%	11.32%
CNAs	39.71%	38.96%	38.38%	38.68%
Combined RNs and LPNs	23.97%	21.16%	20.67%	17.36%
Combined DONs and ADONs	1.65%	1.38%	1.73%	1.68%
Licensed nursing staff	23.08%	21.51%	22.02%	19.89%
All nursing staff	61.57%	58.57%	60.06%	57.95%
Cohort turnover				
RNs	45.10%	55.14%	45.21%	56.14%
LPNs	36.81%	35.93%	42.08%	38.44%
CNAs	39.89%	39.84%	41.71%	44.73%
Combined RNs and LPNs	41.13%	41.44%	42.22%	44.59%
Combined DONs and ADONs	23.08%	55.13%	31.94%	50.00%
Licensed nursing staff	34.78%	36.95%	39.83%	39.79%
All nursing staff	35.46%	36.46%	40.84%	40.19%
All staff	33.53%	32.37%	37.99%	39.53%
Cohort retention				
RNs	54.90%	44.86%	54.79%	43.86%
LPNs	63.19%	64.07%	57.92%	61.56%
CNAs	60.11%	60.16%	58.29%	55.27%
Combined RNs and LPNs	58.87%	58.56%	57.78%	55.41%
Combined DONs and ADONs	76.92%	44.87%	68.06%	50.00%
Licensed nursing staff	65.22%	63.05%	60.17%	60.21%
All nursing staff	64.54%	63.54%	59.16%	59.81%
All staff	66.47%	67.63%	62.01%	60.47%

Table 3: Facility characteristics by quartile of contract RN hours/resident-day (n=52) (continued)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0-0.004	0.004-0.033	0.034-0.107	0.115-0.361
Position turnover				
RN	99.15%	149.26%	119.78%	136.95%
LPN	61.37%	54.09%	65.50%	58.63%
CNA	82.13%	88.69%	85.45%	89.29%
Combined RN and LPN	69.97%	71.41%	73.14%	80.47%
Combined DON and ADON	26.99%	73.29%	79.42%	81.42%
Licensed nursing staff	62.70%	70.16%	75.65%	72.97%
All nursing staff	65.28%	70.95%	78.47%	74.33%
All staff	61.28%	62.94%	72.30%	71.63%
Short term employees				
Percent of short term RNs	30.04%	28.73%	28.26%	35.04%
Percent of short term LPNs	22.85%	22.55%	26.78%	22.48%
Percent of short term CNAs	24.80%	27.51%	24.57%	24.31%
Percent of short term RNs and LPNs	26.01%	24.84%	25.90%	28.57%
Percent of short term DONs and ADONs	4.49%	13.72%	20.13%	18.97%
Percent of short term licensed nursing	18.08%	18.22%	23.03%	20.45%
Percent of short term all nursing staff	19.23%	21.35%	23.12%	20.78%
Percent of short term all staff	19.13%	20.46%	21.56%	19.43%
Facility characteristics				
Number of beds (total beds)	119.77	142.54	111.62	121.85
Number of stays	209.85	223.46	191.31	160.54
Urban	76.92%	100.00%	100.00%	92.31%
Northeast	38.46%	46.15%	38.46%	15.38%
Midwest	15.38%	23.08%	53.85%	84.62%
South	46.15%	30.77%	7.69%	0%
West	0%	0%	0%	0%
Case mix				
Age, years	78.67	78.75	79.05	78.76
Female	61.63%	58.09%	64.59%	64.20%
Married	31.96%	34.76%	27.79%	27.81%
White	92.28%	89.09%	91.27%	91.58%
Black	6.42%	9.68%	7.50%	7.54%
Other race	1.30%	1.23%	1.22%	0.88%
Do not hospitalize orders	0.92%	0.50%	0.75%	1.95%
Do not resuscitate orders	36.33%	32.14%	29.78%	33.83%
Barthel Index score (0-90)[1]	34.99	36.46	37.29	39.74
Cognitive Performance Scale (0-6)[2]	1.72	1.95	1.81	1.92
LOS of qualifying hospitalization, days	8.45	8.87	8.47	9.59
LOS of SNF stay, days	36.75	34.42	33.27	33.81

[1] Measured on 5-day MDS assessment; higher scores indicate greater independence
[2] Measured on 5-day MDS assessment; higher scores indicate more severe impairment

Table 4: Facility characteristics by quartile of contract LPN hours/resident-day (n=52)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.022	0.028-0.092	0.102-0.170	0.192-0.372
Contract staffing levels and percentages				
Contract RN hours/resident-day	0.01	0.04	0.07	0.14
Staff RN hours resident-day	0.43	0.40	0.42	0.35
Percent of RN hours by contract	1.61%	8.15%	13.36%	29.77%
Contract LPN hours/resident-day	0.01	0.05	0.14	0.26
Staff LPN hours/resident-day	0.87	0.75	0.57	0.53
Percent of LPN hours by contract	1.44%	7.33%	23.57%	36.99%
Contract CNA hours/resident-day	<0.01	0.06	0.17	0.14
Staff CNA hours/resident-day	2.93	2.98	2.67	2.69
Percent of CNA hours by contract	0.18%	1.95%	6.47%	4.93%
Contract RN+LPN hours/resident-day	0.02	0.09	0.20	0.41
Staff RN+LPN hours/resident-day	1.30	1.14	0.99	0.88
Percent of licensed nursing by contract RNs+LPNs	1.29%	6.38%	17.04%	30.21%
Contract RN+LPN+CNA hours/resident-day	0.02	0.15	0.37	0.55
Staff RN+LPN+CNA hours/resident-day	4.22	4.12	3.66	3.56
Percent of all nursing by contract RNs+LPNs+CNAs	0.52%	3.43%	9.13%	13.48%
Staff mix, percent of staff employed as:				
RNs	6.00%	5.77%	6.63%	4.62%
LPNs	17.45%	15.95%	13.85%	12.90%
CNAs	38.09%	36.26%	39.24%	42.15%
Combined RNs and LPNs	23.45%	21.71%	20.48%	17.52%
Combined DONs and ADONs	1.61%	1.44%	1.83%	1.55%
Licensed nursing staff	22.97%	21.93%	22.01%	19.60%
All nursing staff	60.02%	57.40%	59.53%	61.20%
Cohort turnover				
RNs	40.89%	43.05%	50.37%	67.28%
LPNs	33.50%	34.31%	44.05%	41.39%
CNAs	34.46%	38.89%	45.95%	46.89%
Combined RNs and LPNs	37.28%	37.60%	46.39%	48.11%
Combined DONs and ADONs	19.23%	46.15%	35.90%	62.12%
Licensed nursing staff	32.06%	35.69%	38.57%	45.02%
All nursing staff	32.16%	35.93%	40.37%	44.49%
All staff	30.84%	32.08%	39.19%	41.32%
Cohort retention				
RNs	59.11%	56.95%	49.63%	32.72%
LPNs	66.50%	65.69%	55.95%	58.61%
CNAs	65.54%	61.11%	54.05%	53.11%
Combined RNs and LPNs	62.72%	62.40%	53.61%	51.89%
Combined DONs and ADONs	80.77%	53.85%	64.10%	37.88%
Licensed nursing staff	67.94%	64.31%	61.43%	54.98%
All nursing staff	67.84%	64.07%	59.63%	55.51%
All staff	69.16%	67.92%	60.81%	58.68%

Table 4: Facility characteristics by quartile of contract LPN hours/resident-day (n=52) (continued)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.022	0.028-0.092	0.102-0.170	0.192-0.372
Position turnover				
RN	98.69%	103.32%	112.43%	190.71%
LPN	49.90%	49.62%	68.61%	71.46%
CNA	66.36%	78.68%	102.71%	97.81%
Combined RN and LPN	60.23%	59.26%	80.78%	94.72%
Combined DON and ADON	44.07%	72.69%	54.16%	90.20%
Licensed nursing staff	57.91%	63.64%	67.42%	92.51%
All nursing staff	56.53%	65.70%	78.51%	88.29%
All staff	54.69%	58.31%	77.16%	77.99%
Short term employees				
Percent of short term RNs	28.65%	22.62%	30.45%	40.37%
Percent of short term LPNs	18.20%	21.54%	26.88%	28.03%
Percent of short term CNAs	21.59%	23.49%	29.77%	26.34%
Percent of short term RNs and LPNs	22.42%	22.00%	28.07%	32.84%
Percent of short term DONs and ADONs	12.18%	16.15%	7.31%	21.67%
Percent of short term licensed nursing staff	16.07%	19.06%	18.46%	26.20%
Percent of short term all nursing staff	17.53%	19.86%	22.49%	24.60%
Percent of short term all staff	17.95%	18.69%	21.97%	21.97%
Facility characteristics				
Number of beds (total beds)	116.38	130.46	118.08	130.85
Number of stays	212.15	232.38	158.54	182.08
Urban	76.92%	100.00%	100.00%	92.31%
Northeast	46.15%	38.46%	30.77%	23.08%
Midwest	23.08%	46.15%	46.15%	61.54%
South	30.77%	15.38%	23.08%	15.38%
West	0%	0%	0%	0%
Case mix				
Age, years	79.73	78.59	78.01	78.91
Female	62.05%	61.45%	61.79%	63.22%
Married	32.90%	31.60%	29.47%	28.35%
White	92.69%	89.17%	95.29%	87.08%
Black	5.65%	9.98%	3.13%	12.38%
Other race	1.66%	0.85%	1.58%	0.54%
Do not hospitalize orders	0.91%	0.62%	0.83%	1.77%
Do not resuscitate orders	35.71%	32.55%	36.13%	27.69%
Barthel Index score (0-90)[1]	34.43	38.09	38.48	37.47
Cognitive Performance Scale (0-6)[2]	1.75	1.79	1.87	1.98
LOS of qualifying hospitalization, days	8.39	8.39	9.00	9.60
LOS of SNF stay, days	37.48	33.36	33.42	33.99

[1] Measured on 5-day MDS assessment; higher scores indicate greater independence
[2] Measured on 5-day MDS assessment; higher scores indicate more severe impairment

Table 5: Facility characteristics by quartile of contract CNA hours/resident-day (n=52)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.0	<0.001-0.049	0.053-0.172	0.183-0.333
Contract staffing levels and percentages				
Contract RN hours/resident-day	0.01	0.08	0.04	0.13
Staff RN hours resident-day	0.42	0.39	0.38	0.40
Percent of RN hours by contract	2.05%	17.37%	9.27%	24.21%
Contract LPN hours/resident-day	0.02	0.15	0.12	0.17
Staff LPN hours/resident-day	0.89	0.66	0.63	0.52
Percent of LPN hours by contract	2.29%	19.46%	20.24%	27.34%
Contract CNA hours/resident-day	0	0.02	0.10	0.26
Staff CNA hours/resident-day	3.01	2.76	2.82	2.67
Percent of CNA hours by contract	0.00%	0.76%	3.51%	9.26%
Contract RN+LPN hours/resident-day	0.03	0.22	0.16	0.30
Staff RN+LPN hours/resident-day	1.32	1.05	1.01	0.92
Percent of licensed nursing by contract RNs+LPNs	1.90%	15.85%	13.66%	23.51%
Contract RN+LPN+CNA hours/resident-day	0.03	0.24	0.26	0.56
Staff RN+LPN+CNA hours/resident-day	4.33	3.82	3.83	3.59
Percent of all nursing by contract RNs+LPNs+CNAs	0.62%	6.51%	6.12%	13.32%
Staff mix, percent of staff employed as:				
RNs	5.91%	5.61%	5.99%	5.51%
LPNs	17.63%	14.73%	14.59%	13.20%
CNAs	37.75%	41.54%	38.42%	38.04%
Combined RNs and LPNs	23.54%	20.33%	20.58%	18.71%
Combined DONs and ADONs	1.41%	1.57%	1.66%	1.80%
Licensed nursing staff	22.63%	21.37%	21.82%	20.68%
All nursing staff	59.71%	62.03%	58.43%	57.97%
Cohort turnover				
RNs	44.50%	50.49%	52.95%	53.65%
LPNs	37.24%	29.69%	40.01%	46.31%
CNAs	32.51%	39.73%	44.65%	49.30%
Combined RNs and LPNs	40.75%	36.73%	45.30%	46.60%
Combined DONs and ADONs	30.77%	47.44%	38.89%	43.06%
Licensed nursing staff	36.75%	34.71%	38.55%	41.35%
All nursing staff	33.15%	36.69%	39.81%	43.30%
All staff	30.34%	36.42%	36.23%	40.43%
Cohort retention				
RNs	55.50%	49.51%	47.05%	46.35%
LPNs	62.76%	70.31%	59.99%	53.69%
CNAs	67.49%	60.27%	55.35%	50.70%
Combined RNs and LPNs	59.25%	63.27%	54.70%	53.40%
Combined DONs and ADONs	69.23%	52.56%	61.11%	56.94%
Licensed nursing staff	63.25%	65.29%	61.45%	58.65%
All nursing staff	66.85%	63.31%	60.19%	56.70%
All staff	69.66%	63.58%	63.77%	59.57%

Table 5: Facility characteristics by quartile of contract CNA hours/resident-day (n=52) (continued)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.0	<0.001-0.049	0.053-0.172	0.183-0.333
Position turnover				
RN	100.87%	137.22%	131.37%	135.69%
LPN	54.22%	46.97%	66.16%	72.23%
CNA	62.37%	75.87%	102.95%	104.38%
Combined RN and LPN	64.22%	65.73%	79.47%	85.57%
Combined DON and ADON	67.47%	65.11%	53.97%	74.57%
Licensed nursing staff	63.74%	65.63%	73.00%	79.10%
All nursing staff	56.26%	67.26%	79.99%	85.52%
All staff	52.12%	66.72%	70.27%	79.04%
Short term employees				
Percent of short term RNs	27.16%	33.54%	28.53%	32.85%
Percent of short term LPNs	21.93%	18.85%	25.20%	28.67%
Percent of short term CNAs	20.63%	21.85%	30.04%	28.66%
Percent of short term RNs and LPNs	23.95%	24.67%	25.87%	30.84%
Percent of short term DONs and ADONs	11.15%	12.31%	12.56%	21.28%
Percent of short term licensed nursing staff	17.50%	18.68%	19.86%	23.76%
Percent of short term all nursing staff	17.06%	19.28%	23.20%	24.95%
Percent of short term all staff	16.85%	19.60%	20.95%	23.18%
Facility characteristics				
Number of beds (total beds)	136.62	129.00	118.38	111.77
Number of stays	277.62	151.77	186.85	168.92
Urban	84.62%	92.31%	100.00%	92.31%
Northeast	38.46%	46.15%	46.15%	7.69%
Midwest	23.08%	53.85%	30.77%	69.23%
South	38.46%	0%	23.08%	23.08%
West	0%	0%	0%	0%
Case mix				
Age, years	79.54	77.95	79.18	78.56
Female	63.53%	60.39%	61.23%	63.35%
Married	34.24%	27.43%	33.13%	27.51%
White	90.87%	86.06%	92.37%	94.92%
Black	7.49%	13.43%	7.12%	3.11%
Other race	1.64%	0.51%	0.51%	1.97%
Do not hospitalize orders	0.43%	1.54%	0.55%	1.59%
Do not resuscitate orders	31.19%	29.29%	38.01%	33.59%
Barthel Index score (0-90)[1]	34.53	36.66	37.79	39.50
Cognitive Performance Scale (0-6)[2]	1.79	2.03	1.71	1.85
LOS of qualifying hospitalization, days	7.95	9.32	8.73	9.38
LOS of SNF stay, days	34.53	35.79	33.91	34.02

[1] Measured on 5-day MDS assessment; higher scores indicate greater independence
[2] Measured on 5-day MDS assessment; higher scores indicate more severe impairment

Table 6: Facility characteristics by quartile of contract RN+LPN hours/resident-day (n=52)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.046	0.050-0.134	0.139-0.280	0.290-0.562
Contract staffing levels and percentages				
Contract RN hours/resident-day	0.01	0.03	0.06	0.16
Staff RN hours resident-day	0.40	0.38	0.43	0.39
Percent of RN hours by contract	1.23%	7.42%	12.51%	31.74%
Contract LPN hours/resident-day	0.01	0.06	0.14	0.25
Staff LPN hours/resident-day	0.84	0.76	0.60	0.51
Percent of LPN hours by contract	1.67%	11.50%	19.56%	36.60%
Contract CNA hours/resident-day	<0.01	0.04	0.15	0.17
Staff CNA hours/resident-day	3.09	2.96	2.58	2.64
Percent of CNA hours by contract	0.18%	1.57%	5.90%	5.88%
Contract RN+LPN hours/resident-day	0.01	0.09	0.20	0.41
Staff RN+LPN hours/resident-day	1.24	1.14	1.03	0.89
Percent of licensed nursing by contract RNs+LPNs	1.26%	8.14%	15.14%	30.38%
Contract RN+LPN+CNA hours/resident-day	0.02	0.13	0.36	0.58
Staff RN+LPN+CNA hours/resident-day	4.33	4.10	3.61	3.53
Percent of all nursing by contract RNs+LPNs+CNAs	0.43%	3.03%	8.94%	14.17%
Staff mix, percent of staff employed as:				
RNs	5.95%	5.27%	6.28%	5.53%
LPNs	17.70%	16.39%	13.99%	12.07%
CNAs	38.89%	36.66%	40.30%	39.89%
Combined RNs and LPNs	23.65%	21.66%	20.26%	17.59%
Combined DONs and ADONs	1.57%	1.48%	1.73%	1.66%
Licensed nursing staff	22.92%	21.89%	21.79%	19.91%
All nursing staff	60.63%	56.87%	61.43%	59.22%
Cohort turnover				
RNs	42.65%	47.01%	50.10%	61.83%
LPNs	34.23%	37.10%	38.60%	43.32%
CNAs	37.33%	36.07%	46.68%	46.10%
Combined RNs and LPNs	38.33%	40.63%	42.16%	48.25%
Combined DONs and ADONs	26.92%	39.74%	37.18%	59.09%
Licensed nursing staff	32.13%	36.84%	38.07%	44.31%
All nursing staff	33.55%	34.55%	41.60%	43.25%
All staff	31.50%	31.00%	40.08%	40.86%
Cohort retention				
RNs	57.35%	52.99%	49.90%	38.17%
LPNs	65.77%	62.90%	61.40%	56.68%
CNAs	62.67%	63.93%	53.32%	53.90%
Combined RNs and LPNs	61.67%	59.37%	57.84%	51.75%
Combined DONs and ADONs	73.08%	60.26%	62.82%	40.91%
Licensed nursing staff	67.87%	63.16%	61.93%	55.69%
All nursing staff	66.45%	65.45%	58.40%	56.75%
All staff	68.50%	69.00%	59.92%	59.14%

Table 6: Facility characteristics by quartile of contract RN+LPN hours/resident-day (n=52) (continued)

Measure	Quartile 1 (n=13) Range within quartile 0.0-0.046	Quartile 2 (n=13) 0.050-0.134	Quartile 3 (n=13) 0.139-0.280	Quartile 4 (n=13) 0.290-0.562
Position turnover				
RN	105.80%	112.85%	119.24%	167.25%
LPN	50.21%	55.23%	63.06%	71.09%
CNA	71.21%	79.61%	102.73%	92.02%
Combined RN and LPN	62.03%	65.99%	73.74%	93.23%
Combined DON and ADON	31.00%	81.25%	63.61%	85.27%
Licensed nursing staff	54.67%	69.39%	69.88%	87.53%
All nursing staff	56.79%	67.96%	81.37%	82.91%
All staff	55.12%	59.16%	77.84%	76.03%
Short term employees				
Percent of short term RNs	29.43%	25.93%	28.56%	38.15%
Percent of short term LPNs	19.53%	21.64%	26.40%	27.09%
Percent of short term CNAs	22.92%	24.34%	29.06%	24.87%
Percent of short term RNs and LPNs	23.56%	23.18%	26.70%	31.89%
Percent of short term DONs and ADONs	6.41%	15.51%	13.33%	22.05%
Percent of short term licensed nursing staff	14.99%	19.55%	20.67%	24.58%
Percent of short term all nursing staff	17.34%	20.73%	23.34%	23.07%
Percent of short term all staff	17.94%	18.89%	22.55%	21.20%
Facility characteristics				
Number of beds (total beds)	116.54	133.46	117.00	128.77
Number of stays	214.69	221.85	196.23	152.38
Urban	76.92%	100.00%	100.00%	92.31%
Northeast	38.46%	61.54%	15.38%	23.08%
Midwest	23.08%	30.77%	53.85%	69.23%
South	38.46%	7.69%	30.77%	7.69%
West	0%	0%	0%	0%
Case mix				
Age, years	79.80	77.86	78.94	78.63
Female	61.81%	59.93%	63.91%	62.85%
Married	33.87%	31.18%	30.63%	26.64%
White	91.90%	90.54%	94.93%	86.86%
Black	6.46%	8.69%	3.59%	12.41%
Other race	1.64%	0.77%	1.48%	0.73%
Do not hospitalize orders	0.91%	0.41%	1.03%	1.77%
Do not resuscitate orders	36.99%	32.09%	32.04%	30.96%
Barthel Index score (0-90)[1]	33.49	39.13	38.08	37.77
Cognitive Performance Scale (0-6)[2]	1.83	1.72	1.79	2.05
LOS of qualifying hospitalization, days	8.57	8.39	8.69	9.73
LOS of SNF stay, days	37.95	33.66	32.21	34.43

[1] Measured on 5-day MDS assessment; higher scores indicate greater independence
[2] Measured on 5-day MDS assessment; higher scores indicate more severe impairment

Table 7: Facility characteristics by quartile of contract RN+LPN+CNA hours/resident-day (n=52)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.061	0.068-0.192	0.209-0.423	0.484-0.872
Contract staffing levels and percentages				
Contract RN hours/resident-day	<0.01	0.03	0.07	0.16
Staff RN hours resident-day	0.38	0.39	0.43	0.40
Percent of RN hours by contract	1.40%	7.32%	14.50%	29.68%
Contract LPN hours/resident-day	0.01	0.06	0.15	0.24
Staff LPN hours/resident-day	0.90	0.65	0.72	0.44
Percent of LPN hours by contract	1.60%	12.42%	18.43%	36.88%
Contract CNA hours/resident-day	<0.01	0.04	0.12	0.20
Staff CNA hours/resident-day	3.16	2.97	2.51	2.62
Percent of CNA hours by contract	0.07%	1.50%	4.63%	7.34%
Contract RN+LPN hours/resident-day	0.01	0.09	0.22	0.39
Staff RN+LPN hours/resident-day	1.28	1.04	1.15	0.83
Percent of licensed nursing by contract RNs+LPNs	1.19%	8.75%	14.80%	30.17%
Contract RN+LPN+CNA hours/resident-day	0.02	0.13	0.34	0.60
Staff RN+LPN+CNA hours/resident-day	4.44	4.02	3.66	3.45
Percent of all nursing by contract RNs+LPNs+CNAs	0.34%	3.06%	8.39%	14.79%
Staff mix, percent of staff employed as:				
RNs	5.65%	5.77%	5.96%	5.64%
LPNs	18.28%	15.52%	14.63%	11.71%
CNAs	39.04%	36.87%	40.37%	39.46%
Combined RNs and LPNs	23.93%	21.29%	20.59%	17.35%
Combined DONs and ADONs	1.54%	1.42%	1.83%	1.65%
Licensed nursing staff	22.98%	21.68%	22.22%	19.61%
All nursing staff	60.83%	56.74%	62.09%	58.49%
Cohort turnover				
RNs	48.39%	43.65%	51.31%	58.24%
LPNs	35.00%	36.50%	37.80%	43.95%
CNAs	38.95%	34.67%	47.51%	45.06%
Combined RNs and LPNs	40.54%	39.44%	41.87%	47.53%
Combined DONs and ADONs	30.77%	35.90%	36.11%	58.33%
Licensed nursing staff	34.68%	35.65%	37.50%	43.51%
All nursing staff	35.48%	32.62%	43.11%	41.75%
All staff	32.54%	29.45%	41.78%	39.66%
Cohort retention				
RNs	51.61%	56.35%	48.69%	41.76%
LPNs	65.00%	63.50%	62.20%	56.05%
CNAs	61.05%	65.33%	52.49%	54.94%
Combined RNs and LPNs	59.46%	60.56%	58.13%	52.47%
Combined DONs and ADONs	69.23%	64.10%	63.89%	41.67%
Licensed nursing staff	65.32%	64.35%	62.50%	56.49%
All nursing staff	64.52%	67.38%	56.89%	58.25%
All staff	67.46%	70.55%	58.22%	60.34%

Table 7: Facility characteristics by quartile of contract RN+LPN+CNA hours/resident-day (n=52) (continued)

Measure	Quartile 1 (n=13)	Quartile 2 (n=13)	Quartile 3 (n=13)	Quartile 4 (n=13)
Range within quartile	0.0-0.061	0.068-0.192	0.209-0.423	0.484-0.872
Position turnover				
RN	123.50%	101.50%	125.81%	154.34%
LPN	51.78%	52.62%	64.75%	70.43%
CNA	74.06%	75.17%	104.82%	91.52%
Combined RN and LPN	65.86%	63.36%	75.62%	90.16%
Combined DON and ADON	35.61%	77.25%	52.11%	96.16%
Licensed nursing staff	58.63%	67.75%	67.89%	87.20%
All nursing staff	59.87%	62.84%	84.94%	81.39%
All staff	57.09%	55.61%	80.29%	75.15%
Short term employees				
Percent of short term RNs	31.75%	24.01%	30.22%	36.10%
Percent of short term LPNs	20.67%	20.27%	28.21%	25.50%
Percent of short term CNAs	23.06%	23.94%	29.26%	24.93%
Percent of short term RNs and LPNs	25.02%	21.73%	28.38%	30.20%
Percent of short term DONs and ADONs	6.41%	15.51%	10.26%	25.13%
Percent of short term licensed nursing staff	16.17%	18.71%	21.42%	23.49%
Percent of short term all nursing staff	17.78%	19.56%	24.25%	22.89%
Percent of short term all staff	18.35%	18.30%	23.00%	20.93%
Facility characteristics				
Number of beds (total beds)	121.77	129.46	114.00	130.54
Number of stays	223.15	217.77	160.92	183.31
Urban	76.92%	100.00%	100.00%	92.31%
Northeast	46.15%	46.15%	30.77%	15.38%
Midwest	15.38%	38.46%	53.85%	69.23%
South	38.46%	15.38%	15.38%	15.38%
West	0%	0%	0%	0%
Case mix				
Age, years	79.26	78.90	78.68	78.40
Female	59.30%	62.79%	64.36%	62.06%
Married	35.18%	31.45%	27.97%	27.72%
White	91.66%	91.09%	94.60%	86.87%
Black	6.66%	8.24%	3.94%	12.30%
Other race	1.68%	0.66%	1.46%	0.82%
Do not hospitalize orders	0.69%	0.63%	0.87%	1.93%
Do not resuscitate orders	37.59%	30.88%	34.14%	29.46%
Barthel Index score (0-90)[1]	33.12	39.26	37.51	38.58
Cognitive Performance Scale (0-6)[2]	1.90	1.63	1.91	1.95
LOS of qualifying hospitalization, days	8.49	7.97	9.02	9.90
LOS of SNF stay, days	37.02	34.10	33.41	33.71

[1] Measured on 5-day MDS assessment; higher scores indicate greater independence
[2] Measured on 5-day MDS assessment; higher scores indicate more severe impairment

Table 8: Corporation-provided vs. OSCAR-reported mean contract staffing levels, hours/resident-day (n=52)

Source	RN	LPN	CNA	RN+LPN	RN+LPN+CNA
Corporation	0.06	0.12	0.09	0.18	0.27
OSCAR	0.08	0.13	0.11	0.22	0.33