Report to Congress: Appropriateness of Minimum Nurse Staffing Ratios In Nursing Homes

Organization of Phase 1 Report

Chapters 1 through 6 provide background, policy analyses and context for the study. Chapter 2 examines public policy and how it currently effects nurse staffing through quality regulations and Medicare and Medicaid payment rates. Chapter 3 presents a detailed analysis of current levels and trends of nursing home staffing in the U.S. Chapter 4 examines how HCFA's current non-ratio nursing home nurse staffing requirements are being implemented and assessed. Chapter 5 presents the results of focus groups discussions with direct care workers (Nurse Aides), and interviews with nursing facility management. Chapter 6, the last "background" chapter, provides a transition to the outcome analyses. This chapter critically reviews selected research on the relationship between staffing and resident outcomes.

Chapter 7 through 12, in a sense the core analysis of this Phase 1 report, present analyses on the relationship between staffing levels and quality outcomes. Chapters 7 and 8 assess the validity and reliability of OSCAR and Medicaid Cost Report Data. Chapters 9, 10 and 11 each present the results of an analysis of nurse staffing and a different set of quality outcome measures. Chapter 12, the last chapter of this core outcomes analyses, synthesizes the analyses of the preceding three chapters and extends the analyses to draw conclusions.

Chapter 13 examines three time-motion methods for setting nurse staffing levels. Chapter 14, the final chapter, asks how much nurse aide time is required to implement five specific, daily care processes that have been linked to good resident outcomes.

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Additionally, the important role of other subcontractors, consultants, our Technical Expert Panel (TEP) and a very diverse range of individuals and organizations contributed time, experience, and knowledge to this project. While the list and their individual contributions are too long to fully enumerate here, Chapter 1 and an acknowledgment footnote at the beginning of each chapter details each of the individual contributions.

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CHAPTER 13.0 TIME-MOTION APPROACH TO SETTING NURSE STAFFING STANDARDS[1]

13.1 Introduction

As described in Chapter 1, we have identified three general approaches for establishing appropriate nursing home staffing standards. One approach, soliciting the consensus opinion of experts, is examined in Chapter 6, and has been found to have some serious limitations. The second approach is empirical: Measures of nurse staffing and resident outcomes measures are obtained for a large number of nursing homes and the relationship between the two are examined. This empirical approach constitutes the primary strategy of this project, yielding the results presented in the previous four chapters (Chapters 9 through 12).

The third approach, what we broadly characterize as a "time-motion" method, attempts to identify the time it takes to complete nursing tasks for nursing home residents. These times, aggregated to the facility level, determine the nurse staffing required to provide this level of care. The staffing algorithms derived from this method are adjusted for differences in the kind and intensity of care needed by residents with differing levels of acuity and functional limitations.

This time-motion approach is the subject of this chapter. As a method of deriving appropriate nursing staffing standards, it is intuitively understandable, particularly to those who find the statistical modeling of the empirical approach to be too complex, or suspect. If there is an impact on some important resident outcomes by what nursing staff actually do, an assumption that would be hard to reject, then it would seem reasonable to determine how much time it takes to perform these necessary nursing tasks and the consequent staffing implied by this allocation of time.

[1] This chapter was written by Marvin Feuerberg and Susan Joslin (HCFA). We wish to acknowledge our appreciation for the printed information and clarifying discussions from Lt. Col. Harper (U.S. Army), William Thoms, and Abt's Karen Reilly. Editorial assistance was provided by Jeane Nitsch, HCFA.

Determining the time required performing nursing tasks is more difficult than it might seem at first glance. Residents with different medical conditions and functional limitations have different nursing needs. These needs can also change over time, as a resident enters the nursing home, very often from the hospital, and their stay can continue for several years. There is also the problem of measuring the time for direct patient care from indirect care. Direct care can include such hands-on activities as bathing, incontinence care, shaving, feeding, and assistance with ambulating. Others might include charting a resident's conditions or meeting with other staff or family about the resident as direct care non-hands-on tasks. There are also indirect care activities such as ordering supplies and general training of staff that are not linked to any specific resident. To add to the difficulty of measuring staff time, there are the inevitable un-scheduled activities such as answering requests for assistance, cleaning up spills, or transporting residents to doctors' visits. Finally, the relative proportion of each kind of activity- e.g., direct vs. indirect - varies by whether we are referring to nurse aides, LPNs, or RNs.

Although this time-motion approach is intuitively appealing, it has some severe limitations for setting appropriate nursing standards, particularly as currently developed. This chapter will first examine three time-motion methods for setting nurse staffing levels: the U.S. Army Workload Management System for Nursing (WMSN); William Thoms' "Management Minutes" system; and HCFA's Staff Time Measurement studies on nursing care in nursing homes in 1995-1997. As will be shown below, we find all three of these particular efforts of little value for setting staffing standards.

Nevertheless, we think the time-motion approach has merit as will be demonstrated in the next chapter. The remaining and bulk of this chapter presents an extensive analysis by Jack Schnelle, UCLA, utilizing this time motion approach with respect to appropriate staffing of nurse aides. Schnelle synthesizes the results of various published and unpublished studies together with some very limited primary data collection in order to estimate the labor resource requirements for achieving good ("best practice") and/or optimal resident outcomes. This emphasis upon staffing necessary for achieving good or optimal outcomes focuses on the high end of the staffing distribution in contrast to the outcomes analysis presented in the preceding four chapters, Chapters 9 through 12, which focused on thresholds at the low end of staffing distributions that are linked to bad outcomes.

13.2 U.S. Army Workload Management System for Nursing (WMSN)

13.2.1 Introduction

Initially, the WMSN was totally unknown to us or in the case of the Thoms' Management

Minute system, only vaguely known. Both these systems were recommended to us.[2] With respect to the WMSN we originally contacted Dr. James Vail, Associate Dean for Graduate studies at the College of Nursing and Health Sciences at George Mason University, who was instrumental in the development of the WMSN. Dr. Vail referred us to others, including Major Ralph Grinnell, who was identified as the subject matter expert. Major Grinnell referred us to a web site where we could secure more background documents. According to Major Grinnell this system was developed in acute care facilities and would not apply to nursing homes - it assumed " . . . young healthy bodies" and some retirees. Hence, from this initial inquiry it did not appear that the WMSN would be applicable to nursing homes.

One of the problems in evaluating the WMSN and Thoms' Management Minutes System is that these systems were developed some 20-25 years ago to assist the Army and in the case of Thoms, a single nursing home in New Hampshire, in assessing their nurse staffing needs; as such, these developmental efforts were not primarily focused on research, although some research was conducted. It is not clear whether any published studies resulted, and in any event, the evidence in support of these two systems may not be retrievable over two decades later, whatever their merits.

Although the WMSN (and the Management Minutes System) did not appear promising from our initial inquiry, we decided upon a two phased approach to obtaining more information about the utility of the WMSN for our study. First, it became clear that if the utility of these two systems was to be evaluated, we needed to have more than oral histories and testimonials. Accordingly, we sent on December 6, 1999, formal letters to all the individuals who had been recommended as knowledgeable. The letters requested a written response to three questions:

1. "What is your position, role, or function with respect to the WMSN? How familiar are you with this system?"

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[2] Both Martha Mohler, RN, MSN, of the National Committee to Preserve Social Security and Medicare, and Mary Ann Wilner, Ph.D., Representative of the Direct Care Alliance (formerly Paraprofessional Healthcare Coalition) recommend these two systems as useful for our study. In a June 9, 1999 letter to Nancy Ann Min de Parle, Administrator, Health Care Financing Administration, Dr. Wilner voiced several concerns and recommendations. HCFA was urged to "Utilize Expertise and Established and Validated Nursing Services Staffing Methodology from Other Venues . . . we recommend that Abt and HCFA draw upon the extensive documented and validated experience of the nursing experts of the U.S. Uniformed Services health system and their Workload Management System for Nursing. They should also refer to the Management Minutes System developed by William Thoms. In a August 11, 1999 follow up letter to Mr. Michael Hash, Acting Administrator, HCFA, Dr. Wilner again urged the "use of other validated staffing studies . . . Regarding earlier validated staffing studies undertaken by the Army and William Thoms, we encourage Dr. Feuerberg [HCFA project office for this staffing study] to speak directly to both William Thoms and Major Harper, the chief staffing expert for the U.S. Army. Their experience is invaluable to this study." We followed this recommendation and contacted both Thoms and Harper.

2. "What is the evidence supporting this system? Most important, can you send or refer us to a key article, report, or document that provides the supporting evidence?"

3. "Do you think the WMSN is applicable to the impaired population typically found in U.S. nursing homes?"

Nearly identical questions were asked in a December 7, 1999, letter to William Thoms.[3] The letters also indicated that after their response was received, we would call them to ask a few follow-up questions. Written responses were received from both Lt. Col. Richard Harper and William Thoms, the two key informants according to Mohler and Wilner, and one or more follow-up telephone conference calls were conducted. The assessment below is based on their written replies, other printed materials we obtained, and information obtained from the two separate conference calls on February 17, 2000 with Lt.Col. Richard Harper and Williams Thoms.

13.2.2 U.S. Army WMSN for Setting Staffing Standards

It is probably understandable that after some 20 years, we were not able to find any printed evidence about the development of this system. According to Lt. Harper, time-motion studies were conducted in well over eight facilities, mostly larger community hospitals and acute care facilities, including some overseas. Estimates of both direct and indirect patient care times were obtained. He also indicated that the training of army RNs and Aides are comparable to their civilian counterparts. Although this system is a Department of Defense tri-service model, it was originally developed and primarily used/accepted by the army.

Some indication of how this system would staff nursing homes can be discerned from a 1990 training manual that we obtained.[4] The WMSN is an automated nursing management information system used to determine the manpower requirements, both professional and paraprofessional nursing personnel, for inpatient units. More specifically, this system can be used to determine the staffing needs for medical/surgical, newborn nursery, neonatal intensive care and psychiatric inpatient nursing units. It cannot be used to determine the manpower requirements for outpatient psychiatric treatment centers, recovery room, labor and delivery and outpatient same day surgery units.

The nursing manpower requirements are based upon patient acuity levels which are determined daily by the nurse responsible for the patient. Nurses use a patient acuity

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[3] The letters can be found in Appendix G.

[4] The Workload Management System for Nursing, Headquarters Department of the Army, November 1990.

worksheet (general or psychiatric) to select the appropriate critical indicators to calculate each patient's acuity. Critical indicators are the nursing care activities that have the greatest impact on time spent in direct patient care. Each critical indicator has a point value. There is a total of ninety-nine critical indicators and they are grouped in one of the following categories: Vital signs monitoring, activities of daily living, feeding, IV therapy, treatments/procedures/medications, respiratory therapy, teaching, emotional support and continuous observation.

The WMSN process is done daily and begins with the nurse calculating an individual patient point value based upon the sum of their critical indicators. Next, patients are placed in the appropriate acuity category according to their total value. There are seven patient categories with category one having the lowest value, zero for patients on leave from the facility, and category seven having the highest sum of critical indicator values between 146 and 256 points. The hours of nursing care and recommended number and mix of personnel are then calculated based upon the total number of patients in each category. This recommended number and mix of personnel are compared to the actual number of available staff to determine if staffing levels are within the required number. Staffing levels or workload are adjusted accordingly to balance any deficiencies or staff excess.

13.2.3 U.S. Army WMSN: Critique

There does not appear to be a more authoritative source on the U.S. Army WMSN system than Lt. Col. Harper. He is a consultant to the Army Surgeon General for nursing methods, in a sense "owns" this system through consulting to others, and rewriting manuals and policies on this system. Yet, Harper himself does not think this system, as currently developed, is appropriate for the population found in nursing homes today. He writes in an informal 1/6/00 e-mail response to our letter:

> "I will begin by telling you that I am very familiar with the WMSN and have written numerous manuals pertaining to it over the years. And while it has served its purpose well there are concerns that cannot be overlooked when addressing the WMSN and its intended use and in the possibility of adapting it to another setting. Some of my concerns follow:
>
> > The research on the WMSN is over 20 years old at this time. Medicine has changed significantly during that period and the WMSN is in severe need of revision.
> >
> > The WMSN was standardized in a variety of acute care military hospitals along a broad range of acuity's and ages of patients. From a pure research standpoint, the validity of the WMSN for a narrow acuity and age range of patients in a chronic care setting would be difficult to support.

> The WMSN is somewhat complex and time intensive to implement and maintain. There is a high learning curve associated with the WMSN and is resource intensive to teach. There are easier and quicker acuity based staffing systems that may be able to provide better answers for this population.
>
> I wish I could support the notion that the WMSN, in its current form, could serve to identify the proper staffing requirements for nursing home patients. But, I believe the limitations of the WMSN and the corresponding scientific and political arguments against using it, might overshadow the efforts to delineate a staffing system for the nursing home population.
>
> While I am sure that you have explored hundreds of possibilities, I can only recommend that some objective form of measurement, like the WMSN, be adopted. There are many acuity based systems that are quite easy to use and available to all.
>
> Having said that, I can also recommend the following. If a satisfactory system is not identified, the WMSN does have a broad foundation of research behind it coupled with many years of data and could be used as a basis to develop an original staffing requirements system specific to the nursing home environment. I would suspect that such a system could be researched and developed within an 18-month time frame.
>
> Regardless of what you choose to pursuit, I hope your efforts succeed. There clearly is a need for regulatory guidance in some form for the industry."[5]
>
> Richard W. Harper LTC, AN

Lt. Col. Harper does not think the resource intensive, 20 year old WMSN developed for an acute population can be applied to the population typically found in nursing homes today. Even if the time-motion estimates and required staffing of this system could be applied to the current nursing home population, there is another very severe limitation to this system. There is no evidence or claim that these staffing standards result in good outcomes. According to Harper, it was assumed that the facilities that were used to develop the time estimates were indeed good facilities, and their staff times were necessary to produce good care. No evidence on outcomes was generated. Indeed, the emphasis upon outcomes, while important to health researchers today, was not a concern at the time this system was developed. As will be shown in the following sections, this is a severe limitation of Thoms' Management Minutes system, and to a lesser extent, HCFA's Staff Time Measurement studies.

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5 Dialog from telephone conversation with LTC Harper on February 17, 2000.

13.3 William Thoms' Management Minutes System

13.3.1 Introduction

The time-motion/staffing estimates of Thoms' system were obtained from a nursing home with apparently a similar chronic-care needs population as found in nursing homes today, in contrast to the acute population of the WMSN described above. However, the nursing times were developed over a 3-yr period, 1972-1975, from 700 records within a single nursing home, the Greenbriar Terrace Healthcare nursing home in Nashua, New Hampshire. It would be hard to argue that nursing time estimates generated from a single facility over 25 years ago could provide sufficient basis for establishing current staffing standards. Further, William Thoms' reported to us that the nursing times were not derived from direct observation but were estimated by senior nurses. However, Thoms also noted that on the occasions when he checked the nurses estimates, he found them to be generally accurate.

13.3.2 Management Minutes System

Although we were unable to secure a presumably important paper with the description of the development of this system (see discussion below), the materials we received from Thoms together with our telephone discussion provided some indication of how this system is constructed. The core of this system, according to Thoms, is the Patient Care Profile (PCP) assessment form, which is used to gather information about the direct, hands-on nursing care needs of any patient regardless of their diagnosis. In turn this information is used to determine staffing requirements, patient needs both pre-admission and in-house, and the cost of patient care.

Profiles are completed, if at all possible, by the same person each month. The process is limited to gathering information from hardcopy documentation and does not require direct patient assessment or interview. Charts are reviewed for documentation that supports, according to definition, the presence of any of the 18 patient care needs listed on the PCP form. The patient care needs used in this system, unlike the WMSN, are very applicable to a nursing home population and include the following: dispense medications and chart, skilled observation daily, personal hygiene (assist or total), aid with dressing, assist with mobility, feed (partial or total or tube feeding), incontinence (bowel and bladder), bowel and/or bladder training, positioning, decubitus prevention and skilled procedure daily.[6] Each of the patient care needs has an assigned time value ranging from 10 minutes to 90 minutes. The time values for each of the patient

[6] The instructions provide examples of the types of care activities that would be covered by the category as well as any exclusion criteria.

care needs that apply to the patient are summed to provide an individual profile total. The sum of the patient profile totals by unit are used to calculate the number of hours of direct care required for each unit. Several other calculations using information from the PCP are performed in order to determine the number of licensed and non-licensed staff hours required.

13.3.3 Thoms' Management Minutes System: Critique

As noted above, it would be hard to argue that nursing time estimates generated from a single facility over 25 years ago could provide sufficient basis for establishing current staffing standards. In spite of these limitations, a number of health researchers have referred to Thoms' Management Minutes system as a basis for estimating the nursing needs and acuity of residents within a facility and as a basis to compare facilities.[7] All of these health services researchers have referred to Thoms' "Management Minutes" system as described in a 1975 unpublished paper.[8] We have not been able to secure a copy of this paper, nor did the now retired Thoms himself have a copy of this 25 year old unpublished paper. It is also unclear from those who have used Thoms' system, the degree to which they have used his system with the time estimates unaltered. For example, in Cohen and Dubay's article referenced above, they refer to modification of Thoms' system by the West Virginia Medicaid program:

> The long-term care case-mix index used in this project was derived from the Medicare/Medicaid Automated Certification System (MMACS) [the administrative data set that preceded OSCAR] patient characteristics, the "Management Minutes" system developed by Thoms (1975) and its adaptation by the West Virginia Medicaid program. Thoms' system assigns weights to discrete care-giving activities and characteristics of patients. Thoms' weights were developed using time and motion studies, and are, in theory, the actual minutes of care required on a daily basis for patients requiring specific procedures or with certain levels of impairments. . . The complete Thoms system recognizes very specific individual care needs. For example, any procedure or treatment ordered by a physician to be performed by a licensed nurse is counted as ten times the weight of the same procedure when not required to be performed by a licensed nurse. Ideally, we would utilize the complete system, but available data do not provide

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7 See: Dor, A; 1989. "The Costs of Medicare Patients in Nursing Homes in the United States." *Journal of Health Economics.* 8(3):253-270; Cohen, J., and Dubay, L., 1990. "The Effects of Medicaid Reimbursement Method and Ownership on Nursing Home Costs, Case Mix, and Staffing." *Inquiry.* 183-200; Cowles, C. M., Nursing Home Statistical Yearbook, 1997, The Johns Hopkins University Press, 1998; Harrington, C., et al, Nursing Facilities, Staffing, Residents, and Facility Deficiencies, 1992 Through 1998, Department of Social and Behavioral Sciences, University of California, San Francisco, CA., January 2000.

8 Thoms, W. 1975. Proposed Criteria for Long Term Care Quality and Cost Containment Systems. Unpublished paper, Greenbriar Terrace Nursing Home, Nashua, NH.

> this level of detail. For the purpose of this study, Thoms' "minutes" are used to weight raw activities of daily living (ADLs) and service data, enabling the construction of a continuous case-mix measure. The long-term care index was constructed by multiplying the weights developed by Thoms, or modification of these weights made by the West Virginia Medicaid program, for ten patient characteristics by the percentage of patients with these characteristics and summing the results . . .[9]

The various patient characteristics employed by Cohen and Dubay include the proportion of patients completely bedfast, needing assistance with ambulation and eating, with indwelling catheters, incontinent, with decubiti, receiving bowel and bladder retraining, and receiving special skin care. It is not clear from the above the degree to which the West Virginia Medicaid program conducted new time motion estimates and the degree to which all of these adaptations of Thoms' even reflect Thoms' time estimates, with all the limitations discussed above.

All of these limitations notwithstanding, this system has another very severe limitation for setting nurse staffing standards across the United States. As with the WMSN, there is no evidence that the Management Minutes 25-year-old time estimates from a single facility are linked to resident outcomes, good or otherwise. In fairness to Thoms' the current focus on outcomes was not a

[9] Cohen, J., and Dubay, L., 1990. "The Effects of Medicaid Reimbursement Method and Ownership on Nursing Home Costs, Case Mix, and Staffing." *Inquiry.* 183-200

primary concern of health researchers 25 years ago, and Thoms' was also concerned with developing a patient assessment instrument that could measure patient resource needs which would be reflected in reimbursement.[10]

13.4 HCFA's Staff Time Measurement Studies on Nursing Care in Nursing Homes, 1995-1997[11]

13.4.1 Introduction

In contrast to the WMSN and Thoms' Management Minutes system described in the prior sections, HCFA's Staff Time Measurement studies were conducted during the last five years, primarily as a more resource intensive research effort as opposed to the development of a clinical tool for the staffing of nursing homes and hospitals. Hence, far more evidence is available to judge the applicability of staffing algorithms to U.S. nursing homes that may be derived from this project. The Health Care Financing Administration (HCFA) commissioned three major skilled nursing facility (SNF) Staff Time Measurement (STM) studies. The purpose of the studies was to define the relationship between individual SNF resident clinical characteristics and SNF staff time or resource use. The Resource Utilization Groups (RUG-III) were derived in part, and updated based on these studies. Resource utilization groups underlie the case-mix adjusted payment rates for both the Nursing Home Case-Mix and Quality Demonstration and the National Medicare SNF Prospective Payment System (PPS). Although the primary objective of this effort was to set prospective case-mix adjusted SNF payment rates, the staff time measurements for different kinds of residents could be used to derive staffing algorithms, as many have suggested.

13.4.2 Staff Time Measurement Data Collection

In efforts to refine the resource utilization groups, HCFA commissioned 1990 Staff Time Measurement data collection in seven States -- Kansas, Maine, Mississippi, South Dakota, Texas, Nebraska, and New York. Data were collected in 202 nursing facility units (7,684 residents), 12 of which were special Alzheimer's units (see Table 13.1: HCFA STM Data Collection). Nursing staff time was collected by stopwatch over a 24 hour period. Auxiliary staff time data were collected over the period of one week.

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10 In some sense, Thoms' early concern with setting standards that are based on individual resident's needs, measurable, and convertible in dollars and cents (i.e., reflected in reimbursement) preceded recommendations by the 1986 IOM panel and many States and current Federal efforts to case-mix adjusted nursing home payments.

11 The discussion in this section is based in large part from materials prepared by Karen E. Reilly, Sc.D., Abt Associates Inc., December, 1999.

Table 13.1 HCFA STM Data Collection				
Year	**Facility Units**	**Residents**	**States**	**Data Collection Method**
1990	202	7,684	KS, ME, MS, NE, NY, SD, TX	Stopwatch and paper Nursing—24 hours Auxiliary—7 days
1995	98	1,896	KS, ME, MS, OH, SD, TX, WA	Datawand, limited paper Nursing—48 hours Auxiliary—7 days
1997	74	2,037	CA, CO, FL, MD, NY	Datawand, limited paper Nursing—48 hours Auxiliary—7 days

In 1995, as part of the Nursing Home Case-Mix and Quality Demonstration's prospective payment design, HCFA commissioned another staff time measurement data collection effort. This second study encompassed seven States (Kansas, Maine, Mississippi, South Dakota, Texas, Ohio, Washington) and included 98 facility unit's (1,896) residents. To incorporate a therapy component in the case-mix reimbursement index, HCFA commissioned another data collection effort in 1997 focusing on high rehabilitation SNF units and including a broader geographic distribution of providers. Additionally, states and facilities were carefully chosen to generate a final analytic STM database that geographically represented the distribution of Medicare residents in the US. The 1997 STM data collection included 74 facility units, 26 of which were high rehabilitation units (2,037 residents) across five States (California, Colorado, Florida, Maryland, and New York). The 1995 and 1997 STM data collection included nursing staff time over 48 hours and auxiliary staff time over a seven day period. The 1995 and 1997 data were combined and provided the analytic database used to establish the initial national SNF Medicare PPS case-mix indices.

For the selected facilities and units within facilities, resident specific nursing time (RST) and nonresident specific nursing time (NRST) data were collected. RST included all nursing staff time of 30 seconds or more spent in an activity directly attributable to a specific resident. NRST included staff time not directly related to a specific resident but necessary as a part of unit administration.

The total nursing staff time estimates, both resident specific and nonresident specific, resulting from these data collection efforts equaled an average 250 minutes (4.16 hrs.) per resident day. This can be compared to an average of about 3.4 hours per resident day for facilities throughout the U.S. during this same period. Given how the facilities

were selected and data was collected on only high-Medicare volume units within these facilities, it is not surprising that the STM estimates are considerable higher than typically found in U.S. nursing homes. The resident specific and nonresident specific nursing staff time estimates for each nursing category (RN, LVN, Aide) and for each of the 44 RUGs groupings can be found in Table 13.2.

13.4.3 Critique: HCFA's Staff Time Measurement Study as a Basis for Setting Staffing Standards

Perhaps the most serious limitation in the WMSN and Thoms' Management Minutes system is that there is no evidence on the relation between these staff time allocations and resident outcomes, good or otherwise. In contrast, the selection of facilities for the Staff Time Measurement studies would seem to address this issue of outcomes:

> An important consideration in each of these data collection efforts was the inclusion of only high quality facilities. The foundation of a national case-mix adjusted payment system, based on resource utilization is staff time associated with high quality resident care. That is, the staff time spent per resident must be sufficiently high to be considered quality clinical care. Toward this end, facilities met stringent selection criteria prior to being included in any of the staff time samples. For example, facility selection criteria in the 1997 staff time data collection effort included: a requirement that the facility be Medicare certified and have 8 or more Medicare residents on any unit, there be no waivers or complaints against the facility; the facility must meet or exceed the 1997 OBRA staffing requirements (1.5 RNs for a facility of 1-59 and at least 2.5 RNs for a facility of 60 or more residents); a 40% occupancy rate; the facility must deliver more than 110 minutes of daily resident specific nurse staff time; and each facility must pass quality review from a technical expert panel.[12]

Although there is at least some attempt in the STM studies to select high-quality facilities, it is difficult to determine how the specific selection criteria ensure this result. For example, some of the selection criteria seem trivial or irrelevant. When the average occupancy rate during 1995-1997 was about 85%, a minimum 40% occupancy is not very meaningful. Similarly, meeting the OBRA minimum staffing requirements does not seem to be meaningful when all facilities must meet these requirements.

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12 Personal communication from Karen Reilly to Marvin Feuerberg, March, 2000

Table 13.2 1995 & 1997 Resident specific and Nonresident specific Nursing Staff Time Estimates											
		Number	Percent	1995 & 1997 STM Pop Weighted				1995 & 1997 STM Pop Weighted			
RUG-III	ADL	in	in	Clinically Smoothed RST Minutes				Clinically Smoothed RST & NRST Min			
Group	Index	1995/1997	1995/1997	Staff Type			Total	Staff Type			Total
		STM Pop	STM Pop	RN	LVN	AIDE	Minutes	RN	LVN	AIDE	Minutes
		3,933	100%	38.7	25.9	84.4	149.0	68.8	42.2	139.0	250.0
REHABILITATION											
REHAB ULTRA HIGH		343	8.7%								
RUC	16 - 18	45	1.1%	66.8	35.8	109.0	211.6	112.7	53.8	180.1	346.6
RUB	9 - 15	216	5.5%	48.8	23.0	73.9	145.7	87.7	37.4	123.8	248.9
RUA	4 - 8	82	2.1%	36.5	23.4	54.4	114.3	64.5	40.4	98.4	203.3
REHAB VERY HIGH		253	6.4%								
RVC	16 - 18	37	0.9%	51.5	30.2	102.2	183.9	90.9	50.7	164.9	306.5
RVB	9 - 15	127	3.2%	53.1	25.5	83.0	161.6	94.7	41.6	136.3	272.6
RVA	4 - 8	89	2.3%	40.6	16.6	55.1	112.3	75.6	30.0	106.8	212.4
REHAB HIGH		235	6.0%								
RHC	13 - 18	82	2.1%	**66.4**	**35.0**	**105.0**	206.4	**110.6**	**53.5**	**167.0**	331.1
RHB	8 - 12	112	2.8%	58.4	25.5	73.9	157.8	102.3	39.9	129.9	272.1
RHA	4 - 7	41	1.0%	49.6	16.7	51.1	117.4	89.7	27.6	102.6	219.9
REHAB MEDIUM		416	10.6%								
RMC	15 - 18	123	3.1%	68.8	44.6	114.2	227.6	111.2	66.8	180.0	358.0
RMB	8 - 14	217	5.5%	56.3	25.7	80.4	162.4	101.2	42.4	141.8	285.4
RMA	4 - 7	76	1.9%	54.2	19.4	60.2	133.8	95.0	33.9	117.3	246.2
REHAB LOW		85	2.2%								
RLB	14 - 18	26	0.7%	40.3	25.6	120.4	186.3	79.0	48.9	191.3	319.2
RLA	4 - 13	59	1.5%	31.2	17.8	69.6	118.6	64.5	32.0	122.8	219.3
EXTENSIVE		339	8.6%								
SE3	NOT USED	73	1.9%	89.1	70.7	122.8	282.6	140.7	101.5	191.3	433.5
SE2	NOT USED	246	6.3%	69.1	56.7	104.7	230.5	110.4	85.4	163.2	359.0
SE1	NOT USED	20	0.5%	45.7	36.1	131.5	213.3	77.9	60.1	195.3	333.3
SPECIAL		403	10.2%								
SSC	17 - 18	116	2.9%	40.8	41.9	121.1	203.8	72.9	64.3	184.1	321.3
SSB	15 - 16	126	3.2%	39.6	35.5	115.2	190.3	70.9	55.0	172.4	298.3
SSA	7 - 14	161	4.1%	56.5	26.8	79.6	162.9	91.7	41.7	130.4	263.8
CLINICAL COMPLEX		615	15.6%								
CC2	17 - 18 D	11	0.3%	54.5	23.3	127.9	205.7	85.2	42.5	191.1	318.8
CC1	17 - 18	75	1.9%	31.9	38.4	115.5	185.8	55.7	57.7	176.9	290.3
CB2	12 - 16 D	47	1.2%	37.3	27.5	101.2	166.0	61.5	41.8	159.0	262.3
CB1	12 - 16	249	6.3%	29.9	22.6	94.1	146.6	**59.0**	36.2	147.3	242.5
CA2	4 - 11 D	41	1.0%	34.5	23.7	72.7	130.9	58.8	43.3	130.3	232.4
CA1	4 - 11	192	4.9%	33.3	23.8	56.7	113.8	59.7	37.6	103.3	200.6
IMPAIRED COG.		263	6.7%								
IB2	6 - 10	31	0.8%	**22.0**	**20.0**	77.8	119.8	**40.0**	**32.0**	137.2	209.2
IB1	6 - 10	127	3.2%	**22.0**	**18.0**	73.9	113.9	**39.0**	**32.0**	130.0	201.0
IA2	4 - 5	4	0.1%	**20.0**	**15.0**	**60.0**	95.0	**38.0**	**27.0**	**100.0**	165.0
IA1	4 - 5	101	2.6%	**20.0**	**15.0**	**50.0**	85.0	**33.0**	**26.0**	**96.0**	155.0
BEHAV. ONLY		21	0.5%								
BB2		2	0.1%	**20.0**	**15.0**	**70.0**	105.0	**40.0**	**30.0**	**136.0**	206.0
BB1	6 - 10	5	0.1%	**18.0**	**14.0**	**70.0**	102.0	**38.0**	**28.0**	**130.0**	196.0
BA2*	4 - 5	1	0.0%	**19.0**	**15.0**	**50.0**	84.0	**38.0**	**30.0**	**90.0**	158.0
BA1*	4 - 5	13	0.3%	**17.0**	**15.0**	**40.0**	72.0	**34.0**	**25.0**	73.5	132.5
PHYSICAL FUNCTION		960	24.4%								
PE2	16 - 18	41	1.0%	**17.0**	14.3	123.9	155.2	**37.0**	32.0	184.8	253.8
PE1	16 - 18	160	4.1%	17.4	15.4	118.1	150.9	37.0	29.4	181.6	248.0
PD2	11 - 15	76	1.9%	16.9	**16.0**	90.7	123.6	**36.0**	**25.0**	170.0	231.0
PD1	11 - 15	358	9.1%	16.4	15.4	91.5	123.3	**36.0**	27.6	160.0	223.6
PC2	9 - 10	5	0.1%	**15.0**	23.8	99.4	138.2	25.6	32.8	154.4	212.8
PC1	9 - 10	41	1.0%	20.5	9.7	71.4	101.6	45.1	20.6	124.2	189.9
PB2	6 - 8	8	0.2%	**15.0**	22.9	39.3	77.2	**28.0**	36.8	80.6	145.4
PB1	6 - 8	86	2.2%	12.8	15.7	48.7	77.2	27.5	27.7	93.9	149.1
PA2	4 - 5	10	0.3%	14.7	15.9	33.2	63.8	31.9	30.6	72.9	135.4
PA1	4 - 5	75	1.9%	14.0	13.0	32.5	62.5	28.2	29.8	72.8	130.8
				(clinically smoothed where bolded)							

It should be noted that staff time are not measured for all residents or even a sample of residents within the facility, but rather for residents on selected *units* within the facility. Although we can
presume that these selected units provided a sufficient number of residents to provide staff time estimates for a residents with very different medical conditions and functional limitations (i.e., the 44 RUGs groupings), it is possible that the time estimates for these high-Medicare volume units is not representative of staff time found for similar residents in other units. It is also difficult to know how this particular "quality review from a technical expert panel" ensures good outcomes. We have no information about how the experts determined high quality. *In the last analysis, there appears to be no evidence that links the staff times of the STM studies to direct measures of resident outcomes.* This does not mean that the HCFA STM studies were inadequate for their central purpose, the development of the RUG-III and HCFA's National Medicare SNF Prospective Payment System (PPS).

13.5 Conclusion: U.S. Army Workload Management System for Nursing, William Thoms' "Management Minutes" System, and HCFA's Staff Time Measurement Studies

This chapter has examined three time-motion methods for setting nurse staff levels: the U.S. Army Workload Management System for Nursing (WMSN); William Thoms' "Management Minutes" system; and HCFA's Staff Time Measurement studies on nursing care in nursing homes in 1995-1997. Common to all of these efforts is the attempt to identify the time it takes to complete nursing tasks for nursing home residents. These times are aggregated to the level of the facility and the nurse staffing required to provide this level of care is determined. The staffing algorithms derived from this method are adjusted for differences in the kind and intensity of care needed by residents with differing levels of acuity and functional limitations. As was noted at the beginning of this chapter, this method of deriving appropriate nursing staffing standards is intuitively understandable, particularly to those who find the statistical modeling of the empirical approach to be too complex, or suspect. If what nursing staff actually do impacts on some important resident outcomes, an assumption that would be hard to reject, then it would seem reasonable to determine how much time it takes to perform these necessary nursing tasks and the consequent staffing implied by this allocation of time.

Nevertheless, we have found all three of these *particular* efforts of little value for setting staffing standards. Both the WMSN and Thoms' Management Minutes system were developed 20-25 years ago to assist the U.S. Army and in Thoms' case, a single nursing home in New Hampshire, in assessing residents and the nurse staffing required to provide needed care. As such, they were not primarily research efforts addressed to a research community with published journal articles. Indeed, the WMSN is unknown to nearly everyone working in this area. After more than two decades, we have little to no evidence on the data collection procedures and evidence produced. The most knowledgeable person on the WMSN, Lt. Col. Harper, does not think this system, developed from an acute care hospital population, can be applied in its current form to the typical chronic-care population found in nursing homes today. In contrast, Thoms' Management Minutes system has often been cited by various health services researchers. Unfortunately, they all reference a 1975 unpublished paper by Thoms' that we have not been able to obtain, even from Thoms himself. It appears that neither the WMSN nor Thoms' system has attempted to link their recommended staffing levels to residents' outcomes. Indeed, the current emphasis upon outcomes and quality indicators was not a particularly important consideration at the time they were developing their systems.

In contrast to the above, HCFA's more recent and more research intense STM studies provide far more information about the selection of facilities and data collection procedures. Further there is some attempt to select facilities on the basis of a criteria *which is thought* to be related to high quality. Unfortunately, we have found this criteria suspect for developing a staffing standard. As we noted above, "in the last analysis, there appears to be no evidence that links the staff times of the STM studies to direct measures of resident outcomes." Although we have found the three time-motion efforts review here to be an inadequate basis for setting nurse staffing standards, we think the time-motion approach has merit. A very inventive and entirely new analysis applying this time-motion approach will be presented in the next chapter.

CHAPTER 14.0 MINIMUM NURSE AIDE STAFFING REQUIRED TO IMPLEMENT BEST PRACTICE CARE IN NURSING HOMES[13]

14.1 Introduction

Nursing home (NH) staffing patterns evidence a heavy reliance on nurse aides to provide direct assistance to residents, and controversy exists about the nurse aide-to-resident ratio needed to provide good care. Unfortunately, the type of study that can most defensibly address this controversy has not yet been conducted. There is, however, sufficient evidence about selected care processes to estimate minimal resident-to-nurse aide ratios needed to provide care. Drawing on this evidence, this chapter concludes that inadequate staffing may exist in many nursing homes. The investigators arrive at this conclusion by addressing two fundamental questions:

- How much nurse aide time is required to implement five specific, daily care processes that have been linked to resident outcomes?

- Given that nurse aide labor resources vary among NHs, how might different levels of staffing effect the daily care that residents receive?

In the first section of this chapter, investigators review existing research evidence that identifies the amount of time nurse aides need to provide care that has been proven effective or has been cited as "best practice." This chapter focuses only on care processes that are performed by nurse aides, have been specifically defined (i.e., the steps involved in providing care have been detailed), and have been linked through research evidence or expert consensus to outcomes that have both clinical and quality-of-life implications. Given the chapter's focus on best practices, this specific process-outcome link is required for a care process to be included in the outcome analyses.

In the second section of this chapter, innvestigators use operational research models to project the number of residents who are likely to receive efficacious care processes under various staffing scenarios. These models are based on data and reasonable assumptions about critical input variables needed to project the outcomes of different staffing ratios.

There are three critical input variables:

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[13] Sections 14.1 through 14.13 were written by John F. Schnelle, Borun Center for Gerontological Research, Los Angeles Jewish Home for the Aging, UCLA School of Medicine and Sepulveda VA; Shan Cretin, Borun Center for Gerontological Research; Debra Saliba, Borun Center for Gerontological Research and RAND Corporation, Santa Monica, California; and Sandra F. Simmons, RAND Corporation. The conclusion section, 14.14, was written by Marvin Feuerberg of HCFA with the concurrence of Jack Schnelle. Editorial assistance was provided by Jeane Nitsch and Susan Joslin, HCFA.

1. The amount of time nurse aides have available to provide direct care, which includes care processes linked to improved clinical outcomes as well as other routine care processes that are necessary but may not be linked to a specific clinical outcome (e.g., answering call lights).

2. The frequency with which the need for an efficacious care process arises and the number of residents who need it.

3. The time needed to provide each episode of efficacious care.

With this information as input, the operations models will provide as output:

1. Estimates of the difference between the care activities that should occur if improved outcomes are to result and the number that actually do occur given the staffing model being tested.

2. Staffing ratios that are most likely to result in desirable clinical outcomes.

In order to model the effects staffing ratios have on the care delivered, investigators needed to make assumptions about the efficiency with which services are provided. An important output of the investigators' analysis is an estimate of the minimum number of staff necessary to complete care for all residents based on the three input variables listed above. Investigators therefore chose to make the conservative assumption that work is scheduled for maximum time efficiency as opposed to individualized care scheduling (i.e., providing care that varies based on resident preferences). The investigators' minimal staffing scenarios also resulted in a very high (perhaps unrealistically high) nurse aide work productivity. Given their assumptions, the investigators simulated estimates of minimal staffing should be regarded as a low bound on the number of staff required in real NHs, where the efficiency and productivity may be less than optimal. The rationale for the investigators' approach, as well as its limitations, is more thoroughly discussed in the "Limitations and Future Directions" section 14.14 of this chapter.

While investigators estimated the minimum number of staff necessary to provide care under conditions of high efficiency and productivity, the investigators did not identify specific ways for better managing nurse aides so as to encourage either high productivity or efficiency. Nurse aide productivity could probably be enhanced with better management, including increased supervision from licensed nurses, more in-service training for aides, and management training for those who supervise them — a hypothesis that the investigators strongly believe should be tested under controlled conditions. Unfortunately, due to lack of data, investigators are unable to estimate the effect of using professional nurse management in the staffing models they are analyzing.

Investigators also note that they are not making a distinction between quality of care and quality of life in their choice of the care processes analyzed in this chapter for two reasons. First, even though the outcomes that these processes improve have high relevance to both academic

definitions of quality of life (e.g., resident independence) and clinical outcomes (e.g., continence), investigators do not believe that these constructs should be arbitrarily separated. For example, incontinent residents report that timely toileting assistance is a valuable care process, and the extent to which such assistance decreases wetness rates (e.g., clinical outcome) or improves resident satisfaction (e.g., quality-of-life outcome) should not be separated. Second, most of the care protocols that investigators are evaluating describe interpersonal communication processes as a vital aspect of the care practice. There is evidence that residents value such interpersonal processes, independent of the outcomes such care produces. For example, the prompted voiding protocol that has been linked to the outcome of continence involves communication steps designed to give the residents personal control over their toileting assistance. Investigators, thus, believe that the staff time costs reported in this chapter for implementing care processes deemed "best practices" include the time to interact with a resident in a manner consistent with high standards of both technical (e.g., rendering toileting assistance) and interpersonal (e.g., social communication) care quality. This point will be further elaborated in the discussion later in this chapter in the section "Limitations and Future Directions."

14.2 Identification of Care Practices

This paper projects the staffing resources required to implement care practices that have been linked to improved outcomes and are under the control of nurse aides. Investigators make no judgements about how appropriate it is to charge nurse aides with these care responsibilities; the investigators intent is simply to reflect current NH practice.

Investigators developed the following criteria to select care practices for analysis:

1. The care process must be specifically designed.

2. The care process must be primarily implemented by non-licensed direct care staff given current NH staffing practices.

3. There must be evidence that a care process meeting the first two criteria changes a specific outcome when implemented.

4. There must be expert consensus that the care process reflects high quality NH care.

5. Assuming a care process meets criteria 1 through 4, there must be information regarding the amount of time needed to implement it.

Investigators then reviewed research literature, practice guidelines developed using expert consensus methodologies, and the quality indicator literature, using several search strategies to identify care practices that might meet their criteria. Investigators first searched the following databases: Medline, Healthstar, Embase, and Ageline, using combinations of these key words: nursing homes, best practices, daily care/activities, nurse aides, workload, nursing care, time

factors, incontinence, pressure sore, nutritional care/feeding behaviors, mobility, exercise, activities of daily living/independence, behavior management, agitation, mood. With this approach, investigators identified approximately 950 articles, which they narrowed down, based on a review of their abstracts, to about 200 for more thorough review. Because practice guidelines and quality indicators are seldom referenced in the traditional scientific databases, investigators used a number of other search strategies to locate these materials. They searched the following sources: Directory of Clinical Practice Guidelines, Guide to Clinical and Preventive Services, National Guideline Clearinghouse, National Library of Healthcare Indicators, and The Medical Outcomes and Guidelines Source Book.[1,2,3,4] Investigators specifically reviewed all guidelines developed by the American Agency for Healthcare Policy and Research and the American Medical Directors Association because of their obvious relevance to NH care.

The investigators' ability to identify relevant practice guidelines was facilitated by a recently completed project at the RAND Corporation designed to develop quality indicators for NH care. The Assessing the Care of Vulnerable Elderly Project (ACOVE) conducted comprehensive literature reviews, including a review of relevant practice guidelines, for the purpose of identifying process outcome relationships, which content experts then constructed into a series of quality indicators using an "IF/THEN" format. The following example illustrates this format:

> **IF** a nursing home resident incapable of independent toileting is assessed and found capable of appropriately using the toilet over 65% of the time,
> **THEN** the resident should be placed on a toileting assistance program
> **BECAUSE** the resident will maintain continence as long as the program is implemented consistently.
>
> **Summary:** Toileting assistance interventions have proved efficacious in multi-site controlled clinical trials with nursing home residents who are incapable of independent toileting. It has been difficult to implement these care protocols in daily nursing home practice because of data accuracy and labor intensity barriers.

A panel of nine experts in NH care evaluated each indicator on a nine-point scale for: (a) Validity (Is there evidence of a process-outcome link?), (b) importance (Would this process significantly impact the quality of NH care if it were implemented?), and (c) feasibility (Can a typical NH be expected to implement the process?). Indicators with a median rating of seven or higher for validity, importance, and feasibility were accepted as an indicator of NH quality. In this way, the expert panel approved 280 NH indicators, out of a total set of 479 choices for quality indicator content and wording. Twenty-two of these indicators involve care processes that are under the control of nurse aides (e.g., toileting and changing, feeding assistance, repositioning, ADL independence enhancement, and exercise). In the literature review that follows this section, investigators describe in more detail these indicators. Henceforth, investigators will refer to these indicators as the "ACOVE indicators."
Ultimately, investigators identified five care processes that met their criteria and are needed by the majority of NH residents, as will be documented in the "Literature Review" section of this

chapter. These processes represent a reproducible consensus-based subset of the tasks nurse aides might provide while caring for NH residents even though the five care processes are obviously not a complete list of what nurse aides must do.

- Repositioning and changing wet clothes
- Repositioning and toileting
- Exercise
- Feeding assistance
- ADL dressing independence

Reluctantly, investigators excluded interventions designed to reduce agitation or improve mood as well as interventions that reportedly improved independent functioning in ADL areas other than dressing, feeding, and toileting. The justification for excluding these interventions is arguable in some cases. The investigators explain their decisions later in this chapter.

It should also be noted that the five care processes selected for analyses include processes that are recommended for restrained residents; that is, releasing residents every two hours to provide incontinence care, repositioning, and mobility exercise. Investigators have not, however, included a separate set of care processes for managing or preventing restraint use despite reports that restraint use has been significantly reduced in NHs with training/consultative interventions.[5,6] Unfortunately, these studies did not report what specific care processes were changed to produce improvements in restraint use and there is no information about how much time aides spent caring for residents during time periods either before or after restraints were reduced.

It is noteworthy that several articles that investigators reviewed in content areas outside of restraints also reported that training interventions produced significant changes in outcomes, without documenting the care process that changed after training that led to the improvements.[7,8] In particular, one study reported that nurse aide training prevented ADL decline in multiple areas as measured by the MDS.[7] This finding is surprising given that other literature suggests that care processes which improve ADL independence are very labor intensive. In two studies, for example, nurse aides specifically reported that time was a barrier to implementing care processes known to improve independence.[9,10] In contrast to these studies, the training intervention study suggests that NHs are adequately staffed to improve ADL outcomes if employees are trained and that time is not a barrier to implementing efficacious care processes.

Investigators believe that all studies that report that better training is sufficient to produce improved outcomes should be replicated, with specific attention to documenting the care processes that led to these improved outcomes. It would be particularly important to note what management or incentive initiatives led to the sustained application of the new care processes that were the focus of training. In any case, the absence of specific process data, particularly data about nurse aide care behavior, forced us to exclude a number of studies from the analyses conducted in this chapter.

14.3 Review of Literature Describing Process-Outcome Relationships and Labor Requirements

14.3.1 Repositioning and Incontinence Care

Investigators integrated repositioning with an incontinence protocol on changing wet linens and analyzed it separately from an integrated care process based on repositioning and toileting. The reasons for both the integration and the separate analyses of the two sets of processes are as follows:

1. Repositioning and incontinence care (either toileting or changing), both recommended to prevent skin problems, logically should not be separated in practice. It would be inefficient, for example, to reposition incontinent residents without changing them if they are wet or toileting them if they request assistance.

2. One incontinence protocol will not work for all incontinent residents. Studies show that only 33% to 50% of incontinent residents are good candidates for daytime toileting programs and fewer are responsive to nighttime toileting programs.[11,12] Also, the toileting care process is more time intensive than either changing or repositioning.[13] Thus, it is necessary to evaluate the repositioning protocol that includes toileting separately from the repositioning process that involves changing, at least during the daytime.

14.3.2 Repositioning and Changing Processes

Two separate practice guideline panels have recommended a repositioning program for residents at risk for pressure sores based on their review of the research literature and expert opinion.[14,15] For example, "the practice guideline panel for the Agency for Health Care Policy and Research (AHCPR) made two recommendations relevant to repositioning:

- "Any individual, in bed, who is assessed to be at risk for developing pressure ulcers should be repositioned at least every two hours if consistent with overall resident goals. A written schedule for systematically turning and repositioning an individual should be used."[14]

- "Plans for positioning of chair-bound individuals in chairs or wheelchairs should include consideration of postural alignment, distribution of weight, balance, strength, and pressure release. It is furthermore recommended that a written plan for the use of positioning devices and repositioning schedules may be helpful for chair-bound individuals."[14]

With respect to incontinence management, the recommendation of the AHCPR practice guideline panel is as follows: "Minimize skin exposure to incontinence, perspiration, or wound drainage. When these sources of moisture cannot be controlled, underpads or briefs that are

made of materials that absorb moisture and present a quick-drying surface to the skin may be used."

Supporting the validity of the practice guideline recommendations, the ACOVE consensus panel, charged with evaluating indicators to assess NH quality, approved the following indicator: "If a risk assessment score indicates that a resident is 'at risk' for pressure ulcer development, then a preventive intervention should be instituted that addresses pressure reduction and the resident's repositioning needs because reducing or eliminating risk factors can prevent pressure ulcer formation."

This widespread acceptance of repositioning and changing programs by multiple expert consensus panels is based on extensive indirect and limited direct evidence. Two studies reported a relationship between spontaneous body movement and the incidence of pressure ulcers or other skin conditions, but only one of these studies evaluated the effects of an intervention that increased body movement.[16,17] This uncontrolled study reported beneficial effects on pressure ulcers when residents were turned every two to three hours.[16] Supporting the hypothesis that incontinence and infrequent body movement are risk factors for pressure ulcers, a third prospective study demonstrated that a subject's score on the Braden Skin Risk Assessment Inventory, which includes incontinence and mobility rankings, is predictive of pressure ulcer development.[18]

With regard to the importance of incontinence management, one study reported a positive relationship between the frequency of urinary or fecal incontinence and skin conditions associated with pressure ulcer development.[17] This study suggested that more timely changing or toileting of incontinent residents might reduce the deleterious effect of skin wetness and fecal exposure on skin health. In support of the hypothesis that skin wetness exacerbates skin problems, the AHCPR consensus panel on pressure sore prevention reviewed four studies that found that absorbent materials, which minimize the skin's exposure to wetness, reduced the incidence of skin irritations.[14] Unfortunately, no controlled study has documented the effect on skin conditions of an intervention that combines better repositioning and incontinence care. One uncontrolled study, however, showed positive intervention effects. This study reported significant reductions in the incidence of pressure ulcers following implementation of a multifaceted protocol, which included more frequent repositioning. The study, however, did not specifically describe how much the repositioning care process changed from baseline to intervention.[19]

The importance of incontinence management is further underscored by evidence that NH residents value the timely changing of wet linens. Residents interviewed in one study reported a preference to be changed two times per eight-hour period, and consumer focus groups have consistently reported that they value timely toileting and changing assistance.[20, 21]

14.3.3 Repositioning and Toileting Process

Two separate practice guidelines have recommended toileting assistance programs as a treatment process for NH residents.[22,23] The AHCPR practice guidelines for urinary incontinence in adults present the following recommendation: "Prompted voiding is recommended in residents who can learn to recognize some degree of bladder fullness or the need to void or who can ask for assistance or respond when prompted to toilet. Residents who are appropriate for prompted voiding may not have sufficient cognitive ability to participate in other more complex behavioral therapies."

Two quality indicators developed by the ACOVE project reinforce the importance of both toileting assistance programs and an assessment protocol for identifying responsive residents for these programs. The first of these two quality indicators is: "If a NH resident incapable of independent toileting is assessed and found capable of appropriately using the toilet over 65% of the time, then the resident should be placed on a toileting assistance program because the resident will maintain continence as long as a program is implemented consistently." The correlated diagnostic or assessment quality indicator recommendation is: "If a NH resident continues to be incontinent after transient causes of incontinence are treated, then the resident should be placed on a three- to five-day toileting assistance trial because this assessment is predictive of long-term responsiveness to a toileting assistance program." It is noteworthy that even though these indicators exceeded the median ratings necessary for acceptance on validity and importance criteria (7 on a 9-point scale), they were rated as only marginal on their feasibility of implementation in a typical NH because of the panel's concerns about staffing limitations.

There is strong direct evidence that toileting assistance programs reduce incontinence. Four controlled trials have tested toileting assistance programs for NH residents. Three studies, with a combined total of 289 subjects, reported a 25%, 30%, and 50% decrease in incontinence frequency in their intervention groups compared to the subject's baseline levels, as well as significant differences between the intervention and control groups. The fourth study, with 88 subjects, reported that 86% of the treatment group showed improvements, with 30% reducing their incontinence frequency by 25%. The control group showed no significant change in incontinence frequency.[24,25,26,27]

As reported earlier in this chapter, there is strong evidence that only 33% to 50% of NH residents are good candidates for toileting assistance programs. Two separate studies reported that 40% and 41% of residents who participated in a prompted voiding trial significantly improved their dryness and appropriate-toileting rates.[11,12] The remaining subjects in these trials did not show significant improvement, so it was recommended that they be managed with a timely changing program. Studies also show that residents who are responsive to toileting assistance programs can be identified in a three-day assessment period. A validated assessment protocol already exists for efficiently identifying such residents.

In addition to this clinical evidence, there is also evidence that residents value toileting assistance. One recent study reported that NH consumers prefer assistance with toileting two to three times per day when they are out of bed.[20] A second study reported that NH residents prefer consistent toileting assistance to other "perks" such as private rooms and better food.[28]

In sum, there is strong evidence that residents value daytime toileting programs and that such programs effectively improve dryness outcomes during their implementation (typically between 7:00 a.m. to 7:00 p.m.).

More recent evidence suggests that incontinence care during he night must be conducted differently than during the day. Two studies documented that incontinence care routines, as they are typically conducted in NHs, disrupt residents' sleep, and one study reported that a nighttime toileting assistance program was significantly less effective than a daytime program.[29,30,31] This reduction in effectiveness occurred even for those residents who were highly responsive to a daytime toileting assistance program.

Acknowledging the importance of sleep in the overall health and quality of life of NH residents, one recent study recommended that incontinence care be individualized at night based on a resident's sleep/wake patterns. This individualized intervention was accomplished by checking and changing incontinent residents at night if they were awake. Residents were left undisturbed for up to five hours if they were observed sleeping. This intervention did not include toileting assistance, but it did significantly reduce nighttime awakenings due to incontinence care without adversely affecting skin health.[32]

14.3.4 Incontinence Care: Labor Estimates

There is extensive data about the time required per episode of incontinence care and the number of residents who are likely to need incontinence-related assistance. According to the most recent Online Survey Certification Reporting System (OSCAR), 1997 data, 49% of NH residents are incontinent, 8% have a catheter, and 14% are on a bladder training program and, thus, presumably need toileting assistance.[33] In fact, 75% of NH residents are reportedly either dependent or require assistance with toileting according to OSCAR. These percentages approximate those reported for specific NHs that have participated in incontinence management research trials. These trials, which have generally excluded people who are catheterized or unable to respond to verbal stimuli, report that 60% of NH residents are incontinent, with approximately 33% to 50% of these residents responsive to daytime toileting assistance interventions.[11,12]

According to one report, the nursing time required to reposition a resident is 3.5 minutes.[34] Repositioning is recommended every two hours when the resident is in bed and more frequently when the resident is in a chair. However, because most residents who require repositioning also have mobility and incontinence problems, it seems most efficient to either change or toilet these residents at the time of repositioning. Studies show that incontinent residents are wet and need changing approximately eight times in a 24-hour period, with incontinence episodes roughly distributed equally over the 24-hour period.[35] Calculations show that the time per episode of changing is approximately 5.5 minutes, with repositioning occurring during the changing process.[13] Based on this data, a resident who is not a candidate for a toileting program would require four changes with associated repositioning between 7:00 a.m. and 7:00 p.m., at a time

cost of 5.5 minutes per episode. Also during this period, these residents would need to be repositioned two more times when they are dry, at a time cost of approximately 3.5 minutes per episode. With this schedule, these residents would receive care every two hours during daytime periods. From 7:00 p.m. to 7:00 a.m., these residents would need another four changes and repositioning. The nighttime schedule would consider a resident's need for sleep, so incontinence care and repositioning would be provided less frequently than every two hours.[32]

With regard to providing toileting assistance to the 33% to 50% of incontinent residents who are likely to be responsive to such care, evidence shows that toileting assistance consumes approximately 7.5 minutes of staff time per episode.[13] How frequently residents need toileting is more controversial, but it has been shown that when residents are offered assistance every two hours and toileted only when they respond affirmatively, they toilet approximately four times in a 12-hour period.[28] Given that toileting programs have not proven successful at night, investigators are not projecting time to implement a nighttime toileting program, even for those residents who toilet during the day. The investigators project that approximately 40% of incontinent residents who are responsive to daytime toileting programs would request three toileting assists between 7:00 a.m. and 7:00 p.m. at a time cost of 7.5 minutes per episode. They will also need an additional three repositionings during this period, at a time cost of 3.5 minutes per episode. During nighttime hours (7:00 p.m. to 7:00 a.m.), investigators project that incontinence care time costs for these residents will be the same as for residents who are not responsive to toileting programs. All nighttime time costs are based on the premise that four repositionings and changes occur in consideration of a resident's sleep.[32]

Data from observational studies have described how incontinence care is conducted under usual NH conditions, with relevance to the time costs associated with implementing incontinence care protocols. These studies show that residents are toileted and changed less frequently than residents prefer or clinical evidence indicates is effective. Studies conducted between 1988 and 1998 in six homes in two states show that changing occurs at a rate of .57 to 1.13 times per incontinent resident over an eight-hour daytime period and toileting occurs at a rate of .23 to .49 times per incontinent resident over the same period.[13,20] During the night, observational data indicate that toileting assistance seldom occurs (perhaps appropriately, given data that show most residents will not toilet at night) but changing occurs one to three times per resident, often while the residents are asleep.[29,30] These data suggest that nurse aides either do not have adequate time to provide incontinence care or work in a fashion that precludes higher levels of care or both. Indeed, in two studies, the researchers suggested that nursing staff report that inadequate time is their primary barrier to implementing incontinence care protocols consistently.[36,37]

14.3.5 Feeding Assistance

Experts agree that feeding assistance interventions are an important component of NH care. One practice guideline on nutritional care as well as the MDS-based Resident Assessment Protocols (RAPs) which are used in all NHs, recommend a trial of feeding assistance for residents who eat

less than 75% of most meals.[38,39] The ACOVE expert consensus panel also rated feeding assistance as an important indicator of nutritional care quality. The panel's approved indicator reads as follows: "If a resident requires assistance for feeding (i.e., MDS eating dependency item scores of 1, supervision, 2, limited assistance, 3, extensive assistance, or 4, total dependence), then NH staff should promote increased independence and self performance with graduated prompting protocols matched to residents' need." The panel agreed that this indicator was valid and clinically important but there was less enthusiasm about how feasible this indicator would be to implement in a typical NH because of staffing limitations. These practice guideline, MDS-RAP, and expert consensus panel recommendations are supported by both indirect and direct evidence.

Many studies support the hypothesis that low staffing levels and a resulting lack of adequate staff to provide feeding assistance results in undernutrition and excessive feeding dependency among residents. These problems occur not only among residents who are completely dependent on staff assistance to eat, but also among many residents who are partially independent.

Investigators reviewed a series of studies that document an association between NH staffing patterns, eating dependency, and undernutrition.[40,41,42] Abassi & Rudman (1993) divided 27 Veterans Administration NHs into two groups: Those with a high rate of undernutrition (as defined by residents' weights and albumin levels) and those with a low rate of undernutrition. A comparison of the two groups showed that in homes with high undernutrition rates, staff were less aware of undernutrition among residents; a higher percentage of residents were eating-dependent; and nursing staff-to-resident ratios were lower.[40] A cross-sectional, observational study involving 200 NH residents in Canada found that undernutrition was positively associated with eating-dependency, poor positioning for eating, slow eating, poor appetite, low activity levels, impaired communication ability, poor mental state, and dysphagia.[42] Kayser-Jones and colleagues (1997) conducted an observational study of 58 residents in two NHs during all meals for seven days. Findings showed that inadequate staffing and inadequate supervision of nurse aides responsible for providing feeding assistance resulted in multiple problems that contributed to low oral intake and poor quality of life for residents.[41] The problems identified included the following: the majority of residents were fed in bed instead of the dining room; food was served at inappropriate temperatures; feeding assistance was rendered in a sporadic, rapid manner even to residents who ate slowly due to swallowing difficulties; eating assistance was forced upon residents who could eat independently but did so slowly; and some residents received little or no food at all. In this study, the nurse aides themselves reported that they lacked sufficient time to adequately help all eating-dependent residents. Overall, the results of these studies strongly suggest that inadequate NH staffing and supervision during mealtimes adversely affects the nutritional status of residents who require staff assistance to eat and may diminish the quality of the mealtime experience for all NH residents.

A second series of studies documents the amount of time that staff spend providing feeding assistance and/or describes the type of assistance provided. Four of the studies recruited residents who were completely eating-dependent, according to NH staff ratings. Amella (1999) observed 53 resident-nurse aide dyads in one NH for one (breakfast) meal. The average length

of time that assistance was provided to these eating-dependent residents was 15.66 minutes (± 7.83).[43]

Backstrom and colleagues (1987) instructed NH staff at 24 facilities to take notes at every meal for 28 days for a sample of 214 eating-dependent residents.[44] The staff reported that most (94%) meals in which residents were "spoon-fed" were completed in 20 minutes or less. The median number of staff providing feeding assistance to any one resident during this four-week period was 16 to 20 different nurse aides. The authors report that the variability in the number of staff providing assistance and the small amount of time spent providing physical assistance "could not create situations that promote self-feeding or harmonious assisted-feeding."

Ohwaki and colleagues (1988) studied a group of 111 profoundly mentally retarded, severely physically handicapped individuals with multiple medical problems.[45] It should be noted that this study did not include a NH sample (subjects' ages ranged from 3 months to 11 years); however, all subjects were completely eating-dependent, with severe cognitive and physical impairments. The study showed that professional caregivers spent an average of 57 minutes a day (i.e., 19 minutes/meal) providing feeding assistance. Specifically, caregivers reported that they provided oral feeding assistance for 72 minutes per day (i.e., 24 minutes/meal) and tube feeding for 43 minutes a day. Caregivers also reported, however, that they did not have enough time to provide "optimal" assistance, which they defined as the provision of social interaction during meals.

Findings from other caregiver studies support the perception of NH caregivers that they lack sufficient time to provide optimal assistance. Hu and colleagues (1986) compared the amount of time that NH staff in three facilities spent providing care to a sample of 25 demented residents to the amount of time that family caregivers spent providing the same type of care to 19 demented elderly living in their own homes.[46] All subjects had to score below 20 on the MMSE to be included in the study. Functional assessments were conducted with all subjects to determine the extent of their physical impairment. Nurses and family caregivers were asked to keep "cost diaries" for two weeks to document the amount of time they spent meeting a variety of daily care needs including, but not limited to, feeding assistance. According to these "cost diaries," NH staff spent an average of 16 minutes per day (i.e., < 6 minutes per meal) providing feeding assistance while family caregivers spent an average of 73 minutes a day (i.e., 24 minutes per meal). For the more severely cognitively impaired subjects (MMSE score ≤ 10), NH staff feeding times increased slightly to an average of 18 minutes per day. By contrast, family caregivers increased feeding times for these more severely impaired individuals to an average of 99 minutes per day. Across all daily care areas, family caregivers, compared to NH staff, spent significantly more time providing both supervision and assistance, despite the fact that, according to the functional assessments, the elderly subjects residing at home were more independent in all activities of daily living than the NH sample. The authors explain the difference in feeding assistance times by noting, "One nursing aide can feed and supervise eight to ten residents at the same time," whereas, at home, a family caregiver "must devote his or her entire attention to a single person." Based on the previously reviewed, more recent studies that show a significant association between staffing ratios and undernutrition,[40,41,42] it is unlikely that

nurse aides can adequately feed and supervise eight to ten residents. Rather, the time spent by family caregivers (i.e., 24 minutes per meal)[46] is probably more reflective of the time needed to provide "optimal" feeding assistance.

Two other studies have documented the amount of time that NH residents have access to their meal trays and/or receive feeding assistance.[47,48] These studies used subject samples that varied in their eating-dependency status. Steele and colleagues (1997) showed that, in one NH with a resident population representing the full range of feeding assistance needs (i.e., completely independent to completely dependent), the amount of time needed to complete a meal was less than 20 minutes for 13% of the residents, 20 to 29 minutes for 35%, 30 to 39 minutes for 34%, and 40 minutes or more for 18%. The average time to complete a meal for the group was 29 minutes (ranging from 5 to 70). The researchers did not report the total times needed to complete a meal for independent eaters versus residents who required assistance. They also did not present data useful for evaluating the quality or outcomes of the mealtime experience (e.g., how much residents ate and/or whether individual residents received appropriate types of assistance).[47]

Durnbaugh and colleagues (1996) conducted a study in four NHs using a sample of 20 residents who had been diagnosed with probable Alzheimer's disease (AD). The purpose of the study was to test the utility of the Feeding Behaviors Inventory as an instrument to help NH staff identify mealtime behaviors that interfered with a resident's self-feeding ability. The Feeding Behaviors Inventory involved direct observations of two meals per subject. Study results showed that all subjects displayed "problem behaviors" (i.e., behaviors that interfered with intake) during mealtimes, with the most common problem being "distractibility" (i.e., easily distracted from eating). On average, residents had access to their trays and were engaged in eating for 38.8 minutes (ranging from 13 to 54 minutes). Most residents, however, had to wait in the dining room for more than 20 minutes to receive their trays. The authors reported that the amount and type of assistance rendered to individual residents varied, but they did not report the extent of this variability. They concluded that distractibility was a major problem among AD residents and, thus, suggested that the dining room environment be modified (e.g., to reduce noise levels) and verbal cues be provided to maximize AD residents' self-feeding ability.[48]

A study by Osborn and Marshall (1993) used the Self-Feeding Assessment Tool to determine eating dependency status for a small sample of 23 partially-dependent NH residents with moderate to severe cognitive impairments.[49] The researchers conducted individual assessments of capability (one meal) and performance (one meal) over a total of two meals per subject. The tool included a rating of five levels of assistance: unassisted, verbal prompt, nonverbal prompt, physical guidance, and full assistance. Capability was determined through the implementation of a graduated-assistance protocol that maximized self-feeding ability; performance was assessed through observations of the feeding assistance provided by NH staff. Based on the capability assessment, every subject was capable of self-feeding to some degree; rarely did research staff have to provide full physical assistance. By contrast, the performance assessment showed that NH staff almost always provided full physical assistance. Using research staff assessments of capability as the "gold standard," NH staff "over-assisted" 52% of the subjects and "under-

assisted" 30%. The authors reported that the level of assistance needed by individual subjects changed both within and between meals; however, whether or not any assistance was necessary remained fairly stable.

In summary, these studies, which describe what normally happens in NHs at mealtimes, have consistently concluded that both the time spent by NH staff and the manner in which feeding assistance is rendered is sub-optimal and inconsistent for most residents. Furthermore, these studies show that residents take between 16 minutes and 39 minutes, on average, to complete a meal, even under these sub-optimal conditions. The study results delineate components of a feeding assistance protocol that might be more effective (i.e., optimal), but the efficacy of such an intervention has not been evaluated.

With regard to interventions, investigators could identify only three studies that reported the effects of feeding assistance intervention effects.[50,51,52] Phillips & Van Ort (1993) evaluated an intervention to "promote functional feeding and maintain adequate nutritional status" in a small sample of six NH residents who required assistance to eat.[50] Two primary components of the intervention were social interaction and the provision of one-to-one assistance throughout the meal , but the intervention's other components were unclear. Residents were videotaped during eight meals. For four of the meals, NH staff provided feeding assistance under usual care conditions. During the other four meals, the functional feeding intervention was implemented. It is unclear whether indigenous NH staff were taught to implement the intervention or whether research staff implemented it. One videotape from among the baseline tapes, and one from among the intervention tapes were randomly selected and transcribed according to the Feeding Traceline Technique. The results showed that the intervention did not significantly increase the average amount of time required to complete a meal (intervention, 23.14 versus baseline, 24.06 minutes); however, there were significantly more "feeding cycles" (i.e., resident takes a complete bite of food or drink of fluid), which suggests that residents consumed more food and fluid as a result of the intervention. The authors, however, did not report estimates of total intake during baseline or the intervention. There was no difference in the total number of self-feeding behaviors or refusals as a result of the intervention; however, with the intervention, there were significantly fewer interruptions during feeding and the length of time between bites of food and drinks of fluids was significantly shorter. These findings indicate that the one-to-one, uninterrupted feeding assistance was successful in keeping these residents focused on the task of eating. Given the Durnbaugh study's (1996) finding that "distractibility" is common among NH residents during mealtimes,[48] an unknown number of residents may need this type of assistance (few interruptions, verbal cues/reminders to eat, social interaction) to ensure adequate intake. A second, older study also evaluated a graduated assistance protocol on the independent feeding behavior of two NH subjects using a reversal design. This study reported significant increases in residents' independent feeding behaviors under the behavioral prompting conditions, but did not assess changes in food intake nor report the time needed to implement the intervention protocol.[51]

A third study evaluated the effects of three different feeding assistance programs on a sample of 40 residents in one facility who were identified by an interdisciplinary team as having feeding or

swallowing problems that placed them at risk for undernutrition and/or dehydration. The three interventions were: (1) the availability of trained volunteers during one meal per day (i.e., lunch or dinner) to transport residents to and from the dining room and provide feeding assistance; (2) a daily afternoon "Happy Hour" during which residents were transported to a central area and fluids and snacks were provided to residents in a social context; and (3) a separate, "second seating" in the dining room during lunchtime, designed specifically to meet the needs of residents who required feeding assistance and/or experienced swallowing difficulties.[52] The authors report that, prior to implementing the intervention programs, residents with feeding and/or swallowing difficulties were fed in their rooms and, as a result, were "often poorly positioned for eating, left in bed for many hours of the day, and rushed in the eating process" due to staffing limitations. The 40 subjects were divided into four groups. Group One (5 residents) received feeding assistance from NH staff for all meals and snacks in their rooms. Group Two (9 residents) received feeding assistance from NH staff for all meals in their rooms, but also attended "Happy Hour" every afternoon. Groups Three and Four (13 residents per group) both received feeding assistance from NH staff during breakfast and dinner in their rooms but were transported to the dining room for lunch (Volunteer and Second Seating programs) and attended Happy Hour every day. The only difference between groups three and four was that NH staff began monitoring weights during the first month of program implementation for Group Three and after one month of implementation for Group Four.

The primary outcome measure reported in this study was change in weight status over three months. Group One showed an average weight loss (-1.4 lbs) while Groups Two, Three, and Four all showed weight gains (average + 2.6, 4.2, and 6.2 lbs, respectively). Although the sample sizes within each group were small, these results indicate that providing adequate feeding assistance in a social environment may improve the nutritional status of NH residents with feeding and/or swallowing difficulties.

In light of the absence of intervention studies in this area, the Borun Center is currently collecting preliminary data necessary to design a controlled clinical trial of a feeding assistance intervention. These data provide specific information about the efficacy and time costs of feeding assistance protocols, which is generally absent from the published literature; thus, the data are highly relevant to this chapter.

This preliminary study used a sample of 19 residents in one NH who were considered to be "at risk" for undernutrition due to low food intake. Low food intake was defined as eating less than 75% of five or more of nine meals on three days within one week (i.e., MDS criteria for identifying low intake), and research staff evaluated intake for each of the 19 subjects. The intervention, pilot-tested during two meals for each subject, used the following methodology: (a) Research staff asked residents where they would prefer to eat (i.e., in their own room versus the dining room) and, whenever possible, complied with residents' requests; (b) research staff insured that residents were positioned properly for eating; (c)research staff interacted socially with residents throughout the meal, and (d)research staff provided continuous one-on-one assistance that maximized self-feeding ability (i.e., encouragement, verbal prompts, physical guidance, physical manipulation of items on meal tray so that items were easily accessible to

resident). With respect to location of meals, research staff were able to comply with the preferences of the majority (13) of subjects. Such compliance may have contributed to improved intake for these subjects. Specifically, eight residents preferred to eat in the dining room, five residents preferred their rooms, two residents "didn't care," one was unable to state a preference, and the remaining three preferred a location with which staff could not comply (i.e., own home, restaurant). Common problems observed during mealtimes included complaints about food (11 residents), slow eating pace (10 residents), swallowing difficulties (5 residents), and, consistent with findings from one previously reviewed study (Durnbaugh et. al., 1996), distractibility (6 residents). Residents also had unlimited access to their meal trays. A different research staff member conducted continuous, direct observations throughout the meal for all subjects and all meals in order to document the extent of research staff assistance (i.e., type and frequency) and the amount of time required to provide assistance. In addition, photographs of meal trays were taken before and after each meal to document intake. Prior to implementing the intervention, research staff conducted continuous direct observations of NH staff during two meals for each subject in order to document the extent of NH staff assistance (i.e., type, frequency, and time). The 19 subjects represented a full range of eating assistance needs (i.e., completely independent to completely dependent). Table 14.1 presents some of the primary outcomes this study monitored. On average, the subjects were responsive to the research staff's intervention as measured by a significant increase in total percentage of food and fluid intake ($t = 2.38$, $p < .05$).

Table 14.1 Effects of a Behavioral and Environmental Intervention to Improve Intake		
	NH Staff (Mean ± Sd)	**Research Staff-Intervention** (Mean ± Sd)
Intake - Total % (food + fluid)	39% (± 11%)	52% (± 24%)
Verbal Prompts - Total Number/Meal	0.8 (± 1.6)	16.3 (± 11.7)
Time Providing Assistance (minutes)	5.0 (± 7.2)	40.1 (± 14.2
Tray Access Time (minutes)	35.4 (± 15.7)	40.1 (± 14.2)

An analysis of individual data, however, showed that 12 (63%) of the 19 subjects significantly increased their intake as a result of the intervention, while the remaining seven subjects showed only small increases (i.e., < 10% gain) in intake. Five of these seven subjects reported general complaints related to the food itself (e.g., taste, appearance) while the remaining two expressed significant symptoms of depression in a structured interview and reported not being "hungry enough" to eat.

Research staff assistance was compared to NH staff assistance with respect to the total time spent providing any type of assistance (i.e., physical and/or verbal) and the number of verbal prompts provided to residents throughout the meal to encourage self feeding. Findings showed that research staff spent significantly more time providing assistance ($t = 11.14$, $p < .001$) and offered significantly more verbal prompts (range 1 to 50 per meal, mode=23; $t = 5.54$, $p < .001$) than NH staff (range 0 to 6 per meal, mode=0). Interestingly, tray access time did not differ significantly as a result of the intervention. These observational data describing what NH staff normally do during mealtimes are consistent with those reported in other studies previously reviewed in this chapter.

Despite the absence of larger, published trials describing the efficacy of feeding assistance interventions, there is strong expert consensus about the importance of providing NH residents with consistent assistance that maximizes their feeding ability. One expert consensus panel recently recommended that staffing levels, particularly the number of nurse assistants, be increased during mealtimes. Specifically, the panel recommended lowering the current ratio of seven to nine residents per Certified Nursing Assistant (CNA) during the day and 12 to 15 residents per CNA during the evening to three or four residents per CNA during both shifts, at least during mealtimes and for those residents who are eating dependent. The panel also recommended that a registered nurse be available during both shifts to provide adequate

supervision, appropriate assessment of resident feeding needs, and assistance to those residents who are more difficult or time consuming to feed. Panel members agreed that 30 to 60 minutes of nursing staff time per resident is necessary to provide "optimal" feeding assistance.[50]

14.3.6 Feeding Assistance: Labor Estimates

Investigators have reviewed strong evidence that residents receive inadequate feeding assistance under usual NH care conditions. In addition, case studies, expert consensus, and preliminary intervention data suggest that appropriate, consistent feeding assistance can improve food intake, at least under conditions in which such assistance is rendered with one-on-one supervision at a time cost of approximately 25 to 60 minutes per resident. The remaining key issue in determining the labor requirements of a feeding assistance intervention is how many residents are likely to require such assistance.

Estimates of the percentage of NH residents who require some level of feeding assistance range from approximately 30% to 50%, or higher. The estimates vary due to differences in definitions of "assistance" (e.g., total versus partial) and the type of assessment used to determine eating dependency (e.g., NH staff ratings, direct observations of residents during meals, response to graduated feeding assistance protocols that maximize self-feeding capability). A review of these studies follows.

All community NHs and some VA facilities use standardized assessment tools to rate residents' level of dependency in various activities of daily living (ADLs), including eating ability. A cross-sectional study of MDS data for 6832 residents from 202 NHs in seven states showed that 27.9% were "dependent" on staff for eating. Residents' level of dependency (e.g., partial or full) was not specifically reported in this study.[54] The national OSCAR data, which is also based on NH staff ratings of dependency status, indicates that 48% of the NH population requires some level of assistance (i.e., supervision to full assistance).[33]

Another study, conducted in a VA facility, examined the nutritional status of 130 residents using the Nursing Patient Classification. The subject sample represented 92% of the total resident population. In this study, 6% of the subjects were rated as "completely independent" in all ADLs, including eating; 45% were rated as requiring "partial assistance" in one or more ADLs; and 50% were rated as "completely dependent" in all ADLs.[55] Thus, a minimum of 50% of the residents required full feeding assistance. This estimate is conservative because an unknown number of additional residents required "partial assistance" with eating.

Instead of examining MDS data, Siebens and colleagues (1986) asked all NH staff (i.e., licensed nurses and nursing assistants) in one facility to complete a questionnaire about the diets, upper extremity dysfunction, signs of dysphagia, and self-feeding ability of 240 residents. A physician and speech-language pathologist conducted chart reviews and independent examinations of a sub-sample of 131 residents. It is unclear, however, whether these independent examinations included an evaluation of self-feeding ability. The NH staff reported that 47% of the subjects were "dependent". Of these subjects, according to NH staff, 33% required only "verbal

supervision" while 67% required physical assistance. Residents who required physical assistance represented 32% of the total NH population. Staff also reported that the need for physical assistance was variable for this group, with approximately 50% requiring physical assistance "all of the time" (i.e., every meal) and 50% requiring physical assistance "part of the time" (i.e.,. some meals and not others).[56]

Other studies have determined the prevalence of eating-dependency through direct observations of mealtimes and documentation of the level of staff assistance provided to individual residents. Implied in these studies is that staff have accurately assessed each resident's need for feeding assistance and are, thus, providing the appropriate level of assistance. This assumption may be flawed, because it is unclear what assessments NH staff conduct to determine a resident's need for feeding assistance. For example, Steele and colleagues (1997) conducted an observational study in which a Mealtime Screening Tool was administered to 349 residents in one facility. The tool was used to assess "current feeding assistance patterns" as provided by the indigenous NH staff, based on an observation of each subject for one complete meal. The primary purpose of the tool was to identify eating-related difficulties that interfered with oral intake. Based on the observations, research staff rated 51% of the subjects as "independent" and 49% as "dependent" or requiring (e.g., receiving) some level of staff assistance. The types of feeding assistance provided by NH staff ranged from tray setup (14%), monitoring (5%), verbal prompting (3%), partial physical feeding (8%), to total physical feeding (18%).[47] An important limitation of this study is that observations were conducted for only one meal per subject; thus, variability in feeding assistance was not measured. Other studies have shown that there is variability in the amount and type of feeding assistance NH staff provide to residents as well as residents' need for assistance.[48,49,56]

Another study, conducted in a long-term-care hospital for veterans in Canada, involved observations of 200 residents during all three meals on one day. Based on these observations, 25% of the subjects were rated as "completely dependent" on staff for eating and 15.5% were rated as "partially dependent" (i.e., observed to receive some assistance). Thus, a total of 40.5% of the subjects required some level of feeding assistance. This study also showed undernutrition was significantly associated with needing more than 25 minutes to complete a meal.[42]

Finally, one could estimate the number of residents who might need feeding assistance by estimating the number who consistently eat less than 75% of most meals. The 75% criterion serves as a trigger on the MDS for identifying residents who are at risk for potential nutritional problems. In three recent studies, research staff conducted independent assessments of food intake and compared these estimates to NH staff documentation of intake.[57,58,59] Results from two of these studies indicate that approximately 65% (Simmons & Reuben, 2000) to 75% (Pokrywka et. al., 1997) of NH residents eat less than 75% of most meals and, thus, are at risk for potential nutritional problems. All three studies found that NH staff significantly overestimated residents' intake levels by approximately 20% or more, compared to research staff estimates. As a result, NH staff may fail to identify many residents potentially at risk for undernutrition due to low food intake.

14.4 Activities of Daily Living (ADL) Independence Enhancement (Morning Care)

The studies investigators have reviewed that focus on multiple ADL care areas generally drew two conclusions: (1) Nursing staff provide excessive physical assistance to residents for most activities of daily living; and (2) Behavioral interventions relying on graduated assistance protocols quickly increase residents' independence. The fact that it takes less time to physically help residents complete an ADL task than it takes to motivate them to do the task by themselves is frequently cited as a primary factor that reinforces care patterns which create "excessive disability."

Two recent studies focusing on the ADL area of dressing provide specific data about behavioral intervention processes that promote independence as well as data about associated time costs. In addition, one of these studies provides information about the time required to complete all ADL morning care, including dressing, bathing, grooming, toileting, and oral mouth care.

In the first study, by Beck, et al., 1997, a behavioral intervention based on a graduated assistance protocol targeted a group of NH residents with cognitive impairment but no psychiatric diagnoses.[9] These residents had no physical disability that prevented them from dressing themselves. The types of physical disability that would have led to a subject's exclusion were not defined. Most of the 90 residents who participated in this study quickly improved in dressing independence, as measured by direct observations. The time required to implement the intervention was 5.10 minutes, with a standard deviation of .24 minutes (range 2.03 minutes to 12.58 minutes).

In the second study, Rogers, et. al., 1999, used a similar behavioral intervention and also targeted a group of demented NH residents. In this study, however, residents were not excluded for either psychiatric diagnoses or physical disabilities that prevented independent dressing. Presumably, this study targeted a more behaviorally disturbed and physically impaired NH population than the Beck study. This study also reported the total amount of time needed to complete all ADL morning care tasks, including dressing, bathing, toileting, oral hygiene, and grooming, during both usual care and the intervention period. The intervention targeted only dressing ability, and immediate improvements in dressing independence were produced. The total time for all ADL care activities was 10.5 minutes under usual care conditions and 20.09 minutes during the intervention period. Dressing care consumed an average of 4.10 minutes during usual care and 11.18 minutes during the intervention.[60]

Two other controlled studies have reported positive effects of behavioral interventions for multiple ADL skills.[10,61] The first study tested a behavioral intervention designed to promote independence in toileting, eating, dressing, grooming, standing, and walking. In this intervention, clinical specialists in geriatric nursing and one rehabilitation aide provided ADL practice to subjects in a group setting (up to eight residents). The sessions were conducted for 2.5 hours a day, five days a week, for 20 weeks. The intervention group showed significantly more improvement in independence than the control group. The authors speculate that a less

intensive maintenance protocol might be effective in maintaining the gains produced by the intervention, although they reported no data pertaining to maintenance issues.

Maintenance of ADL gains is a key problem according to two other reports. In one study, Blair, 1995, implemented a care process based on operant conditioning and reported immediate improvements in multiple ADL areas, including shaving, bathing, dressing, combing hair, feeding, and brushing teeth.[10] Unfortunately, the study did not report the amount of time needed to implement any of the care processes nor did it report how the intervention separately effected each of the ADL activities. The authors noted, however, that nursing staff reverted to their usual care practices, which promote dependency because of time pressures. Two other authors have presented reports from caregivers that they lack sufficient time to implement care practices that promote more independence.[36,37]

An additional study has provided data about the amount of time required to provide morning care, although it did not describe interventions targeted specifically toward ADL independence. In this study, the intervention was designed to promote better communication between caregivers and residents. Positive results were reported on multiple measures of communication with more mixed results on ADL independence measures.[62] The study reported that the total time needed to provide morning care during the intervention period was 13.7 minutes, not including time for incontinence care. This estimate is comparable to the 20 minutes for ADL care reported in the study by Rogers, et. al., 1999, which included time for incontinence care. As noted in other studies reviewed in this chapter, incontinence care consumes about five to seven minutes per episode.

14.4.1 ADL Morning Care: Labor Estimates

As previously noted, studies show that protocols that increase residents' independence in morning ADL dressing consume approximately 7 to 11 minutes per care episode. In addition, total morning care for *all* ADLs ranges from 14 to 20 minutes.

Several studies suggest that independence in morning ADL areas other than dressing can be improved with behavioral interventions based on graduated assistance protocols. These studies, however, have not provided specific data about the amount of time needed to implement these protocols, nor have they reported improvements in specific ADL areas. For these reasons, investigators chose to include only behavioral care processes that promote dressing independence in the analyses to be conducted in this chapter because of specific data describing both a process-outcome link and time costs. However, investigators will use the data provided by other studies to estimate the total time required to complete all ADL morning care. These data will be used to estimate how much time nursing staff have available to implement the behavioral care processes that promote independent dressing. It should be noted that the time needed to provide this "other ADL" care under usual care conditions does not include time to implement protocols designed to increase independence. Implementing graduated assistance protocols for these "other" areas would almost certainly increase ADL time above that spent in usual care conditions. Finally, investigators will assume that residents will require the same time

from nurse aides for p.m. care (e.g., going to bed) as they do for a.m. care. Investigators could locate no studies that specifically reported p.m. care times, but the ADL tasks appear to be identical during the a.m. and p.m. time periods (e.g., clothes changing, oral care, etc.).

The remaining key labor requirement issue concerns how many residents would need behavioral protocols that promote ADL independence. Unfortunately, the clinical trials that have been conducted—and reviewed in this chapter—used different subject inclusion criteria. With their descriptive data, it is not possible to estimate the number of NH residents who would likely need ADL dressing protocols. Two alternative sources, however, provide information about the number of residents who are either semi- or totally dependent in multiple ADL skills and/or dressing. The most recent OSCAR data indicates that approximately 85% of NH residents are either dependent in or require assistance with dressing.[33] A second study using a large MDS database reported that 14% of residents in the sample were independent in seven ADL areas: bed mobility, eating, toileting, transferring, locomotion, dressing, and grooming. This study did not report specific ADL dressing data, but assuming that dressing is an early ADL loss, investigators can project that most residents who are dependent in some ADL area (86%) have problems with dressing.[63] This study also reported data about the total amount of nursing time needed to provide assistance to residents with different ADL limitations under usual care conditions. Unfortunately, time amounts were not reported for different types of nursing staff (licensed vs. nurse aides) nor was specific information given about the amount of time needed to provide care for any one ADL area (e.g., dressing).

14.5 Exercise

Investigators could find no practice guidelines for NH residents written explicitly on the topic of exercise, even though multiple quality indicators prescribe exercise for both treatment and prevention purposes. Quality indicators recommending exercise were approved in the ACOVE project for such diverse conditions as osteoporosis, falls, prevention of disability, and residential life quality. For example, the approved quality indicator pertaining to residential life quality reads as follows: "If residents are physically inactive, then they should be provided with assisted exercise daily unless they refuse."

Investigators reviewed a number of both controlled and uncontrolled intervention studies that generally reported beneficial outcomes of exercise for NH residents. Investigators elaborate here on primarily the controlled studies.

In their largest controlled study, Fiatarone and her colleagues evaluated a progressive resistance-training program with ambulatory and mildly cognitively impaired residents in a long-term-care facility that included both NH and assisted living residents. The progressive resistance training was implemented three times per week for 45 minutes per day with one-on-one supervision of participating residents. The researchers reported significant improvements in resident leg muscle strength, stair-climbing power, and physical activity, at least during the training days. There was also a trend for significant increase in muscle mass.[64]

Two controlled studies have evaluated the effects of a walking endurance intervention for ambulatory NH residents.[65,66] One study recruited residents similar to those recruited for the Fiatarone study with respect to ambulatory status, but these subjects were more cognitively impaired, and all of them lived in NHs. In this study, supervised walking exercise was offered once a day for 30 minutes for 12 to 22 weeks. Significant changes were reported on two walking endurance measures. The second study also evaluated a walking exercise intervention implemented three days a week for 30 minutes per day for 10 weeks. This study recruited ambulatory but severely cognitively impaired residents who suffer from Alzheimer's Disease and reported significant improvements on a communication score measure.[66]

One controlled study recruited incontinent NH residents who were significantly less ambulatory than the subjects who participated in all the preceding controlled trials but who were as cognitively impaired as the residents who suffer from Alzheimer's Disease in the previous study.[67] In this trial, 60% of the residents used wheelchairs for mobility and 40% could walk safely only with some human assistance. Sit-to-stand exercise and walking or wheelchair endurance was integrated with an incontinence care protocol that was offered every two hours between 8:00 a.m. and 4:00 p.m. The residents were offered the opportunity to exercise four times per day. Residents complied with the exercise three times per day, and the exercise added approximately six minutes per incontinence care session. The total time for incontinence care plus exercise was about 13.2 minutes per session, with a range from 2 to 17 minutes. Significant improvements in walking, wheelchair, and standing endurance were reported for the exercise group while direct observational measures of agitation showed significant improvements in both the exercise group and the group randomized to incontinence care only, which received extensive social interaction.

More recently, a controlled study reported the effects of an exercise program implemented by NH staff and volunteers on three performance measures (sit-to-stand, balance, walking endurance) as well as ADL decline as measured by the MDS.[7] There were no significant differences between the intervention and control groups on the three performance measures, but the exercise intervention group showed significantly less decline on ADL scores than the control group. The study did not report how many residents participated in the exercise sessions or how much time was devoted to the sessions. Endurance training was offered every other day (on alternate days, resistance training sessions were offered), and nursing staff "monitored" residents' walking for up to 20 minutes during these sessions. The study noted that an unknown number of residents who were assigned to the exercise group did not exercise because of either cognitive or physical impairments. The specific ADL performance of these subjects was not separated from the performance of those subjects who participated in the exercise sessions. No information was provided about the differential ADL performance of these two groups. Despite the absence of more specific data about the exercise program, the associated time costs, and the number of staff or residents involved in the program, this study does have important implications for this chapter. The study implies that an unknown number of volunteers can supplement NH staff to successfully implement an exercise program.

Three other controlled studies evaluating exercise interventions reported mixed results. One study randomized a small group of 15 residents without significant cognitive impairment to an exercise program based on cycling activity and upper body exercise.[68] The program was implemented three times a week for an unknown period of time, although it was clear that the residents could not tolerate more than five to ten minutes of activity during any one session. Due to this level of deconditioning, a rest session was scheduled between the exercise sessions. This study reported significant increases in upper body strength but no improvements in lower body strength. The researchers attribute these mixed results to a high illness rate among the subjects.

A second study randomized 97 restrained NH residents to an exercise intervention that involved rowing, walking, or wheelchair endurance training for approximately 20 minutes a day, and behavioral training based on the principal of over-correction for safety issues (e.g., locking wheelchair before sitting down).[69] The sessions were conducted three times per week. Compared to the control group, the exercise group showed significantly more improvement in wheelchair mobility endurance and upper body strength measures, but not in walking endurance or measures of lower body strength. In addition, the objective performance measures of fall risk showed statistically significant but not clinically significant differences between groups. This study reported that many residents did not complete the exercise program because of either illness or failure to comply with the exercise protocol due to behavioral disturbance issues.

The third controlled study evaluated an intervention implemented by physical therapists three days a week for approximately 30 to 45 minutes a day for four months.[70] This study reported no differences between intervention and control groups on most of the physical performance measures and observational measures of a resident's ability to perform ADLs, although there was improvement on one mobility endurance measure. This study implied that the high frailty and illness rate that characterizes the NH population limited the effectiveness of the intervention. Indeed, all three of the controlled exercise studies that reported negative or mixed results cited residents' frailty and inability to consistently participate in exercise interventions.

In addition to the clinical data, there is evidence that residents value exercise interventions. One study reported that residents valued a program that provided at least 15 minutes of supervised activity or exercise per day over such options as private rooms or better food.[28] These preference data reinforce those reported in a nationwide study that used quantitative procedures to prioritize services valued by NH consumers.[21] In this study, access to physical therapy programs was the most valued service. A third study reported that NH residents who require ambulation assistance from staff reported a preference for receiving walking assistance twice a day and also expressed dissatisfaction with the number of assists per day that are actually provided in NHs.[19]

14.5.1 Exercise: Labor Estimates

Investigators reviewed controlled studies indicating that either progressive resistance training or endurance training has beneficial effects on residents who can ambulate without physical assistance if implemented from three to five times per week for 30 to 45 minutes per session.

Another controlled study targeting less ambulatory and more physically frail incontinent subjects also reported positive effects from an exercise intervention that consumed approximately 18 minutes per day beyond the time needed to provide incontinence care. Two other controlled studies reported both positive and negative effects of exercise on ADL function, but either provided no data about time costs (e.g., Morris, et. al., 1999) or described interventions that were not under the control of nurse aides (e.g., Mulrow, et. al., 1994).

The clinical outcome's data do not make an overwhelmingly strong case that exercise interventions will produce important changes in resident functioning, but they generally indicate that residents who are healthy enough to consistently participate in exercise enjoy some positive outcomes. When this clinical data is considered along with residents' preferences, a strong case can be made that exercise care processes are valued, potentially beneficial, and should be a daily care practice offered to residents.

Furthermore, because exercise is conceptualized as a prevention intervention, all NH residents, with the exception of those few who are bed-bound or who prefer not to exercise, would be candidates for exercise. With bed-bound residents, investigators assume that some range of motion exercise (either passive or active) is necessary to prevent contractures, although the Mulrow, 1994, study suggested that such exercise was ineffective. Unfortunately, it is unknown how many residents would rather not exercise or cannot exercise because they are sick at the given time period. Thus, for the purposes of this chapter, investigators will assume that all NH residents are candidates for exercise, at least on days when they are well.

The subject recruitment criteria described in the clinical trials provide further assistance in identifying the time cost of the exercise care processes. Investigators can also assume that the NH residents can be roughly subdivided into three major groups with respect to the type of exercise most appropriate for them. Residents who are incontinent, or those who receive toileting assistance, are generally more cognitively and physically impaired than continent residents and comprise 70% of the NH population. These residents are candidates for the previously reviewed intervention that was integrated with incontinence care and which consumed about 18 minutes per day beyond incontinence care.[67] If this intervention were not integrated with incontinence care, the time cost would be higher due to the extra time needed to locate residents for the singular purpose of exercise. Less cognitively impaired and ambulatory residents, most of whom are very likely not incontinent, are good candidates for either the progressive resistance training or walking endurance programs, which are implemented 30 to 45 minutes per session, three to five times per week.[64,65,66] Although the continence status of the residents who participated in these exercise trials was not reported, investigators do know that the participants were significantly more cognitively intact and more ambulatory than the incontinent residents who participated in the exercise trials. The assumption that these ambulatory residents generally were not incontinent and did not need toileting assistance is justified based on these data and the fact that immobility and dementia are the two primary risk factors for incontinence in NHs.

If 70% of residents in a NH are incontinent and approximately 8% are bed-bound, as reported on 1997 OSCAR, investigators project that the remaining 22% are candidates for the walking endurance or progressive resistance training interventions. With respect to bed-bound residents, there are no studies to the investigators' knowledge that have documented a relationship between a specific range of motion exercise and an outcome measure. However, given that range of motion exercise is required as "standard care" for bed-bound residents, investigators will assume that this group requires two to three minutes of such exercise four times a day, to be integrated with other care (e.g., incontinence care).

Investigators found three studies that report the frequency of exercise or activity provided to residents under normal NH conditions. In one study, restrained residents who were capable of independent ambulation were observed in assisted walking movement on less than 1% (.6) of 48 observations conducted over two days.[71] In the same study, residents who were ambulatory and unrestrained were observed in movement on 16% of the observations, although 22% of these residents were never found walking on any of the observations. Measures of fall risk were significantly predictive of low activity levels for both restrained and unrestrained residents, suggesting that residents' fear of falling limits their willingness to move, even when they are unrestrained and they can do so independently.

A second study of 230 residents in eight NHs described the location of residents between 6:00 a.m. and 7:00 p.m. These location data suggest a high degree of physical inactivity. The residents were observed in bed on an average of 36% of the observations, with the majority of residents in bed before 10:00 a.m. and after 4:00 p.m.[72]

In a third study, residents who were capable of independent ambulation but who required assistance were observed every 15 minutes for one minute between 7:00 a.m. and 5:00 p.m. for three consecutive days. The study reported that residents received an average of .23 walking assists per day (mode 0 to 2), although their stated preference was for an average of two assists per day.[20]

These three studies suggest that NH residents, even those capable of independent ambulation, are extremely inactive under usual care conditions, receive less supervised walking assistance than they prefer, and spend more than 36% of the daytime period in bed.

14.6 Input Variables for Staffing Model

14.6.1 Input Variable I: Estimating Amount of Nurse Aide Time Available to Provide Direct Care

Investigators considered two approaches to estimating this input variable. For the first, investigators reviewed studies that estimate the amount of time residents receive care from nurse aides and considered using these calculations as potential estimates of the "time available" to provide care. This approach works if one assumes that the amount of time residents reportedly received care in these studies reflects what nurse aides are capable of providing under normal work conditions and if the studies provide consistent data. Both points proved problematic.

One study (by Holmes, et. al., In Press)[73] using a computerized time recording procedure, reported that the total time a resident received either direct or indirect care from a nurse aide in a 24-hour period was 44.8 minutes. This study was conducted in both special care and traditional care units in NHs and documentation activities were considered to be indirect care activities. This study divided the total time by shift and reported that, on average, a resident would receive care from nurse aides for 19.1 minutes on the 7:00 a.m. to 3:00 p.m. shift, 15.2 minutes on the 3:00 p.m. to 11:00 p.m. shift, and 10.3 minutes on the 11:00 p.m. to 7:00 a.m. shift.

Using the same computerized time recording procedure as the Holmes study, a second series of studies, which led to the RUGs used by HCFA for prospective payment, reported that the average time a resident received direct/indirect care from nurse aides in a 24-hour period was 139 minutes.[74] These studies did not provide time estimates for each shift. Unlike the Holmes study, these studies included many residents on transitional care units, in addition to chronic care residents. Staffing ratios in transitional care units may be higher than those in traditional NH units, and transitional care is not the focus of this paper.

Ultimately, investigators decided not to base their time estimate on these studies for two reasons. First, the studies report significantly different time estimates. Second, staffing levels in the facilities during data collection were not reported in any of the studies. Given the large discrepancy in the studies' time estimates, the work or staffing conditions in the two groups of NHs must have been very different. For example, if the daily time estimate in the Holmes study (44.8 total minutes over 24 hours) was distributed over 24 hours, then a resident would receive only about two minutes of care per hour. Does this reflect poor management of nurse aides or typical work patterns that actually exist in NHs? Alternatively, assuming that the RUGs data are more accurate presents another dilemma because these time estimates exceed the average nurse aide minutes reported as available by NHs in OSCAR.[33] According to the OSCAR data, 126 minutes of nurse aide time is scheduled per resident per 24-hour period. By comparison, the RUGs studies reported that 139 minutes of nurse aide time is received per resident in a 24-hour period.

Rather than assume an arbitrary ratio for the number of minutes per hour that aides could deliver direct resident care, investigators chose to use a second approach. Investigators developed a simulation of the process of delivering care and assumed that nurse aides are available to provide care during their scheduled shift time whenever they are not specifically on meal breaks or other scheduled breaks. Thus, full-time aides scheduled for an eight hour shift (480 minutes) are available to deliver care for seven hours (420 minutes, that is 480 minutes minus 60 minutes for breaks/ meals). Investigators then included in the simulation not only the time spent directly

delivering care to residents, but also an estimate of how much time it would take aides to locate residents and walk to and from care delivery. This was necessary because the studies that do report time estimates for providing efficacious care processes (e.g., feeding assistance) do not include time estimates for locating and transporting residents so that this care can be delivered. Moving between residents to provide care can be very time consuming, as evidenced by one observational study that found that walking was the most frequent aide activity observed.[75]

To estimate transportation time, investigators first collected data describing how much time it took research staff to locate residents and to provide exercise and incontinence care in an on-going NIH clinical trial project. These observations were conducted on two floors with different configurations that represented two typical NH floor arrangements, according to one report.[76] One was an L-shaped floor with the nursing station centrally located and the other was T-shaped, also with a centrally located nursing station and dining room. Observations of 130 care episodes revealed that it took approximately 3 minutes between the time one care process was terminated with a resident and the time another was initiated with a second resident. Investigators then estimated the total time that an aide would spend locating residents by simulating the movement of aides from one resident room to another during episodes of scheduled care. Investigators assumed that aides traveled at typical rates observed in other health-care settings, that is 114 feet per minute when moving by themselves and at the speed of the residents when accompanying residents. Investigators estimated, based on published reports, that wheelchair-bound residents move at 30 feet per minutes (.16 meters per second) and residents requiring assistance walk at 40 feet per minute (.2 meters per second).[67] These assumptions resulted in simulated average travel times of less than 1.5 minutes per episode of care. Thus, the investigators simulated travel times are conservative underestimates compared to the times observed in the field.

A second assumption affects the percentage of time an aide spends in travel; that is, the degree to which services for a resident are “bundled” on a single trip. In the simulation, services such as toileting assistance, range of motion exercises, repositioning, or housekeeping services were combined when this was reasonable (based on time of day) and feasible (based on upcoming shift changes or time-limited services such as meals). Investigators assumed a different type of "bundling" when aides needed to accompany residents to and from the dining hall. In this case, rather than have the aide escort one resident at a time (with a separate trip to pick up each resident), investigators assumed that a single aide could make a "sweep" down a corridor escorting up to seven residents on a single trip. These assumptions combined to produce about 5 minutes of travel time per aide per hour worked. This varied by shift, with aides on the 11:00 p.m. to 7:00 a.m. shift spending about 25 minutes per shift in travel, while day and evening shift aides spent about 40 minutes per shift. Given the conservative nature of their assumptions, investigators believe that aides will spend at least this much time in walking to and from care episodes in real NH operations.

Output from the investigators’ simulation was used to estimate the fraction of time that aides actually spent in direct resident care, as well as the time they spent in direct care plus travel, based on the assumptions above. The investigators’ detailed findings are presented and discussed in the Results section. While varying by shift and staffing level, the estimates

averaged more than 40 minutes of direct care in a 60-minute period, a number consistent with field observations.

Two observational studies that focused on describing the work behavior of nurse aides provide information to substantiate the validity of this 40-minute time estimate.[75,77] Unlike the time studies described previously, these observational studies focused on the work behavior of nurse aides rather than the amount of time residents received services.

The two studies differ in their observational strategies and definitions of work activities in several critical ways. One study, for example, collected information about three different staff members, most of whom were nurse aides, every 15 minutes during the 8:00 a.m. to 5:00 p.m. shift.[77] For the second study, the researchers scanned the hallway and recorded the behavior of the first two staff members they could locate, collecting the data at the point of location. With regard to their definitions of direct resident care activities, one study included documentation activities while the other did not.[75]

Despite these differences, the studies reached remarkably similar conclusions regarding the percentage of observations that found nurse aides providing direct care. In one study, 67% of all observations were of direct care activities such as bathing, incontinence care, shaving, feeding, and "procedures." In the second study, it was more difficult to calculate all "direct" care activities, but easy to distinguish the percentage of observations during which nurse aides provided no resident care. In this study, nurse aides were using the phone on 2% of the observations, sitting alone or simply not working on 14.5% of the observations, and talking with other staff on 16.8% of the observations (total = 33%). Both studies, thus, concluded that approximately 67% of all observations were of direct resident care activities.

Neither study recorded the "duration" of observed resident care activities, so investigators cannot translate their "percentage of total observations" directly into a time measure. At the same time, however, it is likely that a correlation exists between the frequency of observed activities and the amount of time engaged in them.[78]

The authors of both studies note that their data indicate more resident-care behavior than was reported by similar observational studies conducted in acute-care facilities or facilities for the developmentally disabled. Thus, both research teams openly worried about the possibility that their observations were reactive and improved the work behavior of the staff being observed. Despite their limitations, the studies provide specific and consistent advice about how to estimate the amount of time that nurse aides have available to provide direct care.

These studies suggest that an estimate of how much time aides have available to provide care can be derived by correcting the 60 minutes that it is theoretically available to provide care by a 33% correction factor, suggested by both studies as the amount of time that aides spend in non-direct care activities. The resulting figure of 40.2 minutes for direct care (60 minutes minus 33%) is very similar to the figure that investigators derived by their alternative approach of correcting 60 minutes per hour by times for breaks, meals, and travel time. In both cases, the 40 minutes per

hour available to provide care most likely reflects NH work conditions in which direct care staff are either very well-managed or working unusually hard.

Finally, there is also the issue of how to evaluate the time required to provide necessary care that did not meet the investigators' inclusion criteria for a process-outcome link. In the absence of defensible data about how much time such other care takes, investigators decided to be conservative in estimating these time requirements. Investigators allowed 15 minutes for a shower or bath on a schedule of approximately twice per week and 10 minutes per day for such housekeeping tasks as making beds, sorting laundry, replacing supplies, etc. In cases where residents needed no assistance with a specific ADL care area because of their independence, investigators assigned a minimum time of one to two minutes for such nurse aide activities as providing these residents with their food trays or checking with them in the morning as they were getting up. Investigators also assigned five minutes at the beginning and end of each shift for shift report and documentation activities. Finally, interviews with nurse aides at sites participating in the investigators' clinical trials indicated that they also spend time in unscheduled care activities. For example, answering requests for assistance, cleaning up spills, or transporting residents to doctors' visits. Investigators decided to account for some of these unscheduled events in some of the work scenarios that they evaluated because of their surprisingly large impact on work scheduling and efficiency. In general, investigators believe that their estimates of time spent on all of these other care-related activities are extremely conservative, as investigators will discuss further in the "Limitations and Future Directions" section of this chapter.

14.6.2. Input Variable 2: Time to Provide Care

There are two components to this input variable: (1) The amount of time that it takes to implement a care process per episode of care, and (2) the number of episodes of care that are required to produce a beneficial outcome. For example, how long should a resident receive walking exercise on any given exercise session, and how frequently should the sessions be scheduled to produce beneficial effects?

It was problematic to arrive at a specific number for this critical input variable. These problems were created in part by the way research trials and practice guidelines are designed and reported. Most notably, time to provide a care process was not calculated in many studies that otherwise validated a process-outcome link, and practice guidelines do not report labor time associated with their assessment and intervention recommendations. Labor times are also effected by work routines. For example, practice guidelines recommend multiple care routines for pressure sore prevention including repositioning, incontinence care, and mobility exercise.[14] It is obvious that these care routines should be integrated in daily practice for efficiency purposes and should not be viewed as independent processes to be scheduled separately (e.g., changing one hour and repositioning at another). In most cases, however, there is scant data to describe time costs when care routines are integrated or scheduled in consideration of efficiency.

14.6.3 Input Variable 3 : Number of Residents that Need Care

The total amount of time per work period or shift that a nurse aide must spend in providing efficacious care is a product of input variable 2 and the number of residents who need a specific care process. For example, if incontinence care takes 7 minutes per episode and must be delivered 3 times per shift to produce high levels of dryness, then any one resident will require 21 minutes of direct incontinence care in an 8-hour period (Input Variable 2). However, the total time demand on the aides delivering care would be 21 minutes multiplied by the number of residents who need the incontinence care. Thus, if four residents need incontinence care, then the total time required of aides in any one shift is 4 multiplied by 21 minutes or 84 minutes.

Two problems arise with regard to projecting the number of residents who need a specific care process. The clinical studies investigators reviewed vary with regard to their subject exclusion criteria and seldom report the number of residents who were either responsive to or preferred a particular intervention once it was implemented. Ideally, an estimate of the number of people who are candidates for a care process should be based on data concerning the number of people who either want or are likely to be responsive to the care process. For example, investigators know that 33% to 50% of residents who are incontinent are likely to be responsive to a toileting care process.[11,12] Thus, it would be inappropriate to assume that all incontinent residents are good candidates for toileting assistance. Unfortunately, investigators have no information about how many residents either want or would be responsive to the exercise, feeding assistance, or ADL independence enhancement protocols that they are evaluating.

14.6.4 Investigators' Approach to Estimating Input Variables 2 and 3

1. Investigators used responsiveness data when possible; but in the absence of such data investigators used only descriptive data about the number of residents who have a problem (e.g., dressing dependence) as an estimate of the number of residents who are candidates for a care process.

2. In cases where multiple care routines could be integrated and when it might be possible to provide simultaneous care to multiple residents, investigators made reasonable estimates about the time required to implement the integrated care.

3. With regard to work scheduling efficiency, which impacts on how well different care activities can be integrated for implementation, investigators developed a scenario that permitted 100% of care to be delivered with the minimal number of staff.

The efficiency scenario presumes that most residents are out of bed by 8:00 a.m., many nap in bed around 2:00 p.m. but, after waking, do not return to bed for the night until after 7:00 p.m. In this scenario, most residents eat all meals in the dining room, where they receive feeding assistance in groups. All other care processes are scheduled around or integrated with the labor intensive mealtimes.

To implement this scenario, it is necessary for nurse aides to provide the morning ADL care to approximately 20% of the residents who need it between 6:00 a.m. and 7:00 a.m. Investigators consider this schedule feasible given that some residents seem to prefer early rising times. The day shift then completes all ADL care for the remaining residents between 7:00 a.m. and 8:00 a.m. except for the full bed bath, which is delayed until later in the morning so that there is sufficient time for breakfast. Also in this scenario, and again to save time for feeding assistance at breakfast, all residents who require ambulation or wheelchair mobility assistance are actively transported to the dining room by staff between 8:00 a.m. and 9:00 a.m. Investigators considered this type of resident transport necessary in order to save time for feeding assistance at breakfast. Research findings provide the rationale. Studies show, for example, that wheelchair-bound residents independently wheel their chairs at an average of .16 meters per second when given frequent encouragement; the average resident who requires human assistance with walking strolls at approximately .20 meters per second.[67] Investigators estimate that approximately 70% of NH residents move at these speeds. Thus, it would take four to six minutes of staff time per resident to provide mobility assistance between 8:00 a.m. and 9:00 a.m., with a consequent loss of time to provide feeding assistance. Alternatively, staff, who walk much faster than residents, can transport residents to the dining room in significantly less time. Based on data describing residents' ambulation ability, investigators project that approximately 22% of NH residents can move to the dining room without staff supervision and approximately 8% of residents will be bed-bound or otherwise sick and unable to go to the dining room on a particular day. Data to support the investigators' projection that 70% of residents can move to the dining room with supervised assistance is provided in the literature review on exercise.

Despite the lack of early morning exercise under this scenario, most residents will be in the dining room for breakfast, so investigators can assume that the feeding assistance protocols, which have proven effective on a one-on-one basis, can be implemented with groups of residents. In this regard, investigators assume that residents who are completely dependent on staff for food assistance could be fed in groups of two and that residents who needed only prompting or minimal assistance could be fed in groups of four. The literature review on feeding assistance only provides data about the time needed to provide feeding assistance to residents on a one-to-one basis, but there is some indication that residents could be provided such assistance in a group social context.[52] Investigators divided the time reported spent in providing assistance in a one-to-one situation by the number of people in the group. In addition, since all residents, except those few who are bed-bound, will be in the dining room, the exercise and incontinence management protocols can then be integrated and delivered between 10:00 a.m. and 5:00 p.m., with residents receiving exercise on the way to their rooms for incontinence care or naps; en route to shower rooms for baths; or on their return to the dining room for lunch or dinner. Residents who are not incontinent, bed-bound, or catheterized (approximately 30% of a typical aide's work load) and who are more ambulatory can also participate in group exercise sessions four times per week, 30 minutes per day, starting from the dining room area.

Investigators also conceptualized other scenarios that involve more flexible mealtimes and operate on different assumptions about the number of residents want to eat in the dining room, want to exercise, or want any of the other care processes investigators selected for evaluation.

These scenarios place a greater and much-needed emphasis on individualized care, based on a resident's preferences. Space and time constraints prevent us from either describing or analyzing the outcomes of these individualized care scenarios. However, investigators believe such analyses should be conducted given that individualized care has been recognized as an important element of quality; is not being considered in the work scenarios investigators are analyzing; and yet has such important staffing implications. Most notably, more staff members than those projected in the investigators' efficiency focused scenarios would be necessary to individualize care due to the loss of efficiency that results when residents are not managed in groups (e.g., all residents eat in dining room). Investigators will discuss some of these issues in the Future Directions section of this chapter.

14.7 Methodology and Analysis Strategy

14.7.1 Analytical Approach Simulation Logic

To estimate the number of staff needed to provide all recommended efficacious care to residents, investigators developed a computer simulation of the process of delivering care. Simulation is a flexible tool that is especially appropriate for evaluating the effects of physical layout, staffing levels, and service scheduling on the level of services provided, resident waiting time, and staff workload. Simulation has been used as an analytic tool in many areas of health care, including emergency departments,[79] operating rooms/surgical suites,[80,81] clinic applications,[82,83] and inpatient applications.[84,85] MedModel™, a PC-based program, allowed us to model both the physical layout of a typical nursing unit and characteristics of the residents. Simulation has the advantage of allowing us to model several realistic scenarios, including factors such as:

- observed variation in time to deliver a service;
- aide travel time from one resident to another;
- the need to accommodate breaks for staff;
- the fact that some services (i.e., morning care and meals) must be delivered in a relatively narrow time window, while others (e.g., showers, putting away laundry, and exercise) can be worked into available slack periods during the day;
- the need to accommodate unscheduled events, which may occur at different rates through the day.

The output of the program included shift-by-shift estimates of workload estimates of time spent in direct resident care and in travel, estimates of the total minutes devoted to each of the recommended services, and the approximate time of day when time-critical services were completed on all residents.

For the physical layout, investigators used a 40-bed nursing unit with a T-shaped floor plan and a centrally located nursing station and dining hall. Each branch of the T was equipped with a bathroom with a shower. Investigators assumed that toilets and sinks were available in each resident room.

Based on resident characteristics, investigators created a schedule of recommended services and the estimated times to complete them. Nurse aides were assigned to typical shifts, with two scheduled 15-minute breaks and a 30-minute meal period. The simulation of a 24-hour period involved:

- the arrival and departure of staff, with five minutes for shift reports at the beginning and end of each 8-hour shift and breaks occurring as close to their scheduled times as possible without interrupting already in-progress service to a resident;

- provision of scheduled services, with aides traveling from one resident to the next to deliver care, spending the estimated times appropriate to each resident type;

- in some scenarios, the addition of random, unscheduled demands for services (representing resident call lights, spills, accidents, and similar events).

14.8 Resident Service Categories and Staffing Model Input Data

Table 14.2 provides time and frequency estimates for five evidence-based care processes that nurse aides perform. These estimates are provided for each of six major categories of residents. Investigators divided residents into these six categories by considering the care processes that residents receive because of either their disabilities or projected responsiveness to the care protocols (e.g., toileting). The columns of the table illustrate, for each of the five evidence-based care processes, the time required to complete the process and the minimum frequency for providing the services. All of the numbers in these columns were justified and more fully described in the Review of Literature section of this paper.

The first two rows of the table (groups 1 and 2) illustrate residents who are ambulatory without human assistance, whom investigators project to be approximately 30% of the NH population. These residents are equally divided into 14% who need no assistance with ADLs (Row 1) and those who need independent ADL enhancement care. This number was based on data that suggests that 14% of NH residents are independent in all ADL areas and that approximately 85% need assistance with dressing.[63] Investigators project that none of the residents in these first two categories would need incontinence care since immobility is a primary risk factor for urinary incontinence. Likewise, these residents, by definition, do not need human assistance with repositioning. However, all of these ambulatory residents would need exercise for 30 minutes every two days (3.5 times per week or .5 times per day).

Groups 3 through 6 in Table 14.2 are all incontinent and would need incontinence care, exercise integrated with incontinence care, and ADL enhancement exercise. Differences in the time devoted to incontinence care in these four groups is primarily due to Group 3's ability to be responsive to a toileting program that is more time-consuming than changing.

Table 14.2 Frequency and Time Input Data for Care Processes (Ideal Staffing)																	
Patient type	**% of Residents**	**a.m. CARE**		**EXERCISE**		**CHANGE OR TOILETING**		**REPOSITIONING**		**GROUP FEEDING ASSISTANCE**		**SHOWER**		**p.m. CARE**		**HOUSEKEEPING**	
		Time	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**
1. Continent, Independently ambulatory, no diapers, no need for repositioning, no need for ADL enhancements, fully independent eating Frequency: 15% (6 of 40)	15.0%	2	1 per day	30	Every other day	0	0	0	0	1	3 per day	15	Every fourth day	2	1 per day	5	2 per day
2. Continent, Independently ambulatory, no diapers, no need for repositioning, ADL enhancements needed, fully independent eating Frequency: 15% (6 of 40)	15.0%	11	1 per day	30	Every other day	0	0	0	0	1	3 per day	15	Every fourth day	11	1 per day	5	2 per day
3. Incontinent, Assisted ambulation, day toilet/night diapers, repositioning needed, ADL enhancements needed, fully independent eating Frequency: 20% (8 of 40)	20.0%	14	1 per day	6	3 per day	7-day, 5-night	7 per day	3.5	3 per day	1	3 per day	15	Every fourth day	14	1 per day	5	2 per day
4. Incontinent, Assisted ambulation, 24 hour diapers, repositioning needed, ADL enhancements needed, semi dependent eating Frequency: 40% (16 of 40)	40.0%	14	1 per day	6	3 per day	5	8 per day	3.5	2 per day	7.5 (in groups of 4)	3 per day	15	Every fourth day	14	1 per day	5	2 per day
5. Incontinent, Assisted ambulation, 24 hour diapers, repositioning needed, ADL enhancements needed, dependent eating Frequency: 4.5% (2 of 40)	5.0%	14	1 per day	6	3 per day	5	8 per day	3.5	2 per day	22.5 (in groups of 2)	3 per day	15	Every fourth day	14	1 per day	5	2 per day
6. Incontinent, Bed bound, 24 hour diapers, repositioning needed, ADL enhancements needed,	5.0%	14	1 per day	2	3 per day	5	8 per day	3.5	2 per day	22.5 (in groups of 2)	3 per day	15	Every fourth day	14	1 per day	5	2 per day

dependent eating Frequency: 5.0% (2 of 40)																	
Average time per patient (over all patients):		11.75		16.50		28.40		5.60		17.25		3.75		11.75		10.00	
Total = 95 minutes																	
Note: Shift report time (10 minutes per day) is not presented I this table which illustrates care frequency per day and time on a per-resident basis. A total of 10 minutes of aide time for all residents is assigned to shift report and documentation. The a.m. and p.m. care does not include incontinence care, and repositioning may be combined with toileting or changes																	

All six groups of residents receive the same bathing assistance (e.g., shower every four days) and ten minutes is allowed per resident for such housekeeping duties as changing bed linens, replenishing supplies, and managing laundry.

Investigators decided to distribute the 50% of residents whom they predict will need feeding assistance across the three highest acuity groups (Groups 4, 5, and 6) based on the assumption that there is a positive association between the need for feeding assistance and the extent of other ADL limitations. Following this logic, investigators placed all residents who need complete assistance with feeding (estimated 10%) in the two highest acuity groups (Categories 5 and 6) and residents who need prompting or minimal assistance in Group 4. In the "efficient environment" care scenarios investigators modeled (Scenarios A and B), morning care is completed before breakfast and residents are brought to the dining room to be fed. This allows an aide to simultaneously feed four semi-dependent residents over a 30-minute period or two dependent residents over a 45-minute period. These group feeding models are also used for lunch and dinner.

14.9 Simulation A and B: Minimal Number of Staff Necessary to Provide all Services

Investigators first simulated a work-scheduling scenario that would allow for the minimum staff to provide all recommended care listed in Table 14.2 to 100% of the residents. This required us to begin a.m. care at 6:00 a.m. with, at least, some people and to use part-time aides during peak times (6:00 a.m. to 10:00 a.m., 12:00 p.m. to 4:00 p.m., 5:00 p.m. to 9:00 p.m.). All residents were fed in the dining room so that efficient feeding assistance could be offered. Any other staffing distribution resulted in less efficiency (e.g., more staff were needed to provide care and/or there was increased idle time on the part of the staff who were present). The major difference between Scenario A and B was that in Scenario B investigators allowed for a low volume of demands for unscheduled service. These unscheduled requests were assumed to take 5 to 16 minutes, with an average time of ten minutes required. Requests or other needs for assistance were programmed to occur probabilistically, with an average of four requests coming from 11:00 p.m. to 7:00 a.m. and 16 requests coming in from 7:00 a.m. to 11:00 p.m. In other words, the 40 residents in the investigators' sample generated an average of 0.5 requests per 24-hour period.

14.10 Simulations to Identify Outcomes of Less-Than-Ideal Staff

Scenarios C and D were designed to reflect the outcomes of a more typical NH staffing level. Investigators projected a ratio of 10 residents to one aide on the 7:00 a.m. to 3:00 p.m. shift, 13.3 residents to one aide on the 3:00 p.m. to 11:00 p.m. shift, and one person for 40 residents on the 11:00 p.m. to 7:00 a.m. shift. A variant with two aides on the 11:00 p.m. to 7:00 a.m. shift (ratio: 20 residents per aide) was also modeled. The investigators' intent with these scenarios, once again, was to maximize the amount of care that can be delivered with the available staffing time. However, in these scenarios the frequency of some processes had to be reduced from the recommended level (less repositioning or toileting) and the time it takes to provide a service also had to be reduced from the recommended level (e.g., feeding assistance times). These reductions

were necessary to reflect the reduced time available to provide care. Investigators specifically illustrate these reduced times and frequencies that were necessary for the reduced staffing model in Table 14.3.

Table 14.3 Frequency and Time Input Data for Care Processes (Lower Staffing)																	
Patient type	**% of Residents**	**a.m. CARE**		**EXERCISE**		**CHANGE OR TOILETING**		**REPOSITIONING**		**GROUP FEEDING ASSISTANCE**		**SHOWER**		**p.m. CARE**		**HOUSEKEEPING**	
		Time	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**	**Time**	**Frequency**
1. Continent, Independently ambulatory, no diapers, no need for repositioning, no need for ADL enhancements, fully independent eating Frequency: 15% (6 of 40)	15.0%	2	1	20	0.5	0	0	0	0	1	3	15	0.125	2	0	5	1
Sd\Frequency Unit			per day		4Xweek						per day		2Xweek		per day		per day
2. Continent, Independently ambulatory, no diapers, no need for repositioning, ADL enhancements needed, fully independent eating Frequency: 15% (6 of 40)	15.0%	8.25	1	20	0.5	0	0	0	0	1	3	15	0.125	5.5	1	5	1
Sd\Frequency Unit		7	per day		4Xweek						per day		2Xweek	7	per day		per day
3. Incontinent, Assisted ambulation, day toilet/night diapers, repositioning needed, ADL enhancements needed, fully independent eating Frequency: 20% (8 of 40)	20.0%	9.5	1	4	2	6	5	3.5	2	1	3	15	0.125	7	1	5	1
Sd\Frequency Unit		7	per day		per day	7-day, 5-night, Sd-2	per day		per day		per day		2Xweek	7	per day		per day
4. Incontinent, Assisted ambulation, 24 hour diapers, repositioning needed, ADL enhancements needed, semi dependent eating Frequency: 40% (16 of 40)	40.0%	9.5	1	4	2	5	5	3.5	2	4.4	3	15	0.125	7	1	5	1
Sd\Frequency Unit		7	per day		per day	2	per day		per day	groups of 4	per day		2Xweek	7	per day		per day
5. Incontinent, Assisted ambulation, 24 hour diapers, repositioning needed, ADL enhancements needed, dependent eating Frequency: 4.5% (2 of 40)	5.0%	9.5	1	2	2	5	5	3.5	2	10.25	3	15	.0125	7	1	5	1
Sd\Frequency Unit		7	per day			2	per day		per day	groups of 2	per day		2Xweek	7	per day		per day
6. Incontinent, Bed bound, 24 hour diapers, repositioning	5.0%	9.5	1	2	2	5	5	3.5	2	10.25	3	15	0.125	7	1	5	1

needed, ADL enhancements needed, dependent eating Frequency: 5.0% (2 of 40)																	
Sd\Frequency Unit		7	per day			2	per day		per day	groups of 4	per day		2Xweek	7	per day		per day
Average time per patient (over all patients):		8.19	1.0	8.4	1.55	18.5	3.5	4.9	1.4	9.86	3.0	1.88	0.13	5.73	.85	5.0	1.00
Total =57.44 minutes Note: Shift report time (10 minutes per day) is not presented in this table which illustrates care frequency per day and time on a per-resident basis. A total of 10 minutes of aide time for all residents is assigned to shift report and documentation. The a.m. and p.m. care does not include incontinence care, and repositioning may be combined with toileting or changes																	

14.11 Results

14.11.1 Scenario A: Full- and Part-time Staff: 13.5 FTE per Day, No Unscheduled Care

Investigators first ran the model assuming that there were no resident-initiated care needs (i.e., no "call lights"). This allowed us to schedule all the recommended care in what is undoubtedly an unrealistically efficient manner using the following staff:

Full-time Shifts		*Part-time Shifts*	
7:00 a.m. to 3:00 p.m. shift	5 people	6:00 a.m. to 10:00 a.m.	3 people
3:00 p.m. to 11:00 p.m. shift	4 people	12:00 p.m. to 4:00 p.m.	1 person
11:00 p.m. to 7:00 a.m. shift	1 person	5:00 p.m. to 9:00 p.m.	2 people
		1:00 a.m. to 5:00 a.m.	1 person

Resulting hour by hour ratios:

11:00 p.m. to 1:00 a.m.	1 aide per 40 residents (ratio = 40 residents per aide)
1:00 a.m. to 5:00 a.m.	2 aides per 40 residents (ratio = 20 residents per aide)
5:00 a.m. to 6:00 a.m.	1 aide per 40 residents (ratio = 40 residents per aide)
6:00 a.m. to 7:00 a.m.	4 aides per 40 residents (ratio = 10 residents per aide)
7:00 a.m. to 10:00 a.m.	8 aides per 40 residents (ratio = 5 residents per aide)
10:00 a.m. to 12:00 p.m.	5 aides per 40 residents (ratio = 8 residents per aide)
12:00 p.m. to 3:00 p.m.	6 aides per 40 residents (ratio = 6.67 residents per aide)
3:00 p.m. to 4:00 p.m.	5 aides per 40 residents (ration = 8 residents per aide)
4:00 p.m. to 5:00 p.m.	4 aides per 40 residents (ratio = 10 residents per aide)
5:00 p.m. to 9:00 p.m.	6 aides per 40 residents (ratio = 6.67 residents per aide)
9:00 p.m. to 11:00 p.m.	4 aides per 40 residents (ratio = 10 residents per aide)

The *average* staffing ratios are:	from 7:00 a.m. to 3:00 p.m.	6.4 residents per aide
	from 3:00 p.m. to 11:00 p.m.	8.1 residents per aide
	from 11:00 p.m. to 7:00 a.m.	26.25 residents per aide

In Scenario A, all residents receive all recommended care, as listed in Table 14.2. This meant that the *average* NH resident in the simulation received 95 minutes of recommended direct care services per day plus an additional 10 minutes of housekeeping services:

Exercise/range of motion	16.5 minutes
Changing/toileting/repositioning	34.0 minutes
Feeding assistance	17.25 minutes
Morning and evening care, showering	27.25 minutes
Housekeeping services	10.0 minutes

In the simulation, services were scheduled to minimize resident delays; but even so, shift changes and limits on the number of staff available led to interruptions in care for some residents, averaging about 5 minutes per resident per day.

When part-time aides are used, more aides are available to deliver care during "peak" times, such as the early morning and meal times. Under this scenario, morning care began at 6:00 a.m. (probably acceptable to some residents) and was completed on all residents by 7:56 a.m. All three meals were completed within their scheduled one-hour time period. Evening care was completed by 7:45 p.m. (Note: An alternative scenario was tried starting morning care at 7:00 a.m. with the morning part-time shift running from 7:00 a.m. to 11:00 a.m. Under this scenario, two *additional* morning part-time staff [a total of 10 aides available from 7:00 a.m. to 11:00 p.m!] were needed to complete morning care by 8:20 a.m. This delayed the start of breakfast, although under the group feeding assumptions, breakfast was completed by 9:00 a.m.).

Investigators assumed that full-time staff with an 8-hour (480 minute) scheduled shift were available to provide care for 7 hours (420 minutes). Investigators assumed a 30-minute meal period and two 15-minute breaks, which were staggered. Part-time staff were available to provide 3.5 hours of care (scheduled for 4 hours with one 30-minute break). Each staff member was assumed to spend 5 minutes at the end of the shift and 5 minutes at the beginning of the shift giving report, receiving assignments and doing paperwork. In this scenario, all staff members combined worked about 143 minutes of overtime (a little more than 10 minutes per FTE) each day. This overtime was related to completing a resident task begun just before the end of the shift.

In this scenario, the staff was engaged in direct resident care nearly 75% of the time (Column 1 Table 14.4). In other words, about 45 minutes of direct resident care was provided per 60 minutes of *available* work time. In addition, staff spent approximately 5 minutes per hour walking to and from resident rooms to provide care, so that on average staff, were not engaged in work activities about 17% of the time. They were either providing direct care or walking to residents' rooms for 49 minutes per *available* hour or 43 minutes per *scheduled* hour. These numbers varied by shift, as shown in Table 14.4.

Table 14.4 Staff workload for Scenario A: 13.5 FTEs No Unscheduled Events
Based on 7 (3.5) Available Hours per 8 (4) Hour Shift

Shift	% Time in direct care	% Time in care + travel to/from care	% Time not engaged in work activ.	Minutes Direct care + travel/avail.hour	Minutes Direct care/avail hour
8 Hour Shifts:					
7 a.m. to 3 p.m.	73.8	81.1	18.9	49	44
3 p.m. to 11 p.m.	81.9	90.5	9.5	54	49

11 p.m. to 7 a.m.	54.3	60.0	40.0	36	33
4 Hour Shifts:					
6 a.m. to 10 a.m.	75.5	83.4	16.6	50	45
Noon-4 p.m.	67.8	75.4	24.6	45	41
5 p.m. to 9 p.m.	82.2	91.3	8.7	55	49
1 a.m. to 5 a.m.	62.1	68.1	31.9	41	37
Overall	74.8	82.5	17.5	49	45

14.11.2 Scenario B: Full- and Part-time Staff: 13.5 FTE per Day, Low Volume Unscheduled Events

Scenario B was run exactly like Scenario A, *except* that a low volume of resident-initiated calls or unscheduled work was introduced. These "call-light" requests were assumed to take 5 to 16 minutes, with an average time of 10 minutes required. Call-light requests occurred probabilistically, with an average of 4 requests coming in from 11:00 p.m. to 7:00 a.m. and 16 requests coming in from 7:00 a.m. to 11:00 p.m. In other words, residents generated an average of 0.5 requests per 24-hour day. For each variation on this scenario, 200 days of care were simulated.

Even with this low volume of unscheduled tasks, the effects on resident care were noticeable. On 15% of the 200 simulated days, staff were simply unable to complete all the recommended care. On days when all care was able to be delivered, staff overtime averaged 16 minutes for each FTE. To consistently provide all resident care under Scenario B, it was necessary to improve staffing to 14.5 FTE as compared to 13.5 FTE for Scenario A. When unscheduled calls for care were doubled to an average of one episode per resident per day, the Scenario B staff of 13.5 FTE could only complete all recommended care on slightly less than half of the simulated days and two additional FTE were needed to enable the staff to consistently provide all recommended services.

In addition, staff workload increased under Scenario B, so that aides were occupied with direct care about 78% of the time and were either giving care or walking to resident rooms more than 86% of the time. Details are shown in Table 14.5.

Table 14.5 Staff workload for Scenario B: 13.5 FTEs with Unscheduled Events Based on 7 (3.5) Available Hours per 8 (4) Hour Shift

Shift	% Time in direct care	% Time in care + travel to/from care	% Time not engaged in	Minutes Direct care + travel/ avail. hour	Minutes Direct care/avail

			work activ.		hour
8 Hour Shifts:					
7 a.m. to 3 p.m.	76.3	83.6	16.4	50	46
3 p.m. to 11 p.m.	83.5	92.4	7.6	55	50
11 p.m. to 7 a.m.	62.9	68.6	31.4	41	38
4 Hour Shifts:					
6 a.m. to 10 a.m.	79.0	86.9	13.1	52	47
Noon-4 p.m	74.0	81.9	18.1	49	44
5 p.m. to 9 p.m.	87.9	97.0	3.0	58	53
1 a.m. to -5 a.m.	71.9	77.9	22.2	47	43
Overall	**78.3**	**86.1**	**13.9**	**52**	**47**

14.11.3 Scenario C: Full- and Part-time Staff: Eight FTE per Day, No Unscheduled Events

The staffing was reduced to a pattern that may be typical in some NHs and no resident-initiated calls were allowed.

Full-time Shifts

7:00 a.m. to 3:00 p.m. shift 4 people ratio: 10 residents per aide
3:00 p.m. to 11:00 p.m. shift 3 people ratio: 13.33 residents per aide
11:00 p.m. to 7:00 a.m. shift 1 person ratio: 40 residents per aide

A variant with 2 aides on the 11:00 p.m. to 7:00 a.m. shift (ratio: 20 residents per aide) was also modeled. In this scenario, investigators followed the typical NH practice of beginning morning care at 7:00 a.m.

In Scenario C, care was scheduled to maximize the amount of care that could be delivered within the staffing time. The frequency of some services was reduced from the recommended frequency (e.g., repositioning, toileting, and showering) while the time taken to provide the service was reduced from the recommended level for others (e.g., feeding assistance, morning and evening care, exercise). Range of Motion exercises were reduced both in frequency and in time. These service reductions are listed in Table 14.3.

The details of the services actually delivered under Scenario C are shown in Table 14.6.

In Scenario C the *average* NH resident in the simulation received 57.4 minutes of direct care per day plus an additional 5 minutes of housekeeping services. This is about 60% of the recommended care.

Exercise/range of motion	8.4 minutes (50.9% of recommended)
Changing/toileting/repositioning	23.4 minutes (68.8% of recommended)
Feeding assistance	9.9 minutes (57.4% of recommended group feeding)
Morning and evening care, showering	15.8 minutes (58.0% of recommended)
Housekeeping services	5.0 minutes (50% of recommended)

The feeding assistance level is 57.4 % of the recommended level with group feeding; however, this overstates the quality of care. In this scenario, only about 40% of the residents had completed morning care by 8:00 a.m., so many residents had to be fed in their rooms. For these residents who are forced to receive one-on-one assistance, the recommended times are actually two to four times higher than the group feeding times.

The actual mix of care delivered was somewhat arbitrary. The time spent toileting residents could have been reduced and more time added to exercise. However, the total care delivered represents a realistic bound given the staffing ratios used: the staff workload was very high during the simulation runs.

In Scenario C, adding an additional staff member to the 11:00 p.m. to 7:00 a.m. shift did not actually result in more care being delivered to residents. This is due to the restrictions placed on when certain services can be provided. If morning care could start earlier, at 6:00 a.m. for example, then adding an additional night shift person could increase the total care delivered by three minutes per resident per day. Similarly, if the night shift could do certain housekeeping services, day and evening staff could deliver more direct care, such as feeding assistance, exercise, and grooming.

In this scenario, the day and evening shift staff are providing direct care about 80% of the time (Table 14.6). When the time walking to and from care is added in, day and evening shift aides are not engaged in work activities 7.9% and 4.7% of the time, respectively. The night shift business depends, of course, on whether one or two aides are available. With only one night shift aide (a ratio of 40 to 1), the night shift is not engaged in work activities only about a quarter of the time. With two night shift aides (a ratio of 20 to 1), the night shift is not engaged in work activity more than half the time.

Table 14.6 Staff Workload for Scenario C: 8 or 9 FTEs with Unscheduled Events Based on 7 Available Hours per 8 Hour Shift					
Shift	**% Time in direct care**	**% Time in care + travel to/from care**	**% Time not engaged in work activ.**	**Minutes Direct care + travel/ avail. hour**	**Minutes Direct care/avail hour**
With total of 8 FTEs					
7 to 3	79.1	92.1	7.9	55	47
3 to 11	81.3	95.3	4.7	57	49
11 to 7 (1 aide)	71.0	78.5	21.6	47	43
Overall w/8 FTEs	78.9	91.6	8.4	55	47
With one additional FTE on 11 to 7					
11 to 7 (2 aides)	38.1	43.4	56.6	26	23
Overall w/9 FTE	70.19	81.8	18.23	49	42

The workloads in Scenario C leave no time for responding to call lights or other unscheduled events. Adding unscheduled events, as investigators saw in Scenario B, decreases the chance that all of the scheduled care can be accomplished. Very likely, real human beings being asked to deliver the simulated care under these conditions will cut corners and actually deliver even less direct resident care.

The situation could be improved by adding another staff person to the day shift, bringing the ratio for that shift up to 8 residents per aide. At best, this would result in about 8 additional minutes of care per resident, or a total of about 65 minutes per resident, still less than 70% of the recommended care.

14.12 Conclusions

1. Investigators estimate that 13.5 to 15.5 FTE's for a 24-hour period are necessary to complete all care under conditions of high efficiency and nurse aide work productivity. The higher FTE's would occur when the possibility of a moderate level of unscheduled care demands for service are considered. In all models, the amount of time that aides were not involved in direct care was extremely low and potentially even reflects unrealistically high levels of on-task work performance for a healthcare worker. Even in highly regimented workplaces, workers will typically spend 5% to 10% of their time in personal activities, such as going to the bathroom, greeting a co-worker, getting a drink

of water.[86] In more complex tasks such as the nursing aides face, some additional time needs to be spent in planning the next activity, gathering supplies and equipment, and in participating in staff education programs.[87,88] High on-task productivity is also reflected by the high numbers of service minutes that each resident would receive for these ideal staffing models. This average of 105 minutes is much closer to those service minutes reported by the RUGs studies (139 nurse aide minutes per resident) than those reported by the Holmes study (approximately 45 minutes per resident). To provide 139 minutes of direct resident care per resident per day, the staff of 13.5 FTE for 40 residents would have been busy with direct resident care an unbelievable 98% of their available hours, leaving 2% of their time for travel to and from care and all other personal activities. The shift resident-to-aide ratios that the 13.5 to 15.5 FTE's represent would be 5.2 to 6.4, 7:00 a.m. to 3:00 p.m. shift, 7.6 to 8.1, 3:00 p.m. to 11:00 p.m. shift, 26.0 to 26.25, 11:00 p.m. to 7:00 a.m. shift.

2. The outcomes in the reduced staffing model suggest that a low level of care will occur with the staffing ratios that exist in many NHs, despite high productivity that continue to characterize the reduced staffing model. In these conditions, it is clear that aides must "cut corners" and make arbitrary decisions about what care to provide and who to provide it to. One observational study that described nurse aide work performance, documented that these types of efficiency decisions are routinely made by nurse aides in the course of their daily work.[89] The resident care outcomes that investigators predict from this model also appear to be consistent with observational studies that they have described in the literature review. These observational studies, which have not relied upon NH-generated data, have documented extremely low levels of incontinence care and particularly the more time consuming incontinence care involving toileting assistance.[13,20] The low levels of exercise assistance (also time consuming) and sporadic feeding assistance characterized by excessive use of physical assistance, which have also been described in these observational studies, appear consistent with the outcomes predicted by Scenario C.[20,71,41,48,49]

14.13 Limitations and Future Directions

14.13.1 Investigators Excluded Important Care Processes from the Staffing Projections

Investigators were given the task of estimating nurse aide staffing resources needed to implement care processes that improve outcomes. To accomplish this objective, investigators had to develop inclusion criteria that went beyond "opinion" to define an efficacious care practice (see page 14-3). These criteria led us to exclude some processes that many experts believe are important for high quality NH care. The most controversial excluded processes were those designed to improve quality of life and to manage behavioral and mood disturbance problems; there is widespread opinion and some evidence that there are effective interventions in both areas. On a separate note, investigators believe they may have underestimated the amount of time nurse aides need to perform necessary tasks that are unrelated to specific outcomes. With respect to all these issues, investigators have several major points to make.

The first and most important point is that the five protocols investigators included in the investigators' analyses feature intervention components that are conceptually related to quality of life. These components are integrated with staff assistance in protocols that address residents' need for physical activity, incontinence care, and feeding and dressing assistance. This same point led us to argue in the introduction that a distinction between quality of care and quality of life is both arbitrary and misleading. Investigators will elaborate on the point here.

All care processes that met the investigators' inclusion criteria involve significantly increased personal contact between residents and NH staff. The literature review documented the extent to which this personal contact exceeds contact under "usual care" conditions for the protocols pertaining to feeding assistance, ADL dressing enhancement, and incontinence management. If one believes that increased social interaction and personal contact between residents and NH staff can improve residents' perceptions of life quality and/or their agitation and mood, then measures of these outcomes should also improve following implementation of the five care protocols that met the investigators' inclusion criteria.

In addition, care provided under the exercise, incontinence, and feeding assistance protocols is consistent with resident preferences (e.g., incontinence care and exercise are offered frequently enough to meet resident preferences) and allows residents to maximize their independence. To the extent that quality of life is improved by providing care consistent with personal preferences or independence enhancement, then the five protocols that met the investigators' inclusion criteria are related to improved life quality.

To illustrate these points, consider the Functional Incidental Training (FIT) exercise protocol that investigators are recommending for the approximately 70% of NH residents who are incontinent.[67] This intervention has been shown to improve dryness rates, physical activity levels, and mobility performance measures. It also, however, provides approximately 15 minutes of contact every two hours between a nurse aide and a resident; over a 12-hour shift, that amounts to approximately 53 minutes more than is observed during usual care. In addition, FIT significantly reduces agitation as

well as delivers incontinence and mobility assistance at a frequency consistent with many residents' preferences. When combined with a nighttime intervention that individualizes incontinence care, FIT also improves sleep.[90] Investigators are currently evaluating whether this protocol improves residents' and families' reported perceptions of life quality. But even with just the available data, a strong case can be made that the protocol improves both functional measures and measures of behavioral disturbance.

Regarding a second point about the investigators' care process selection, it can be argued that NH residents should receive even more social-interaction time than the five protocols provide and that this additional time should be devoted exclusively to social interaction. For example, in addition to receiving feeding assistance in a group or individualized setting for 30 minutes, perhaps each resident should also be engaged in conversation following each meal. This is an interesting hypothesis, but there are no data to suggest what outcomes such a protocol would produce, much less specific information about how long the social-interaction-only sessions should be (an important cost issue).

Investigators also considered the possibility that social stimulation and resident involvement in activities completely independent of any other care process might be efficacious. In this regard, investigators reviewed two separate groups of evidence.

Several studies reported mixed but some positive results when residents were given a specific stimulation protocol (e.g., human interaction, audio tape) whenever they displayed agitation symptoms.[91,92,93] Investigators did not include these protocols in their staffing simulations due to uncertainty about their efficacy if implemented over time. A key, unanswered question is, "Would residents cease to be attentive to these stimulation procedures, given that the duration of the effects were reportedly limited to the time that the agitation was occurring?" Investigators do not discount the clinical importance of even a temporary reduction in agitation, but investigators believe these results should be further replicated before the protocols are recommended for NH use. These replication studies should be conducted with attention to documenting maintenance effects and nurse-aide labor requirements, which will certainly increase because other care activities will have to stop so that nurse aides can provide stimulation to agitated residents. These time costs will increase even when stimulation is provided via audio tapes.

Another study reported that a multi-faceted intervention combining medication review, a geropsychiatrist consult, and an activity program resulted in improved measures of behavioral disturbance and mood.[94] The intervention's most labor-intensive feature involved non-licensed staff (activity staff) who performed work outside the normal scope of work for nurse aides. In this study, staff cost to treat 20 residents for six months was $13,200.00. This study is important, but its implications for nurse aide staffing are unclear. If the intervention were implemented, nurse aides probably would not be freed from other responsibilities (e.g., residents would still need incontinence care), but rather

new activity staff would have to be hired. Furthermore, depending on the number of residents participating in the intervention, the staffing costs could be very high.

In short, investigators believe there is evidence that social stimulation and activity/ engagement interventions can produce improvements in behavioral disturbance and mood. However, it is unclear whether social activity beyond those levels provided in the five protocols that investigators have included for analysis is necessary to produce beneficial effects. Assuming such "extra" social stimulation were necessary, it is unclear who should deliver that additional care or what it will cost. Based on their own clinical experience, investigators believe the most logical approach is to maximize appropriate social interaction between nurse aides and residents while other necessary care is also being provided. Staff who are not consumed by the physically demanding care tasks typically required of nurse aides (e.g., activity staff, social service personnel, volunteers, etc.) could more efficiently provide residents with additional social stimulation when needed.

With respect to a third and final point, investigators noted previously that nurse aides perform tasks that may be unrelated to specific outcomes but are nevertheless necessary. In their staffing model, investigators estimated that such tasks consume 30 minutes per day. Investigators believe, however, that investigators have underestimated the time needed to perform these tasks according to high quality standards. Unfortunately, defensible data upon which to base such "high quality" time estimates are currently unavailable, though efforts are underway to correct this problem. Consider, for example, the assessment activities involved in completing the MDS and Resident Assessment Protocols (RAPs). The investigators' staffing model does not include time for these activities beyond what might be needed to complete shift reports simply because investigators could find no data about how much time nurse aides spend in these activities. Currently, investigators are collecting information on the labor requirements associated with completing the MDS and RAP nutrition items. The investigators' preliminary data suggest that it takes 20 to 30 minutes of nurse-aide time per day just to record MDS food intake items accurately and to implement all the RAP assessment recommendations for residents identified as at risk for potential nutritional problems.

Investigators did not include this time estimate in their "other care" category because the clinical value of some of the assessments are unclear, and the data are preliminary. In other articles, investigators have argued that practice-guideline and RAP recommendations in multiple areas should be implemented under controlled conditions so that the cost-effectiveness of each recommendation can be determined.[95,96] Based on their preliminary data, however, investigators believe that some practice-guideline and RAP recommendations will prove to have high clinical utility and that significantly more nurse-aide time than investigators have projected in their staffing models will be needed to accurately complete these assessments.

14.13.2 The Labor Requirements of Individualizing Care Was Not Simulated in the Staffing Models.

Investigators did not project the staffing requirements associated with individualizing care in part because it is beyond their scope of work but also because it is not possible to do so with the data currently available. Investigators believe this topic is extremely important, however, and when data describing residents' preferences for daily care are available, staffing simulations should be conducted to determine the labor requirement of meeting those preferences.

Despite the absence of data about the time costs or outcomes that would result from individualized care interventions, there is consensus that providing care based on residents' preferences is an important aspect of quality. Indeed, the ACOVE Expert Consensus Panel confirmed the importance of individualization for life quality with two indicators:

1. **IF** a vulnerable elder is admitted to a NH,
   THEN, within 2 weeks, the resident's preferences for daily life activities in all of the following areas should be assessed and documented in the record:
   - sleep schedule
   - meals
   - roommates
   - telephone access
   - participation in activities
   - spirituality
   - privacy

2. **IF** a NH resident can provide stable and realistic preference information about daily-life activities that are related to quality of life,
   THEN the degree to which these preferences are being met should be monitored at least quarterly after admission.

Despite the lack of data to document a process-outcome link for these indicators, they were rated as clinically valid and important because of the ACOVE panel's belief that individualized care is intuitively linked to high quality. It is possible to test the validity of this intuition.

Assessing residents' preferences is an initial step to operationalizing the concept of individualization. Investigators are currently conducting such research and are confident that stable preferences describing activities of daily living (e.g., time out of bed, dining location) can be obtained from 40% to 62% of residents, depending on the

care domain for which the preference is being elicited. What is less clear at this stage are the following points:

1. How are decisions to be made about individualized care when a resident's preferences seem unhealthy (i.e., a resident reports a preference to stay in bed all day and never exercise)?

2. How much do resident preferences change when monitored daily, and how do you calculate the staffing cost of such variability? For example, if a resident is allowed to decide when to get out of bed each day, how will this decision vary from day to day and how do you allocate staffing resources so that they are flexible enough to accommodate this variability?

3. How is daily care individualized when a resident's preferences cannot be determined?

Investigators are conducting preliminary research designed to answer these questions; soon, investigators should be able to simulate the labor requirements of specific nurse-aide work schedules that can accommodate individual preferences. Investigators anticipate these preliminary data will show that significantly more staff resources than those projected in this chapter are needed to individualize care. This prediction takes into account that the work scheduling scenarios investigators simulated in this chapter were based on time-efficiency concerns that can be inconsistent with work schedules designed to accommodate individual preferences. For example, previously investigators reported data showing that 26% of a small subset of 19 residents with low food intake preferred to eat in their rooms. The cost of individualizing care consistent with this preference would be high because each resident separately would need feeding assistance, at an estimated cost of 20 to 30 minutes per resident versus the 30 minutes needed to assist the entire group. Nurse aides in one study reported lack of "time" as a major barrier to individualizing care.[97]

Alternatively, identifying and satisfying resident preferences may result in some cost reductions. For example, it is likely that at least some of the residents projected to receive exercise under the investigators' simulations do not really want to exercise. Since exercise is a relatively time-consuming care activity, labor savings could result from honoring these residents' preferences.

In short, it is technically feasible to define individualized-care work schedules based on residents' preferences and to project the staffing resources needed to implement these care processes. This work would greatly improve our understanding of how individualized care principles can be operationalized in practice and would be a logical extension of the analyses begun in this chapter.

14.13.3 Investigators Did Not Report Staffing Requirements Needed to Compensate for Poor Management and High Staff Turnover.

Investigators projected the staffing resources needed to implement high quality care under work conditions characterized as both efficient and productive, even though there is strong reason to believe that the NH environment is not conducive to such work conditions. Investigators considered simulating staff models that accounted for poor management and high staff turnover in two ways:

1. Reduce the amount of time that nurse aides have available to provide care, to less than the approximately 42 to 46 minutes per hour that investigators used in their staffing simulations. This correction would assume that poorly managed aides work inefficiently and spend less time than they have available providing direct care.
2. Increase the amount of time needed to implement each of the five protocols to accommodate for new staff who are learning on the job (e.g., increase the amount of time needed to complete ADL morning care from 20 minutes to 25 minutes).

Either of the above corrections would increase the number of nurse aides needed to provide high quality care beyond the numbers projected in this chapter. Investigators did not make either correction in part because of inconsistent data about nurse-aide productivity but also due to conceptual reasons.

With respect to inconsistent data, consider the mixed results investigators reported in the chapter subsections Input Variables Estimating Amount of Time Aides Have Available to Provide Care and Review of Literature Describing Process-Outcome Relationships and Labor Requirements. Data from the RUGs studies, which report how many minutes of care residents receive from nurse aides, suggest either very high staff productivity or high staffing levels, as do two observational studies that reported nurse aides are often observed in direct care activities.[74,75,77] By contrast, the time study conducted by Holmes, et.al. (In Press), which documented that nurse aides provide only 44.8 minutes of care per resident in a 24-hour period, suggests either extremely low staffing or low productivity. Supporting the Holmes data are other observational studies that have described surprisingly low frequencies of incontinence care, mobility assistance, and feeding assistance.[13,20,71,41] In short, the available data provide no clear direction about how to determine the efficiency and productivity of nurse aides under current NH work conditions. A case could be made for assuming either high or low productivity as a typical NH work scenario.

The second reason for not simulating staffing needs under conditions of poor management was conceptual. Investigators do not believe that financial managers will increase staff beyond those needed to provide care under good management assumptions just to compensate for bad management. The most typical and appropriate approach to the problem is to identify the labor resources needed to provide

care under good management and then create the management conditions that lead to efficient use of these labor resources.

There also is strong reason to believe that NH work conditions are not conducive to motivating staff to be either highly efficient or productive. Investigators note the following:

1. Due to high turnover among both nurse aides and supervisory nurses, staff training is constantly needed. During their training, nurse aides cannot be expected to work very efficiently or skillfully with residents.

2. Salaries for nurse aides are very low in an organization with a vertical salary structure (if administrative and professional salaries are considered). This salary structure plus the absence of a nurse aide career advancement path to higher salaries very likely adversely affects both morale and productivity.

3. There are no timely or accurate measures that either supervisors or nurse aides can efficiently use to judge their own daily work performance, which makes feedback for the purpose of reinforcing and sustaining good performance difficult.

4. Supervisory staff trained in management and clinical care are either not present in NHs, do not work directly on the floors, or have multiple jobs exclusive of management. Given the difficulty and importance of assuring that multiple low-paid staff provide consistent care, a full-time supervisor devoted exclusively to nurse-aide management would seem to be minimally necessary to assure high productivity.

In sum, this chapter identified the nurse-aide resources necessary to implement efficacious care processes under highly productive work conditions, which investigators doubt exist in most NHs. A minimally necessary step to improving care is to assure that the required labor resources are available. This chapter provides some guidance about what these staffing resources might be. However, it is very likely that investments in staffing must also be accompanied by improvements in working conditions if the resources are to be effectively used to improve quality.

14.14 Conclusion: Setting Nursing Home Nurse Staffing Standards

14.14.1 Study Question: How Should Appropriateness Be Defined?

This chapter concludes HCFA's Phase 1 report in response to the current concern about inadequate nursing home nurse staffing, and a long-standing requirement for a study and report to Congress on the "appropriateness" of establishing minimum nurse staffing ratios. The Congressional language was clear, but sparse and it was necessary to operationalize "appropriateness" so that there was a study question open to empirical investigation. Consistent

with this objective, the analysis presented in Chapters 9 through 12 have defined the key study question: Is there some ratio of nurses to residents below which nursing home residents are at substantially increased risk of quality problems? As we have seen, there is strong evidence supporting the existance of these nurse staffing ratio thresholds, and this finding in turn seemingly provides support for a regulatory minimum ratio requirement. Of course, the appropriateness of establishing a new regulatory minimum would also have to assess the costs, feasibility of implementation, and other considerations which are the subject of a Phase 2 study and report to Congress. What is important to note here is that this conceptualization of appropriateness is what is expected from a regulatory agency; regulatory standards are typically *minimal* standards.

The "appropriateness" of minimum staffing ratios, however, could be defined as the staffing threshold required to attain good or optimal quality outcomes, as opposed to avoiding bad outcomes. As was discussed in Chapter 1, this focus on optimal outcomes is analogous to how this question of appropriate ratios has emerged in education with respect to classroom size. Here the emphasis has been on determining the *optimal (not a minimum)* ratio of students to teachers which has been found to be somewhere around 18 students per teacher, at least for the lower grade levels. Below that ratio no improvement in student performance is observed.

Although the definition of appropriateness implicit in Chapters 9 through 12 as minimal ratios is consistent with normal regulatory standards, the alternative definition of appropriateness as optimal ratios would seem consistent - even required - by current statutes and regulations. As we have discussed in greater detail in Chapter 4, The Omnibus Budget Reconciliation Act of 1987 (OBRA '87) provided amendments to the Social Security Act (SSA) for Skilled Nursing Facilities (SNF) and Nursing Facilities (NF). The statutory language throughout these amendments and regulations and guidelines promulgated under OBRA '87 placed emphasis upon providing the scope of care and services (including sufficient qualified staff) for a resident residing in a LTC facility to assure that each resident could attain or maintain his/her highest practicable physical, mental, and psychosocial well-being. Hence, it would appear that HCFA's *current* staffing regulations, particularly the general regulation requiring ". . . sufficient nursing staff to attain or maintain the highest practicable . . . well-being of each resident . . .," are intended to provide appropriate care conceptualized as an optimal standard, not a minimal standard.[14]

With respect to what is appropriate nurse aide staffing, the analysis presented in this chapter is consistent with identifying a minimum ratio for attaining optimal quality outcomes. Essentially, the analysis asks how much nurse aide time is required to implement five specific, daily care

[14]. With the repeal of the Boren Amendment in 1997, it would appear that Congress does not now require that the States Medicaid nursing home payment rates must be sufficient to provide " . . . services required to attain or maintain the highest practical physical, mental and psychosocial well-being of each Medicaid resident . . ." Nevertheless, the OBRA "highest practical" quality standard remains unchanged. See Chapter 2 for a discussion of the Boren Amendment and State Medicaid payment rates.

processes that have been linked to (good) resident outcomes: repositioning and changing wet clothes; repositioning and toileting; exercise encouragement/assistance; feeding assistance; and Activities of Daily Living (ADL) independence enhancement (morning care). The simulation analysis estimates these times for six major categories of residents with different functional limitations and care needs that broadly define the nursing home population. Obviously, these five care processes are not a complete list of what nurse aides must do, and the analysis took into consideration such things as shower assistance, p.m. care, housekeeping duties (e.g., changing bed linens), and random, unscheduled demands for services (e.g., responding to patient call lights, spills, accidents, and similar events).

One key simulation estimated that the average number of *minimal* nurse aide staff necessary to provide all services (i.e., the stated OBRA '87 standard) that can benefit a hypothetical 40 resident unit of average acuity is 14.5 FTEs or 2.9 hours per resident day. This is an estimate of the minimally necessary nurse aide staff to provide optimal care. This standard should be viewed as a necessary condition for optimal care by nurse aides, not a sufficient condition. Obviously, the other licensed categories of nursing, RNs and LPNs are also important, as demonstrated from the findings presented in the previous four chapters. Indeed, the Ohio results for one of the outcome measures that would normally be expected to be more highly related to nurse aide staffing, improvement in resisting care, was in fact more strongly associated with RN staffing. The simulation estimate *assumes* an extremely highly motivated and productive nurse aide staff. Even under conditions of 2.9 hours per resident day of potentially available time, what nurse aides actually do and accomplish with respect to patient care is dependent upon a sufficiently skilled licensed staff to supervise aides as well as other organizational factors.

14.14.2 Strong Evidence

The full evidence in support of this 2.9 hour per resident day optimal nurse aide standard is much greater than what might be apparent from this chapter alone. The analysis presented in Chapters 9 through 12 found an estimated 2.0 nurse aide hours as a minimal or preferred nurse aide staffing threshold. These other analysis lends support to the optimal standard in two ways. First, the differences in the two standards are in predicted direction - we expect the minimal or preferred standard to be less than the optimal standard. Second, the two analyses used entirely different data, methods, and even the outcome measures or domains were different.

The outcomes analysis in Chapters 9 through 12 (a) selected States and facilities, (b) developed facility-level measures of nurse staffing and outcomes, and (c) examined the relationship between the two with logistic regression models. In contrast, the analysis in this chapter essentially synthesized and simulated from a large number of time-motion studies; the nurse aide time (and staffing implications) necessary to perform specific "best practices"care processes. It would be hard to imagine a more divergent approach than found in these two analyses. Yet, the estimated thresholds are not only in the predicted direction, as noted above, but the order of magnitude appears consistent. If the simulation analysis had produced an optimal standard of say - 4 or 5 hours - then we might have to conclude that the differences between the two analysis are due to the different standards - minimal or preferred vs. optimal - or due to differences in

data and methods, and we would invoke the usual "more research is needed." Fortunately, the results of these two very different analyses appear remarkably consistent.

14.14.3 Applying the OBRA '87 Standard

As noted in the chapter, the simulation estimate of minimally necessary nurse aide time is much higher than typically found in U.S. nursing homes. But how much higher? In Tables 14.7 and 14.8 below, we have estimated the number of homes that fail to meet this standard. We have utilized a modified OSCAR data set to generate this estimate. As was discussed in greater detail in Chapter 7, this OSCAR file has been created with decision rules that improve the accuracy and reliability of the reported data. As we can see from the table, nearly all nursing homes in the U.S., over 92%, fall below the 2.9 hours per resident day standard. Nearly half of facilities would need to increase nurses aide staffing by 50% or more to reach this threshold, including 16% that would be required to increase nurses aide staffing by at least 100 percent.

- Only 5% of freestanding facilities used 2.9 or more aide hours, and 62% would need to increase aide staffing by 50% or more to reach this level. The impact was less for hospital-based facilities, but nearly 25% of hospital-based facilities used fewer than 2.9 nurses aide hours, and many of these were well below the 2.9 level.

- Reflecting the lower staffing levels of for-profit facilities, they would be affected more by this proposal than non-profit or government facilities. Nearly 96% of for-profit facilities used fewer than 2.9 nurses aide hours, compared to 87% of non-profits and 84% of government facilities.

- The 2.9 nurse aide hours per resident requirements affects most facilities in every State, but the impact differs across States. In California, for example, 30% of facilities would need to increase aide staffing by 50% of more to reach the 2.9 level, compared to 70% of Texas facilities and more than 80% of Oklahoma facilities (Table 14.7)

Table 14.7: Staffing Levels in U.S. Nursing Homes: Impact of Schnelle Nurses Aide Staffing Requirement (2.90 Nurses Aide Hours per Resident Day), 1998

Facilities	% affected by requirement	Distribution of required increase:						
		≤10%	11-20%	21-30%	31-40%	41-50%	50-99%	≥100%
All	0.922	.049	.067	.095	.113	.117	.321	.161
Freestanding	0.950	.041	.063	.093	.115	.124	.344	.170
Hospital-based	0.742	.097	.093	.111	.098	.070	.167	.105

For-profit	0.957	.029	.048	.081	.107	.126	.373	.193
Non-profit	0.866	.079	.102	.120	.128	.101	. 227	.110
Government	0.833	. 108	.097	.127	.115	.094	.218	.073

Note: The minimum nurses aide staffing level suggested by Schnelle is 2.90 hours per resident day (see Chapter 13).
Source: OSCAR

Table 14.8: Staffing Levels in U.S. Nursing Homes:Impact of Schnelle Nurses Aide Staffing Requirement (2.90 Nurses Aide Hours per Resident Day), 1998								
State	% affected by requirement	Distribution of staffing increase required for facilities not in compliance						
		≤10%	11-20%	21-30%	31-40%	41-50%	51-99%	≥100%
AK	0.45	0.18	0.00	0.18	0.09	0.00	0.00	0.00
AL	0.83	0.20	0.13	0.17	0.10	0.06	0.14	0.02
AR	0.94	0.03	0.05	0.04	0.10	0.15	0.51	0.08
AZ	0.88	0.04	0.04	0.10	0.13	0.10	0.42	0.06
CA	0.89	0.05	0.09	0.13	0.16	0.16	0.22	0.08
CO	0.94	0.03	0.09	0.08	0.12	0.12	0.40	0.12
CT	0.95	0.07	0.14	0.17	0.16	0.13	0.14	0.15
DE	0.67	0.04	0.04	0.00	0.21	0.08	0.25	0.04
FL	0.92	0.04	0.08	0.10	0.09	0.15	0.36	0.10
GA	0.95	0.03	0.03	0.10	0.13	0.15	0.43	0.07
HI	0.75	0.03	0.19	0.22	0.19	0.03	0.03	0.06
IA	0.96	0.02	0.01	0.04	0.06	0.06	0.42	0.37
ID	0.69	0.13	0.09	0.11	0.09	0.07	0.18	0.02
IL	0.92	0.02	0.03	0.05	0.05	0.07	0.36	0.33
IN	0.96	0.01	0.01	0.03	0.04	0.04	0.36	0.48
KS	0.97	0.02	0.02	0.03	0.05	0.04	0.42	0.39
KY	0.89	0.04	0.06	0.05	0.12	0.18	0.33	0.12
LA	0.95	0.02	0.04	0.04	0.13	0.16	0.50	0.06
MA	0.93	0.09	0.12	0.18	0.16	0.13	0.20	0.04
MD	0.92	0.04	0.05	0.08	0.16	0.16	0.34	0.09
ME	0.74	0.15	0.22	0.16	0.07	0.07	0.06	0.02
MI	0.91	0.10	0.09	0.16	0.17	0.16	0.19	0.04
MN	0.99	0.02	0.04	0.09	0.14	0.16	0.36	0.18
MO	0.93	0.03	0.03	0.04	0.05	0.06	0.32	0.39
MS	0.93	0.05	0.07	0.10	0.11	0.16	0.30	0.14
MT	0.89	0.11	0.12	0.16	0.11	0.18	0.20	0.01
NC	0.84	0.09	0.10	0.10	0.14	0.09	0.28	0.04

ND	0.91	0.06	0.18	0.19	0.13	0.13	0.20	0.03
NE	0.94	0.01	0.03	0.04	0.10	0.08	0.38	0.30
NH	0.79	0.03	0.11	0.13	0.11	0.21	0.15	0.05
NJ	0.96	0.03	0.08	0.09	0.17	0.17	0.36	0.06
NM	0.87	0.05	0.02	0.04	0.09	0.15	0.42	0.11
NV	0.86	0.06	0.00	0.06	0.03	0.03	0.46	0.23
NY	0.98	0.05	0.11	0.17	0.20	0.12	0.20	0.12
OH	0.93	0.05	0.08	0.11	0.13	0.13	0.31	0.12
OK	0.96	0.02	0.00	0.03	0.04	0.08	0.35	0.44
OR	0.95	0.12	0.05	0.16	0.08	0.13	0.35	0.06
PA	0.92	0.07	0.08	0.12	0.13	0.14	0.32	0.07
RI	0.94	0.09	0.12	0.10	0.14	0.12	0.19	0.19
SC	0.87	0.03	0.11	0.11	0.13	0.21	0.24	0.03
SD	1.00	0.04	0.05	0.06	0.11	0.15	0.53	0.06
TN	0.95	0.03	0.04	0.06	0.11	0.12	0.43	0.16
TX	0.93	0.03	0.03	0.04	0.07	0.07	0.42	0.27
UT	0.90	0.06	0.04	0.13	0.04	0.09	0.33	0.19
VA	0.89	0.04	0.05	0.08	0.08	0.11	0.47	0.07
VT	1.00	0.17	0.14	0.21	0.21	0.03	0.14	0.10
WA	0.81	0.11	0.17	0.12	0.15	0.10	0.12	0.03
WI	0.97	0.05	0.09	0.16	0.16	0.17	0.31	0.03
WV	0.91	0.00	0.06	0.12	0.31	0.17	0.25	0.00
WY	0.94	0.06	0.06	0.16	0.06	0.10	0.42	0.06

Note: The minimum nurses aide staffing level suggested by Schnelle is 2.90 hours per resident day (see Chapter 14).

Source: OSCAR

Of course it should be noted that the 2.9 hour of nurse aide time per resident day estimate is for an *average* nursing home. A nursing home with residents of higher or lower acuity would have a higher or lower threshold, respectively, if this optimal standard is to be met. Hence, the OSCAR data alone would not be sufficient for identifying this optimal standard for a *particular* nursing home; the threshold would have to be adjusted individually for the case-mix of the facility. Nevertheless, HCFA expects that our improved OSCAR file provides a reasonable estimate of the staffing *distribution* of all nursing homes in the U.S. - a distribution of nursing homes which by definition are in the aggregate of average acuity and functional limitations.

Meeting this optimal standard can also be expressed in the number of required nurse aide FTEs. The 14.5 FTE is equivalent to 2.9 hours per resident day for 40 resident. The average number of residents per certified nursing home is 87.6.[15] For this "average" nursing home, the standard of 2.9 hours of nurse aide time per resident day is equivalent to 31.76 FTE nurse aides. Yet the average staffing level for this "average" nursing home is 22.01. Hence, the "average" nursing home would have to increase its nurse aide staffing by just under 10 FTEs to meet this optimal standard, an increase of about 44 percent.

14.14.4 Is the OBRA Staffing Standard Attainable?

The findings produced here raise serious doubts whether this minimally optimal standard is a realistic goal. Clearly, a very large percentage of facilities fail to meet this standard and they fail by a very wide margin. This failure is compounded when one takes into consideration the 2.9 hours of nurse aide time per resident day as a lower bound estimate for providing all needed care. As was shown in the chapter, the simulations assume very little unscheduled care demands, and what might be considered unrealistic high levels of on-task work performance and productivity for a health care worker. It also assumes a convenient physical layout, and a deployment of staff in what was recognized as an unrealistically efficient manner. More realistic assumptions would clearly raise this lower bound estimate considerably.

In a sense, the stated OBRA '87 standard of staffing to provide the highest practicable well-being has a well-intended, but probably unrealistic goal similar to the "sleeper" clause in the Economic Opportunity Act of 1964 which required the "maximum feasible participation" of the poor in the administration of the Community Action Programs for the War on Poverty.[16] Just as the poverty legislation was silent on the meaning of "maximum feasible participation," the OBRA legislation and regulations are silent with respect to what exactly is required to meet the "highest practicable well-being."; indeed with the repeal of the Boren Amendment, it can be argued that Congress has rejected the cost implications of its "highest practicable"quality standard. On the other hand, as an ideal goal, the much higher staffing levels found in other countries indicates (see Chapter 3) that it is possible to move a very substantial distance toward this goal.

Appendices for this Report to Congress: *Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes*, can be found in a separate volume.

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Appendix A1
National Citizens' Coalition for Nursing Home Reform
Federal & State Minimum Staffing Requirements
October 1999 Draft

NATIONAL CITIZENS' COALITION FOR NURSING HOME REFORM
FEDERAL & STATE MINIMUM STAFFING REQUIREMENTS
October 1999 Draft

Adequate numbers of well-trained, well-supervised staff are critical to quality in long term care. The Nursing Home Reform Act of 1987 (Public Law 100-203) promised each nursing home resident that s/he had the right to expect care and services from the nursing home which would allow him/her to "attain or maintain his/her highest practicable level of physical, mental, and psychosocial functioning." Unfortunately, however, Congress did not go that extra step and require a specific minimum caregiver/resident ratio or a minimum standard setting out the number of hours per patient day that a resident should be receiving care.

In 1990, Congress did require the Department of Health and Human Services to conduct a study and report to Congress by January 1, 1992 on the appropriateness of establishing minimum supervisor to caregiver to resident ratios and provide recommendations on such ratios. Only now, in 1999, is that report being completed. The Department of Health and Human Services expects such a report and recommendation to be submitted to Congress in 2000.

Until the federal report was completed, the role of setting specific standards was left to the States to develop and implement. Most states have a specific minimum standard in state law, regulation, or policy. None of those state standards, however, meet the Consumer Minimum Staffing Standard – a standard developed by nursing professionals with long term care expertise and adopted by the membership of the National Citizens' Coalition for Nursing Home Reform (in 1995 and an updated version in 1998). The Consumer Minimum Staffing Standard requires, at the very least:

FOR EVERY NURSING FACILITY:

A full-time RN Director of Nursing
A full-time RN Assistant Director of Nursing (in facilities of 100 beds or more)
A full-time RN Director of In-service Education
An RN nursing supervisor on duty at all times (24 hours, 7 days per week)

Direct caregivers (RN, LPN, LVN, or CAN)

Day	1:5 residents
Evening	1:10 residents
Night	1:15 residents

PLUS

Licensed nurses (RN, LPN, or LVN)

Day	1:15 residents
Evening	1:25 residents
Night	1:35 residents

[See attached for a complete copy of the Consumer Minimum Staffing Standard]

In addition to NCCNHR, the Consumer Minimum Staffing Standard was endorsed by the prestigious John A. Hartford foundation.

The issue of adequate staffing is becoming of greater interest to legislatures around the country. In the last year or two, approximately 2/3 of states have either promulgated a new law or regulation or ordered a committee to evaluate the information necessary to decide whether to set another (more appropriate) standard.

The attached information reviews each state's minimum staffing standard.

FEDERAL STANDARD

As contained in the Nursing Home Reform Act of 1987

Each nursing home must provide 24-hour licensed nursing services which are sufficient to meet the nursing needs of its residents.

Each nursing home must use the services of a registered professional nurse for at least 8 consecutive hours a day, 7 days a week.

Waivers of these standards are allowed as indicated below. If a waiver is granted, the State (under Medicaid) or the Secretary (under Medicare) must notify the long term care ombudsman and the facility must notify its residents and their immediate families.

Medicaid Facilities: States may, on an annual basis, waive the nursing requirements to the extent a home cannot meet them if:

- A facility demonstrates to the satisfaction of the state that it has been unable, despite diligent efforts (including offering wages at the community prevailing rate for nursing facilities) to recruit appropriate personnel;
- The state determines that a waive will not endanger the health or safety of residents;
- The state finds that, for any periods in which licensed nursing services are not available, an R.N. or a physician is obligated to respond immediately to telephone calls from the facility;
- If the Secretary determines that a state shows a pattern and practice of allowing waivers in the absence of diligent efforts by facilities to meet staffing patterns, the Secretary must assume the state's authority to grant waivers. A facility's reimbursement must be reduced to take into account the waivered facility's lowered costs.

Medicare facilities: The Secretary may, on an annual basis, waive the requirement for a registered professional nurse for more than 40 hours per week if the Secretary finds that:

- The facility is located in a rural area and the supply of skilled nursing facility services in the area that is not sufficient to meet the demand for such services';
- The facility has a full-time registered nurse regularly on duty 40 hours per week;
- The facility either: has only patients who do not require the services of a registered nurse or physician for a 48-hour period, as documented by the physician, or has arranged for a registered or physician to spend time in the facility as necessary to provide needed services when the regular full-time registered nurse is not on duty.

ALABAMA

No additional state minimum staffing requirement. Follows federal rule.

ALASKA

Standard
Regulation [07 AAC 012.275]

Professional Nurse Coverage
A nursing facility must have an RN on duty 7 days/week day shift, 5 days/week evening shift. An LPN must be on duty during all shifts when an RN is not present.

Facility w/ <60 occupied beds must have 2 RNs during day shift, 1 RN other shifts.

Nursing Waivers
No

ARIZONA

No additional state minimum staffing requirement. Follows federal rule.

ARKANSAS

Standard
Staffing legislation passed in 1998 – Act 1529.

By June 30, 2000 nursing homes are required to maintain the following ratios:

CNAs: 1:8 Day Shift
Licensed Personnel (RN, LPN, LVN): 1:30 Day Shift
1:12 Evening Shift
1:30 Evening Shift
1:18 Night Shift
1:50 Night Shift

By September 30, 2000, nursing homes are required to maintain the following ratios:

CNAs: 1:7 Day Shift
Licensed Professionals (RN, LPN, LVN): 1:15 Day Shift
1:12 Evening Shift
1:15 Evening Shift
1:18 Night Shift
1:35 Night Shift

Professional Nurse Coverage
Facilities containing 70 or more beds must employ an RN supervisor during the day and evening shifts in addition to the above requirements.
Facilities containing 100 or more beds must, in addition to the above requirements, employ an RN supervisor during the night shift; employ a full-time assistant director of nursing; and employ a full-time RN director of in-service education.

Staff Counted in Standard
Individuals employed to provide services such as food preparation, housekeeping, laundry or maintenance services shall not be counted in determining the above staffing ratios.

Staffing Disclosure

Nursing homes must post on each hall, wing, or corridor the number of licensed and unlicensed personnel on duty at each shift. The posting will consist of a sign-in sheet where the staff member must sign in upon arrival and again upon departure. The current number of residents on that unit shall also be posted at the same place as the staffing report. This information must be posted in a conspicuous place and in a manner which is visible and accessible to all residents, families, and visitors.

Nursing Waivers

No

CALIFORNIA

Standard
Welfare & Institutions Code 14110.7 (California regulation) requires the minimum nursing hours to be:

SNF = 3.0 hours/patient day
SNF w/ special treatment program = 2.3 hours/patient day
NF = 1.1 hour/patient day
NF/Developmentally Disabled = 2.7 hours/patient day

Professional Nurse Coverage
22 CCR 72329 Nursing Service – Staff

-- Facilities licensed for 59 or fewer beds must have at least one RN or LVN awake and on duty, in the facility at all times, day and night
-- Facilities licensed for 60 – 99 beds must have at least one RN or LVN awake and on duty, in the facility at all times, day and night, in addition to the director of nursing services. The DoN shall not have charge nurse responsibilities.
-- Facilities licensed for 100 or more beds must have at least one RN awake and on duty, in the facility at all times, day and night, in addition to the director of nursing services. The DoN shall not have charge nurse responsibilities.

22 CCR 73319 – Nursing Service Staff
-- Facilities must employ an RN or LVN 8 hours per day on the day shift, 7 days/week.
-- Facilities with 100 or more beds shall employ an RN 8 hours per day on the day shift, 7 days/week. Additionally, an RN or LVN must be employed 4 hours per day, 7 days per week, during the day for each 50 beds or portion thereof in excess of 100.

Staff Counted in Standard
"Nursing hours" means the number of hours of work performed per patient day by aides, nursing assistants, or orderlies, plus 2 times the number of hours worked per patient day by registered nurses and licensed vocational nurses, and in distinct part of facilities and freestanding facilities providing care.

Nursing Waivers
1276.2 of the Health & Safety Code includes a prohibition on the requirement of the use of registered nurses in SNFs for which vocational nurses are qualified, when the facility is unable to obtain a registered nurse.

COLORADO

Standard
Code of Colorado Regulations 1011, Chapter 5, Part 7
Nursing care facility must provide nurse staffing sufficient in number to provide at least 2.0 hours of nursing time per resident per day.

Professional Nurse Coverage
Nursing care facility: at least one RN must be on duty (and on the premises) at all times [except as provided under section 7.6].

Each resident care unit must be staffed with at least a licensed nurse.

Intermediate care facility: at least one RN or LPN must be on duty (and on the premises) on the day shift 7 days/week. Facility may use LPN as DoN.

Nursing facility required to employ a full-time Director of Nursing who is an RN and qualified by education and experience to direct facility nursing care.

Staff Counted in Standard

If 60+ residents, the time of the DoN, Staff development Coordinator, and other supervisory personnel who are not providing direct resident care may not be used in computing this ratio.

Nursing Waivers
Waivers of the RN requirement may be granted if:

- facility is located in a rural area;
- the facility has at least one FT RN who is regularly on duty;
- facility has only residents whose attending physicians have indicated that each resident does not require the services of an RN for a 48-hour period or the facility has made arrangements for a professional nurse or physician to be on-site as necessary to provide needed services when the regular FT RN is not on duty; and
- facility has made a good faith effort to comply with the RN requirement but RNs are unavailable in the area.

CONNECTICUT

Standard
Connecticut Public Health Code Sec. 19-13-D8t

Minimum staffing for chronic and convalescent nursing home:

Licensed nursing personnel
7 am - 9 pm = .47 hours/patient
9 pm - 7 am = .17 hours/patient
Total nursing & nurses' aide personnel
7 am - 9 pm = 1.40 hours/patient
9 pm - 7 am = .50 hours/patient

Minimum staffing for a rest home with nursing supervision staff:

Licensed nursing personnel
7 am - 9 pm = .23 hours/patient
9 pm - 7 am = .08 hours/patient
Total nursing & nurse□s aide personnel
7 am - 9 pm = .70 hours/patient
9 pm - 7 am = .17 hours/patient

Professional Nurse Coverage
There shall be at least one RN on duty 24 hours per day, 7 days per week

In a chronic and convalescent nursing home, there must be at least one licensed nurse on duty on each patient occupied floor at all times.

In a rest home with nursing supervision, there must be at least one nurse's aide on duty on each patient occupied floor at all times and intercom communication with a licensed nurse.

Staff Counted in Standard
In facilities of 61+ beds, the DoN shall not be included in the above requirements.

In facilities of 121+ beds, the AdoN shall not be included in the above requirements.

Nursing Waivers
No

DELAWARE

Information unreported as of 10/99

DISTRICT OF COLUMBIA

No additional state minimum staffing requirement. Follows federal rule.

FLORIDA

Standard
Title 59A-4 Florida Administrative Code

- At a minimum, the facility will staff an average of 1.7 hours of certified nursing assistant and 0.6 hours of licensed nursing staff time for each resident during a 24 hour period.
- The DoN shall designate one licensed nurse on each shift to be responsible for the delivery of nursing services during that shift.
- In a multi-story, multi-wing, or multi-station facility, there shall be a minimum of one nursing services staff person who is capable of providing direct care on duty at all times on each floor, wing, or station.

Note: In 1999, the Florida legislature passed legislation giving nursing homes $40 million to increase staffing and CNA wages, but it did not legislatively require specific staffing ratios.

Professional Nurse Coverage
When a DoN is delegated institutional responsibilities, a full-time qualified RN must be designated to serve as Assistant DoN.

Facilities with a census of 121 or more residents must designate an RN as an Assistant DoN.

Nursing Waivers
No

GEORGIA

Standard
Georgia DHR Rules, chapter 290-5-8-.04
- A minimum of 2.0 hours of direct nursing care per patient in a 24 hour period.
- For every 7 total nursing personnel required, there shall not be less than one registered nurse or licensed practical nurse.
- Nursing staff shall be employed for nursing duties only.

Medicaid policy
- Level I and Level II nursing facilities are required to provide a minimum of 2.5 nursing hours per patient day.

Professional Nurse Coverage
There must be at least one nurse, registered, licensed undergraduate, or licensed practical on duty and in charge of all nursing activities during each 8-hour shift.

An RN shall be employed full-time as DoN. She may not also be the administrator.

Nursing Waiver
No

HAWII

Standard
Department of Health Regulations, 11-94-23

Professional Nurse Coverage
Skilled Nursing Facility -- at least one RN, full-time, 24 hours per day, 7 days per week

Intermediate Care Facility -- at least one RN, full-time, on day shift and at least one licensed nurse whenever medications are administered.

IDAHO

Standard
IDAPA 16.03.02200,02

Skilled Nursing Facilities
59 or less residents -- 2.4 hours/resident/day. Hours shall not include DoN but may include the supervising nurse on each shift.
60+ residents -- 2.4 hours/resident/day. Hours shall not include the DoN or supervising nurse.

Nursing Facilities
1.8 hours/resident/day. Hours may include the DoN, supervising nurse and charge nurses.

SNFs & NFs shall be considered in compliance w/the minimum staffing ratios if, on Monday of each week, the total hours worked by nursing personnel for the previous 7 days equal or exceed the minimum, staffing ratio for the same period when averaged on a daily basis and the facility has received prior approval from the Licensing Agency to calculate nursing hours in this manner.

Professional Nurse Coverage
In facilities with 60+ residents, the DoN shall have strictly nursing administrative duties
In facilities with 59 or less residents the DoN may, in addition to administrative responsibilities, serve as the supervising nurse.

SNFs with 60+ residents
- an RN shall be on duty 8 hours each day and no less than an LPN shall be on duty for each of the other 2 shifts.

SNFs with 60 - 89 residents
- an RN shall be on duty during the day shift and the evening shift and no less than an LPN shall be on duty during the night shift

SNFs with 90+ residents
- an RN must be on duty at all times.

ICFs
- an RN or LPN must be on duty at all times as charge nurse
- if an LPN is charge nurse, the facility must make documented arrangements for an RN to be on call for these shifts to provide professional nursing support

Nursing Waiver
Regulation permits waiver of RN as Superivisng or Charge Nurse if a facility is unable to hire an RN to meet the requirements so long as: the facility continues to seek an RN at a compensation level at least equal to prevailing community rates; documented record of efforts to secure RN personnel is maintained in the facility; and the facility maintains at least 40 hours/week RN coverage.

ILLINOIS

Standard
77 Illinois Administrative Code Chapter I, sec. 300.1230

Skilled Nursing Care = at least 2.5 hours of nursing care each day, of which at least 20% must be licensed nurse time.

Intermediate Care = at least 1.7 hours of nursing care each day, of which at least 20% must be licensed nurse time.

Light intermediate care shall be provided with at least 1 hour of nursing care each day, of which at least 20% must be licensed nurse time.

A resident needing light intermediate care is one who needs personal care as defined in section 1-120 of the Act; is mobile; requires some nursing services; needs a program of social services and activities directed toward independence in daily living skills; and needs daily monitoring.

At least 40% of the minimum required hours shall be on the day shift; at least 25% on the evening shift; and at least 15% on the night shift.

Professional Staff Coverage

A licensed nurse must be designated as a charge nurse when neither the DoN or Assistant DoN are on duty. If both RNs and LPNs are on duty, this person shall be an RN.

SNFs = at least one RN must be on duty 8 consecutive hours, 7 days per week

There shall be at least one RN or LPN on duty at all times in an ICF or a SNF.

Staff Counted in Ratios

The DoNs time shall not be included in staffing ratios

Nursing Waivers

Yes

INDIANA

Standard

410 IAC 16.2-3.1-17

Except when waived, facility shall provide a licensed nurse hour to resident ration of 0.5 licensed nurse hour per resident day, averaged over a one week period.

Professional Staff Coverage

Facility must designate a licensed nurse to serve as charge nurse on each tour of duty.

Facility must have an RN on duty for at least 8 consecutive hours per day, 7 days a week.

DoN may serve as charge nurse only when facility daily occupancy is fewer than 60 residents. These hours may be counted toward the staffing requirement.

Nursing Waivers
Yes if:
- facility demonstrates it was unable to recruit proper personnel
- a waiver would not endanger the health or safety of the residents
- an RN or physician is on call at all times and required to respond immediately to calls
- state agency provides notice to the LTC Ombudman and the protection and advocacy system

IOWA

Standard
IAC 58.11(2)
- The minimum hours of resident care personnel required for residents needing intermediate nursing care shall be 2.0 hours per resident/day computed on a 7-day week. A minimum of 20% of this time shall be provided by qualified nurses.
- If the maximum medical assistance rate is reduced below the 74th percentile, the requirement will return to 1.7 hours per resident/day computed on a 7-day week. A minimum of 20% of this time shall be provided by qualified nurses.
- The minimum hours of professional nursing personnel for residents requiring skilled nursing care shall be 168 hours per week for facilities under 50 beds. For every additional bed over 50, 2.24 hours of additional nursing per week is required.
- Non professional nursing care staff shall be required in the ratio of 0.28 employee per bed, per week.

Professional Nurse Coverage
An ICF with 75+ beds must have a qualified nurse on duty, 24 hours a day, 7 days a week

An ICF with less than 75 beds that employs an LPN as a health service supervisor must also employ an RN for at least 4 hours each week for consultation. The RN must be on duty at the same time as the supervisor.

Facilities with 75+ beds must employ a health services supervisor who is a registered nurse.

A SNF must provide 24 hour service by licensed nurses, including at least one registered nurse on the day shift, 7 days per week.

The health service supervisor must not serve as the charge nurse in a SNF with 60 + residents.

Staff Counted in Standard
The health supervisor's hours worked per week shall be included in computing the 20% requirement.

KANSAS

Standard
Kansas Administrative Regulations, 28-39-154

Per facility, there shall be a weekly average of 2.0 hours of direct care staff time per resident and a daily average of not fewer than 1.85 hours during any 24 hour period.

The ratio of nursing personnel to residents per nursing unit shall not be fewer than one nursing staff member for each 30 residents or for each fraction of that number of residents.

A licensed nurse shall be on duty 24 hours per day, seven days per week. An RN must be on duty at least 8 consecutive hours per day, 7 days per week.

On the day shift there shall be the same number of licensed nurses on duty as there are nursing units.

Staff Counted in Standard
The DoN shall not be included in the weekly and daily average computation in facilities w/ < 60 beds.

However, the DoN may be counted to meet the licensed nurse on duty requirement.

KENTUCKY

No minimum staffing standard exists in Kentucky. The Licensing Agency provided the following clarification:

The Division of Licensing and Regulation has followed the lead of the Federal Government in that the licensing regulations reflect the certification regulations regarding minimum staffing requirements. The reasons are as follows:

- Often when minimum staff requirements are established, the minimum then becomes the maximum;
- Acuity levels of residents may change on a daily basis, and thus it would not be possible to predict what staffing ratios are necessary; and
- Minimum staff ratios would hamper our ability to utilize an outcome based survey process as well as providing a defense for nursing homes to employ anytime a deficiency is cited related to "understaffing."

LOUISIANA

Standard

Louisiana Licensure Standards, sec. 9811

As a minimum, the nursing home shall provide 1.5 hours of care per resident each day

Nursing homes participating in Medicaid shall be required to meet the following standards for payment for nursing home services in addition to the standards currently in effect:

- the ratio of nursing care hours to residents shall be 2:35 on intermediate care level residents
- the ratio of nursing care hours to residents shall be 2:60 on skilled level residents

Professional Nurse Coverage
Licensed nurse coverage must be provided 24 hours per day.

The DoN may serve as charge nurse only when 60 or fewer residents.

Nursing homes with a census of 101 + must have an assistant DoN who shall be an RN unless written waiver is received from the Department of Health.

Nursing Waiver
Waiver permitted if facility is unable to obtain 7-day RN coverage. Request for waiver must include proof that diligent efforts have been made to recruit appropriate personnel, and names and phone numbers of RNs interviewed for the job. Louisiana also follows federal waiver provisions, contained in the Nursing Home Reform Act of 1987.

MAINE

Standard
10-144 CMR 110, chapter 9

Day shift = 1:8
Evening shift = 1:12
Night shift = 1:20

Professional Staff Coverage
An RN must be on duty for at least 8 consecutive hours each day of the week.

Day Shift:

- a licensed nurse must be on duty 7 days/week
- an RN must be designated as the charge nurse -- in facilities with less than 20 beds, the DoN may also be the charge nurse
- an additional licensed nurse must be added for each 50 beds above 50.
- In facilities with 100+ beds, the additional licensed nurse must be an RN for each multiple of 100 beds

Evening Shift:

- A licensed nurse must be on duty 8 hours each evening
- An additional licensed nurse shall be added for each 70 beds
- In facilities with 100+ beds, one of the additional licensed nurses must be an RN

Night Shift
- A licensed nurse must be on duty 8 hours each evening
- An additional licensed nurse shall be added for each 100 beds
- In facilities with 100+ beds, an RN must be on duty

Staff Counted in Standard
Nurse aides in training may not be counted in the ratio

Private duty nurses shall have no effect on the nursing staff requirements.

Sharing of nursing staff is permitted between the nursing facility and other levels of assisted living on the same premises as long as there is a clear documented audit trail and the staffing in the nursing facilities remains adequate to meet the needs of residents.

MARYLAND

Standard
Code of Maryland Regulations, 10.07.02

Comprehensive care facilities shall employ supervisory personnel and a sufficient number of supportive personnel to provide a minimum of 2 hours of bedside care per licensed bed per day, 7 days per week.

Comprehensive care facilities shall provide at least the following supervisory personnel:

2-99 residents = 1 FT RN
100-199 residents = 2 FT RNs
200-299 residents = 3 FT RNs
300-399 residents = 4 FT RNs

The ratio of nursing service personnel on duty to patients may not at any time be less than 1:25 or fraction thereof.

Professional Nurse Coverage
Extended care facilities shall be staffed with an RN 24 hours a day, 7 days a week.

Nursing Waiver
Facilities with 40 or fewer beds which do not participate in a federal program may request for an exception to the above staffing pattern.

Staff Counted in Standard

Bedside hours include the care provided by RNs, LPNs, and supportive personnel, except that ward clerk's time shall be computed at 50% of the time provided on the nursing unit.

Only those hours which the director of nursing spends in bedside care may be counted in the 2 hour minimal requirement.

MASSACHUSETTS

Standard
105 CMR 150.007

Level I care shall provide, at a minimum, a total of 2.6 hours of nursing care per patient per day; at least 0.6 hours shall be provided by licensed nursing personnel and 2.0 hours by ancillary nursing personnel.

Level II care shall provide, at a minimum, a total of 2.0 hours of nursing care per patient per day; at least 0.6 hours shall be provided by licensed nursing personnel and 1.4 hours by ancillary nursing personnel.

Level III care shall provide, at a minimum, a total of 1.4 hours of nursing care per patient per day; at least 0.4 hours shall be provided by licensed nursing personnel and 1.0 hours by ancillary nursing personnel.

Level IV care shall provide:
- facilities with less than 20 beds -- at least one "responsible person" on active duty during waking hours in the ratio of one per ten residents
- facilities with more than 20 beds -- at least one "responsible person" on active duty at all times, 24 hours a day/ 7 days a week, per unit
- If none of the responsible persons on duty are licensed nurses, then the facility shall provide a licensed consultant nurse, four hours per month, per unit.

Staff Counted in Standard
The supervisor of nurses and the charge nurse, but not the DoN, may be counted in the calculation of licensed nursing personnel.

The amount of nursing care time per patient shall be exclusive of non-nursing duties.

MICHIGAN

Standard
Michigan Compiled Laws
Michigan Department of Public Health Rules sec. 333.21720a

A nursing home shall maintain staff sufficient to provide not less than 2.25 hours of nursing care per resident per day.

The ratio of residents to nursing care personnel:

- Morning shift = 1:8
- Afternoon shift = 1:12; and
- Nighttime shift = 1:15

Professional Nurse Coverage

Each nursing home must have an RN employed full-time as DoN.

There must be an RN on duty at least 8 consecutive hours per day, 7 days per week.

Each nursing home must have a licensed nurse on each shift to serve as charge nurse.

Staff Counted in Standard

In a nursing home having 30 or more beds, the director of nursing shall not be included in counting the minimum ratios of nursing personnel.

An employee designated as nursing staff shall not be engaged in providing basic services such as food preparation, housekeeping, laundry, or maintenance services

MINNESOTA

Standard

Minnesota Statutes Annotated sec. 144A.04
Minnesota Rules sec. 4658.0510

The minimum number of hours of nursing personnel to be provided in a nursing home is the greater of 2.0 hours per resident per 24 hours or 0.95 hours per standardized resident day. Regulations require that the minimum number of hours of nursing personnel to be provided is:

- 2.0 hours of nursing personnel per resident per 24 hours (for nursing homes not certified to participate in medical assistance)
- the greater of 2.0 hours per resident per 24 hours or 0.95 hours per standardized resident day (for nursing homes certified to participate in the medical assistance program.)

Professional Nurse Coverage

A nursing home must have a full time DoN who is an RN and is assigned full time to the nursing services of the facility.

A nurse must be employed so that on-site nursing coverage is provided 8 hours/day, 7 days/week.

Staff Counted in Standard
The non-productive hours of the in-service training director are not included in the above standard

In homes with more than 60 licensed beds, the hours of the DoN are excluded.

"Hours of Nursing Personnel" means the paid, on-duty, productive nursing hours of all nurses and nursing assistants, calculated on the basis of any given 24-hour period.

MISSISSIPPI

Standard
Mississippi Code Annotated, 43-11-201.1

Currently 2.33 hours per patient day. Regulation effective January 2000, requirement increased to 2.67 hppd.

Professional Nurse Coverage
RN coverage on the day shift 7 days/week.

Facilities with 180+ beds shall have an assistant DoN, who shall be an RN.

In facilities with 60 beds or less, the DoN may serve as the charge nurse. In facilities with 60+ beds, the DoN may not serve as charge nurse, nor as medication/treatment nurse.

MISSOURI

No additional state minimum staffing requirement. Follows federal rule. State standard repealed in 1998.

MONTANA

Standard
Administrative Rules of Montana 16.32.361

	In Terms of Service Furnished by Each Category of Personnel							
	Day Shift			Evening Shift			Ni	
# Licensed beds	RN Hours	LPN Hours	Aide Hours	RN Hours	LPN Hours	Aide Hours	RN Hours	LP
4-8	8	0	0	0	8	0	0	8

9-15	8	0	4	0	8	0	0	8
16-20	8	0	8	0	8	4	0	8
21-25	8	0	12	0	8	8	0	8
26-30	8	0	16	0	8	8	0	8
31-35	8	0	20	0	8	12	0	8
36-40	8	0	24	0	8	16	0	8
41-45	8	8	28	0	8	16	0	8
46-50	8	8	32	0	8	20	0	8
51-55	8	8	36	8	0	24	0	8
56-60	8	8	40	8	0	24	0	8
61-65	8	8	44	8	0	28	0	8
66-70	8	8	48	8	0	32	0	8
71-75	8	8	52	8	0	32	8	0
76-80	8	16	48	8	8	32	8	0
81-85	8	16	52	8	8	32	8	8
86-90	8	16	56	8	8	32	8	8
91-95	16	16	52	8	8	36	8	8
96-100	16	16	56	8	8	40	8	8

Staffing of homes with more than 100 beds will be given individual consideration.

NEBRASKA

No additional state minimum staffing requirement. Follows federal rule.

NEVADA

Standard
Nevada Medicaid Services Manual, sec. 502.3

	Minimum Hrs ppd	Maximum Hrs ppd
Skilled Nursing Level 3	6.00	10.75
Skilled Nursing Level 2	4.00	5.75
Skilled Nursing Level 1	3.00	3.75

Intermediate Care Level 3	2.50
	2.75
Intermediate Care Level 2	1.50
	1.75
Intermediate Care Level 1	0.75
	1.00

Staff Counted in Standard
Direct care does not include: DoN; Assistant DoN; Inservice Coordinator; Patient Care Coordinator; Staff Development Coordinator; Ward Clerk; Medical Records Coordinator; Administrative Aide in-training; Orientees; Restorative Aides employed by Therapist; Volunteers; any RNs, LPNs or charge nurses classified as any of the above.

NEW HAMPSHIRE

Information unreported as of 10/99

NEW JERSEY

Standard
NJAC 8:39-25.1 through 25.4

RNs, LPNs, and NAs shall spend the following amounts of time on professional duties:

- Total number of residents multiplied by 2.5 hours/day; plus
- Total number of residents receiving each service listed below, multiplied by the corresponding number of hours per day:

Tracheostomy
1.25 hours/day
Use of respirator
1.25 hours/day
Head trauma stimulation/Advanced neuromuscular/Orthopedic care
1.50 hours/day
Intravenous therapy
1.50 hours/day
Wound care
0.75 hours/day
Oxygen therapy
0.75 hours/day
Nasogastric tube feedings and/or gastrostomy
1.00 hours/day

There shall be a visual observation by a member of the resident care staff of each resident at least once per hour. These observations need not be documented.

Professional Nurse Coverage
At least 20% of the hours of care required shall be provided by RNs or LPNs

An RN shall be on duty at all times in facilities with 150+ beds.

Facilities with 150+ beds shall have an assistant DoN who is an RN

There shall be at least one RN on duty in the facility during the day shift.

NEW MEXICO

No additional state minimum staffing requirement. Follows federal rule.

NEW YORK

No additional state minimum staffing requirement. Follows federal rule.

NORTH CAROLINA

Standard
North Carolina Administrative Code, Title 10, 03H.2303

Except for designated units with higher staffing requirements noted elsewhere in the subchapter, daily direct patient care nursing staff, licensed and unlicensed, shall equal or exceed 2.1 nursing hours per patient day. Inclusive in these nursing hours is the requirement that at least one licensed nurse is on duty for direct patient care at all times.

Note: North Carolina regulations also contain staffing standards for adult care homes. And, legislation to improve staffing ratios for adult care homes was introduced in 1997 in the General Assembly.

Professional Nurse Coverage
An RN shall be designated to serve as the DoN on a full time basis.

The DoN shall serve as the charge nurse only if occupancy is less than 60.

Nurse Waivers

Staffing waivers granted by the federal government for Medicare and Medicaid certified beds shall be accepted for licensure purposes.

NORTH DAKOTA

No additional state minimum staffing requirement. Follows federal rule.

OHIO

Standard
ORC 3701-17-08

- Each nursing home shall have at least one attendant on duty at all times for each 15 residents and one other person on duty at all times;
- at least one person working 40 hours per week for each 4 residents;
- and the following minimum nurse staffing which may be counted in determining the foregoing personnel requirements:

    - 10 or fewer residents = 1 nurse on duty at least 8 hours per day between 6 am and 5 pm and a nurse on call at all other times.
    - 11- 25 residents = 1 nurse on duty at least 16 hours per day between 6 am and 12 midnight and a nurse on call at all other times.
    - 26 - 50 residents = 1 nurse on duty at all times.
    - 51 - 75 residents = 2 nurses on duty at all times; provided, at least one nurse shall be an RN on duty not less than 8 hours between 6 am and 5 pm.
    - 76 - 100 residents = at least 2 nurses; an RN shall be on duty not less than 8 hours each day between 6 am and 5 pm.
    - 100+ residents = an RN on duty at all times and an additional nurse on duty at all times for every 50 residents

Nursing Waiver

Yes if:
- facility has made diligent efforts to recruit the required personnel
- facility is offering the prevailing wage for RNs and LPNs
- facility and personnel policies are such as to offer satisfactory working conditions to prospective employees

OKLAHOMA

Standard
Oklahoma Regulations 310:675-13-12

Day Shift = 1:10
Evening Shift = 1:15
Night Shift = 1:20

Professional Nurse Coverage
A licensed nurse shall be on duty 8 hours a day, 7 days a week on the day shift.

If the DoN is an LPN, an RN shall be employed for at least 8 hours per week as a consultant.

Nursing Waiver
Yes

OREGON

Standard
Oregon Administrative Rules 411-86-100

Day Shift = 1:10
Evening Shift = 1:15
Night Shift = 1:25

Professional Nurse Coverage
Licensed nurse hours shall include no less than 1 RN per resident per week.

The facility shall have a licensed charge nurse on each shift, 24 hours per day. The charge nurse must be an RN for no less than 8 consecutive hours between 7 am and 11 pm, 7 days per week.

The DoN may serve as charge nurse only when the facility has 60 or fewer residents.

Staff Counted in Standard
No more than 25% of the nursing assistants assigned to residents pursuant to the above ratio may be nursing assistants who are not yet certified.

When an RN serves in the temporary absence of the administrator, his/her hours shall not be used to meet minimum nursing hours.

In facilities with 41+ beds, the hours of a licensed nurse who serves as facility administrator shall not be included in any licensed nurse coverage.

Nursing Waivers
Yes

PENNSYLVANIA

Standard
Pennsylvania Administrative Code, title 28, chapter 211

Total number of hours of general nursing care in each 24 hour period shall be a minimum of 2.7 hours for each skilled patient and 2.3 hours for each intermediate care patient.

Professional Staff Coverage
The following daily professional staff shall be available:

Census	Day	Evening	Night
59 and under	1 RN	1 RN	1 RN or 1
60/150	1 RN	1 RN	1 RN
151/250	1 RN & 1 LPN	1 RN & 1 LPN	1 RN & 1
251/500	2 RNs	2 RNs	2 RNs
501/1000	4 RNs	3 RNs	3 RNs
1001/up	8 RNs	6 RNs	6 RNs

There shall be a full time DoN who shall be a qualified RN.

The DoN may also serve as the day professional staff nurse in a facility with an average daily census of 59 patients or less.

RHODE ISLAND

Information unreported as of 10/99

SOUTH CAROLINA

Standard
South Carolina State Law
SC Department of Health & Environmental Control Regulation 61-17

Recently passed legislation requires:

- In addition to the number of licensed nursing personnel required by regulation, a nursing home must provide at a minimum the following resident-staff ratios:

  9:1 for shift 1
  13:1 for shift 2
  22:1 for shift 3

Professional Nurse Coverage
Regulation states:

- The required minimum number of licensed nurses for any nursing station which serves at least 1 resident is one per station per shift. If a nursing station serves more than 44 residents, then that station is required to have 2 licensed nurses on all shifts.

The facility shall designate an RN as a full time DoN

SOUTH DAKOTA

No additional state minimum staffing requirement. Follows federal rule.

TENNESSEE

Standard
Tennessee Code, Chapter 1200-8-6-.04

A minimum of 2.0 hours of direct care to each resident every day, including 0.4 hours of licensed nursing personnel time.

The number of direct nursing hours required shall be calculated according to the following formula:

- # residents x # nursing hours required per resident day = total direct nursing hours required
- # residents x # licensed nursing hours required per resident day = total licensed nursing hours required
- divide the total hours required by the number of hours worked by a full-time person (usually 8)

Professional Nurse Coverage
At least 1 licensed nurse on duty at all times.

If the nursing service is under the direction of an LPN, an RN must be available on the nursing home premises to consult, review, and advise on the quality of nursing care for at least 48 weeks in each calendar year. The RN consultant must be on the premises at least 8 hours each week (12 hours/week in homes with 51+ beds).

In facilities with 50 beds or less, the DoN, in addition to nursing administrative and supervisory responsibilities, may participate in general nursing duties and patient care activities not to exceed 50% of his/her working hours.

TEXAS

Standard
Texas Administrative Code, Title 25, Part I, Chapter 145
Texas Dept of Human Services, sec. 19.1001,2

Professional Nurse Coverage
At a minimum, the facility must maintain a ratio of 1 licensed nursing staff person for each 20 residents or a minimum of 0.4 licensed-care hours per resident day.

The facility must designate an RN to serve as DoN on a full-time basis.

There must be a licensed nurse to serve as charge nurse on each tour of duty.

Facility must use the services of an RN for at least 8 consecutive hours per day, 7 days per week.

Staff Counted in Standard
Licensed nurses who may be counted include, but are not limited to, DoN, Assistant DoN, Staff Development Coordinators, Charge Nurses, and Medication/Treatment Nurses.

Staff, who also have administrative duties not related to nursing, may be counted in the standard only to the degree of hours spent in nursing related duties.

Nursing Waiver
Yes

UTAH

Information unreported as of 10/99

VERMONT

No additional state minimum staffing requirement. Follows federal rule.

VIRGINIA

No additional state minimum staffing requirement. Follows federal rule.

WASHINGTON

Standard
Washington Administrative Code Title 388-97-115

Skilled Care = 2.25 hppd
Intermediate Care = 2.00 hppd
Limited nursing care = 1.25 hppd

A minimum of 20% of the above hppd must be provided by nurses.

Professional Nurse Coverage
The nursing home shall have an RN on duty directly supervising resident care a minimum of 16 hours per day, 7 days per week.

An RN or LPN must be on duty directly supervising resident care the remaining 8 hours per day.

The nursing home shall designate an RN or LPN to serve as charge nurse and shall have a full time DoN who is an RN.

An intermediate care facility with:
- fewer than 60 residents shall have at least 1 RN or 1 LPN on duty during every daytime tour of duty. The RN may be the DoN.
- 60 or more residents shall have at least 1 RN on duty during every daytime tour of duty. The RN may be the DoN in accordance with paragraph (a).

A SNF shall have at least 1 charge nurse on duty at all times, and:
- if fewer than 60 residents -- at least 1 RN who may be the DoN on duty as charge nurse during daytime
- if 60 - 74 residents -- in addition to the DoN, at least 1 RN on duty as charge nurse during daytime
- if 75 - 99 residents -- in addition to the DoN, at least 1 RN on duty as charge nurse during daytime and at least 1 RN on duty as charge nurse on a non-daytime tour of duty
- if 100+ residents -- in addition to the DoN, at least 1 RN on duty as charge nurse at all times.

An intermediate care facility shall have a charge nurse during every daytime tour of duty, who may be the DoN.

WEST VIRGINIA

Standard
64 CSR 13

Minimum of 2 hours nursing personnel time per resident per day. Includes 0.4 hours of licensed nurse time and 1.6 hours of nurse aide time.

Minimum Ratios of Resident Care Personnel to Residents

Number of Residents	Licensed Nurses		Aides		Total Resident C
	Number Per Day	Hours Per Day	Number Per Day	Hours Per Day	Number Per Day
3-10	3	24	3	24	6
11-20	3	24	4	32	7
21-30	3	24	6	48	9
31-40	3	24	8	64	11
41-50	3	24	10	80	13
51-60	3	24	12	96	15
61-70	3.5	28	14	112	17.5
71-80	4	32	16	128	20
81-90	4.5	36	18	144	22.5
91-100	5	40	20	160	25
101-110	5.5	44	22	176	27.5
111-120	6	48	24	192	30
121-130	6.5	52	26	208	32.5
131-140	7	56	28	224	35
141-150	7.5	60	30	240	37.5
151-160	8	64	32	256	40
161-170	8.5	68	34	272	42.5
171-180	9	72	36	288	45
181-190	9.5	76	38	304	47.5
191-200	10	80	40	320	50
Over 200	Shall be calculated for each facility				

Professional Nurse Coverage

A nursing home shall provide licensed nursing services coverage 24 hours a day, 7 days a week.

Staff Counted in Standard

In facilities with less than 60 beds, the DoN may be included in the staff:resident ratio calculations.

Employees, private duty nurses, volunteers or contracted nurses who are "available" or "on call" do not meet the requirements for minimum staffing.

No individual shall be counted as meeting these numerical requirements on any 2 consecutive shifts, unless the facility can demonstrate extenuating circumstances and only then as a non-routine occurrence.

WISCONSIN

Standard
Wisconsin Statutes, Chapter 50.04

Law requires that each nursing home shall provide at least the following hours of service by RNs, LPNs, or NAs:

- For each resident needing intensive SNF care - 3.25 hours per day, of which a minimum of 0.65 hours shall be provided by an RN or LPN.
- For each resident needing SNF care - 2.5 hours per day, of which a minimum of 0.5 hours shall be provided by an RN or LPN.
- For each resident needing intermediate or limited nursing care - 2.0 hours per day, of which a minimum of 0.4 hours shall be provided by an RN or LPN.

> HFS 132, the Wisconsin Administrative Code, is currently under revision and will be made consistent with Chapter 50.04.

Professional Nurse Coverage
Each nursing home must have a charge nurse -- can be either an LPN under the supervision of an RN or MD, or can be an RN.

All facilities shall have at least one nursing staff person on duty at all times.

Nurse Waivers
Available, but rarely granted.

WYOMING

Standard
Wyoming Regulations

Regulations require:

- 2.25 hours for each resident classified for SNF services in each 24 hour period, 7 days/week

- 1.5 hours for each resident classified for intermediate care in each 24 hour period, 7 days/week

Professional Nurse Coverage

Each nursing station shall be staffed with an RN or LPN who is the charge nurse on the day tour, 7 days/week. All other tours of duty shall be staffed with an RN or LPN.

If an LPN is in charge, there shall be a minimum of 4 hours consultation given to the facility per week by an RN when the LPN is on duty.

There shall be 24 hour nursing service with a sufficient number of qualified supervisory and supportive personnel on duty at all times to meet the total needs of patients.

Appendix A2
State Activities in 1999 Related to Staffing Working Update
November 1999
Prepared by the Paraprofessional Healthcare Institute

STATE ACTIVITIES IN 1999 RELATED TO STAFFING
WORKING UPDATE
NOVEMBER 1999

Prepared by the Paraprofessional Healthcare Institute

This "working update" reports on state activities related to staffing. It is based on information from the NCCNHR advocacy network, including State LTC Ombudsman Programs and Citizen Advocacy Organizations, as well as information from SEIU and a September 1999 report by the North Carolina Division of Facility Services. Please send updates, additions, corrections to PHI.

AK – workgroup on staffing; considering wage pass-through and increased training

AL -- does not have any bills at this time but plan to get a work group together in the near future.

AR -- passed legislation last year regarding minimum staffing. For more, see: www.aanhr.org. Wage pass-through also implemented

AZ -- a long term care task force committee has sub-committees on Quality of Care; Regulation and Enforcement; Workforce Development and Retention; Funding, Insurance and Reimbursement. Staffing issues have been discussed in the relevant committees. The sub-committee report is to be presented to the complete task force on November 22, 1999. A wage-pass-through is under consideration.

CA – the budget increased total nursing hours per patient day to 3.2 and eliminated double counting of RN hrs, effective January 1, 2000. It also included a $36 million wage pass-through. The Governor vetoed legislation for additional increases to 3.5 hours by 2003. The Governor also is seeking to delay the January 1, 2000 implementation of the 3.2 hr. requirement.

CO – working on a proposal for a staffing bill but still not sure if it will go ahead. Health dept reports that a voluntary wage pass-through for home care workers has been implemented.

CT – a bill was raised to increase staffing ratios but it didn't go forward. Instead, the Governor agreed to increase Medicaid reimbursement rates by 10% with an infusion of $200 million, to go towards raising salaries and benefits, but not necessarily towards increased staff/resident ratios. The Select Committee on Aging will likely raise the issue again in the 2000 session.

DC -- no new initiatives legislatively. Discussions have occurred within the state licensing department, but nothing concrete has been decided upon.

DE – ratios bill introduced this year but didn't pass. Will be re-introduced next session. Task force looking at workforce availability issues, and whether problems stem from low staffing levels or inadequate training. Legislation passed to double training hours from 75 to 150 hours.

FL -- the Florida Legislature passed legislation this year giving the nursing homes $40 million to use to increase staffing and CNA wages in nursing homes. A more comprehensive piece of legislation requiring the homes to have specific staffing ratios did not pass out of committee. Another part of the legislation that the governor did sign requires the Department of Elder Affairs to examine the marketplace for CNAs, including their wage structure.

GA -- advocates in Georgia are developing legislation for introduction for the 2000 General Assembly to: (1) introduce staff/resident ratios (based largely on NCCNHR recommended standards; GA regulations currently require 2.0 nurse staffing hours per resident per day); and (2) develop a study committee to look at staffing issues in LTC broadly (i.e. not only nursing homes, but also home health, assisted living/personal care homes, etc.).

HI – no activity reported.

IA – no legislative action. Last year there was discussion of a wage pass-through but nothing materialized. Iowa funded a study through the Iowa Caregivers' Association that looked at non-wage factors affecting retention of CNA staff. The Association has produced a preliminary report with recommendations.

ID -- no activity reported.

IL -- specific language to increase the ratio was introduced but did not make it out of the committee to be heard by any more than the committee members. Bill pending for 2000 – would establish ratios of 1:5, 1:8, and 1:12 with additional acuity based staffing system. State agency reports a wage pass-through for home care workers.

IN -- advocates are discussing proposals for increased nurse/CNA ratio requirements and increased CNA training requirements. Legislation was introduced last year that, in addition to other reforms, included minimum staffing ratios. The bill was amended and the final version recommended a study of staffing issues by a legislative study commission. The bill made it to joint committee but failed to be brought up for vote in the closing moments of the session.

KS -- legislature passed a voluntary wage pass-through last session (S.B. 126). Signed into law by the Governor, it is "a quality enhancement wage pass-through program as part of the state Medicaid plan to allow nursing facilities electing to participate in such program a payment option of not to exceed $4 per resident day designed to increase salaries or benefits, or both, for those employees providing direct care and support services to residents of nursing facilities."

KY -- no legislation re: staffing issues and none proposed at this time for the 2000 legislative session. Legislature doesn't meet until Jan and then for only 60 days and not again until 2002. Any real work will have to be done through the regulatory process. Grass roots efforts are being targeted there through a very active work group looking at the issues.

LA -- in the '99 legislative session, a bill on ratios was introduced, but never made it out of Committee. There is still potential for passage of legislation for a pass-through for increased reimbursement for staffing. Advocates hope to revive the staffing ratio bill for the 2001 session.

MA – Bills introduced for staffing ratios of 1:5; 1:8; 1:12-15. Coalition of advocates, labor, and providers have formed group to seek passage of ratios and 10% wage pass-through. Dept of Public Health is looking at staffing hours and training as part of its regulatory revision process. A wage pass-through was implemented for home care workers funded through the Elder Affairs.

MD – Bill passed in March establishing a two-year study of staffing in nursing homes. Nursing Home Task Force is underway with workgroups looking at staffing/quality care and residents' rights. Recommendations of the Task Force are due to the Governor December 1. They will be recommending a higher staffing ratio.

ME -- staffing bill was carried over. A state agency reports that a wage pass-through for CNA's was implemented. A Task Force has been underway and has issued a report.

MI – Bill passed House and is pending; would increase direct care hours from 2.25 to 3.0 per resident per day. A state agency reports that a CNA wage pass-through was implemented.

MN -- in the most recent legislative session a bill passed that increases the wages for non-professional direct care staff in nursing homes and home health care. A workgroup on workforce issues is underway.

MO -- no legislation or budget items in 1999. In-home providers got a $1.00 per unit (hour) increase starting in July 1999. Silver Haired Legislature passed the NCCNHR staffing ratio in October as one of their top five priorities. The bill will be discussed in the upcoming legislative session. A workgroup on workforce issues in underway.

MS – through nursing home regulations effective Jan. 2000, increased from 2:33 hours of nursing care per resident per day to new ratios based on 2.67 hours of nursing care per resident per day. Revised Personal Care Homes (PCH) regulations to require one resident attendant per 10 residents for the hours of 7:00 a.m. until 7:00 p.m. and one resident attendant per 20 or fewer residents for the hours of 7:00 p.m. until 7:00 a.m., effective January 2000.

MT – wage pass-through of $0.25/hr for all direct care workers in long term care.

NC – advocacy action underway on staffing levels in nursing homes; got increases in staffing in adult care homes in 1997. Division of Facility Services is studying nurse aide recruitment and

retention, looking at wages and staffing levels. Bill passed on minimum staffing and training requirements for medication aides in Assisted Living facilities.

ND -- a Task Force on Long Term Care Planning appointed by Governor was established in 1995 to provide recommendations for improving the delivery of ltc services in the State. One area the Long Term Care Planning Task Force is providing recommendations on relates to "Examining the current Nursing Facility Rate equalization policy to determine if any changes to the current law are appropriate." Industry representatives want increases in Nursing Facility rates to increase staff ratios/hours, wages and training. These issues are being studied and may be submitted for proposed legislation in the next biennium.

NE -- nothing has passed or is pending. A workgroup on workforce issues is underway.

NH -- nothing pending to address the nh staffing shortage. Bill introduced to increase hourly wages for direct care providers for persons with disabilities.

NJ – bill passed through committee – would establish ratios of 1:5; 1:8; 1:12 with additional acuity based staffing.

NM – minimum staffing bill passed House and Senate but vetoed by Governor. Will try again.

NV – no legislative action. A workgroup on workforce issues is underway.

NY -- a bill passed through House committee – would establish ratios of 1:5; 1:8; 1:12 with additional acuity based staffing.

OH -- a bill was introduced to establish staffing ratios of 1:5; 1:10; 1:15 for unlicensed nursing staff; plus public right to staffing information. The state has a workgroup that's developing recommendations to increase the labor pool.

OK -- a couple of years ago there was a wage enhancement for nursing staff - a $1.00/hour increase for nurse aides, which got swept away with the minimum wage increase that followed. An "ad hoc" committee of the LTC Facility Advisory Board is looking at enhancements to NA training, with special emphasis on Alzheimer's/dementia care. Recommendations will then go forward, perhaps on to the State Board of Health for changes. OK has had direct care staffing bills in the Silver Haired Legislature and the "real" legislature for the past several years. Both will hear bills again in their next sessions.

OR – state agency reports a wage pass-through for home care workers has been implemented and that a workgroup on workforce issues is underway.

PA -- as of July 1, 1999, new State licensure regulations set the total number of hours of general nursing care provided in each 24-hour period, when totaled for the entire facility, be a minimum of 2.7 hours of direct resident care for each resident (up from 2.3 for intermediary) however, the

nursing staff ratios remained the same (RN's & LPN's). Another bill has been introduced which would increase ratios to 1:5; 1:10; 1:15 with public right to staffing information. A workgroup on workforce issues is underway.

PR – no activity reported.

RI – a wage pass-through for home care workers was implemented. A workgroup on workforce issues is looking at issues related to low staff ratios and quality of care.

SC -- passed a minimum patient to staff ratio bill last year. Ratios are 1:9; 1:13; 1:22. A wage pass-through for home care workers was implemented and a workgroup on workforce issues is underway.

SD – no activity reported.

TN – no activity reported.

TX -- nurse aide staffing ratios bill proposed the past two sessions, (4years). Thus far, no bill has successful passed both houses. Advocates will try again next session and will use NCCNHR's recommended ratios. The legislature did appropriate almost $12 million per year to increase reimbursement rates, with the implied purpose to improve staffing at all levels. Outcome measures and procedures are currently being developed by our Human Services Commission to assure the increases are appropriately used. A state agency reports that a wage pass-through for home care workers has been implemented.

UT -- a subcommittee reviewing staff to patient ratios and will report its recommendations to the Health Facilities Committee.

VA -- there is an effort underway by the Joint Commission on Health Care (a legislative commission created by our General Assembly to examine health care issues in the state) to "review the staffing requirements for nursing home facilities and adult care residences to ensure adequate levels of care and adequate enforcement of these standards." The study is to determine whether staffing standards currently in effect in the state are adequate to protect the health, safety, and welfare of nursing home ad adult care residents. Based on a study of the current regulations, practices, and enforcement the commission is to come up with recommendations for enhanced staffing guidelines. The Commission's legislative recommendations will not be out until December. They are examining both the option of phasing in some sort of ratio as well as the option of creating (through the state's reimbursement system) substantial financial incentives for nursing facilities to reach and maintain targeted staffing levels for direct care staff.

Last year's General Assembly also passed a dollar an hour increase for nursing assistants in nursing facilities, which was effective July 1. A wage pass-through has also been implemented for home care workers.

VT -- nothing specific pending or under consideration this session. During the last session, the legislature enacted a statute authorizing monthly wage supplements to all nursing homes. The state will use the nursing home bed tax to pay for the wage supplement. The state anticipates that the bed tax will generate about $4,000,000 per year. Each facility will receive a pro rata share of the revenues based on the ratio of their reported nursing costs to the total reported nursing costs of all facilities. Facilities can spend the wage supplement on wages, salary or fringe benefits for any nursing homes employees other than owners and administrators. They are not required to spend it on nursing or direct care staff. Facilities have been receiving monthly payments since last July. The payments vary greatly depending on each facility's reported nursing costs.

Facilities are not required to report on how they spend the supplement until September of '00. When the state rebases all the cost categories (It is my understanding that this will occur in 3-4 years) it will determine if facilities have been spending their wage supplement correctly. If a facility's cumulative annual wage expenditure (all employees minus owners and administrators) is less than the cumulative total of its wage supplement payments, then the state will determine that the facility has been overpaid and the state will recoup the overpayment.

WA -- currently looking at the whole LTC system via a Joint Legislative/Executive Long-Term Care Task Force. One sub group is looking at training issues. DSHS has also proposed legislation for training requirements. A wage pass-through for home care workers has been implemented.

WI -- amended our nursing home licensure statute slightly over two years ago. The changes took effect in January of this year and results are starting to come in although no formal analysis has yet been done. The changes were in the form of increased required minimum staffing based on the number of residents of specified acuity in a facility. Total number of staff hours per resident per day were raised from 1.25 to 2.00 hrs for limited nursing care; from 2.25 to 2.50 hrs for skilled care, and up to 3.25 hrs for intensive skilled care. As part of the Governor's "Year of the Long Term Care Worker," a taskforce is examining issues related to recruitment and retention of ALL long term care workers. Wage pass-throughs were enacted for nursing home and home health workers.

WV -- a bill was proposed in the legislature that would have resulted in requiring more Registered Nurses in nursing homes. Another bill would have established staffing ratios of 1:5; 1:8; 1:12 with public disclosure of staffing. The bills didn't pass but will likely be reintroduced in the next session. The entire nursing home staffing issue is now being studied by a legislative subcommittee.

WY – Silver-Haired Legislature is supportive of staffing ratios and may bring proposals forward for 2001 session.

Appendix A3

Comparing State Efforts to Address the Recruitment and Retention of

Nurse Aide and Other Paraprofessional Aide Workers

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Background Information

Nurse aides and other paraprofessional aide workers are key players in the delivery of health and long term care services. They provide most of the paid long-term care needed by impaired persons whether at home or in a facility. This workforce tends to some of the most basic needs of patients such as dressing, bathing, toileting, eating, assisting with medications, monitoring blood pressure, changing bandages, housekeeping, etc. Their work is fundamental to quality of care and preserving the dignity of persons who must rely on others to help meet many of the routine daily tasks most of us take for granted.

To illustrate the importance of this workforce, the US Bureau of Labor projects that between 1996 and 2006, these workers will be among the top ten occupations having the **largest** job growth. They are also among the top 10 occupations projected to have the **fastest** job growth.

Recruiting difficulties and turnover rates are reported to be a very serious problem for all major long-term care settings in North Carolina (home care, assisted living, and nursing homes). Our state's low unemployment rate (2.7% in June '99 compared to 4.3% nationally) is a cyclical factor that contributes to current worker shortages. However, there are an array of job factors that are structural in nature that also have a direct and significant bearing on worker shortages such as:

- low wages and few, if any, benefits
- no career path
- physically demanding work

In 1998 NC spent more than $1.4 billion for services that rely heavily on aide workers including nursing home care; intermediate care for the mentally retarded (ICF-MR); CAP-MR/DD; home health aides; in-home aide services including Medicaid funded Personal Care Services (PCS) and CAP-DA; and PCS for adult care homes (does not include any Medicare funds).

NC will need approximately 21,000 more nurse aides and other aide workers over the next 5-6 years. This is well before 2011 when the first wave of baby boomers begins reaching 65. We can expect continued growth in demand for these workers long after 2030 when the last wave of boomers reaches age 65.

- lack of opportunity for meaningful input into patient care
- inadequate recognition and appreciation
- inadequate exposure to "real life" job demands during training

In 1997 NC's median hourly wage for aide workers was $7.26 per hour ($15,101 annually) or 65% of the state's average annual per capita income of $23,168. The 1997 average annual income for aide workers equates to 183% of the current poverty level for an individual, 136% of poverty for a family of 2, and 109% for a family of 3.

2.7% is the lowest seasonally adjusted unemployment rate the state has seen in 20 years.

Annual turnover rates for aides in nursing homes exceed 100%. For 1999, the industry projects the average hourly wage (wages only-no benefits) for nurse aides to be $8.61.

Annual turnover rates in adult care homes are reported to be over 140% annually. Based on cost reports submitted to the Department of Health and Human Services (DHHS), the average hourly wage for aides was $7.13(wages only) in 1998.

Background Information -- Continued

Listed below are median hourly wages for North Carolina for several major job categories in the state likely to be a competing employment option for aide workers (1997 data).

- food service -- $5.95 ($12,376 annually)
- sales persons/retail -- $7.20 ($14,976 annually)
- hand packers/packagers --$7.36 ($15,308 annually)
- information clerks/receptionists -- $8.63 ($17,950 annually)
- factory workers (unskilled) --$9.05 ($18,824 annually)

Note: Attachment # 1 includes a state by state comparison of 1997 hourly and annual wages for aide workers; annual aide wages as a percentage of the state's average annual per capita income; whether or not aide recruitment and retention is a major workforce issue in states; and state unemployment data for May 1999.

The number of inactive nurse aides on NC's nurse aide registry is greater than the number of active nurse aides (approximately 104,000 inactive and 85,000 active – as of September 21, 1999).

Purpose

The purpose of this report is to:

1. Determine the extent to which aide recruitment and retention is currently a major workforce issue in other states.
2. Compare unemployment and wage data for aide workers across states and see how aide wages stack up as a percentage of per capita income.
3. Compare wage data for aides with workers in several competing employment fields.
4. Identify any public policy trends among states with regard to state actions to address aide wages and/or benefits for publicly funded services.

This paper focuses primarily on wage and benefit issues associated with the aide workforce.

5. Determine to what extent states use uniform reimbursement rates across public funding streams for in-home aide services – and examine how this may impact a state's ability to address wage issues for these workers. **6.** Identify major actions states are taking or considering to address aide recruitment and retention issues, if any.	

Methodology

The Division of Facility Services developed a survey to collect information from all 50 states addressing several public policy issues related to aide wages and benefits and identification of any major actions underway or being considered to address shortages of aide workers. Surveys were sent to both state Medicaid agencies and State Units on Aging. The survey was conducted during May and June of 1999. As necessary, follow-up contacts were made with states to clarify information provided or solicit missing information. Based on self-reported responses provided by states, data for key items was compiled and analyzed. Unemployment data, per capita personal income data and median wage data for selected employment sectors (i.e. aides, retail sales, factory, etc.) was obtained from the US Bureau of Labor Statistics. Other sources of data contained in this report are identified in the "Notes" section on page 12.	*46 states responded to the survey (either Medicaid agency, State Unit on Aging or both). No survey responses were received from the states of California, Wisconsin, Ohio, or Vermont. Non-state agency contacts provided information for California and Wisconsin as to whether or not aide recruitment and retention is a major work force issue in the state.*

Major Trends Among States

1) Of the 48 states from whom information was obtained, 88% (42) said that aide recruitment and retention is currently a major workforce issue. • Both the state with the lowest unemployment rate (Minnesota at 2.1%) and the highest unemployment rate (West Virginia at 6.8%) indicated that aide retention and recruitment is a major concern. • 33 (79%) of the 42 states indicating this was a major work force issue have either taken action (30 states) or are considering action (3 states) to address the issue. *(See Attachment #2 for more detailed information on survey results.)*	*Many states indicated that low unemployment was a factor in poor recruitment and retention. However, several specifically commented that they now view this issue as a more intractable problem that will persist for an extended period regardless of the state of the economy--due to the aging of the population.*
2) With regard to public policy actions to specifically address aide wages and/or benefits, a recent but prevalent trend is the concept of a "pass through" wage increase-- the result of a reimbursement increase to	*The following quote captures the extent to which this workforce issue impacts the nation.* *"As a social scientist, I*

providers of which all or some specified portion of the increase is earmarked exclusively for aide salaries and/or benefits.

Wage and Benefit Pass Throughs

- 16 states have approved/implemented some form of a wage pass through.
- Most states implementing mandatory wage pass throughs have done so only in the last year or two. Some states have been providing reimbursement increases that were intended to go to front line and/or aide wages specifically, but the requirement that the increase go to these workers is a recent occurrence.
- 1 state, Iowa, is considering implementation of a pass through.

States have chosen two methods to implement wage pass throughs

- 10 of the 16 states implement pass throughs based on a set dollar amount for workers per hour or patient day. The pass through amounts ranged from $.50 per hour to $2.14 per hour and $4.93 per patient day.

Dollar Amount Pass Through

Arkansas*	Rhode Island
Colorado	South Carolina
Massachusetts	Texas
Missouri	Virginia
Oregon	Washington

** Arkansas indicated their pass through is pending HCFA approval.*

- 6 of the 16 states established wage pass throughs as a percentage of the increased reimbursement rate. For example, 80% of Minnesota's recent 40% rate increase was earmarked for wages and benefits, while Illinois has a law requiring 73% of all rate increases be used for wages and benefits.

Major Trends Among States -- Continued

Percentage Pass Through

California	Michigan
Illinois	Minnesota
Maine	Montana

- Of the states implementing wage pass throughs, 9 targeted only home care aide workers (no facility based care); 4 targeted only direct service workers in nursing facilities, and 3 targeted both home care and nursing facilities. At least one state which provided a wage pass

don't use the word "crisis" lightly, but I do think that over the next 10 years we face a true crisis regarding frontline workers in long-term care"
(Karl Pillemer, Director, Applied Gerontology Research Institute –at Cornell University)

7 states are known to have established minimum wage rates that are higher than the federal minimum wage. The amount above the federal minimum wage ranges from $.10 to $1.35 p/hour. Oregon has the highest minimum wage rate among these states at $6.50 p/hour.

One administrator with a state Unit on Aging stated that while he was pleased that the state legislature had approved a dollar wage pass through for nurse aides, he questioned the end results. He pointed out that without setting up a structured pass through system, perhaps a percentage of any annual increase in reimbursement rates, the problem had not been permanently solved. In a few years wages in other low level jobs will catch up to aide wages, and the state would once again face the same recruitment and retention problem.

through only to its home care workers stated that it was likely that their nursing facility workers would receive a wage pass through in the near future.

Home care only:	*Nursing facilities only*:	*Both/all LTC*:
Colorado	Arkansas	Minnesota
Illinois	Maine	Montana
Massachusetts	Michigan	Virginia
Missouri	California	
Oregon		
Rhode Island		
South Carolina		
Texas		
Washington		

- It is interesting to note that of the 9 states providing increases to only home care aides over half had uniform reimbursement rates across multiple funding streams. Of the 16 states implementing wage pass throughs, that provided information on the pass throughs funding source(s), 6 appear to use multiple funding streams (Medicaid plus additional sources). Of the remaining 10 states, 6 appear to use only Medicaid or only non-Medicaid funding sources, and 4 did not provide this information.

- The majority of states who have a wage pass through in place stated that monitoring providers' compliance with the wage and benefits requirement has not been, or is not expected to be, an undue burden for their agencies. Some states have required/will require providers to submit an initial plan describing usage of the additional funds, and then confirm compliance when the state audits providers. Other states provide additional funding to providers without an initial plan but ensure compliance by reviewing fund usage during annual audits. For some states, implementing a wage pass through system is still very new and they have not yet determined the most effective, low-cost way to monitor providers and ensure compliance.

The majority of wage pass throughs in place in states are intended to be distributed equally to all nurse aides. However, some states allow the long term care facilities/agencies to determine which front line staff receive the additional funding and what percentage is used for wages versus benefits.

Sanctions against providers who failed to use the funds for wages or benefits usually consist of immediate repayment by the provider of the inappropriately used monies. In Missouri, however, the state has linked failure to comply with the wage increase and reporting requirements to the possible revocation of the provider's Medicaid status.

Major Trends Among States -- Continued

3) **Enhancement Incentives**

Another trend closely related to the concept of a wage pass through is the effort by states to tie increased reimbursement rates to increased performance by providers and staff. Rhode Island recently authorized a

\$1.50 hourly rate increase to be used for direct service staff wages, but in addition to these monies, the state also authorized additional monies to be used as an incentive to enhance standards. As of September 1999, the state will offer additional hourly reimbursement in seven primary areas: shift differentials, client satisfaction, level of patient acuity, level of provider accreditation, continuity of care, and level of worker satisfaction. Rhode Island currently has an enhancement system in place with bonuses ranging from \$.50 per hour to \$2.00 per hour but this new system is more intricate with the possibility of up to \$6.00 per hour in additional reimbursement above the base rate.	
4) Higher State Reimbursement Rates for Shift Differentials Like Rhode Island, New Jersey has focused on the idea of establishing higher reimbursement rates for in-home aide services provided at night, weekends and holidays. States focusing on shift differentials think that the increased reimbursement rates for certain time periods will help provider's recruit and retain aide staff.	
5) Transportation Reimbursement One state, Washington, also indicated that they recently passed legislation requiring home care providers to pay their aides for "windshield time." Windshield time is the time spent by the staff traveling from one site to another. At this time, the additional funding for the travel time is paid from the state reimbursement rate for personal care services. Florida's Department of Elder Affairs Work Group has also recommended that the state review transportation reimbursements for aide staff.	*Rhode Island is still working to find an effective means of operationalizing these additional incentives. While the state, providers and associations all see the measures as a step in the right direction, state staff stated that it has been difficult to get all parties to agree on the measures and systems to be used.*
6) Nurse Aide Career Ladders Several states noted that they had considered creating some form of a career ladder for aide staff. Mississippi has established two separate sets of standards, one applying to homemaker and another to personal care aides, as a basic career ladder. Maine and Alaska are both considering ways to create some form of a career ladder, while Illinois has a bill pending which would authorize the creation of a resident attendant category of worker for nursing homes. These workers will undergo training to provide basic support services to fully trained nurse aides. Delaware's State Legislative and Citizens Investigative Panel on Nursing Home Reform has also recommended the development of a career ladder including at least three levels; intern, team member, and team-preceptor. Each level would result in an increased pay level**.**	
Major Trends Among States – Continued	*Home care aides in New Jersey are paid \$14/hour for weekday services, while aides working weekend hours are paid \$16/hour. In NC, many individual*

7) Nurse Aide Training In addition to the creation of a career ladder for nurse aides, states are focusing on the training provided to this population. By providing or proposing different levels of training, states like Mississippi, Delaware and Maine hope to provide nurse aides with an incentive to continue in the profession. Virginia also recently increased the minimum training hours for nurse aide programs from 80 to 120 hours.	*providers (home care agencies and facilities) pay shift differentials. However, this initiative is different in that the state reimbursement rates are stratified based on the time that home care services are provided.*
8) Training Former Welfare Recipients Multiple states indicated that their welfare reform efforts have been seen as a potential source for nurse aide trainees. Workgroups in New Mexico and Florida have recommended funneling welfare recipients into nurse aide training programs, while New Jersey's welfare reform training has resulted in some new home health aides.	
9) Training of Volunteer Populations Along with the idea of tapping into new populations to increase the number of nurse aides, including former welfare recipients, is the trend to expand the use of volunteers. State workgroups looking at the issue of recruitment and retention have suggested expanding the use of Americorps volunteers, local and state volunteer programs, student volunteers, and senior citizens. The Maine Health Care Association Long Term Care Task Force has also advocated modifying aspects of the nurse aide job in order to encourage seniors to become a part of this workforce.	*States indicating they were considering or taking action on the creation of a career ladder for nurse aides include Mississippi, Maine, Alaska, Illinois, Delaware, and Michigan.*
10) Pilot Programs Three states discussed the implementation of pilot incentive programs to encourage aide recruitment and retention. Wisconsin, Iowa and Oklahoma each have either funded or proposed pilot programs that focus on enhancing the quality of life for direct care workers and reducing staff turnover.	
11) Overall Labor Shortage Area At least one state, Florida, said it is looking at the nurse aide issue as part of an overall labor shortage in low-wage jobs. While Florida was the only state to note that they were looking at the issue from this standpoint, several states did note that due to low levels of unemployment, they were faced with a far tighter labor market than they have previously encountered.	*North Carolina currently requires a minimum of 75 hours of training and a competency test, or only the competency test in order to be certified to work as a*

Major Trends Among States -- Continued

12) Work Groups / Task Forces / Data Collection

Though many states have not yet implemented specific programs focusing on nurse aide recruitment and retention issues, Work Groups or Task Forces have been or will be established in the next fiscal year by 31% (13) of the states that felt that this was an issue of concern. Participants in the Work Groups represented people from a wide range of groups, including representatives of the state Boards of Nursing, provider groups, state Departments of Health and Human Services and Aging, patient advocates, and certified nursing assistants. For the most part, these groups are charged with obtaining data and analyzing the situation, and then providing both short and long-term recommendations. The legislatures of an additional two states, Iowa and Virginia, have requested the appropriate state agencies to collect data on the issue of nurse aide recruitment and retention in order to determine appropriate next steps.

Nurse Aide 1.

States indicating they were making a concerted effort to broaden the pool of potential aide workers by looking at former welfare recipients as potential nurse aides include New Jersey, New Mexico, Florida and Arkansas.

The NC Division of Facility Services has received funding from the Kate B. Reynolds Charitable Trust to pilot an array of incentives intended to improve aide recruitment and retention in long-term care settings.

	States that have established or plan to establish a Work Group or Task Force include: Alaska, Arizona, Rhode Island, Maryland, Delaware, Minnesota, Florida, Nebraska, Maine, Nevada, Oklahoma, Pennsylvania, Missouri *The Legislatures of Iowa and Virginia have mandated data collection efforts by state agencies.*

Conclusion

Nurse aide and paraprofessional worker shortages are a serious problem for North Carolina and the nation as a whole. Although low unemployment rates both in the state and nation increase competition for all workers, shortages and turnover rates among the aide workforce cannot be attributed solely to the state of our booming economy. Structural job factors contribute heavily to the problem and, in the absence of examining and alleviating these structural job factors, other employment opportunities of similar or even better pay or benefits and perhaps less demanding work will drain an already shrinking pool of potential aide workers. Many states are taking action to address this workforce issue. They recognize that demand for these workers will only increase as the population ages. Certainly North Carolina's health and long-term care providers have a major responsibility to help address this workforce issue. However, given the level of the state's financial investment in services that heavily rely on the aide workforce, the state too shares in the responsibility for addressing this workforce issue. Confirmation of the public sector's responsibility is evident from the growing number of states that are taking action or considering actions to alleviate worker shortages and turnover. Collaboration with various trade associations representing various health and long-term care providers will be key to success both now and over the long haul.	*Ensuring an adequate and stable supply of nurse aide and other paraprofessional workers is essential to meeting future health and long-term care demands. This issue effects both public and privately funded health and long-term care. Many family and informal caregivers rely on this workforce so they can continue to work and support their families.*

The Department of Health and Human Services is already taking steps to tackle this workforce issue. While current efforts can lead to major steps in the right direction, additional action is needed now. Outlined below are a number of actions North Carolina could consider in addition to those efforts already underway with funding from the Kate B. Reynolds Charitable Trust. The potential of each of these possible actions will need to be fully assessed. They are provided as a starting point for further discussion and analysis.	*Because this paper focuses primarily on wages and benefits, so, too, do the possible actions considered in this paper. Obviously, there are other areas that could be examined such as possible actions to broaden the workforce.*

Some Actions North Carolina Could Consider

The actions below focus primarily on wage and benefit issues. The Division of Facility Services is currently working on several grant funded initiatives intended to address other job factors that impact the recruitment and retention of a stable and qualified aide workforce. The actions below are in addition to efforts already underway through a grant from the Kate B. Reynolds Charitable Trust. 1) The Department of Health and Human Services (DHHS) could help facilitate a discussion among representatives of major state level associations that rely on aide workers to determine interest in, and the feasibility of, leveraging their collective purchasing power (and broaden the risk pool) for purposes of offering one or more group health insurance plan(s) to member providers that do not currently offer health insurance coverage to their employees or provider members who could benefit from either improved coverage or pricing as a result of such an effort. This could potentially improve access to health care insurance coverage for all employees of provider member organizations. 2) The Division of Facility Services could include, with letters sent to newly listed certified nurse aides, general information about NC's Health Choice for Children insurance program. Last year, the Division sent letters verifying listing on the nurse aide registry to approximately 15,000 persons. This would enhance efforts taken by state level trade associations to inform member organizations about the availability of this program. Similar action could be taken by other DHHS agencies that send correspondence to provider organizations as a way of reminding providers to notify their employees of the availability of this program. 3) Medicaid reimbursed providers have an avenue to increase wages for workers in that calculations for inflationary increases awarded by the	*Key activities underway through funding from the Kate B. Reynolds Charitable Trust include:* • *developing an automated data tracking system to track this workforce over time.* • *provide nurse aide I trainees with more hands-on-care time so they get a more realistic view of what this type of work entails.* • *pilot a variety of employee incentives intended to improve job skills, job satisfaction and performance thus resulting in improved recruitment and retention. (The results of these incentives will not be known until late 2001.)* • *conduct a public education and awareness campaign about the importance of this workforce.* *The Division of Facility Services is working with the Institute on Aging, representatives of state level long-term care related trade associations and others to implement the grant activities above.* *If inflationary increases do not reflect the actual annual inflation rate (i.e. increases are awarded less than annually and/or in amounts less than the overall inflationary*

Division of Medical Assistance assume that 75% of increases for PCS services (in-home and adult care home) and 80% of the direct care portion of inflationary increases for nursing homes are to support increases in direct labor costs. Do providers use the same proportion of inflationary increases for direct labor costs as the calculation assumes? Examination is needed to determine whether those providers that pay higher wages also have retention rates that are better than those that pay the average or lower wages.

4) Consider a wage pass through (an amount or percentage increase in the reimbursement rate in addition to any planned inflationary increase) for Medicaid funded Personal Care Services (PCS: in-home and adult care homes) as well as for nursing home care. The wage pass through amount would be built into the reimbursement rate.

rate for the year) the direct labor component of the calculation is eroded (as are the remaining components of the inflationary increase) -- even if the provider uses the entire 75% -80% allocated for direct labor costs.

As part of the Kate B. Reynolds Grant, a survey of major provider types (home care, adult care homes, nursing homes) will be done to determine, among other things, whether facilities that pay higher wages also have better retention rates. Generally, this type of information is not now available from major state level long-term care related associations.

Some Actions North Carolina Could Consider -- Continued

- Recognizing that the state's unemployment rate is **1** factor in the availability of a stable and quality aide workforce, inclusion of the wage pass through in the base reimbursement rate in subsequent years could be pegged to the state's overall unemployment rate so that when unemployment rates climb (to some predetermined level) and competition for workers across various competing employer types presumably would decline somewhat, the reimbursement rate could be correspondingly adjusted downward to account for likely reductions in wage pressures for new hires.
- The fiscal impact of a wage pass through (by care setting) and associated compliance monitoring costs by the Division of Medical Assistance, if any, would be needed.
- Action to implement a similar wage pass through for non-Medicaid funded in-home aide services (e.g. Social Services Block Grant or Home and Community Care Block Grant) is impeded by the fact that there are not uniform reimbursement rates across multiple funding streams for in-home aide services. As such, the impact of a wage pass through for providers who have considerable latitude in setting their own reimbursement rates is questionable (regardless of whether reimbursement rates are calculated in a competitive or non-competitive environment). Monitoring efforts to verify compliance with any wage pass through would likely be complicated by the fact that reimbursement rates vary so widely across providers.

Things North Carolina needs to consider with regard to consideration of a wage pass through:

- *this is a relatively new concept*
- *NC doesn't currently have substantial reliable data available to confirm that higher aide wages translate into improved aide recruitment and retention. (This is, however, one component of the data collection activities being undertaken through the aide recruitment and retention grant made to DHHS by the Kate B. Reynolds Charitable Trust.)*
- *Compliance monitoring efforts by states vary. Given the short history of wage pass throughs, it is likely that states will need additional time to determine overall compliance with wage pass through requirements as well as the administrative and cost efficiency of compliance monitoring efforts.*

While it may appear that the following items do not directly relate to improving aide recruitment and retention, they do relate to service

access and making the most efficient use of public resources available for in-home aide services. Government is a major payor and by established rates can have a significant influence on wages and benefits paid to the long-term care workforce. Outlined below are several issues that need further study to ensure that the public policy goal of strengthening the long-term care workforce is met through public payors.

1) Consider establishing a uniform reimbursement rate(s) across state administered funding sources for in-home aide type services. This is consistent with other Department of Health and Human Services efforts to establish uniform reimbursement rates for like services funded by multiple agencies or with multiple public funding sources.
   - The Department of Health and Human services recognizes 4 different levels of in-home aide services – Medicaid (in-home) Personal Care Services (PCS) pays for 2 of these levels -- the levels that include personal care tasks.
   - Having multiple rates that are tied to the different levels of in-home aide services is one way the department could help to establish a career ladder for workers in the home care setting.
   - Development of Medicaid PCS rates is based on cost information submitted by providers. If a uniform rate(s) across state

Some Actions North Carolina Could Consider – Continued

administered public funding streams were pursued, there may be a need to have uniform cost information submitted by providers across these public funding streams. Cost data submitted would need to be reviewed for accuracy and reasonableness for purposes of establishing a reasonable uniform rate(s) that would be paid across public funding streams for provision of in-home aide services.

2) Consider requiring that all <u>licensed home care agencies</u> that receive state administered funds for in-home aide services or in-home respite services (i.e. SSBG, Home and Community Care Block Grant (HCCBG), etc.) be enrolled to provide Medicaid PCS services <u>and serve</u> some Medicaid PCS clients each year. The Division of Aging would need to monitor providers for compliance with such a requirement.
   - For SFY 99, of the 112 agencies funded to provide level II and III in-home aide services through the Home and Community Care Block Grant (levels that include personal care), 60 of the 112 were either not currently enrolled to provide Medicaid funded PCS or were enrolled but did not bill Medicaid for any PCS services between January and May of 1999.
   - Of the 60 providers that did not bill Medicaid for any PCS services between January and May 1999:
     - ⇒ Half (30) had reimbursement rates equal to or less than the current PCS reimbursement rate of $12.32.
     - ⇒ Half (30) had reimbursement rates higher than $12.32 and of

The current Medicaid reimbursement rate for Personal Care Services is $12.32 per hour.

SFY 2000 <u>average</u> hourly <u>reimbursement</u> rates for the two levels of in-home aide services that include personal care for agencies providing these services through the Home and Community Care Block Grant are as follows:

Level II -- $13.04 (includes personal care tasks that do not require a nurse aide)

Level III --$13.39 (includes personal care tasks that require a nurse aide)

Note: <u>reimbursement</u> rates may or may not reflect total cost.

Requiring HCCBG providers to provide PCS services could possibly help alleviate an unexpected

these:
- 16 (53%) had reimbursement rates of $18 per hour or more
- 5 (17%) had reimbursement rates within 60 cents of $12.32

- The adequacy of the reimbursement rate for Medicaid PCS needs to be assessed prior to implementing such a requirement as some providers have expressed concern about their inability to provide the service for the amount of reimbursement paid by Medicaid. This is directly related to aide wages/benefits as some of these providers indicate they pay aides better from other funding sources that are not tied to the Medicaid rate for PCS. For instance, calls made to several HCCBG providers with rates higher than the Medicaid PCS rate who were not enrolled in Medicaid as a PCS provider showed that generally, these agencies were providing benefits such as retirement and health insurance (at least partial pay) as well as other group insurance offerings on an employee pay all basis. Some of these same agencies also indicated that they had a fairly stable aide workforce. Further examination is needed to determine whether agencies paying higher than average wages for both new hires and/experienced aides and whether or not there is any correlation between higher wages and turnover. Further examination is needed to determine why HCCBG providers with rates at/below the Medicaid PCS rate are either not enrolled as a PCS provider or not billing Medicaid for PCS services.

Some Actions North Carolina Could Consider -- Continued

This step could have multiple benefits including:

- expanding the state's capacity to meet the PCS needs of Medicaid eligible persons-- particularly the elderly since persons 65+ accounted for 71% of total PCS spending in SFY 97-98.
- increasing the number of active PCS providers would be especially beneficial in areas of the state where Medicaid clients currently have limited access to PCS services due to a limited number of providers.
  - For instance, in SFY 97-98 **16** counties had total PCS expenditures for the elderly of $50,000 or less. Based on an average per person cost of $4,387 for persons 60+ in SFY 97-98, $50,000 in PCS expenditures would equate to 11 persons served during the year.
- increased numbers of PCS providers could help address waiting lists for the Community Alternatives Program for Disabled Adults (CAP-DA) – either as a gap filling service until a CAP-DA space is available or perhaps in some cases, provide an adequate and less costly alternative to CAP-DA -- since the overwhelming majority of CAP-DA expenditures are for aide services.
- improving continuity of care and consumer satisfaction by

situation that occurred in 42 counties during SFY 97-98 where more elderly (60+) CAP-DA clients were served than elderly persons receiving PCS services. In-home aide is the predominant service provided to CAP-DA clients. As such, given the high level of impairment required for participation in CAP-DA (participants must need nursing home level care) and the average annual cost of waiver services per CAP-DA participant ($13,561 in 97-98), one would certainly expect there to be more elderly persons in need of (and receiving) Personal Care Services in a county than persons participating in the highly targeted CAP-DA program. (CAP-DA provides a package of home and community based services for Medicaid eligible persons 18+ who otherwise need nursing home care.)

Requiring HCCBG providers to be enrolled as PCS providers in and of itself would not necessarily result in agencies serving more in-home aide clients (including Medicaid PCS). The potential impact of this action would hinge, in part, on the ability of agencies to

avoiding having to shift clients from one agency to another based on the public funding source used to provide care.

- reducing the chances of inappropriately using non-Medicaid funds (which are capped) to meet the personal care service needs of Medicaid eligible clients.

3) In lieu of establishing uniform rates for in-home aide services, consider limiting the amount of indirect costs that can be included in the calculation of reimbursement rates for non-Medicaid funded in-home aide services. In fact, such a requirement may be appropriate for all services provided under these auspices.

- this would also help ensure that a minimum percentage of the provider's reimbursement rate is used for direct care costs.
- this would also help to eliminate the possibility of some providers being paid reimbursement rates that exceed what an informed consumer would be willing to pay for services on the private market.

⇒ Shown below are the number and percentage of HCCBG in-home aide provider contracts (by level) for SFY 2000 with reimbursement rates of $18 p/hour or higher. It is interesting to note that level I, the level requiring the lowest skill level (contains no personal care tasks), has the highest percentage of contracts exceeding $18 p/hour.

	Total Contracts	Contracts Over $18 p/hr.	Percent
Level I	88	14	16%
Level II	111	14	13 %
Level III	56	8	14%

hire and retain enough qualified aides to operate aide services at full capacity. However,

given that the Medicaid PCS rate is fairly consistent with the average reimbursement rate for agencies providing in-home aide services through the Home and Community Care Block Grant ($12.92) many providers could conceivably benefit positively from accessing this revenue stream.

*As mentioned earlier, the **average** reimbursement rate for Home and Community Care Block Grant providers for SFY 2000 is $12.92 per hour. There is, however, a wide variation in reimbursement rates across providers with contract reimbursement rates for SFY 2000 ranging from a low of $6.62 per hour to a high of $37.11 per hour.*

	Calls randomly made to 7 home care agencies in a large urban area to determine private pay rates for nurse aide services showed that rates charged by these 7 agencies ranged from $13 to $16 per hour. Fifteen dollars was the most prevalent rate with 4 of the 7 charging this rate. Some agencies noted that they required a minimum visit time of 2 hours. One agency charged a shift differential of $1.00 per hour for night and weekend work increasing their private pay rate to $16 for night and weekend work.

Acknowledgements

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Notes

- Expenditures for aide related services were compiled based on expenditures reported by the Division of Medical Assistance in their annual report for SFY 97-98 including Personal Care Services (in-home and adult care homes) and nursing home care, ICF-MR, CAP-MR/DD and CAP-DA. CAP-DA calculated at 90% of Medicaid CAP-DA expenditures reported for SFY 97-98 which is consistent with the percentage of aide service costs for waiver year 96-97. Aide related expenditures also include in-home aide service expenditures reported by the Divisions of Aging and Social Services.
- Projected 1999 wages for nurse aides working in nursing homes were obtained from the NC Health Care Facilities Association.
- 1998 average aide wages for aides in adult care homes were calculated by Financial Operations staff in the Division of Medical Assistance. Calculations were based on data contained in audited cost reports for 1998 submitted to the Department of Health and Human Services from adult care homes.
- Information about whether aide recruitment and retention is a workforce issue in the state of California was obtained from staff with the Center for Health Professions – University of California at San Francisco.
- Information about whether aide recruitment and retention is a workforce issue in Wisconsin based on efforts by

Wisconsin's Alzheimer's Institute and University of Wisconsin-Madison Medical School to obtain grant funding to address aide recruitment and retention in the state.

- Data regarding providers both billing Medicaid for PCS and providing Home and Community Care Block Grant providers was determined by cross referencing active PCS providers from Medicaid's "DRIVE" system with SFY 98-99 Home and Community Care Providers funded for level II and III in-home aide services through the Division of Aging. The report on Medicaid PCS providers was created by staff in the Division of Facility Services using NC Medicaid data.) *Note*: *The Division of Medical Assistance has not reviewed the active provider report and, therefore, cannot validate the accuracy of the information contained in the report.*
- Average reimbursement rates and the range of contracted rates, by in-home aide level, for Home and Community Care Block Grant providers were calculated based on contract information for SFY 2000 (ZGA515 – run date: 8/31/99) – average rates are not inclusive of any cost-sharing revenues collected.
- Data regarding counties serving more Medicaid CAP-DA clients than PCS clients is based on county-by-county expenditure data for SFY 997-98 for persons 60+ as compiled by the Division of Aging.
- State by state unemployment and compensation data for 1997 was obtained from the US Bureau of Labor Statistics.
- Ratio's of PCS expenditures (elderly vs. non-elderly) based on expenditure data reported in the Division of Medical Assistance's annual report for SFY 97-98
- The average annual PCS expenditure for persons 60+ is based on expenditure and service data (persons served) provided by the Division of Medical Assistance to the Division of Aging for SFY 97-98.
- Average annual per participant expenditures for CAP-DA for 97-98 based on data reported in the Division of Medical Assistance's annual report on CAP-DA for waiver year 97-98 (published April 30, 1999).

Appendix A4

PROPOSED LEGISLATION IN STUDY STATES

New York
Standard

Staffing ratio = number of personnel on duty ÷ number of residents of the nursing home.

Nursing homes are required to maintain the following ratios:

Registered Nurses:	1:15 Day Shift
	1: 25 Evening shift
	1: 35 Night Shift
Licensed Care Givers:	1: 10 Day Shift
	1:15 Evening Shift
	1:20 Night Shift
CNAs:	1:5 Day Shift
	1:8 Evening Shift
	1:12 Night Shift

Professionl Nurse Coverage
A nursing home shall maintain

- A full-time DON who is also a RN
- A full-time nursing supervisor who is also a RN
- A full-time Director of Nurse and nurse aide education who is alos a RN

If there are greater than 100 beds,

- A full-time assistant director of nurses who is a RN
- A full-time director of in-service education

Staff Counted in Standard
Individuals employed to provideservices such as food preparations, housekeepingk, laundry or maintenence shall not be counted in determining the above staffing ratios.

Ohio
Standard

Nursing homes are required to maintain the following rations:

Registered Nurses:	1:15 Day Shift
	1: 25 Evening shift
	1: 35 Night Shift

Nurse Aides: 1:5 Day Shift

1:10 Evening Shift
1:15 Night Shift

Professionl Nurse Coverage
A nursing home shall maintain

- A full-time DON who is also a RN
- A full-time nursing supervisor who is also a RN
- A full-time Director of Nurse and nurse aide education who is alos a RN
- If there are less than 100 beds, one RN can fulfill the duties of assistant director of nurses and director of nurse and nurse-aide education.
- A RN 24 hours per day, 7 days per week

Staff Counted in Standard
Individuals employed or contracted to provide services such as food preparations, housekeeping, laundry or maintenance shall not be counted in determining the abouve staffing rations.

Posting
The nursing home administrator shall post, in a prominent location withing the nursing home,

- the number of nurses and nurse aides scheduled to work,
- the number of nurses and nurse aides who performed work,
- the number of residents at the facility, and
- the staffing rations.

Continued Studies
A legislative committee will study the adequacy of staffing ratios

Texas
Standard

Nursing homes are required to maintain the following rations:

Nurse Aide: 1:8 Morning Shift
1:10 Afternoon Shift
1:14 Night Shift

APPENDIX B
Staffing Levels in U.S. Nursing Homes: 1996-1999

APPENDIX B1: Staffing Levels in U.S. Nursing Homes: 1996-1999

Table B.1a: Staffing levels in U.S. Nursing Homes: All Facilities, 1996-1999

	Mean hours per resident day (standard deviation)			
	1996	**1997**	**1998**	**1999_**
All facilities	(n=14,335)	(n=13,598)	(n=13,005)	(n=7,019)
Total hours per resident day, including Directors of Nursing	3.28 (1.49)	3.36 (1.54)	3.37 (1.51)	3.34 (1.47)
Total hours per resident day, excluding Directors of Nursing	3.18 (1.41)	3.26 (1.47)	3.26 (1.43)	3.24 (1.40)
RN Director of Nursing Hours	0.11 (0.17)	0.11 (0.13)	0.11 (0.15)	0.11 (0.13)
RN hours per resident day	0.48 (0.67)	0.53 (0.73)	0.53 (0.73)	0.53 (0.74)
LPN hours per resident day	0.71 (0.54)	0.72 (0.54)	0.72 (0.54)	0.72 (0.51)
Nurses aide hours per resident day	1.99 (0.76)	2.01 (0.75)	2.01 (0.75)	2.01 (0.74)

_: 1999 data were available only for assessments completed before July 1, 1999

Source: OSCAR

Table B.1b: Staffing levels in U.S. Nursing Homes: Freestanding and Hospital-Based Facilities, 1996-1999

	Mean hours per resident day(standard deviation)			
	1996	**1997**	**1998**	**1999_**
Freestanding facilities	(n=12,536)	(n=11,935)	(n=11,295)	(n=6,133)
Total hours per resident day, including Directors of Nursing	2.98 (1.05)	3.00 (1.02)	3.03 (1.00)	3.02 (0.98)
Total hours per resident day, excluding Directors of Nursing	2.89 (1.02)	2.92 (0.99)	2.95 (0.97)	2.93 (0.95)
RN Director of nursing hours per resident day	0.09 (0.16)	0.08 (0.09)	0.08 (0.11)	0.08 (0.08)
RN hours per resident day	0.34 (0.35)	0.35 (0.37)	0.36 (0.36)	0.35 (0.33)
LPN hours per resident day	0.63 (0.39)	0.63 (0.35)	0.64 (0.35)	0.65 (0.37)
Nurses aide hours per resident day	1.93 (0.70)	1.94 (0.66)	1.95 (0.66)	1.93 (0.66)
Hospital-based facilities	(n=-1,799)	(n=1,807)	(n=1,710)	(n=886)
Total hours per resident day, including Directors of Nursing	5.38 (2.20)	5.65 (2.25)	5.61 (2.22)	5.59 (2.18)
Total hours per resident day, excluding Directors of Nursing	5.13 (2.06)	5.39 (2.11)	5.36 (2.07)	5.33 (2.05)
RN Director of nursing hours per resident day	0.25 (0.25)	0.26 (0.24)	0.26 (0.24)	0.26 (0.24)
RN hours per resident day	1.48 (1.25)	1.63 (1.30)	1.68 (1.34)	1.68 (1.35)
LPN hours per resident day	1.26 (0.96)	1.30 (1.00)	1.22 (0.93)	1.25 (0.98)
Nurses aide hours per resident day	2.39 (1.01)	2.46 (1.04)	2.45 (0.99)	2.39 (0.96)

_: 1999 data were available only for assessments completed before July 1, 1999
Source: OSCAR

Table B.1c: Staffing levels in U.S. Nursing Homes:
For-Profit, Non-Profit and Government Facilities, 1996-1999

	Mean hours per resident day (standard deviation)			
	1996	**1997**	**1998**	**1999_**
For-profit facilities	(n=9,411)	(n=8,847)	(n=8,413)	(n=4,572)
Total hours per resident day, including Directors of Nursing	2.98 (1.23)	3.03 (1.24)	3.03 (1.17)	3.00 (1.13)
Total hours per resident day, excluding Directors of Nursing	2.89 (1.17)	2.93 (1.18)	2.93 (1.11)	2.91 (1.08)
RN Director of Nursing hours per resident day	0.10 (0.18)	0.09 (0.12)	0.09 (0.15)	0.09 (0.10)
RN hours per resident day	0.37 (0.50)	0.39 (0.52)	0.39 (0.50)	0.37 (0.47)
LPN hours per resident day	0.66 (0.46)	0.66 (0.45)	0.67 (0.43)	0.67 (0.43)
Nurses aide hours per resident day	1.86 (0.68)	1.88 (0.66)	1.88 (0.65)	1.87 (0.64)
Non-profit facilities	(n=3,956)	(n=3,844)	(n=3,720)	(n=1,975)
Total hours per resident day, including Directors of Nursing	3.84 (1.77)	3.98 (1.85)	4.01 (1.86)	3.98 (1.78)
Total hours per resident day, excluding Directors of Nursing	3.72 (1.67)	3.84 (1.75)	3.88 (1.75)	3.84 (1.68)
RN Director of Nursing hours per resident day	0.13 (0.17)	0.13 (0.16)	0.12 (0.16)	0.13 (0.16)
RN hours per resident day	0.73 (0.89)	0.80 (0.97)	0.84 (1.03)	0.83 (1.00)
LPN hours per resident day	0.78 (0.63)	0.80 (0.66)	0.81 (0.63)	0.81 (0.64)
Nurses aide hours per resident day	2.21 (0.85)	2.23 (0.82)	2.23 (0.82)	2.20 (0.78)
Government facilities	(n=968)	(n=919)	(n=883)	(n=472)
Total hours per resident day, including Directors of Nursing	3.82 (1.69)	3.95 (1.81)	3.90 (1.71)	3.97 (1.81)
Total hours per resident day, excluding	3.70	3.83	3.78	3.85

Table B.1c: Staffing levels in U.S. Nursing Homes:
For-Profit, Non-Profit and Government Facilities, 1996-1999

	Mean hours per resident day (standard deviation)			
	1996	**1997**	**1998**	**1999_**
Directors of Nursing	(1.61)	(1.72)	(1.61)	(1.71)
RN Director of Nursing hours per resident day	0.11 (0.14)	0.12 (0.15)	0.12 (0.16)	0.12 (0.15)
RN hours per resident day	0.58 (0.77)	0.65 (0.88)	0.63 (0.81)	0.66 (0.87)
LPN hours per resident day	0.84 (0.74)	0.87 (0.73)	0.80 (0.61)	0.87 (0.78)
Nurses aide hours per resident day	2.28 (0.82)	2.31 (0.90)	2.35 (0.82)	2.31 (0.89)

_: 1999 data were available only for assessments completed before July 1, 1999
Source: OSCAR

Table B.1d: Staffing levels in U.S. Nursing Homes:
By Proportion of Medicare residents at facility, 1996-1999

	Mean hours per resident day (standard deviation)			
	1996	**1997**	**1998**	**1999_**
Less than 5 percent Medicare residents	(n=6,262)	(n=5,446)	(n=5,151)	(n=2,922)
Total hours per resident day, including Directors of Nursing	2.91 (1.07)	2.93 (1.02)	2.95 (1.04)	2.96 (1.05)
Total hours per resident day, excluding Directors of Nursing	2.81 (1.03)	2.83 (0.99)	2.85 (1.00)	2.86 (1.01)
RN Director of Nursing hours per resident day	0.10 (0.11)	0.10 (0.11)	0.10 (0.11)	0.10 (0.10)
RN hours per resident day	0.30 (0.34)	0.31 (0.34)	0.32 (0.36)	0.31 (0.33)
LPN hours per resident day	0.61 (0.41)	0.60 (0.37)	0.61 (0.37)	0.64 (0.40)
Nurses aide hours per resident day	1.90 (0.71)	1.91 (0.69)	1.92 (0.69)	1.91 (0.70)
6-10 percent Medicare residents	(n=3,545)	(n=3,516)	(n=3,540)	(n=1,901)
Total hours per resident day, including Directors of Nursing	2.95 (0.77)	2.97 (0.75)	3.00 (0.78)	3.01 (0.74)
Total hours per resident day, excluding Directors of Nursing	2.88 (0.77)	2.91 (0.74)	2.93 (0.76)	2.94 (0.73)
RN Director of Nursing hours per resident day	0.07 (0.05)	0.07 (0.04)	0.07 (0.14)	0.07 (0.05)
RN hours per resident day	0.34 (0.25)	0.34 (0.25)	0.34 (0.25)	0.34 (0.25)
LPN hours per resident day	0.62 (0.33)	0.63 (0.29)	0.64 (0.32)	0.65 (0.31)
Nurses aide hours per resident day	1.93 (0.57)	1.94 (0.55)	1.95 (0.57)	1.94 (0.55)
11-15 percent Medicare residents	(n=2,013)	(n=2,011)	(n=1,871)	(n=984)
Total hours per resident day, including Directors of Nursing	3.05 (0.89)	3.06 (0.84)	3.07 (0.80)	3.10 (0.85)

Table B.1d: Staffing levels in U.S. Nursing Homes:
By Proportion of Medicare residents at facility, 1996-1999

	Mean hours per resident day (standard deviation)			
	1996	**1997**	**1998**	**1999_**
Total hours per resident day, excluding Directors of Nursing	2.97 (0.85)	2.99 (0.83)	3.00 (0.78)	3.03 (0.84)
RN Director of Nursing hours per resident day	0.07 (0.26)	0.07 (0.06)	0.07 (0.11)	0.07 (0.05)
RN hours per resident day	0.37 (0.29)	0.37 (0.31)	0.37 (0.28)	0.38 (0.26)
LPN hours per resident day	0.66 (0.35)	0.66 (0.33)	0.66 (0.32)	0.67 (0.32)
Nurses aide hours per resident day	1.95 (0.61)	1.96 (0.56)	1.97 (0.57)	1.98 (0.59)
More than 15 percent Medicare residents	(n=2,515)	(n=2,625)	(n=2,443)	(n=1,212)
Total hours per resident day, including Directors of Nursing	4.87 (2.28)	5.01 (2.34)	5.01 (2.28)	4.98 (2.28)
Total hours per resident day, excluding Directors of Nursing	4.67 (2.14)	4.81 (2.20)	4.81 (2.13)	4.78 (2.14)
RN Director of Nursing hours per resident day	0.20 (0.26)	0.20 (0.23)	0.20 (0.23)	0.20 (0.22)
RN hours per resident day	1.24 (1.18)	1.34 (1.24)	1.37 (1.28)	1.40 (1.29)
LPN hours per resident day	1.11 (0.88)	1.12 (0.92)	1.09 (0.85)	1.10 (0.92)
Nurses aide hours per resident day	2.31 (1.06)	2.35 (1.06)	2.35 (1.00)	2.28 (0.97)

_: 1999 data were available only for assessments completed before July 1, 1999
Source: OSCAR

APPENDIX B2: Distribution of Staffing by State, 1996-1999

Table B2.a: Staffing levels in U.S. Nursing Homes: By State, 1996-1999

State	Mean hours per resident day											
	1996			1997			1998			1999_		
	RN	LPN	Nurse aide	RN	LPN	Nurse aide	RN	LPN	Nurse aide	RN	LPN	Nurse aide
AK	1.11	0.66	3.19	1.45	0.62	3.42	1.15	0.54	3.23	0.98	0.67	3.09
AL	0.26	0.93	2.36	0.26	0.93	2.37	0.26	0.99	2.47	0.25	0.97	2.37
AR	0.25	0.80	1.72	0.33	0.83	1.86	0.31	0.83	1.97	0.35	0.89	1.94
AZ	0.68	0.77	2.07	0.84	0.85	2.01	0.78	0.80	2.16	0.56	0.72	1.97
CA	0.58	0.74	2.20	0.62	0.73	2.22	0.58	0.73	2.21	0.55	0.72	2.14
CO	0.74	0.70	1.83	0.74	0.76	1.90	0.64	0.70	1.96	0.60	0.69	1.93
CT	0.53	0.47	2.00	0.53	0.48	2.10	0.57	0.50	2.09	0.52	0.52	2.11
DE	0.71	0.67	2.35	0.77	0.68	2.37	1.03	0.65	2.73	0.75	0.66	2.47
FL	0.58	0.88	2.14	0.65	0.87	2.12	0.64	0.88	2.06	0.59	0.84	2.06
GA	0.21	0.82	2.00	0.21	0.82	2.06	0.24	0.84	2.01	0.24	0.85	1.97
HI	0.83	0.67	2.43	0.90	0.63	2.61	0.88	0.55	2.68	0.78	0.82	2.24
IA	0.49	0.48	1.70	0.47	0.49	1.69	0.52	0.51	1.66	0.53	0.55	1.66
ID	0.62	0.81	2.54	0.72	0.96	2.59	0.65	0.75	2.65	0.57	0.86	2.84
IL	0.57	0.53	1.76	0.62	0.53	1.78	0.65	0.54	1.83	0.67	0.54	1.88
IN	0.41	0.84	1.55	0.45	0.85	1.53	0.46	0.87	1.54	0.49	0.87	1.58
KS	0.40	0.54	1.62	0.44	0.57	1.61	0.48	0.57	1.59	0.50	0.53	1.66
KY	0.49	0.96	2.05	0.58	0.98	2.16	0.56	0.92	2.11	0.58	0.96	2.06
LA	0.34	0.87	1.87	0.39	0.91	1.91	0.34	0.85	1.96	0.37	0.94	1.83
MA	0.62	0.59	2.24	0.69	0.56	2.21	0.74	0.58	2.24	0.70	0.58	2.18
MD	0.51	0.60	1.96	0.57	0.64	1.99	0.62	0.63	2.08	0.73	0.60	2.10
ME	0.53	0.47	2.62	0.65	0.47	2.60	0.71	0.49	2.68	0.57	0.48	2.65

Table B2.a: Staffing levels in U.S. Nursing Homes: By State, 1996-1999

State	Mean hours per resident day											
	1996			1997			1998			1999_		
	RN	LPN	Nurse aide	RN	LPN	Nurse aide	RN	LPN	Nurse aide	RN	LPN	Nurse aide
MI	0.35	0.60	2.25	0.43	0.61	2.29	0.42	0.61	2.29	0.43	0.67	2.22
MN	0.35	0.67	1.83	0.36	0.66	1.84	0.37	0.66	1.80	0.33	0.68	1.81
MO	0.46	0.80	1.81	0.50	0.77	1.78	0.49	0.76	1.76	0.49	0.76	1.84
MS	0.42	0.88	2.00	0.55	0.95	2.02	0.51	0.91	2.03	0.45	0.84	1.99
MT	0.60	0.56	2.35	0.61	0.60	2.26	0.63	0.59	2.35	0.66	0.53	2.21
NC	0.48	0.74	2.24	0.53	0.76	2.35	0.55	0.83	2.32	0.52	0.81	2.25
ND	0.43	0.63	2.18	0.43	0.64	2.21	0.38	0.58	2.25	0.54	0.70	2.28
NE	0.42	0.67	1.74	0.47	0.68	1.79	0.51	0.66	1.81	0.56	0.72	1.76
NH	0.60	0.50	2.39	0.62	0.56	2.43	0.65	0.55	2.53	0.70	0.57	2.56
NJ	0.55	0.56	2.05	0.56	0.55	2.08	0.62	0.57	2.08	0.66	0.66	2.05
NM	0.59	0.59	2.09	0.76	0.56	2.08	0.59	0.55	2.09	0.46	0.53	2.05
NV	1.01	0.91	1.98	1.04	0.75	1.91	1.14	0.74	1.94	1.67	0.55	2.52
NY	0.38	0.64	1.99	0.36	0.65	1.99	0.37	0.66	2.03	0.38	0.66	2.02
OH	0.52	0.81	2.10	0.57	0.82	2.09	0.55	0.80	2.05	0.58	0.85	2.09
OK	0.22	0.64	1.45	0.28	0.78	1.59	0.30	0.75	1.57	0.21	0.73	1.53
OR	0.55	0.40	2.24	0.55	0.42	2.18	0.57	0.42	2.11	0.54	0.42	2.11
PA	0.67	0.71	2.05	0.75	0.75	2.07	0.80	0.78	2.11	0.75	0.76	2.08
RI	0.51	0.35	2.01	0.60	0.31	2.09	0.65	0.32	2.06	0.73	0.31	2.07
SC	0.41	0.89	2.26	0.46	0.88	2.31	0.50	0.92	2.25	0.59	0.84	2.23
SD	0.48	0.31	1.86	0.49	0.34	1.89	0.53	0.34	1.90	0.49	0.32	1.85
TN	0.33	0.80	1.80	0.34	0.79	1.89	0.44	0.87	1.90	0.37	0.85	1.84
TX	0.43	0.87	1.83	0.45	0.90	1.86	0.40	0.88	1.83	0.34	0.89	1.78

Table B2.a: Staffing levels in U.S. Nursing Homes: By State, 1996-1999

State	Mean hours per resident day											
	1996			1997			1998			1999_		
	RN	LPN	Nurse aide	RN	LPN	Nurse aide	RN	LPN	Nurse aide	RN	LPN	Nurse aide
UT	0.70	0.64	1.87	0.73	0.59	1.96	0.76	0.69	2.01	1.06	0.79	1.98
VA	0.40	0.81	1.99	0.41	0.84	2.06	0.41	0.91	2.07	0.43	0.94	2.04
VT	0.38	0.72	2.20	0.49	0.66	2.17	0.38	0.75	2.21	0.41	0.70	2.23
WA	0.66	0.60	2.30	0.77	0.59	2.44	0.72	0.58	2.45	0.73	0.62	2.38
WI	0.52	0.43	2.07	0.60	0.44	2.14	0.60	0.44	2.10	0.53	0.44	2.02
WV	0.34	0.91	2.12	0.51	1.01	2.17	0.43	0.72	2.20	0.43	0.86	2.12
WY	0.82	0.68	2.03	0.64	0.65	1.96	0.70	0.56	2.02	0.66	0.58	2.00

_: 1999 data were available only for assessments completed before July 1, 1999
Note: Sample sizes can be found in Table 3.7
Source: OSCAR

APPENDIX B.3: Cumulative distribution of Staffing

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
0.5	2	0	0
0.55	5	0	0.1
0.6	3	0	0.1

Appendix B.3a: Staffing levels in U.S. Nursing Homes:
Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
0.65	8	0.1	0.1
0.7	6	0	0.2
0.75	6	0	0.2
0.8	9	0.1	0.3
0.85	9	0.1	0.4
0.9	8	0.1	0.4
0.95	8	0.1	0.5
1	6	0	0.5
1.05	17	0.1	0.7
1.1	17	0.1	0.8
1.15	8	0.1	0.9
1.2	18	0.1	1
1.25	14	0.1	1.1
1.3	27	0.2	1.3
1.35	30	0.2	1.5
1.4	38	0.3	1.8
1.45	34	0.3	2.1
1.5	32	0.2	2.3
1.55	33	0.3	2.6
1.6	35	0.3	2.9

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
1.65	58	0.4	3.3
1.7	48	0.4	3.7
1.75	61	0.5	4.2
1.8	99	0.8	4.9
1.85	94	0.7	5.6
1.9	110	0.8	6.5
1.95	101	0.8	7.3
2	136	1	8.3
2.05	161	1.2	9.5
2.1	165	1.3	10.8
2.15	178	1.4	12.2
2.2	192	1.5	13.7
2.25	217	1.7	15.3
2.3	232	1.8	17.1
2.35	272	2.1	19.2
2.4	272	2.1	21.3
2.45	328	2.5	23.8
2.5	309	2.4	26.2
2.55	356	2.7	28.9
2.6	339	2.6	31.5

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
2.65	368	2.8	34.4
2.7	386	3	37.3
2.75	397	3.1	40.4
2.8	448	3.4	43.8
2.85	408	3.1	47
2.9	409	3.1	50.1
2.95	368	2.8	52.9
3	373	2.9	55.8
3.05	341	2.6	58.4
3.1	341	2.6	61.1
3.15	326	2.5	63.6
3.2	278	2.1	65.7
3.25	261	2	67.7
3.3	248	1.9	69.6
3.35	240	1.8	71.5
3.4	221	1.7	73.2
3.45	188	1.4	74.6
3.5	196	1.5	76.1
3.55	184	1.4	77.5
3.6	152	1.2	78.7

Appendix B.3a: Staffing levels in U.S. Nursing Homes:
Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
3.65	125	1	79.7
3.7	112	0.9	80.5
3.75	123	0.9	81.5
3.8	113	0.9	82.3
3.85	94	0.7	83.1
3.9	82	0.6	83.7
3.95	76	0.6	84.3
4	78	0.6	84.9
4.05	66	0.5	85.4
4.1	61	0.5	85.8
4.15	58	0.4	86.3
4.2	48	0.4	86.7
4.25	47	0.4	87
4.3	32	0.2	87.3
4.35	42	0.3	87.6
4.4	56	0.4	88
4.45	26	0.2	88.2
4.5	31	0.2	88.5
4.55	44	0.3	88.8
4.6	33	0.3	89.1

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
4.65	28	0.2	89.3
4.7	27	0.2	89.5
4.75	26	0.2	89.7
4.8	29	0.2	89.9
4.85	39	0.3	90.2
4.9	32	0.2	90.4
4.95	22	0.2	90.6
5	26	0.2	90.8
5.05	13	0.1	90.9
5.1	14	0.1	91
5.15	28	0.2	91.2
5.2	18	0.1	91.4
5.25	27	0.2	91.6
5.3	20	0.2	91.7
5.35	24	0.2	91.9
5.4	20	0.2	92.1
5.45	21	0.2	92.2
5.5	14	0.1	92.3
5.55	26	0.2	92.5
5.6	22	0.2	92.7

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
5.65	20	0.2	92.9
5.7	28	0.2	93.1
5.75	18	0.1	93.2
5.8	15	0.1	93.3
5.85	28	0.2	93.5
5.9	20	0.2	93.7
5.95	17	0.1	93.8
6	19	0.1	94
6.05	20	0.2	94.1
6.1	19	0.1	94.3
6.15	16	0.1	94.4
6.2	16	0.1	94.5
6.25	14	0.1	94.6
6.3	20	0.2	94.8
6.35	18	0.1	94.9
6.4	16	0.1	95
6.45	15	0.1	95.2
6.5	20	0.2	95.3
6.55	13	0.1	95.4
6.6	12	0.1	95.5

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
6.65	18	0.1	95.6
6.7	16	0.1	95.8
6.75	15	0.1	95.9
6.8	11	0.1	96
6.85	7	0.1	96
6.9	13	0.1	96.1
6.95	13	0.1	96.2
7	14	0.1	96.3
7.05	15	0.1	96.4
7.1	10	0.1	96.5
7.15	17	0.1	96.7
7.2	9	0.1	96.7
7.25	13	0.1	96.8
7.3	14	0.1	96.9
7.35	8	0.1	97
7.4	10	0.1	97.1
7.45	11	0.1	97.2
7.5	15	0.1	97.3
7.55	7	0.1	97.3
7.6	9	0.1	97.4

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
7.65	11	0.1	97.5
7.7	13	0.1	97.6
7.75	3	0	97.6
7.8	8	0.1	97.7
7.85	8	0.1	97.7
7.9	10	0.1	97.8
7.95	8	0.1	97.9
8	16	0.1	98
8.05	9	0.1	98.1
8.1	6	0	98.1
8.15	7	0.1	98.2
8.2	9	0.1	98.2
8.25	9	0.1	98.3
8.3	6	0	98.3
8.35	1	0	98.3
8.4	8	0.1	98.4
8.45	3	0	98.4
8.5	7	0.1	98.5
8.55	7	0.1	98.5
8.6	8	0.1	98.6

Appendix B.3a: Staffing levels in U.S. Nursing Homes: Distribution of Total hours per resident day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
8.65	2	0	98.6
8.7	5	0	98.7
8.75	2	0	98.7
8.8	8	0.1	98.7
8.85	7	0.1	98.8
8.9	5	0	98.8
8.95	9	0.1	98.9
9	7	0.1	98.9
9.05	6	0	99
9.1	1	0	99
9.15	3	0	99
9.2	3	0	99
9.25	8	0.1	99.1
9.3	4	0	99.1
9.35	5	0	99.2
9.4	4	0	99.2
9.45	1	0	99.2
9.5	5	0	99.3
9.55	2	0	99.3
9.6	6	0	99.3

Appendix B.3a: Staffing levels in U.S. Nursing Homes:
Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
9.7	6	0	99.4
9.75	1	0	99.4
9.8	2	0	99.4
9.85	2	0	99.4
9.9	3	0	99.4
9.95	6	0	99.5
10	4	0	99.5
10.05	2	0	99.5
10.1	5	0	99.6
10.15	2	0	99.6
10.2	1	0	99.6
10.25	2	0	99.6
10.35	1	0	99.6
10.45	1	0	99.6
10.5	4	0	99.6
10.55	1	0	99.6
10.6	1	0	99.7
10.65	8	0.1	99.7
10.7	6	0	99.8
10.75	4	0	99.8

Appendix B.3a: Staffing levels in U.S. Nursing Homes:
Distribution of Total hours per resident day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
10.8	5	0	99.8
10.9	1	0	99.8
10.95	2	0	99.9
11	3	0	99.9
11.05	1	0	99.9
11.1	4	0	99.9
11.15	1	0	99.9
11.2	2	0	99.9
11.25	4	0	100
11.3	1	0	100
11.35	1	0	100
11.45	1	0	100
11.55	1	0	100

Source: OSCAR

Appendix B.3b: Staffing levels in U.S. Nursing Homes: Distribution of RN hours per resident day: All facilities, 1998			
RN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
0	311	2.4	2.4
0.05	1007	7.7	10.1
0.1	956	7.4	17.5
0.15	1129	8.7	26.2
0.2	1108	8.5	34.7
0.25	1101	8.5	43.2
0.3	1001	7.7	50.8
0.35	911	7	57.9
0.4	807	6.2	64.1
0.45	656	5	69.1
0.5	580	4.5	73.6
0.55	502	3.9	77.4
0.6	368	2.8	80.3
0.65	327	2.5	82.8
0.7	242	1.9	84.6
0.75	191	1.5	86.1
0.8	124	1	87.1
0.85	116	0.9	87.9
0.9	92	0.7	88.7
0.95	74	0.6	89.2
1	63	0.5	89.7
1.05	47	0.4	90.1
1.1	48	0.4	90.4
1.15	48	0.4	90.8
1.2	39	0.3	91.1
1.25	34	0.3	91.4
1.3	29	0.2	91.6
1.35	34	0.3	91.8
1.4	26	0.2	92
1.45	21	0.2	92.2

Appendix B.3b: Staffing levels in U.S. Nursing Homes: Distribution of RN hours per resident day: All facilities, 1998			
RN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
1.5	30	0.2	92.4
1.55	21	0.2	92.6
1.6	31	0.2	92.8
1.65	27	0.2	93
1.7	32	0.2	93.3
1.75	19	0.1	93.4
1.8	28	0.2	93.7
1.85	24	0.2	93.8
1.9	26	0.2	94
1.95	19	0.1	94.2
2	20	0.2	94.3
2.05	29	0.2	94.6
2.1	21	0.2	94.7
2.15	18	0.1	94.9
2.2	19	0.1	95
2.25	18	0.1	95.1
2.3	33	0.3	95.4
2.35	24	0.2	95.6
2.4	32	0.2	95.8
2.45	29	0.2	96.1
2.5	20	0.2	96.2
2.55	19	0.1	96.4
2.6	15	0.1	96.5
2.65	31	0.2	96.7
2.7	20	0.2	96.9
2.75	11	0.1	96.9
2.8	15	0.1	97.1
2.85	21	0.2	97.2
2.9	15	0.1	97.3
2.95	17	0.1	97.5
3	18	0.1	97.6

Appendix B.3b: Staffing levels in U.S. Nursing Homes: Distribution of RN hours per resident day: All facilities, 1998			
RN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
3.05	7	0.1	97.7
3.1	16	0.1	97.8
3.15	20	0.2	97.9
3.2	18	0.1	98.1
3.25	11	0.1	98.2
3.3	11	0.1	98.2
3.35	11	0.1	98.3
3.4	5	0	98.4
3.45	17	0.1	98.5
3.5	9	0.1	98.6
3.55	10	0.1	98.6
3.6	9	0.1	98.7
3.65	6	0	98.8
3.7	10	0.1	98.8
3.75	10	0.1	98.9
3.8	5	0	99
3.85	7	0.1	99
3.9	7	0.1	99.1
3.95	10	0.1	99.1
4	11	0.1	99.2
4.05	6	0	99.3
4.1	4	0	99.3
4.15	4	0	99.3
4.2	4	0	99.4
4.25	7	0.1	99.4
4.3	8	0.1	99.5
4.4	5	0	99.5
4.45	1	0	99.5
4.5	4	0	99.6
4.55	1	0	99.6

Appendix B.3b: Staffing levels in U.S. Nursing Homes: Distribution of RN hours per resident day: All facilities, 1998			
RN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
4.65	4	0	99.6
4.7	4	0	99.6
4.75	3	0	99.6
4.8	9	0.1	99.7
4.9	3	0	99.7
5	2	0	99.8
5.05	3	0	99.8
5.1	2	0	99.8
5.2	1	0	99.8
5.3	2	0	99.8
5.35	4	0	99.8
5.4	2	0	99.9
5.45	1	0	99.9
5.5	1	0	99.9
5.55	1	0	99.9
5.6	1	0	99.9
5.65	1	0	99.9
5.7	1	0	99.9
5.75	1	0	99.9
5.85	1	0	99.9
5.95	2	0	99.9
6.05	1	0	99.9
6.35	1	0	100
6.45	1	0	100
6.8	1	0	100
7.85	1	0	100
8	1	0	100
8.4	1	0	100
9.05	1	0	100
Source: OSCAR			

Appendix B.3c: Staffing levels in U.S. Nursing Homes: Distribution of RN+LPN hours per resident day: All Facilities, 1998			
RN+LPN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
0	1	0	0
0.05	1	0	0
0.1	3	0	0
0.15	5	0	0.1
0.2	8	0.1	0.1
0.25	11	0.1	0.2
0.3	28	0.2	0.4
0.35	47	0.4	0.8
0.4	82	0.6	1.4
0.45	139	1.1	2.5
0.5	214	1.6	4.1
0.55	317	2.4	6.6
0.6	465	3.6	10.2
0.65	554	4.3	14.4
0.7	733	5.6	20.1
0.75	794	6.1	26.2
0.8	908	7	33.1
0.85	918	7.1	40.2
0.9	878	6.8	47
0.95	844	6.5	53.4
1	788	6.1	59.5
1.05	653	5	64.5
1.1	605	4.7	69.2
1.15	460	3.5	72.7
1.2	403	3.1	75.8
1.25	315	2.4	78.2
1.3	259	2	80.2
1.35	210	1.6	81.8
1.4	174	1.3	83.2
1.45	137	1.1	84.2

Appendix B.3c: Staffing levels in U.S. Nursing Homes: Distribution of RN+LPN hours per resident day: All Facilities, 1998			
RN+LPN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
1.5	105	0.8	85
1.55	91	0.7	85.7
1.6	84	0.6	86.4
1.65	59	0.5	86.8
1.7	63	0.5	87.3
1.75	58	0.4	87.8
1.8	50	0.4	88.2
1.85	38	0.3	88.4
1.9	39	0.3	88.7
1.95	39	0.3	89
2	33	0.3	89.3
2.05	28	0.2	89.5
2.1	18	0.1	89.7
2.15	26	0.2	89.9
2.2	32	0.2	90.1
2.25	24	0.2	90.3
2.3	23	0.2	90.5
2.35	18	0.1	90.6
2.4	27	0.2	90.8
2.45	18	0.1	90.9
2.5	28	0.2	91.2
2.55	20	0.2	91.3
2.6	16	0.1	91.4
2.65	27	0.2	91.6
2.7	17	0.1	91.8
2.75	26	0.2	92
2.8	27	0.2	92.2
2.85	29	0.2	92.4
2.9	19	0.1	92.5
2.95	16	0.1	92.7
3	34	0.3	92.9

Appendix B.3c: Staffing levels in U.S. Nursing Homes: Distribution of RN+LPN hours per resident day: All Facilities, 1998			
RN+LPN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
3.05	24	0.2	93.1
3.1	16	0.1	93.2
3.15	22	0.2	93.4
3.2	25	0.2	93.6
3.25	17	0.1	93.7
3.3	19	0.1	93.9
3.35	20	0.2	94
3.4	21	0.2	94.2
3.45	25	0.2	94.4
3.5	21	0.2	94.5
3.55	21	0.2	94.7
3.6	24	0.2	94.9
3.65	25	0.2	95.1
3.7	24	0.2	95.3
3.75	15	0.1	95.4
3.8	21	0.2	95.5
3.85	15	0.1	95.7
3.9	15	0.1	95.8
3.95	17	0.1	95.9
4	23	0.2	96.1
4.05	21	0.2	96.2
4.1	19	0.1	96.4
4.15	21	0.2	96.6
4.2	17	0.1	96.7
4.25	12	0.1	96.8
4.3	15	0.1	96.9
4.35	17	0.1	97
4.4	15	0.1	97.1
4.45	9	0.1	97.2
4.5	16	0.1	97.3

Appendix B.3c: Staffing levels in U.S. Nursing Homes: Distribution of RN+LPN hours per resident day: All Facilities, 1998			
RN+LPN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
4.55	12	0.1	97.4
4.6	10	0.1	97.5
4.65	7	0.1	97.6
4.7	17	0.1	97.7
4.75	12	0.1	97.8
4.8	24	0.2	98
4.85	5	0	98
4.9	11	0.1	98.1
4.95	7	0.1	98.1
5	13	0.1	98.2
5.05	11	0.1	98.3
5.1	13	0.1	98.4
5.15	11	0.1	98.5
5.2	9	0.1	98.6
5.25	11	0.1	98.7
5.3	6	0	98.7
5.35	13	0.1	98.8
5.4	6	0	98.9
5.45	5	0	98.9
5.5	8	0.1	99
5.55	6	0	99
5.6	4	0	99
5.65	4	0	99.1
5.7	6	0	99.1
5.75	2	0	99.1
5.8	3	0	99.1
5.85	4	0	99.2
5.9	2	0	99.2
5.95	5	0	99.2
6	8	0.1	99.3
6.05	6	0	99.3

Appendix B.3c: Staffing levels in U.S. Nursing Homes: Distribution of RN+LPN hours per resident day: All Facilities, 1998			
RN+LPN hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
6.1	6	0	99.4
6.15	1	0	99.4
6.2	3	0	99.4
6.25	3	0	99.4
6.3	3	0	99.5
6.35	3	0	99.5
6.4	5	0	99.5
6.45	2	0	99.5
6.5	2	0	99.6
6.55	1	0	99.6
6.6	4	0	99.6
6.7	3	0	99.6
6.75	4	0	99.6
6.8	3	0	99.7
6.85	3	0	99.7
6.95	2	0	99.7
7	2	0	99.7
7.05	2	0	99.7
7.1	1	0	99.7
7.15	1	0	99.8
7.2	3	0	99.8
7.25	3	0	99.8
7.35	2	0	99.8
7.4	2	0	99.8
7.5	1	0	99.8
7.55	1	0	99.8
7.6	1	0	99.9
7.65	1	0	99.9
7.7	2	0	99.9
7.95	1	0	99.9

Appendix B.3c: Staffing levels in U.S. Nursing Homes: Distribution of RN+LPN hours per resident day: All Facilities, 1998

RN+LPN hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
8	2	0	99.9
8.15	1	0	99.9
8.25	1	0	99.9
8.3	1	0	99.9
8.55	1	0	99.9
8.75	1	0	99.9
8.8	1	0	99.9
8.95	2	0	100
9	1	0	100
9.2	1	0	100
9.85	1	0	100
10.4	1	0	100
10.5	1	0	100

Source: OSCAR

Appendix B.3d: Staffing levels in U.S. Nursing Homes: Distribution of Nurses Aide Hours per Resident Day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
0	113	0.9	0.9
0.05	5	0	0.9
0.1	3	0	0.9
0.15	5	0	1
0.2	10	0.1	1
0.25	15	0.1	1.2
0.3	8	0.1	1.2
0.35	10	0.1	1.3
0.4	11	0.1	1.4
0.45	10	0.1	1.5
0.5	10	0.1	1.5
0.55	17	0.1	1.7
0.6	24	0.2	1.9
0.65	27	0.2	2.1
0.7	26	0.2	2.3
0.75	37	0.3	2.5
0.8	36	0.3	2.8
0.85	55	0.4	3.2
0.9	66	0.5	3.8
0.95	79	0.6	4.4
1	72	0.6	4.9
1.05	97	0.7	5.7
1.1	107	0.8	6.5
1.15	136	1	7.5
1.2	130	1	8.5
1.25	183	1.4	9.9
1.3	192	1.5	11.4
1.35	226	1.7	13.1
1.4	245	1.9	15
1.45	261	2	17

Appendix B.3d: Staffing levels in U.S. Nursing Homes: Distribution of Nurses Aide Hours per Resident Day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
1.5	301	2.3	19.4
1.55	358	2.8	22.1
1.6	383	2.9	25.1
1.65	381	2.9	28
1.7	439	3.4	31.4
1.75	493	3.8	35.1
1.8	537	4.1	39.3
1.85	524	4	43.3
1.9	533	4.1	47.4
1.95	563	4.3	51.7
2	552	4.2	56
2.05	537	4.1	60.1
2.1	512	3.9	64
2.15	459	3.5	67.6
2.2	425	3.3	70.8
2.25	378	2.9	73.7
2.3	343	2.6	76.4
2.35	306	2.4	78.7
2.4	308	2.4	81.1
2.45	238	1.8	82.9
2.5	184	1.4	84.4
2.55	179	1.4	85.7
2.6	173	1.3	87.1
2.65	172	1.3	88.4
2.7	124	1	89.3
2.75	131	1	90.3
2.8	92	0.7	91
2.85	108	0.8	91.9
2.9	83	0.6	92.5
2.95	74	0.6	93.1
3	58	0.4	93.5

Appendix B.3d: Staffing levels in U.S. Nursing Homes: Distribution of Nurses Aide Hours per Resident Day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
3.05	65	0.5	94
3.1	51	0.4	94.4
3.15	45	0.3	94.8
3.2	48	0.4	95.1
3.25	45	0.3	95.5
3.3	34	0.3	95.7
3.35	34	0.3	96
3.4	26	0.2	96.2
3.45	42	0.3	96.5
3.5	19	0.1	96.7
3.55	27	0.2	96.9
3.6	18	0.1	97
3.65	13	0.1	97.1
3.7	14	0.1	97.2
3.75	16	0.1	97.4
3.8	20	0.2	97.5
3.85	17	0.1	97.6
3.9	13	0.1	97.7
3.95	14	0.1	97.8
4	23	0.2	98
4.05	9	0.1	98.1
4.1	14	0.1	98.2
4.15	13	0.1	98.3
4.2	9	0.1	98.4
4.25	11	0.1	98.5
4.3	10	0.1	98.5
4.35	9	0.1	98.6
4.4	8	0.1	98.7
4.45	7	0.1	98.7
4.5	14	0.1	98.8

Appendix B.3d: Staffing levels in U.S. Nursing Homes: Distribution of Nurses Aide Hours per Resident Day: All Facilities, 1998			
Total hours per resident day	**Number of facilities**	**Percentage of facilities**	**Cumulative percentage**
4.55	12	0.1	98.9
4.6	4	0	98.9
4.65	5	0	99
4.7	5	0	99
4.75	6	0	99.1
4.8	8	0.1	99.1
4.85	9	0.1	99.2
4.9	7	0.1	99.3
4.95	6	0	99.3
5	6	0	99.3
5.05	6	0	99.4
5.1	3	0	99.4
5.15	2	0	99.4
5.2	4	0	99.5
5.3	4	0	99.5
5.35	7	0.1	99.5
5.4	4	0	99.6
5.45	1	0	99.6
5.55	3	0	99.6
5.6	5	0	99.6
5.65	1	0	99.7
5.7	3	0	99.7
5.75	2	0	99.7
5.8	1	0	99.7
5.85	5	0	99.7
5.9	4	0	99.8
5.95	2	0	99.8
6	2	0	99.8
6.05	1	0	99.8
6.1	1	0	99.8
6.15	1	0	99.8

Appendix B.3d: Staffing levels in U.S. Nursing Homes: Distribution of Nurses Aide Hours per Resident Day: All Facilities, 1998

Total hours per resident day	Number of facilities	Percentage of facilities	Cumulative percentage
6.3	1	0	99.8
6.35	1	0	99.8
6.4	2	0	99.9
6.6	2	0	99.9
6.65	1	0	99.9
6.8	1	0	99.9
6.85	2	0	99.9
6.9	1	0	99.9
7.05	1	0	99.9
7.1	1	0	99.9
7.15	1	0	99.9
7.2	1	0	99.9
7.3	1	0	99.9
7.4	1	0	100
7.5	1	0	100
7.55	1	0	100
7.95	2	0	100
8.05	1	0	100
8.9	1	0	100

Source: OSCAR

APPENDIX C

APPENDIX C1

Survey Types and Process

The State Survey Agency (SA) is required to conduct annual unannounced surveys at LTC Facilities to determine compliance with Federal regulations. At 42 of the Code of Federal Regulations (CFR) 488.301 defines the type of surveys that SAs conduct, such as Standard/Abbreviated Standard Surveys and Extended /Partial Extended Surveys. These survey types are as follows:

1) The survey conducted by the SA annually begins as a resident-centered, outcome-oriented Standard Survey. This survey gathers information about the quality of services furnished and whether the facility complies with participation requirements to meet the needs of each resident.
2) An Abbreviated Standard Survey, which may be conducted as a result of complaints received, or as a result of change in ownership, management or director of nursing, focuses on a particular area of concern and may focus on staffing.

If during the course of either of these two types of surveys, the surveyors identify substandard quality of care, the survey agency must conduct an Extended or Partial Extended Survey.

3) During an Extended/Partial Extended Survey, in addition to other requirements, nursing staffing must be reviewed.

The statute and regulations require that a survey be conducted by a multidisciplinary group of health professionals such as dieticians, pharmacists, and nurses. The survey team must include at least one registered professional nurse. Depending upon the survey findings, complexity of the facility services and structure, distance and travel time, a survey with three to four surveyors for a 100 bed facility, on the average, takes approximately four days to complete.

The Standard Survey process is predicated upon a holistic review of the care and services required by an individual residing in the LTC facility. As an outcome based survey process, the surveyors evaluate the care and services provided (e.g., assistance with activities of daily living (ADLs), and appropriate interventions to prevent the development of: pressure ulcers, dehydration, malnutrition, decline or failure to maintain or improve ADLs, etc.). Surveyors must identify the potential for and actual negative outcomes and the facility's culpability. If the surveyor identified an actual/potential negative outcome, emphasis was placed on identifying the specific requirement in the areas of quality of care or quality of life where the facility was deficient.[17]

[17] Prior to the implementation of an Investigative Protocol, surveyors were not given a direction in relation to identifying how or why a residents' written care plan was not being provided (e.g., such as

investigating to determine if there was sufficient staff to develop an appropriate plan of care and implement the plan of care as written).

The Standard Survey process includes the use of the following information gathering techniques to complete the required survey tasks: observation of delivery of care; resident/family and staff interviews; and record review which provides evidence of whether staff evaluated resident's needs and/or recognized, evaluated and intervened when a resident experienced a change in condition.

The required tasks for a Standard Survey prior to SOM changes in July 1999 included the following:

- Offsite preparation for the survey (including review of a variety of reports and documents);
- An entrance conference with the facility staff and a posting of the availability to meet with staff, visitors and residents;
- A tour of the facility (primarily to identify concerns, confirm or invalidate previously identified concerns and to obtain an initial review of the facility, residents, staff, and environment);
- Selection of a case-mix stratified sample of residents to use in subsequent focused or comprehensive reviews of the care, quality of life and services for those residents;
- Resident, resident council, family, and staff interviews;
- Medication pass observation;
- An assessment of environmental safety and accommodation of resident specific need;
- Observation of meal service, evaluation of the dining experience and determination of whether the nutritional needs of residents are being met; and
- A review for the presence of the facility's quality assurance program;
- A review of the Medicare requirement for Demand Billing; and
- A review of Life Safety Code (which is done annually, but may be completed by specialty inspectors, e.g., Fire Marshall, Engineer, etc. and not necessarily concurrent with the standard health survey).

A survey process provides a limited amount of time to complete the tasks required to evaluate a facility for compliance with the regulations. The survey process is complex and includes clarification of issues with facility staff, residents and/or their families or representatives in a limited amount of time to complete all tasks. Prior to the end of the survey, the team must review and evaluate their findings to determine the facility's compliance or non-compliance with the requirements for long term care facilities.

APPENDIX C2

Legislative Requirements in the Social Security Act

§ 1819 REQUIREMENTS FOR, AND ASSURING QUALITY OF CARE IN, SKILLED NURSING FACILITIES.

(b) REQUIREMENTS RELATING TO PROVISION OF SERVICES.--

(2) SCOPE OF SERVICES AND ACTIVITIES UNDER PLAN OF CARE--

A skilled nursing facility must provide services to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident, in accordance with a written plan of care which --

(A) describes the medical, nursing and psychosocial needs of the resident and how such needs will be met;

(B) is initially prepared, with the participation to the extent practicable of the resident or the resident's family or legal representative, by a team which includes the resident's attending physician and a registered professional nurse with responsibility for the resident; and

(C) is periodically reviewed and revised by such team after each assessment under paragraph (3).

(4) PROVISION OF SERVICES AND ACTIVITIES--

(A) IN GENERAL: To the extent needed to fulfill all plans of care described in paragraph (2), a skilled nursing facility must provide, directly or under arrangements (or, with respect to dental services, under agreements) with others for the provision of

(i) nursing services and specialized rehabilitative services to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident.

(B) QUALIFIED PERSONS PROVIDING SERVICES--

Services described in clauses (i), (ii), (iii), (iv), and (vi) of subparagraph (A) must be provided by qualified persons in accordance with each resident's written plan of care.

(C) REQUIRED NURSING CARE. --

(I) IN GENERAL. -- Except as provided in clause (ii), a skilled nursing facility must provide 24-hour licensed nursing service which is sufficient to meet nursing needs of its residents and must use the services of a registered professional nurse at least 8 consecutive hours a day, 7 days a week.

(d) REQUIREMENTS RELATING TO ADMINISTRATION AND OTHER MATTERS.---

(1) ADMINISTRATION.--

(A) IN GENERAL.--A skilled nursing facility must be administered in a manner that enables it to use its resources effectively and efficiently to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident (consistent with requirements established under subsection (f)(5)).

§ 1919 REQUIREMENTS FOR NURSING FACILITIES.

(b) REQUIREMENTS RELATING TO PROVISION OF SERVICES.--

(2) SCOPE OF SERVICES AND ACTIVITIES UNDER PLAN OF CARE--

A nursing facility must provide services and activities to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident, in accordance with a written plan of care which --

(A) describes the medical, nursing and psychosocial needs of the resident and how such needs will be met;

(B) is initially prepared, with the participation to the extent practicable of the resident or the resident's family or legal representative, by a team which includes the resident's attending physician and a registered professional nurse with responsibility for the resident; and

(C) is periodically reviewed and revised by such team after each assessment under paragraph (3).

(4) PROVISION OF SERVICES AND ACTIVITIES--

(A) IN GENERAL: To the extent needed to fulfill all plans of care described in paragraph (2), a nursing facility must provide (or arrange for the provision of)--

(i) nursing and related services and specialized rehabilitative services to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident.

(B) QUALIFIED PERSONS PROVIDING SERVICES--

Services described in clauses (i), (ii), (iii), (iv), and (vi) of subparagraph (A) must be provided by qualified persons in accordance with each resident's written plan of care.

(C) REQUIRED NURSING CARE; FACILITY WAIVERS. --

(i) GENERAL REQUIREMENTS.-- With respect to nursing facility services provided on or after October 1, 1990, a nursing facility --

(I) except as provided in clause (ii), must provide 24-hour licensed nursing services which are sufficient to meet the nursing needs of its residents, and

(II) except as provided in clause (ii), must use the services of a registered professional nurse for at least 8 consecutive hours a day, 7 days a week.

(d) REQUIREMENTS RELATING TO ADMINISTRATION AND OTHER MATTERS.---

(1) ADMINISTRATION.--

(A) IN GENERAL.--A nursing facility must be administered in a manner that enables it to use its resources effectively and efficiently to attain or maintain the

highest practicable physical, mental, and psychosocial well-being of each resident (consistent with requirements established under subsection (f)(5)).

APPENDIX C3

INVESTIGATIVE PROTOCOL

NURSING SERVICES, SUFFICIENT STAFFING

Objectives:

To determine if the facility has sufficient nursing staff available to meet the residents' needs.

To determine if the facility has licensed registered nurses and licensed nursing staff available to provide and monitor the delivery of resident care.

Task 5C: Use:

NOTE: This protocol is not required during the standard survey, unless it is triggered in the event of care concerns/problems which may be associated with sufficiency of nursing staff. It is required to be completed for an extended survey.

This protocol is to be used when:

Quality of care problems have been identified, such as: Residents not receiving the care and services to prevent pressure sore/ulcer(s), unintended weight loss and dehydration, and to prevent declines in their condition as described in their comprehensive plans of care, such as bathing, dressing, grooming, transferring, ambulating, toileting, and eating; and

Complaints have been received from residents, families or other resident representatives concerning services, such as: Care not being provided, call lights not being answered in a timely fashion, and residents not being assisted to eat.

Procedures:

Determine if the registered/licensed nursing staff are available to:

- Supervise and monitor the delivery of care by nursing assistants according to residents' care plans;
- Assess resident condition changes;
- Monitor dining activities to identify concerns or changes in residents' needs;
- Respond to nursing assistants' requests for assistance;
- Correct inappropriate or unsafe nursing assistants techniques; and
- Identify training needs for the nursing assistants.

If problems were identified with care plans/services not provided as needed by the resident, focus your discussion with supervisory staff on the situations which led to using the protocol: how do they assure that there are adequate staff to meet the needs of the residents; how do they assure that staff are knowledgeable about the needs of the residents and are capable of delivering the care as planned; how do they assure that staff are appropriately deployed to meet the needs of the residents; how do they provide orientation for new or temporary staff regarding the resident needs and the interventions to meet those needs; and how do they assure that staff are advised of changes in the care plan?

Determine if nursing assistants and other nursing staff are knowledgeable regarding the residents' care needs, such as: the provision of fluids and foods for residents who are unable to provide these services for themselves; the provision of turning, positioning and skin care for those residents identified at risk for pressure sore/ulcers; and the provision of incontinence care
as needed;

If necessary, review nursing assistant assignments in relation to the care and or services the resident requires to meet his/her needs;

In interviews with residents, families and/or other resident representatives, inquire about the staff's response to requests for assistance, and the timeliness of call lights being answered; and

Determine if the problems are facility-wide, cover all shifts or if they are limited to certain units or shifts, or days of the week. This can be based on information already gathered by the team with additional interviews of residents, families and staff, as necessary.

Task 6: Determination of Compliance:

NOTE: Meeting the State mandated staffing ratio, if any, does not preclude a deficiency of insufficient staff if the facility is not providing needed care and services to residents.

Compliance with 42 CFR 483.30(a), F353, Sufficient Staff:

- The facility is compliant with this requirement if the facility has provided a sufficient number of licensed nurses and other nursing personnel to meet the needs of the residents on a twenty-four hour basis. If not, cite F353.

APPENDIX C4

Example of a Well Written Deficiency

One deficiency that was reviewed by HCFA staff was an excellent example of resident's identified needs, numbers of staff, interviews, record review, and observations. The following is the text from that deficiency.

Facility #23:

> Based on observation, staff interview, resident interview, family interview and record review, the facility failed to provide nursing staff for the residents to attain and/or maintain the highest practicable physical, mental and psychosocial well being.
>
> During an interview with the day Registered Nurse (RN) Supervisor on … at 2:05 p.m, she stated there were 25 residents on second floor and 24 residents on third floor. The RN Supervisor was responsible for care of the residents on 2nd and 3rd floors and supervision of all floor staff. There were 9 residents on 2nd floor on ventilator life support full time and an additional resident on ventilator life support only at night. There were 17 residents on 2nd floor with diagnoses of persistent vegetative state. She stated there were 22 residents on 2nd floor received nutrition by gastrostomy tube (g-tube) feeding and 4 on 3rd floor receiving nutrition by g-tube. On … there were 5 residents on 2nd floor and 1 resident on third floor receiving intravenous antibiotics that could only be administered by a RN.
>
> Resident interviews:
> 1. Interviews were conducted with alert and oriented residents living on both the 2nd and 3rd floors of the facility on… Residents interviewed were sample residents… (6 were identified).
>
> Interviewable resident… was interviewed at 2:35 p.m. in his room on 3rd floor. The resident stated he needed a 2-person transfer to get out of bed and into his wheelchair. The resident stated sometimes there weren't enough staff to help him transfer. The resident state he had waited as long as 20-30 minutes to get the assistance he needed to transfer from bed to his wheelchair. The resident stated that when this happened, he would be late for meals and therapy. Therapy was very important to him, "I'm very annoyed when I don't get therapy. Therapy is paramount to me." The resident stated he lets staff know when he is annoyed.
> The resident went on to say there was a "chronic staff shortage of nurses and CNAs (certified nursing assistants). [The] nurses have to help the CNAs and everyone does a job they aren't hired for." The resident stated

there were usually 2 CNAs on the floor, but often times at evening and night, there is "only 1". The resident stated there was 1 nurse to give medications and he could get his medications as late as a "couple of hours." The resident stated he liked his morning medications 1 to 1½ hours before he gets up "so I am not jumping out of my chair [wheelchair] with muscle spasms. I need my muscle relaxants' before getting out of bed. The above information given by resident … was confirmed by observing the 8:00 a.m. medication pass on the 3rd floor on …

Interviewable resident …had a tracheostomy and was on a ventilator, but could answer yes/no questions by head shakes and nods and could mouth words. Resident…was interviewed on …at 9:25 a.m. in her room on 2nd floor. Resident … indicated she would sometimes lay wet in bed for sometimes an hour, 2 hours and/or 3 hours once or twice a day. When asked if staff come in and check on her, she made a face and shook her head. When asked if she would like them to look in on her, she nodded her head. When asked if staff come quickly when she turned on her call light she shook her head no. The resident indicated it could take up to one hour, but never 2 hours for the call light to be answered. The resident indicated the staff will come in, turn off her call light, tell her they will be back and then not come back. Resident … indicated she did not always get her medication on time. She indicated her medication was usually late in the evening and night, but not during the day. The information given by …regarding the mediation pass was confirmed by observing the medication pass the evening (6:00 p.m.) on second floor.

Interviewable resident … was interviewed on …at 1:10 p.m. in his room on 2nd floor. Resident…has quadriplegia and is ventilator dependent. He stated there was "no help." He stated evenings were bad but nights were worse, and the people they do have they 'work them to death." He stated he did not get his medication on time 4-5 times a week and he would get muscle spasms if his medication was not given on time. Resident… said it was "scary at night". He stated he didn't "know if they are going to have enough help to answer call lights or your alarms. I timed them one night and it took them (staff) 28 minutes to answer my call light." He stated that he used his "call light at night" when he needed suctioning. "two minutes not being able to breathe is scary", resident … told the surveyor. He stated Saturday and Sunday were the worst days for the facility not having enough staff…

Interviewable resident…lived on 2nd floor and was interviewed on …at 10:30 a.m. He indicated the facility did not have enough staff to help him. He indicated sometimes they have enough on day and evening and

sometimes they do not. He could not indicate [about staff] on night shift. He indicated the staff don't change his catheter often and he had gone for months without it being changed. He shook his head when asked if it was changed every two weeks or monthly. He also indicated by shaking his head that the tube in his throat was not taken out and changed. The information regarding resident…catheter was confirmed from record review and staff interview.

Interviewable resident…lived on 3rd floor. The resident was very mobile and was going to be discharged from the facility on … She stated the facility needed more people, people meaning staff. She stated there was only 1 nurse per shift. She stated 1 nurse was not enough and that things could be very volatile. When asked what she meant by volatile, she stated volatile meant emergencies and people (residents) being ill.

Interviewable resident …communicated via computer and nodding his head indicating yes or an affirmative answer, or shaking his head indicating no or a negative answer to question. When asked if staff help him change his position when he is in bed, he shook his head. He also shook his head when asked if he could change his position by himself. He stated through his computer that he lay on his back all night. When asked if he used his call light, he nodded his head and when asked how long it took staff to answer his call light in the evening, he responded by computer, "usually they have only 1 aide, so it takes quite a while." When asked if he thought the facility had enough staff, he shook his head. The resident was asked why he thought that and he replied through computer, "very often there will be only 1 nurse of aide and they have to do everybody alone." He was asked, when that happens, did he get the care he needed? He shook his head and responded, "I don't expect to. I try to make it easy because the others need help." He was asked if he know of anyone on 2nd or 3rd floor that didn't get the help they needed, he hesitated and looked away. When asked if he would rather not answer that question, he nodded and added by computer, "because all I know of is what I hear from my room. But when I hear somebody crying, I feel they aren't being cared for."

Family interviews:

The family of resident …asked to speak to the surveyor and an interview was conducted on …at 4;30 P.M. The family member she visited the resident daily. She stated that 4-5 times a week she would find the resident's incontinent pads "very saturated" with urine. She also stated the pillows used for positioning were not being consistently used. The

family member stated she bathed the resident daily. The family member stated she was concerned about the positioning pillows because she did not want the resident to develop pressure sores. The family member stated sometimes in the evening the facility had 1 RN, 2 Licensed Practical Nurses (LPN) and 2 CNAs. 1 CNA orienting the 2nd CNA. The family member stated if she wasn't' at the facility, the resident would not get care. The family member questioned why she had to provide care when the facility got paid to provide care.

An interview with the family of a sample resident was held on …a t 12:00 noon. The family member stated the staffing was "horrendous" on the weekends. The family member stated that members of the family visited the resident on a daily basis. The family member stated the 1st weekend the resident was in the facility, the family found the resident to be lying in urine and feces. The family member stated the resident's perineal area was "red with rash, just like a baby has". The family continued that the areas was still red on … and was bleeding from the rash three weeks prior. The family member stated "I figured out right off, I had to tell staff when to change [the resident}. The family member stated family had to tell staff when to get the resident up, reposition the resident and when to check the resident's pads for incontinent episodes. From …the family found on 4 week-ends the resident was without positioning devices for the extremities. The family member stated the family performed range of motion on the resident' s feet because staff "won't do it." The family member stated the family begged staff to perform range of motion on the resident's feet, "I tell them I'll pay them" to perform the range of motion. The family member stated "staff never reposition [the resident} in chair {wheelchair}, I do.' The family member stated staff, "never come in and roll the resident from side to side." Occupational Therapy did an up-down schedule for the resident in the room and they have never followed it, never, not once. The family member stated the weekend of …, the family member found the resident to be lying in feces in bed when the family arrived for the visit at about 11:30 a.m. The family member asked how many patients the licensed nursing staff had to take care of, the licensed nursing staff staffed 28. The family member stated that during the 2nd week-end of …, family asked a staff person to change the resident and the staff person told the family member he was too busy. The family stated the family had taken their complaints to the Nursing Home Administrator (NHA) and had been told by the NHA to tell the staff they have to do it. The family interview was confirmed by record review.

An interview was conducted with the family of a sample resident on … at 10:30 a.m. The family member stated the facility was understaffed most of the time. The family member stated that family members have been in the facility everyday. The family member stated the resident had been outside the facility with the family and when the family brought the resident back inside, the bandages on the resident's wounds were dripping and were wet with pus. The family could not remember the exact date, but stated she asked the licensed staff to change the bandages. The licensed staff told the family he couldn't change the dressing because he had to pass medications. A family member stated on … at 3;30 p.m., that "I have to ask to have it done" referring to wound care on weekends.

APPENDIX D

APPENDIX D
Telephone Interview of DONs Regarding Facility Staffing

Introduction:
My name is _____ and I'm calling from Abt Associates, a private research firm based in Cambridge, Massachusetts. We currently have a contract with HCFA to help them to determine the need for a Federal minimum staffing requirement for nursing facilities participating in Medicare and Medicaid.

Our project centers on a quantitative analysis of the relationship between staffing and outcomes, and the ability of this analysis to identify a staffing threshold below which nursing facility residents are at increased risk of poor outcomes. In addition to this quantitative analysis, we are also conducting a series of focus groups among direct care staff (specifically, Nurse Aides) to ask them about staffing in their facilities, for example, how they adapt their work when their shift/unit is short staffed, and how they believe staffing impacts quality of care. We are also conducting a series of telephone interviews with DONs/ADONs to ask about the mechanics of staffing, i.e., how much time is devoted to staffing issues, how staffing schedules are determined, how short staffing is handled, etc.

You were referred to us by _____, who indicated that you might be interested and willing to complete a telephone interview with us about the mechanics of staffing in your facility. If you are not the appropriate staff person to interview, can you refer me to the right person?

The interview will last about 30 minutes, and if you are willing to participate, we can conduct the interview now if you have time, or schedule some time within the next week. Which do you prefer?

- ❑ Now. Proceed with interview.
- ❑ Later. Scheduled date and time is:_____

Please note that the interview will be confidential – your responses will be anonymous, and neither you nor your facility will be identified in our report to HCFA.

Interviewee characteristics:
Position: _____
How long in that position? _____
How long at the facility? _____

Facility Characteristics:

Total number of Beds: Number and type of Units: Number of beds/unit:	
Resident population: (% Medicare, %Medicaid, % private pay)	
Location: (urban/suburban/rural)	
Ownership: (chain/independent)	
Profit status: (for-profit/non-profit)	

Responsibility for and Involvement in Staffing

1) In your current position as DON or ADON, how much of your time is devoted to dealing with staffing issues in general?

- A lot – at least 50 % of my time
- Some –25-49 % of my time
- Little – 10-24% of my time
- Very Little – Less than 10% of my time.

1a). How much of your time is devoted to the following staffing-related tasks?

Staffing Issue:	**50% or more**	**25- 49%**	**10-24%**	**<10%**
Staffing budget development				
Determination of vacant positions				
Advertising positions				
Interviewing candidates				

Checking references				
Hiring process				
Orientation/Training				
Scheduling and re-scheduling				
Dealing with sick calls, etc.				

2) Which of these specific activities takes the most of your time? Why?

Development of Staffing Schedules

3) How is scheduling conducted at your facility?

3a). Does the facility employ a scheduler?

❑ Yes ☞ 3b). How many hours per week does this person work?

❑ No

3c). Who is responsible for scheduling licensed staff? For scheduling unlicensed staff?

4) How do you decide how many staff per shift to schedule (ask for information for all 3 shifts)?

5) What factors are taken into consideration when making the schedules?

6) Do staff have any input into the schedules? If yes, at what level and how much input do they have?

7) Do you currently have any vacant positions?

❑ Yes ☞ 7a.) How many vacancies and for what positions?

7b). How are these vacancies being covered?

- ❑ through use of temporary/agency staff
- ❑ over-time by facility staff
- ❑ voluntary OT
- ❑ mandatory OT
- ❑ through use of per diem staff

❑ No positions are currently vacant

Numbers of Staff and Adequacy of Staffing Level

8) Consider the numbers of nursing staff in your building. When everyone reports for his/her scheduled shift, would you describe your facility's staffing as:

- ❑ Excellent
- ❑ Adequate – not necessarily short staffed, but not heavily staffed either
- ❑ Light – slightly short staffed
- ❑ Poor – definitely short staffed

8a). Would you answer this question differently for different shifts? If so, describe.

9) What percent of the time would you estimate that all scheduled staff report for work?

- ❑ <25% of the time
- ❑ 26 - 50% of the time
- ❑ 51 - 75% of the time
- ❑ >75% of the time

9) Consider, in general terms, the current staffing situation in your facility. Please describe how the current situation came to be. What factors within the facility or from outside the facility impact your ability to staff the facility?

Probes (check all that apply):

- ❑ Current rates of unemployment in your area
- ❑ uncertainty about the financial impact of PPS
- ❑ administration/corporate limits on staffing
- ❑ Aging licensed nursing population, decreased enrollment in nursing schools
- ❑ Low wages, few benefits for nursing facility staff
- ❑ Little chance for advancement for NAs
- ❑ Physically and emotionally demanding work
- ❑ Poor image of nursing homes in the media
- ❑ Other _____

10) Describe the "ideal" staffing ratios (staff to residents) for your facility, by shift. This ideal should not be constrained by budgetary limits, availability of staff, etc. The ideal should be based on what you think is needed to provide quality care.

Shift	Ideal ratio for RNs to residents	Ideal ratio for LPNs to residents	Ideal ratio for NAs to residents
7-3			
3-11			
11-7			

11) Do these ideals differ from your actual staffing?
1) No
2) Yes ☞ 11a). How do they differ?

12) Does your state have minimum staffing requirements for licensed and unlicensed staff in nursing facilities?
- ❑ No
- ❑ Yes ☞ 12a). Do you know what those minimums are?
  - ❑ No
  - ❑ Yes ☞ 12b). Do you think these minimums are adequate?
    - ❑ Yes ☞ 12c). Are they enforced?
      - ❑ Yes
      - ❑ No
    - ❑ No ☞ 12d). What do you think they should be?

13) Do you think the Federal government should mandate minimum staffing requirements?

- ❑ Yes. Please explain why.

- ❑ No. Please explain why.

14) Do you currently use, or have you in the past, used an acuity scale to determine staffing needs? If so, what measure did you use? Please also comment on its usefulness.

Problems & Solutions: Absenteeism

15) To what extent do last minute sick calls and no call/no shows affect staffing in your facility (on average)?

- ❑ BIG part of the problem
- ❑ part of the problem
- ❑ Small part of the problem
- ❑ not part of the problem

16) What methods/strategies do you currently employ to reduce absenteeism? Check all that apply.

- ❑ Rewards, bonuses, recognition for good attendance.
- ❑ Progressive discipline measures for excessive absenteeism.
- ❑ Requiring MD notes for sick calls
- ❑ Requiring staff to "make up" lost time, especially re: weekend sick calls
- ❑ Sick time buy-back programs
- ❑ Other

16a). How effective have these been? Do you plan any changes in the future?

17) How are sick calls handled?

17a). Who in the facility is responsible for receiving the calls and making any necessary staffing decisions?

17b). What kinds of options are available to this person for filling the slot? How does this vary by shift, by unit?

17c). Are all sick calls replaced or only those in excess of a certain number or on certain units, certain shifts?

17d). What number of sick calls, or below what ratio of residents to staff is considered critical?

17e). Do you currently use temporary help to replace sick calls?

Recruitment and Retention

18) To what extent is any existing or potential staffing shortage in your facility related to recruitment and/or retention problems?

- ❑ Most of the problem
- ❑ Some of the problem
- ❑ Small part of the problem
- ❑ Not part of the problem

19) What strategies do you currently employ to improve recruitment and retention? Check all that apply.

- ❑ Hiring bonuses for new employees
- ❑ Recruitment bonuses for current employees
- ❑ Recognition, rewards, bonuses for long term employees
- ❑ Generous benefits programs (vacation, sick time, health insurance, retirement plans) for long term employees
- ❑ Career ladders
- ❑ Free training programs for NA's
- ❑ Cooperative programs with vocational schools, nursing schools to provide clinical learning sites and opportunities for recruitment
- ❑ Special pay rates
- ❑ Shift and weekend differentials
- ❑ Benefit programs for part time employees
- ❑ Job fairs
- ❑ Offering special educational programs, ESL classes
- ❑ Other

20) How effective have these strategies been? Do you plan any changes in the near future?

Creative Solutions to Stretch Staff

Does you currently employ any of the following ways to "stretch" your existing staff? Check all that apply.

- ❑ Volunteers. If yes, how many and on what shifts?
- ❑ Family members. If yes, on average how many residents have family members who visit
  - 1-2 times/week
  - 3-5 times/week
  - 5 or more times/week
- ❑ Bed Makers, Bathers, etc. If yes, how many hours per week
- ❑ Assistance at mealtimes from licensed staff, administrator staff, social services, activity staff.
- ❑ Paid companions/private duty nursing for residents. If yes, how many residents have this?
- ❑ Overlapping shifts at critical times when more staff are needed

Conclusion:
I want to thank you very much for your time and assistance with our project. If there is anything else you would like to tell me about staffing as a general issue or about staffing in your facility, please feel free to do so. If there is something I didn't ask you that you wished I had, please also let me know that.

If upon further reflection, there is something you would like to add to the interview, I may be reached at (617) 349-XXXX.

Thank you again for your time.

APPENDIX D

Nurse Aide Focus Groups

Moderator=s Guide

My name is Allison Walker and this is my colleague Karen Toll. We=re from Abt Associates, a private research firm, specializing in health policy research for the Federal government. Our main offices are located in Cambridge, MA, and Washington, DC.

We currently have a contract with the Health Care Financing Administration (HCFA) to provide them with research that will help determine whether or not they should require a minimum number of nursing staff to residents in nursing facilities that have Medicare and Medicaid residents. Our project will utilize a great deal of data and information related to staffing and quality of care/quality of life. In addition to these data, the study will also collect information from the front line nursing facility staff (i.e., the direct care workers) who are the most qualified to tell us about how staffing affects quality of care and quality of life B you are the experts, which is why we want to talk to you about this important issue.

To that end, we are conducting a series of focus groups to talk to Nurse Aides about the issue of staffing. Focus groups are really just group discussions with everyone participating and offering their opinions on the topics being discussed. There are no right or wrong answers. Topics include how staffing decisions are made, how facility management responds to short staffing, the consequences of short staffing, how long it takes you to conduct certain activities such as feeding, and unique staffing practices you have experienced.

We ask that you be as open and honest as possible, and provide us with responses based on your entire experience as a Nurse Aide. Your name (or the name of your facility) will not be associated in any way with your responses to our questions, and you will not be identified in any report being submitted to HCFA. This discussion will be held confidential.

This session will last approximately 12 to 2 hours, and we greatly appreciate your willingness to give us your time and provide us with this valuable input to our study. We are providing you with $40 in return for your participation in this discussion group. So before you leave, we will need to fill out the form to receive your money, which we will give you in cash at the end of the session.

Opening warm-up question (10 minutes)

I would like us to go around the table and have each person tell us your name, where you are from (city/state) and how long you=ve have been at your current facility. Please also tell us how long you=ve been a NA and why you decided to become a NA.@

Ask if anyone has a job title other than Nurse Aide, such as Resident Aide/Resident Assistant or Nurse Assistant. Follow-up by asking what the different job title means to them.

Staffing Schedule Determinations (20 minutes)

How is staffing determined in your nursing facility? Do you think this process is adequate?@

Probes: *Who determines staffing, i.e., # of staff on a shift, # of NAs, where each staff member will work, etc. (DON, NA Team Leader, etc.)*
When is the schedule determined?
What is the schedule based on (i.e., previous week=s schedule, facility standards, employee input, etc.)?

What kind of flexibility do you have in determining your schedule (i.e., how much control do you have over your own schedule?).@

What if <u>you</u> need to make a change in the schedule?@

Probes: *What must you do to get the schedule changed?*
How easy is it to change the schedule?

What if <u>the facility</u> needs to make a change in the schedule? How is this handled at your facility?@

Probes: *management asks for volunteers to work additional/different shifts*
lowest seniority is required to work additional shifts
use agency staff if no employees available to cover change
Offer incentives to employees to work extra shifts

What happens when staff call in sick, i.e., how does facility management deal with being short staffed?@ How do they staff up to a normal/usual level?@

Probes: *use agency/per diem staff*
Have employees work double shifts
Continue the day being short staffed

When do you usually find out that your shift/unit is presently short staffed?@

Probes: *when you show up for work*
Prior to coming to work

Is absenteesim a problem in your facility?@

If yes, AWhy do you think NAs are absent?@

Probes: *too tired from previous shift to work*
No input into the schedule so can=t often work when scheduled
Transportation problems to/from work
Home/family situation is problematic

What do you think facility management could do to reduce absenteeism?@

Probes: *offer financial incentives*
Bonuses for not using sick leave
Allow staff more input into the schedule
Involve NAs in care planning
Career ladders

General Staffing Questions (20 minutes)

What shift do you currently work? How many residents are you (typically) responsible for on that shift? Do you think that is too many, just enough, or could you care for more? Are you able to do what is needed in the time available?

Are staffing assignments (i.e., shift, unit, etc.) consistent/permanent?

What things do you differently when working a short staffed shift or unit (i.e., what gives first)?

Probes: *bathing, grooming, etc.*
spending time with residents
documentation
interaction with other staff
attending care planning conferences

Which aspects of care/quality of life suffer the most from short staffing?

Probes: *residents are not turned and positioned*
Residents don=t get water
residents are not toileted frequently enough
residents are not fed properly and with care
residents are not ambulated
residents do not have their hygiene needs met
residents miss their baths
residents miss activities, opportunities for recreation/socialization

Which types of residents are most likely to receive less care when the shift/unit is short staffed?

Probes: *demanding residents*
Confused residents
Bedfast residents
Young residents
Elderly residents
Residents with complex care needs

What happens to residents when the facility is short staffed? What do you see?

Probes: *weight loss*
malnutrition
dehydration
bed sores
incontinence
decreased range of motion
less communicative/more withdrawn/appathetic
death

How is this lack of care reported, i.e., how is this discussed bewteen NAs and their supervisors? Is a plan developed to address these problems?

Unique Staffing Practices (10 minutes)

Is there anything your current facility does that is unique regarding staffing?

Probes: *overlapping shifts*
more staff on at mealtimes
Use of volunteers

If yes, how do these things affect quality of care? How do they affect your job or the way you feel about your job?

Have you experienced any staffing practices that make providing care more difficult?

Time it Takes to Feed Residents (20 minutes)

The following series of questions focus on how long it takes to feed residents. And while we could ask similar questions for activities such as bathing, dressing toileting, transferring and grooming, we really only have time to discuss one activity. As such, we decided to focus on feeding since it is such an important and time consuming part of the Nurse Aide=s day.

How many residents do you typically have to feed at mealtimes? Is that workable? Are there residents you feel need assistance but don=t get it?

How much time do you get to feed residents?

Probe for differences between types of residents, i.e., those without feeding/swallowing problems but needing some assistance, those with feeding problems and needing some assistance, those who need total assistance, etc.

How is your helping residents eat their meals affected by procedures in your facility?

Probes: *NAs have to deliver trays to resident rooms*
All residents must be fed in the dining room

Do you feel the time you get to feed the residents is adequate? If not, how much time would you (reasonably) like to have?

Probe for differences among types of residents (i.e., minimal assistance, full assistance, feeding/swallowing problems, etc.)

Changes in Resident Acuity and Staffing (5 minutes)

Has the acuity of residents in your facility changed over the last three years? If yes, how are the residents different now?

How has this change in acuity affected the way you do your job and/or the way you feel about your job?

Has staffing changed since the acuity changed? In what ways?

Do you feel you and the other Nurse Aides have the time and training necessary to care for these sicker residents? What training do you need, i.e., what do you need to know that you don=t now know?

Concluding Question (5 minutes)

What do you like best about being a NA? What is the most difficult aspect of being a NA?

*** At the end of the session before everyone leaves, ask the participants if they have any questions for Allison or Karen.

APPENDIX E

Medicaid Cost Report Data

Medicaid Cost Report data were obtained directly from New York, Texas, and Ohio for the years 1995, 1996 and 1997. Because the Medicaid Cost Report data for these three states reported hours for Directors of Nursing, RNs, LPNs, and nurses aides hours, it was relatively straightforward to create measures of nursing hours of resident day. The tables below show how measures of nursing hours per resident day were created using the Medicaid Cost Report data from the three states.

Facilities report their costs annually to their state reimbursement agency, and states may use penalties against facilities misreporting data. Because the cost reports are desk audited and associated with facility reimbursement and because there are punitive measures associated with misrepresenting information, the Medicaid cost report data are considered quite accurate.

New York

New York Medicaid (T19) data	*General conversion: convert facility level staff time to staffing hours per resident day*
NYRNPRD	Number of RN hours worked per year at the residential health care facility (A0146051) divided by the patient days for the year in the residential health care facility (A0094051)
NYLPNPRD	Number of LPN hours worked per year at the residential health care facility (A0148051) divided by the patient days for the year in the residential health care facility (A0094051)
NYAIDPRD	Number of Aide hours worked per year at the residential health care facility (A0150051) divided by the patient days for the year in the residential health care facility (A0094051)
NYTOTPRD	Sum NYRNPRD, NYLPNPRD and NYAIDPRD

Ohio

Ohio Medicaid (T19) data	*General conversion: convert facility level staff time to staffing hours per resident day*
OHRNPRD	Number of RN hours worked for the year at the nursing facility divided by the patient days for the year (DE_10440). Not including RN DON hours. Variables are RN charge nurses, DE_54140 and DE_54150, and other RNs DE_54220 and DE_54230.
OHLPNPRD	Number of LPN hours worked per year at the nursing facility divided by the patient days for the year (DE_10440). Not including LPN DONs. Variables are LPN charge nurses, DE_54180 and DE_54190, and other LPNs, DE_54260 and DE_54270.
OHAIDPRD	Number of Aide hours worked per year at the nursing facility divided by the patient days for the year (DE_10440). Aide Variables are DE_54300 and DE_54310.
OHTOTPRD	Sum OHRNPRD, OHLPNPRD and OHAIDPRD

Texas

Texas Medicaid (T19) data	*General conversion: convert facility level staff time to staffing hours per resident day*
TXRNPRD	Number of RN hours worked per pay period at the nursing facility (1995/96: r355; 1997: r367) divided by the patient days for that pay period (1995/96: r385 1997: r364)
TXLPNPRD	Number of LPN hours worked per pay period at the nursing facility (1995/96: r359; 1997: r369) divided by the patient days for that pay perios (1995/96: r385; 1997: r364)
TXAIDPRD	Number of Aide hours worked per pay period at the nursing facility (1995/96: r363; 1997: r373) divided by the patient days for that pay perios (1995/96: r385; 1997: r364)
TXTOTPRD	Sum TXRNPRD, TXLPNPRD and TXAIDPRD

APPENDIX F

APPENDIX F

Table F1 Diagnoses and covariates used for hospital transfer measures

Quality Measure	ICD-9-CM	Covariate	ICD-9-CM
Respiratory infections	466.0; 480.0-487.8; 507.0	COPD; Chronic asthmatic bronchitis; Emphysema; Asthma; Bronchiectasis; Dysphagia	491.0-492.8; 493.0-494; 496; 787.2
Sepsis	038.0-038.9	Diabetes; Cancer; HIV	250.00-250.91; 140-208.9; 042; 795.71
UTI	590.00-590.9; 595.89; 595.0-595.4+; 595.89; 595.9; 597.0; 598.00; 598.01; 599.0; 601.0-604	Diabetes; Quadriplegia; Paraplegia; Coma; Urinary retention	250.00-250.91; 344.0; 344.1; 780.0; 788.2
Electrolyte imbalance	276.0-276.9	CHF; RF; HTN with RF and/or CHF	428.0-428.9; 398.91; 584.5-586; 402.01-402.11; 402.91; 403.01; 403.11; 403.91; 404.01-404.03; 404.11-404.13; 404.91-404.93
CHF	428.0-428.9; 398.91	Diabetes; Chronic respiratory disease	250.00-250.91; 491.0-492.8; 493.0-494; 496

Table F2 Distributional characteristics of staffing and quality measures for 1997

Measure	Minimum	First Quartile	Median	Third Quartile	Maximum
New York					
Staffing (in hours per resident day)					
Aide	0.18	1.82	2.08	2.27	3.01
LPN	0.03	0.45	0.61	0.77	1.42
RN	<0.01	0.18	0.29	0.42	2.27
RN+LPN	0.22	0.75	0.92	1.08	3.69
Quality Measures (% of admissions hospitalized due to each condition)					
CHF	0	3.17	5.24	8.05	25.64
Electrolyte imbalance	0	3.13	5.68	8.51	23.88
Respiratory infection	0	2.33	4.33	7.17	21.88
UTI	0	2.04	3.94	6.48	18.52
Sepsis	0	0	1.40	3.17	15.91
New York, Ohio, and Texas					
Staffing (in hours per resident day)					
Aide	0	1.68	1.98	2.27	5.29
LPN	0	0.54	0.70	0.86	2.67
RN	0	0.15	0.30	0.49	8.51
RN+LPN	0.22	0.81	1.00	1.23	11.07
Quality Measures (% of admissions hospitalized due to each condition)					
CHF	0	3.75	6.16	8.82	28.07
Electrolyte imbalance	0	3.87	6.59	9.58	28.00
Respiratory infection	0	2.74	4.69	7.31	30.95
UTI	0	2.56	4.69	7.25	28.81
Sepsis	0	0	1.72	3.41	15.91

Table F3 Barthel index matched to MDS + (version 12/90 B and 92)

ADL	Barthel Score		MDS + 90B Variable	MDS + 92 Variable
Feeding	10	Independent	h1e = 0	h1e = 0
	5	Some help	h1e = 1,2	h1e = 1,2
	0	Dependent	h1e = 3,4,8	h1e = 3,4,8
Transfer	15	Independent	h1b = 0,1	h1b = 0,1
	10	Minimal assistance or stand-by assistance	h1b = 2	h1b = 2
	5	Moderate to maximum	h1b = 3	h1b = 3
	0	Dependent	h1b = 4,8	h1b = 4,8
Grooming	5	Independent	h1g = 0,1	h1g = 0,1
	0	Assistance	h1g = 2,3,4,8	h1g = 2,3,4,8
Toileting	10	Independent	h1f = 0,1	h1f = 0,1
	5	Some help	h1f = 2	h1f = 2
	0	Assistance	h1f = 3,4,8	h1f = 3,4,8
Bathing	5	Independent	h3a1 = 0,1	h4a1 = 0,1
	0	Assistance	h3a1 = 2,3,4,8	h4a1 = 2,3,4,8
Walking	15	Independent for 50 yards	h1c = 0 and h6c= 0	h1c = 0 and h8c = 0
	10	Minimal assistance for 50 yards	h1c = 1,2	h1c = 1,2
	5	Independent in wheel chair	h1c = 0,3,4,8 and h6c = 1	h1c = 0,3,4,8 and h8c = 1
	0	Dependent	h1c = 3,4,8 and h6c = 0	h1c = 3,4,8 and h8c = 0
Dressing	10	Independent	h1d = 0,1	h1d = 0,1
	5	Some help	h1d = 2	h1d = 2
	0	Dependent	h1d = 3,4,8	h1d = 3,4,8
Bowel	10	Independent	i1a = 0	i1a = 0
Continence	5	Help with suppository	i1a = 1,2	i1a = 1,2
	0	Dependent	i1a = 3,4	i1a = 3,4
Bladder	10	Independent	i1b = 0	i1b = 0
Continence	5	Occasional incontinence/some assistance	i1b = 1,2	i1b = 1,2
	0	Dependent	i1b = 3,4	i1b = 3,4

Table F4 Distributional characteristics of staffing and quality measures for 1996

Quality Measure	Minimum	First Quartile	Median	Third Quartile	Maximum
New York					
Staffing (in hours per resident day)					
Aide	0.19	1.81	2.05	2.23	3.23
LPN	0.02	0.43	0.59	0.74	1.17
RN	0.01	0.19	0.30	0.43	1.43
RN+LPN	0.11	0.76	0.90	1.06	1.65
Quality Measures (% of residents with each outcome)					
Incident pressure ulcers (Stage 2-4)	0	3.24	4.89	6.48	14.63
Functional improvement	0	6.83	11.13	18.10	66.67
Resisting care improvement	0	11.11	28.57	50.00	100.00
Ohio					
Staffing (in hours per resident day)					
Aide	0.55	1.89	2.17	2.47	4.97
LPN	0	0.59	0.73	0.93	2.48
RN	0	0.34	0.46	0.61	3.73
RN+LPN	0	1.04	1.22	1.43	5.41
Quality Measures (% of residents with each outcome)					
Incident pressure ulcers (Stage 2-4)	0	2.02	3.52	5.37	15.22
Functional improvement	0	4.76	7.33	10.71	38.46
Resisting care improvement	0	8.33	20.00	37.50	100.00

Table F5 Distributional characteristics of staffing and quality measures for primary data

Measure	Minimum	First Quartile	Median	Third Quartile	Maximum
Staffing (in hours per resident day)					
Aide	0.71	1.55	1.92	2.42	3.96
LPN	0.09	0.41	0.62	0.80	1.75
RN	0.06	0.28	0.48	0.67	1.04
RN+LPN	0.52	0.84	1.09	1.29	2.33
Quality Measures (% of admissions hospitalized due to each condition)					
Significant weight loss	0	5.13	8.33	14.71	28.95
Unclean and/or ungroomed	0	2.50	5.26	10.00	45.00

APPENDIX G

DEPARTMENT OF HEALTH & HUMAN SERVICES
Health Care Financing Administration

Center for Medicaid and State Operations
7500 Security Boulevard
Baltimore, MD 21244-1850

December 6, 1999

2349 S. Four St.
Fort Lewis, WA. 98433

Dear Lt. Col. Richard Harper,

You will find enclosed a very brief description of a study we are conducting for a Report to Congress on the appropriateness of nursing home minimum nurse staffing ratios. As part of this study, we are reviewing the relevance of already developed nurse staffing systems. You have been referred to us as someone who is familiar with one such system, the US Army Workload Management System for Nursing (WMSN). As part of our review, we would like to receive from you a written response to three fundamental questions about the WMSN. After we receive your response, we would like to call you and ask a few follow-up questions. The questions are:

1. What is your position, role, or function with respect to the WMSN? How familiar are you with this system?
2. What is the evidence supporting this system? Most important, can you send or refer us to a key article, report, or document that provides the supporting evidence?
3. Do you think the WMSN is applicable to the impaired population typically found in U.S. nursing homes?

As you may know from recent newspaper articles and television reports, there is heighten concern about staffing problems in nursing homes. Although we do not make any presumptions about the study's conclusions and possible recommendations, we expect it will lead to improvement in this area. To that end, your assistance in providing information on the WMSN is important for completing a truly comprehensive study.

We are on a tight schedule with the various sections of our report and hope to receive your response to our three questions sometime before January 7, 2000. A brief letter should not take much time. If more convenient, an e-mail message would also be sufficient. Should you have any questions or concerns that you would like to discuss with us, we may be reached at the numbers listed below. Thank you in advance for your assistance.

Sincerely,

Marvin Feuerberg, Ph. D.
Analyst
(410) 768-6520; mfeuerberg@hcfa.gov

Susan Joslin, RN, MSN
Nurse Consultant
(410) 786-3516; sjoslin@hcfa.gov

DEPARTMENT OF HEALTH & HUMAN SERVICES
Health Care Financing Administration
Center for Medicaid and State Operations
7500 Security Boulevard
Baltimore, MD 21244-1850

December 7, 1999
97 Main Street
New Ipswich, NH 03071

Dear Mr. Thoms,

You will find enclosed a very brief description of a study we are conducting for a Report to Congress on the appropriateness of nursing home minimum nurse staffing ratios. As part of this study, we are reviewing the relevance of already developed nurse staffing systems. You have been referred to us as someone who is familiar with one such system, a AManagement Minutes≅ system. As part of our review, we would like to receive from you a written response to three fundamental questions about this system. After we receive your response, we would like to call you and ask a few follow-up questions.
The questions are:

1. What is your position, role, or function with respect to the development and utilization of the Management Minutes system?

2. What is the evidence supporting this system? Most important, **can you send or refer us to a key article, report, or document that provides the supporting evidence?**

3. Do you think the Management Minutes system is applicable to the impaired population typically found in U.S. nursing homes?

As you may know from recent newspaper articles and television reports, there is heighten concern about staffing problems in nursing homes. Although we do not make any presumptions about the study=s conclusions and possible recommendations, we expect it will lead to improvement in this area. To that end, your assistance in providing information on the Management Minutes system is important for completing a truly comprehensive study.

We are on a tight schedule with the various sections of our report and hope to receive your response to our three questions sometime before January 7, 2000. A brief letter should not take much time. If more convenient, an e-mail message would also be sufficient. Should you have any questions or concerns that you would like to discuss with us, we may be reached at the numbers listed below. Thank you in advance for your assistance.
Sincerely,
Marvin Feuerberg, Ph.D. Susan Joslin, MSN

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