

Analyses on Outcomes of Increased Nurse Staffing Policies in Florida Nursing Homes: Staffing Levels, Quality and Costs (2002-2007)

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Executive Summary

Section 6 of House Bill (HB) 5003 requires the Agency for Health Care Administration (AHCA) to “study the effects of the minimum nursing home staffing ratios found in s. 400.23(3), Florida Statutes, and the relationship to Medicaid reimbursement and the quality of care provided to residents. The agency shall report its findings to the Governor, the President of the Senate, and the Speaker of the House of Representatives by February 1, 2009.” Researchers from the University of South Florida’s Florida Policy Exchange Center on Aging, the University of Florida’s College of Health Professions and Texas A&M contracted with the Agency for Health Care Administration to prepare a preliminary report in March. This final report provides some additional analysis using data on quality measures. Finally, this report builds on research supported by earlier grants from the Commonwealth Fund and the Administration on Aging. The authors gratefully acknowledge their support.

This report finds evidence that quality of care has substantially improved in Florida nursing homes since the introduction of increased nurse staffing levels and other quality standards since 2001. Average deficiencies per facility have decreased. Importantly, the citations for the more serious deficiencies have decreased dramatically and remain lower than the national average. Measures of resident care outcomes have improved in 2007 after the new staffing standards of 2.9 hours per resident day were instituted. The quality measures indicate there is a 22% decrease in average facility restraint use but a surprising 22% increase in residents with bladder incontinence. The other quality measures studied (decline in activities of daily living, pressure sore development, and bowel worsening) did not show a statistically significant difference from 2004-2006 baseline period until 2007, when the new staffing standards were instituted.

Studies of nurse staffing have repeatedly demonstrated that quality of care is impacted by nurse staffing but the findings vary by the outcome measures used and by the way nurse staffing is measured. A recent review of the studies linking staffing and quality confirms that the strongest research suggests poor quality of care is linked to inadequate staffing levels, but acknowledges that studies do not uniformly find increased nurse staffing always improves quality of care. Minimum staffing levels are needed before facilities can implement high quality resident outcomes, but the staff must be managed well with careful oversight if consistent quality outcomes are to be achieved. One consistent finding is that higher Registered Nurses (RN) levels are associated with lower number of falls, fewer pressure ulcers, and other patient care outcomes that indicate better quality

of care. Despite increasing resident acuity, RN hours per resident day in Florida have decreased. This is a national trend. However, in 2007, RN staffing in Florida averaged 16.2 minutes a day (0.28 hours of care per resident day). This is 36% of the Institute of Medicine and Centers for Medicare and Medicaid Services' optimal level of 45 minutes of RN staffing per resident day and 62% of the CMS preferred level of 27 minutes of registered nurse patient care per resident day.

This report indicates 8,405 new certified nursing assistants and 3,543 new nurses have been employed in Florida nursing homes since the 2002 staffing standards were imposed. However, in the third quarter of 2008, average staffing decreased after the Legislature ordered the Agency not to impose sanctions on facilities staffing at levels below 2.9 but above 2.6.

Quality in this report is measured by violations nursing home surveyors find as they routinely inspect nursing homes. It is important to note that the average number of quality of care deficiencies, quality of life and total quality deficiencies per facility are below the national rates from 2002-2007. Analysis of citations for facilities voluntarily staffing above 2.9 prior to 2007 indicates that these facilities have fewer citations per facility on average than facilities staffing below the 2.9 standard.

A significant change in the mix of citations has occurred since the new staffing standards have been implemented. Citations include measures of the seriousness of the violation and how widespread the practice of poor care is within the nursing home. Citation issues for actual resident harm have dropped substantially. In 2002, the percent of facilities receiving a citation for harm decreased dramatically from 21.1% of all facilities in 2001 to 9.9% of facilities. In 2004 and 2005, only 5.9% of Florida nursing homes received a deficiency for actual harm or immediate jeopardy of residents. Florida's averages for these serious deficiencies are lower than the national averages and the improvement in performance follows the introduction of Senate Bill (SB) 1202 in 2001.

Improvements in quality measures after Florida implemented its requirement of 2.9 CNA hours per resident day suggest that the percentage of residents with restraints has decreased significantly by 22%. However, the percentage of residents with bladder incontinence worsening has increased by 22% on average per facility. Increased incontinence despite higher CNA staffing is not expected. Other quality measures have not demonstrated a statistically significant change. Further analyses are warranted to examine the variation in quality within the state.

Medicaid nursing home reimbursement grew from an average per diem payment in January 1999 of \$102.38 to the January 2008 level of \$177.06 per diem. Within the reimbursement rate, the fastest growing component was direct patient care costs. Given the dramatic required growth in staffing, direct patient costs have increased 94% from \$66.94 to \$129.68 per Medicaid day. Overall, Medicaid per diem payment has increased 73%. Nursing home providers' cost reports indicate they are reimbursed for 92.78% of their current direct patient care costs, up 1.37% from 91.41% in 2007.

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Background and Conceptual Framework

Residents of nursing homes and their family members know that the number and type of nursing staff who provide care impact the quality of care delivered. The Centers for Medicare and Medicaid Services (CMS) report on minimum staffing thresholds demonstrated “strong evidence of the link between very low staffing and poor quality outcomes.”¹ Yet, CMS was unwilling to recommend minimum staffing levels in nursing homes for both political² and technical³ reasons.

With the Omnibus Budget Reconciliation Act (OBRA) of 1987, the federal government set minimum numbers of nurses and levels, or “type” of nurse per resident, in long-term care facilities. Since the first standards were set, consumers, researchers, and legislators at the state and federal level have urged the establishment of higher minimum standards and specific standards for nurses by licensure status. The Institute of Medicine (IOM) reports concerning quality in long-term care in 1996 and 2001 reiterated the research-based link between higher nurse staffing and better resident outcomes and urged new staffing levels⁴. CMS’s study on Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes concluded that for long-term care facilities, the number and skill level of nurses, as indicated by licensure level – e.g., registered nurse (RN), licensed practical nurse (LPN), or certified nursing assistant (CNA) – had a direct and positive relationship with the quality of resident care as measured by resident assessment data routinely collected and reported to state and federal agencies. CMS identified minimum and preferred staffing thresholds for long-stay patients per resident per day (prpd) to avoid poor patient care outcomes such as new pressure ulcer development and weight loss⁵. The CMS report provided staffing levels of minimum level to avoid harm, preferred minimum level, and optimal level, and argued that these nurse staffing levels were associated with the quality of nursing home care. In 2004 the Institute of Medicine (IOM) recommended a staffing level of 45 minutes per resident per day but that included some

¹ Centers for Medicare and Medicaid Services. Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes. Report to Congress: Phase II Final Report December 24, 2001. p. 1-19.

² Politically, the cost estimates for staffing mandates for nursing homes ranged from \$2.6 billion to \$7.6 billion in new monies depending upon the recommended staffing levels; additionally, the Federal government would be the primary insurer with Medicaid paying approximately 69% of the costs and Medicare paying another 7%. Ibid. Chapter 11, p. 11-1—11-4.

³ Technical concerns focused on inaccurate Online Survey Certification and Reporting (OSCAR) staffing data, concerns about measuring the quality impact of long-term care and the inability to control for management strategies and provider efficiencies in long-term care. Ibid. p.1-19-1-22.

⁴ Wunderlich, G.S., & Kohler, P.O. (Eds.). (2001). Improving the quality of long-term care. Washington DC: National Academy Press.

⁵ Centers for Medicare and Medicaid Services. Appropriateness of Minimum Nurse Staffing Ratios in Nursing homes Report to Congress: Phase II Final report December 24, 2001. p.2-17

administrative and managerial tasks in addition to direct patient care. Table 1 compares the recommended nurse staffing minimum levels established in Florida with the federal CMS levels and staffing standards recommended by a group of long-term care experts convened by the Hartford Foundation’s Geriatric Nursing Center⁶.

Table 1: Comparison among Nursing-Staff-to-Resident Minimum Ratios

| Staffing Proposals | NA | Licensed Nurse | | Total Hours |
|--|-----------|-----------------------|-----------|--------------------|
| Florida’s 2.6 minimum (2002 - 2006) | 2.6 | 1.0 | | 3.6 |
| Florida’s 2.9 average minimum (2007-6/2008) | 2.9 | 1.0 | | 3.9 |
| National Citizen’s Coalition for Nursing Home Reform (NCCNR) | 2.93 | 1.2 | | 4.13 |
| John A. Hartford Foundation of Geriatric Experts | 2.93 | 1.2 | | 4.55† |
| | NA | LPN | RN | Total Hours |
| CMS Minimums | 2 | 0.55 | 0.20 | 2.75 |
| CMS Preferred Minimums | 2 | 0.55 | 0.45 | 3.0 |
| CMS Optimal Minimums | 2.9 | 0.45 | 0.75 | 4.1 |
| Actual Staffing Levels USF Analysis of Florida Nursing-Staff-to-Resident Ratios* | NA | Licensed Nurse | | Total Hours |
| 2002 | 2.49 | 1.15 | | 2.64 |
| 2003 | 2.71 | 1.14 | | 3.85 |
| 2004 | 2.73 | 1.16 | | 3.89 |
| 2005 | 2.73 | 1.18 | | 3.91 |
| 2006 | 2.76 | 1.20 | | 3.96 |
| 2007 | 2.98 | 1.21 | | 4.19 |

†= Total includes 0.29 for administrative nursing which is not considered in other levels

*= Data from the Florida Nursing Home Staffing Report

⁶ Harrington, C., Kovner, C., Mezey, M., Kayser-Jones, J., Burger, S., Mohler, M., Burke, S. & Zimmerman, D. (2000) Experts recommend minimum nurse staffing standards for nursing homes in the United States. *The Gerontologist*: 40, 5-16.

The CMS studies⁷ recognized that the relationship between staffing and quality of care is complex and were only able to demonstrate the staffing level below which quality was certainly threatened. Factors limiting studies of quality and staffing include: 1) the reliability of the nursing home level nurse staffing data; and 2) the “perpetual shifting” of quality measures.

Studies of nurse staffing have repeatedly demonstrated that quality of care is impacted by nurse staffing but the findings vary by the outcome measures used and by the way nurse staffing is measured. In a review of the studies linking staffing and quality, Castle⁸ confirms that the strongest research suggests that poor quality of care is linked to inadequate staffing levels but acknowledges that studies do not uniformly find increased nurse staffing always improves quality of care.

The mix of staffing, the proportion of registered nurses versus paraprofessional staff, has also been linked to patient outcomes. A consistent finding is that higher numbers of RNs impact patient care but the precise ratio of RNs for specific quality outcomes is unclear. Analyzing data on RN staffing levels and outcomes of long-stay nursing home residents, researchers hypothesize that RNs influence quality by providing expertise in direct care and evaluation⁹. Anderson & Lawhorne¹⁰ found that nursing homes with the best average outcomes and the greatest improvement in outcomes had a richer skill mix of RNs than those with a lower mix. The pattern of improved outcomes was consistent for the percentage of residents with aggression, restraints, pressure ulcers, dehydration, urinary tract infections (UTIs), and fracture. Bliesmer, Smayling, Kane, & Shannon¹¹, in a study of newly admitted nursing home residents, found improved functional ability, higher rates of discharge to home, and lower rates of mortality were related to number of licensed staff hours (RN and LPN) versus number of nonlicensed hours (nursing aides). For RN staffing, Johnson, et al., indicated that lower staffing was related to higher rates of lawsuits in Florida¹². Schnelle,¹³ in an editorial on the relationship between staffing and quality, argues that studies must focus on good care processes; minimum staffing levels are needed before facilities can implement

⁷ Centers for Medicare and Medicaid Services. Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes, Report to Congress: Phase II Final report December 24, 2001.

⁸ Castle, N.G. (2008). Nursing Home Caregiver Staffing Levels and Quality of Care: A Literature Review. *Journal of Applied Gerontology*, 27(4) 375-405.

⁹ Horn, S.D., Buerhaus, P., Bergstrom, N., & Smout, R.J. (2005). *American Journal of Nursing*, 105(11) 58-70.

¹⁰ Anderson, R., & Lawhorne, L. (1999). Variations in staffing and resident care patterns in Michigan nursing homes, *Annals of Long-Term Care*, 7(11), 399-404.

¹¹ Bliesmer, M.M., Smayling, M., Kane, R.L., & Shannon, I. (1998). The relationship between nurse staffing levels and nursing home outcomes, *Journal of Aging and Health*, 10(3), 351-371.

¹² Johnson, C. E., Dobalian, A., Burkhard, J., Hedgecock, D. K., & Harman, J. (2004) Factors predicting lawsuits against nursing homes in Florida 1997-2001. *The Gerontologist*: 40(3), 339-347.

¹³ Schnelle, J.F. (2004). Determining the relationship between staffing and quality. *The Gerontologist* 44, 10-12.

high quality resident outcomes, but staff must be managed well with careful oversight if consistent quality outcomes are to be achieved.

Florida's Nurse Staffing Legislative Summary

The Florida Legislature has been concerned about the quality of care in nursing homes for years, but beginning with HB1971, passed in 1999, Florida began developing a national reputation for State policy focused on nursing home quality. HB1971 instituted regular, unannounced quality-of-care monitoring by state officials, release of information about all state licensed nursing homes via a public Internet site, development of a "Gold Seal Program" to recognize facilities with outstanding care, and funding of a pilot teaching nursing home project to promote statewide development of best practices.

Building on HB1971, the Florida Legislature crafted a nursing home reform bill (SB1202, 2001) requiring staffing mandates, tort reform, increased regulatory oversight, and initiated a moratorium on new nursing home beds. The State's landmark nursing home legislation, SB1202 created Florida's reputation as the state with the highest nurse staffing standards in the country. It is important to recognize nursing home staffing ratios are a concern in most states. Florida is one of 33 states that, between 1999 and 2007, adopted minimum staffing standards with the express intent to improve quality of care¹⁴.

While the focus of this report is on the impact of staffing levels on quality of care in Florida nursing homes, it is imperative to recognize mandated nurse staffing levels are only one part of a comprehensive quality initiative Florida enacted. The Legislature's commitment to improving nursing home quality has been substantial. There has also been a sustained commitment to quality through increased Medicaid funding to pay for new staffing, rigorous enforcement of standards, increased fines when facilities do not comply with standards, tort reform and public reporting requirements that increase provider accountability and allow the public, including residents and their families, to track the quality of excellent and average care. The Gold Seal Program publicizes nursing homes that meet the highest standards and holds up these homes as potential models of quality care. AHCA also operates the Quality of Care Nurse Monitor program that enables nurses to assist nursing homes in improving care by educating staff on best practices. The Teaching Nursing Home, before all funds were cut in 2007, provided homes with free web-based training and

¹⁴ Harrington, C. 2008. Nursing Home Staffing Standards in State Statutes and Regulations. San Francisco, CA: University of California.

developed a series of best practice modules on dementia care, pain, reducing falls, and other efforts to improve quality of nursing home care. However, the Florida Health Care Association's Quality Credentialing Program, established as a result of SB1202, has targeted onsite interventions through an "early warning system" for nursing homes for quality improvements and continues to disseminate the materials developed.

Over the course of the past ten years, Florida has paid for quality improvements in increased nurse staffing in the direct care cost component of Medicaid reimbursement. Medicaid nursing home reimbursement grew from an average per diem payment in January 1999 of \$102.38 to the January 2008 level of \$177.06 per diem. Within the reimbursement rate, the fastest growing component is direct patient care costs. Given the dramatic required growth in staffing, direct patient care costs have increased 94% from \$66.94 to \$129.68 per Medicaid day. Overall Medicaid per diem payment has increased 73%. Nursing home providers' cost reports indicate they are reimbursed for 92.78% of their current costs, up 1.37% from 91.41% in 2007. Despite the increased reimbursement for staffing, according to cost reports, providers lose money each day providing care to Medicaid residents.

The first State effort to improve staffing was an innovative financial incentive program allocating \$40 million annually to fund the Direct Care Staffing Adjustment (DCSA). The DCSA was the first legislation that required nursing homes applying for incentive funds to divide patient care expenses into direct and indirect patient care costs. These new cost centers were required when the direct care staffing standards were mandated beginning in 2002. Florida had been a recognized national leader in nursing home quality because it had the highest nursing home staffing in the nation, pays for the costs of staffing requirements through Medicaid increases, requires reports to track compliance with regulations, enforces legislative standards, imposes high fines for repeated infractions, and requires AHCA to publish reports on many aspects of quality of care.

Table 2 provides a timeline of the Florida legislative initiatives to increase nursing home staff over a nine-year period. We begin this review of nurse staffing initiatives with HB1971 (1999). HB1971 created the Direct Care Staffing Adjustment (DCSA), a Medicaid financial incentive for nursing homes to hire additional CNAs and LPNs, and/or increase the wages or benefits of direct care staff. Providers agreeing to increase the absolute amount of total direct care spending received an add-on to the Medicaid per diem rate. Approximately \$40 million was appropriated: \$7.9 million for April 1 to June 30, 2000; \$31.7 million (annualized cost) for July 1, 2000, to June 30, 2001. The final incentive rules allowed both a minimum add-on of 50 cents per Medicaid day for all Medicaid

providers, at an annual cost of nearly \$8 million (25% of the appropriation) and a distribution of the remaining \$23.7 million in incentive, funds (75% of the total) to providers with the lowest staffing. As a result of this initiative, the average daily Florida Medicaid reimbursement was increased 1.8% on average or \$1.96 add-on to the daily Medicaid payment rate. Over 90% of the nursing homes in the state applied for the funds and the AHCA evaluation of spending indicated the money was spent on direct care staff as allowed in the legislative language.

As incentive payments were being implemented, the Legislature in 2000 created a Task Force on Affordability and Availability of Long-Term Care to assess the quality of care in nursing homes, study concerns about increased lawsuits against nursing homes and declining availability of nursing home liability insurance, and analyze the availability of home and community-based services. The compromise legislation crafted by Senator Brown-Waite resulting from the Task Force's work, SB1202 (2001), mandated minimum nurse staffing ratios, increased nursing home regulation, and included tort reforms and reduced attorneys' fees. As Table 2 summarizes, the staffing mandate stipulated a one-time increase of 0.4 in hours for licensed staff to 1.0 hours per resident day (HPRD), a tiered increase in CNA hours (to 2.3 HPRD in 2002, 2.6 HPRD in 2003, and 2.9 HPRD in 2004), and mandated minimum staffing ratios of one CNA per 20 residents and one licensed nurse, LPN, or RN per 40 residents. The increases in 2002 and 2003 were approved and new monies were allocated to pay for those direct care staff increases.

Budget concerns repeatedly delayed the requirement to increase the minimum hours of direct care provided by certified nursing assistants to 2.9 hours per resident day. In 2006, the Legislature required the 2.9 certified nursing assistant staffing levels effective January 1, 2007. The final 2007 language included an important modification that calculated a minimum *weekly* average for certified nursing assistant staffing of 2.9 hours of direct care per resident per day with a *daily minimum* never to be below 2.7 hours of direct care per resident per day. A week was defined as Sunday through Saturday and allowed providers much more flexibility in meeting the standard. The legislative estimated cost for Medicaid's portion of the 2.9 staffing increases was \$21.2 million and was in addition to other cost-based rate increases. Given the fiscal crises facing the State in 2008, Medicaid payments to nursing homes were reduced. Because of the Medicaid reductions, the Legislature also directed the Agency not to enforce the 2007 standard (2.9 hours per resident day over a week with daily rates never to be lower than 2.7 hours) until July 2009. However, homes had to maintain the 2003 standard of a minimum of 2.6 hours per resident day.

Purpose of the Study

In 2008, Section 6 of HB5003 required the Agency for Health Care Administration to “study the effects of the minimum nursing home staffing ratios found in s. 400.23(3), Florida Statutes, and the relationship to Medicaid reimbursement and the quality of care provided to residents.” These findings are reported in four sections:

- 1) Nursing home direct care staffing. What has been the impact of the staffing increases in nurse staffing levels in Florida on numbers of new direct care staff, hours per resident day, mix of nurse staff and turnover?
- 2) Quality of nursing home care-deficiencies. What has been the effect of the legislation on nursing home quality as measured by federal deficiencies?
- 3) Resident care quality. Using a theoretical model proposed by Donabedian¹⁵, a review is conducted of the structure of nursing homes and the processes of care used by nursing homes to produce the resident’s quality of care.
- 4) Expenditures. What has been the impact of the staffing legislation based on Medicaid per diem rates and expenditures? How have wages of direct care nursing staff changed since the implementation of the minimum nurse staffing levels?

¹⁵ Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, 44(1), 166-203.

Table 2: Timeline of Florida Legislative Action to Increase Nurse Staffing in Nursing Homes

| Year | Legislative Action | CNA hours per resident day | LPN/RN hours per resident day |
|-------------|--|-----------------------------------|--------------------------------------|
| 1998 | No Legislative Action | 1.7 | 0.6 |
| 1999 | Appropriated Medicaid direct patient care incentives (HB 1971) | 1.7 | 0.6 |
| 2000 | Reimburse Medicaid direct patient care incentives effective April 2000 | 1.7 | 0.6 |
| 2001 | Mandate new staffing standards over 36 months (SB 1202) | 1.7 | 0.6 |
| 2002 | Increase CNA and LPN/RN staffing standards effective January 2002 | 2.3 | 1.0 |
| 2003 | Increase CNA staffing standards to 2.6 effective January 2003 Delayed implementation of 2.9 CNA hours to July 2004 | 2.6 | 1.0 |
| 2004 | Delayed implementation of 2.9 CNA hours to July 2005 | 2.6 | 1.0 |
| 2005 | Delayed implementation of 2.9 CNA hours to July 2006 | 2.6 | 1.0 |
| 2006 | Amended legislation to weekly average of 2.9 CNA hours and daily minimum of 2.7 CNA hours effective January 2007 | 2.7 daily 2.9 weekly | 1.0 |
| 2008 | Budget implementing bill maintains 2.9 CNA hours standard but does not allow AHCA to sanction unless facility falls below daily minimum of 2.6 CNA hours | 2.9 weekly | 1.0 |

Modeling Quality Using a Structure Process Outcomes Framework

More than 40 years ago, Avedis Donabedian, a physician, proposed a model for assessing health care quality based on structures, processes, and outcomes (SPO)¹⁶. This model has frequently been used in examining nursing home quality¹⁷. Structure refers to the conditions under which care is provided. These include material resources, human resources, and organizational characteristics¹⁸. Process refers to the activities that make up health care including diagnosis, treatment, rehabilitation, prevention, and patient education. Outcome refers to the changes (desirable or undesirable) in residents that can be attributed to health care¹⁷. Quality outcomes are a product of both the structures and processes of care.

Measures of Structure

Nurse Staffing- Nurse staffing is measured as the hours of time nursing staff spend working per resident. A resident day is 24 hours. Staff hours must be time assigned to work directly with residents. Three levels of nurse staffing are calculated: Certified nursing assistant hours per resident day; licensed nurse staffing (licensed includes both LPNs and RNs); and registered nurse hours.

Process Measures

Physical Restraints- Process is measured as the use of physical restraints. Restraints are controversial¹⁹. They have been used for numerous years in order to prevent and decrease the number of falls and injuries²⁰. Physical restraints may also be employed as a labor-saving practice on the part of the nursing home²¹. Despite their historic use, there is no evidence that exists to point toward the actual reduction of falls and injuries as a result of physical restraint. On the contrary, restraints have been shown to increase the likelihood of death and injuries. Studies that have used physical restraints as an indicator of quality have found that lower restraint use is

¹⁶ Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, 44(1), 166-203.

¹⁷ Davis, M. A. (1991). On nursing home quality: A review and analysis. *Medical Care Research and Review*, 48, 129-166.

¹⁸ Donabedian, A. (2003). *An introduction to quality assurance in health care*. New York: Oxford University Press.

¹⁹ Mukamel, D. B. (1997). Risk-adjusted outcome measures and quality of care in nursing homes. *Medical Care*, 35(4), 367-385.

²⁰ Weech-Maldonado, R., Meret-Hanke, L., Neff, M. C., & Mor, V. (2004). Nurse staffing patterns and quality of care in nursing homes. *Health Care Management Review*, 29(2), 107-116.

²¹ Grabowski, D. C. (2001). Does an increase in the Medicaid reimbursement rate improve nursing home quality? *Journals of Gerontology B Psychological Sciences Social Science*, 56(2), S84-93.

associated with better quality of care²². In addition to clinical declines, restraints also diminish residents' quality of life by affecting dignity, self-esteem, and sense of control²³.

Outcomes

Pressure Sores- Mueller & Karon²⁴ examined nurse-sensitive Quality Indicators that were developed through the American Nurses Associations' (ANA) Safety and Quality initiative for evaluating acute care Quality Indicators and their applicability to Long Term Care. A survey of Long Term Care nursing experts indicated that pressure sores ulcers were the most relevant Quality Indicators for Long Term Care facilities. Pressure sores are often used as a measure to indicate adequate staffing and quality of care^{25 26 27}. Pressure sores are areas of the skin that die as a result of lack of blood supply. This is often caused by pressure or friction on bony prominences associated with lying in one position for too long. To avoid pressure sores, residents need to be turned every two hours and can take a great deal of nursing assistant time²⁸. However, sufficient numbers of licensed staff are required to evaluate situations and supervise other staff to prevent pressure sores from developing²⁵. Pressure sores are an indicator of quality of care in nursing facilities^{29 30}.

Incontinence- Incontinence is one of the most prevalent conditions found in nursing homes and is associated with various morbidities and costs³¹. Incontinent individuals require additional care, oversight, and training through management programs which can put additional strain on

²² Weech-Maldonado, R., Meret-Hanke, L., Neff, M. C., & Mor, V. (2004). Nurse staffing patterns and quality of care in nursing homes. *Health Care Management Review, 29*(2), 107-116.

²³ Mukamel, D. B. (1997). Risk-adjusted outcome measures and quality of care in nursing homes. *Medical Care, 35*(4), 367-385.

²⁴ Mueller, C., & Karon, S. L. (2004). ANA nurse sensitive quality indicators for long-term care facilities. *Journal of Nursing Care Quality, 19*(1), 39-47.

²⁵ Anderson, R. A., Hsieh, P. C., & Su, H. F. (1998). Resource allocation and resident outcomes in nursing homes: Comparisons between the best and worst. *Research in Nursing and Health, 21*(4), 297-313.

²⁶ Weech-Maldonado, R., Neff, G., & Mor, V. (2003). Does quality of care lead to better financial performance?: The case of the nursing home industry. *Health Care Management Review, 28*(3), 201-216.

²⁷ Weech-Maldonado, R., Meret-Hanke, L., Neff, M. C., & Mor, V. (2004). Nurse staffing patterns and quality of care in nursing homes. *Health Care Management Review, 29*(2), 107-116.

²⁸ Bostick, J. E., Rantz, M. J., Flesner, M. K., & Riggs, C. J. (2006). Systematic review of studies of staffing and quality in nursing homes. *Journal of the American Medical Directors Association, 7*(6), 366-376.

²⁹ Zimmerman, S., Gruber-Baldini, A. L., Hebel, J. R., Sloane, P. D. & Magaziner, J. (2002). Nursing home facility risk factors and hospitalization: Importance of registered nurse turnover, administration, and social factors. *Journal of the American Geriatrics Society, 50*, 1987-1995.

³⁰ Stone, P. W., Mooney-Kane, C., Larson, E. L., Horan, T., Glance, L. G., Zwanziger, J., et al. (2007). Nurse working conditions and patient safety outcomes. *Medical Care, 45*(6), 571-578.

³¹ Ouslander, J. G., & Schnelle, J. F. (1995). Incontinence in the Nursing Home. *Annals of Internal Medicine, 122*, 438-449.

overworked nursing staff. A variety of evidence indicates that most nursing homes lack the staff to provide necessary incontinence care³².

Four Point Activities of Daily Living (ADL) Decline- ADL decline has also been shown to be related to nurse staffing³³. The ADLs assess how much assistance a resident needed in the past seven days performing a variety of tasks. ADL decline is one of 24 validated Minimum Data Set (MDS) Quality Indicators.

Methods

This longitudinal analysis uses state and federal datasets. Whenever historic perspective is important, data are provided from 1999 until the latest data available. We have included 2008 data only from nursing home quarterly staffing data and January 2008 Medicaid rate-setting reports. For the majority of analyses, however, the data are limited to 2002-2007, the latest data available. We examine trends in Florida nursing home direct care staffing levels, quality of care in nursing homes, staff turnover, direct care expenditures and changes in Medicaid and Medicare access. Florida has both hospital-based and free-standing nursing homes. For the purpose of this legislative report, the focus is exclusively on free-standing nursing homes because most hospital-based homes are small and provide post-acute Medicare services rather than Medicaid services.

Data Sources

Each data source used for the study is briefly defined below.

- 1) **Online Survey Certification and Reporting (OSCAR).** The Centers for Medicare and Medicaid Services (CMS) contract with the State to inspect and enforce federal standards for nursing homes. State surveyors are trained to review patient outcomes and determine whether the facility is meeting state and federal standards. Data collected during the inspection are entered into an online system that becomes a national database (OSCAR) about nursing homes.
 - a. **Deficiencies.** Inspections are unannounced and generally occur annually within a 6-15 month window to avoid predictability. Some surveys begin on weekends and off-hours to be certain quality care is provided at all times. During the annual

³² Schnelle, J. F., & Leung, F. W. (2004). Urinary and fecal incontinence in nursing homes. *Gastroenterology*, 126, S41–S47.

³³ Arling, G., Kane, R.L., Mueller, C., Bershady, J., & Degenholtz, J. B. (2007). Nursing effort and quality of care of nursing home residents. *The Gerontologist*, 47, 672-682.

inspection of nursing homes conducted by Agency surveyors, any violations of the federal or state code are reported as “deficiencies” or “citations.” Deficiencies are violations of specific standards. Inspectors also provide a rating of the “severity and scope” to represent whether or not the violation actually harmed a resident. Most sanctions can result in fines or termination if unaddressed. The most serious violations are classified as “Immediate Jeopardy” and can result in expedited sanctions and termination from the Medicare and Medicaid programs.

- b. **Nursing Home Ownership and Operational Data.** While in the facility, inspectors also collect data on many aspects of nursing home operations. Data include ownership, number of licensed beds and provide a snapshot of the two-week period of nursing home staffing prior to the survey. Additionally, the number of residents, resident acuity and needs, reimbursement by Medicare, Medicaid, private payment, and details on numbers of full-time, part-time or contract staff within specific jobs (i.e., nurse aides, registered nurses, housekeeping and dietary staff) are also included. These data are collected from every certified nursing home in the country and allow Florida’s facilities to be compared with nursing homes throughout the country.
- 2) **Nursing Home Staffing Report Data (SRD).** Pursuant to section 400.141, Florida Statutes, each facility must report to the Agency for Health Care Administration the average quarterly staff to resident ratios for licensed nurses and CNAs. The information is self-reported semiannually by nursing homes. Data are shared by AHCA with quality monitors and with inspectors. The data are used to calculate the staffing per resident hour for each quarter for CNAs and licensed nurses for this report.
- 3) **Minimum Data Set (MDS).** When admitted to a certified nursing home, within 14 days all residents must be assessed according to a federal protocol, the Resident Assessment Instrument. The assessment is designed to identify resident needs and to guide the development of a resident care plan. The resident assessments and care plans constitute the Minimum Data Set (MDS). Every nursing home resident who is served in a certified Florida nursing home is assessed at entry. For this study of quality of care, records of residents who reside in the nursing home for 90 or more days are used. This group was chosen because these residents are most likely to have their care outcomes affected by the care processes implemented by the nursing home. Because residents are required to have

an initial assessment and a reassessment at least every 90 days, changes in residents' status are tracked within nursing homes and changes are summed within nursing homes to create quality measures. For this report, data on the following quality measures are presented:

- Percent of residents who were physically restrained
- Percent of residents whose ability to perform activity of daily living decline by four or more points from the previous quarter
- Percent of residents who have a pressure sore
- Percent of residents who have worse bowel control
- Percent of residents who have worse bladder control

4) Florida Medicaid Reimbursement Program (FMRD). AHCA administers Florida's Title XIX Long-Term Care Reimbursement Plan, a cost-based prospective Medicaid Federal/State program. Each provider receiving Medicaid dollars must submit a uniform cost report and related documents. Providers' costs fall into one of four components that comprise the final reimbursement rate: Operating, Direct Patient Care, Indirect Patient Care, and Property.

- a. **Cost data are Rate Setting File data:** Facility "costs" are allocated to the facility based on Rate Setting Files' fiscal year end dates. Facilities on a budget (i.e. change of ownership) do not have Direct Care data with salaries and staffing reports on actual use; 978 observations were excluded from this report for this reason. Only facilities with actual cost reports are included.
- b. **Revenue data are Rate Setting file data:** When describing Medicaid payment rates, Medicaid payments to all facilities are considered in this report regardless of whether facilities filed estimated or actual cost reports. If Medicaid reduces payments based on actual cost reports, this may overestimate the payments to these facilities. However, because these are Medicaid rates the facilities are currently receiving, reporting Medicaid payment is considered appropriate.

Nursing Homes Included in the Report

All community-based Florida nursing homes certified to accept Medicare or Medicaid in OSCAR were eligible to be included in the analysis. To calculate the nurse staffing ratios for each nursing home, the State of Florida's Nursing Home Staffing Report data were used. The combined dataset from the two data sources resulted in excluding facilities that could not be matched with both datasets. Table 3 indicates the number of facilities by year included in our report for all

staffing data. For every year, at least 94% of all community facilities were matched using staffing data. Nursing home deficiencies for all Florida nursing homes from 2002 to 2007 were obtained from OSCAR, and staffing structure data for 2002 to 2008 from Nursing Home Staffing Report Data.

Table 3: Nursing Homes Included in Analyses

| Year | OSCAR | | Staffing Report | OSCAR and Staffing Report |
|------|---------------|-------------------|-----------------|---------------------------|
| | w/hosp. based | w/out hosp. based | | |
| 2002 | 704 | 658 | 669 | 635 |
| 2003 | 693 | 656 | 667 | 641 |
| 2004 | 689 | 657 | 670 | 643 |
| 2005 | 683 | 653 | 666 | 617 |
| 2006 | 684 | 666 | 667 | 654 |
| 2007 | 679 | 663 | 668 | 656 |
| 2008 | NA | NA | 665 | NA |

For the data on nursing home expenditures, wages, and costs, a longitudinal database of Florida nursing homes from 2002-2007 was created that is similar to the staffing database described above. January 2009 rate-setting files were used for cost reports. Using OSCAR and data from Florida Medicaid cost reports, the report estimates average wages, reports expenses, and analyzes nursing home expenditures over time. Unfortunately, there are fewer nursing homes continuously reporting cost data than reporting staffing data.

Only actual costs are reported in the study; therefore, 978 nursing home observations were dropped during these years because the only cost reports available for these facilities were budgeted reports rather than actual cost reports. Facilities changing ownership are allowed to have 24 months during the transition in ownership before actual cost reports are filed. The homes that are excluded from this analysis appear to be homes filing budgeted reports because of ownership changes. To the extent that these homes are not like the homes filing full cost reports, the analysis may not be an accurate reflection of all the homes in Florida.

1. Nursing Home Direct Care Staffing Findings

This section reports the impact of the staffing increases on nurse staffing levels in Florida.

The Legislature changed staffing standards in nursing homes and this report examines the impact of the staffing requirements on nurse staffing in Florida nursing homes. The report provides the numbers of staff working in nursing homes since the implementation of SB1202. Figures 1.2, 1.5, and 1.6 provide details on the numbers of hours direct care staff provide care in nursing homes. These data generally confirm Florida nursing homes are conforming to the nurse staffing standards.

Direct care staff in Florida nursing homes, Figure 1.1, indicates that Florida nursing homes employed 43,041 CNAs and 20,181 licensed nurses as of 2008. These data indicate between 2002 and 2008, there has been an increase of 8,405 new certified nursing assistants employed in Florida nursing homes. The number of licensed nursing staff has also increased by 3,543. A total of almost 12,000 new direct care staff has been hired to meet the nurse staffing requirements. From multiple perspectives, this report concludes with the exception of 23 facilities, nursing homes have complied with the CNA direct care staffing standards. Of those 23 facilities, 13 met the 3.9 total staffing which is allowed. However, in 2007, nine facilities, based on the average of their quarterly staffing reports, met neither the 2.9 CNA standard nor the 3.9 total staffing minimum standard. These facilities had an average of 2.8 CNA HPRD and 1.02 licensed nurse HPRD. On average, 58% of residents were funded by Medicaid, the average size was 93 beds, two were located in rural areas and five were for-profit facilities. When examining quality, they averaged 1.78 quality of care deficiencies, and 1.11 quality of life deficiencies.

Figure 1.1: Numbers of Employed Direct Care Staff in Florida Nursing Homes (2002-2008)

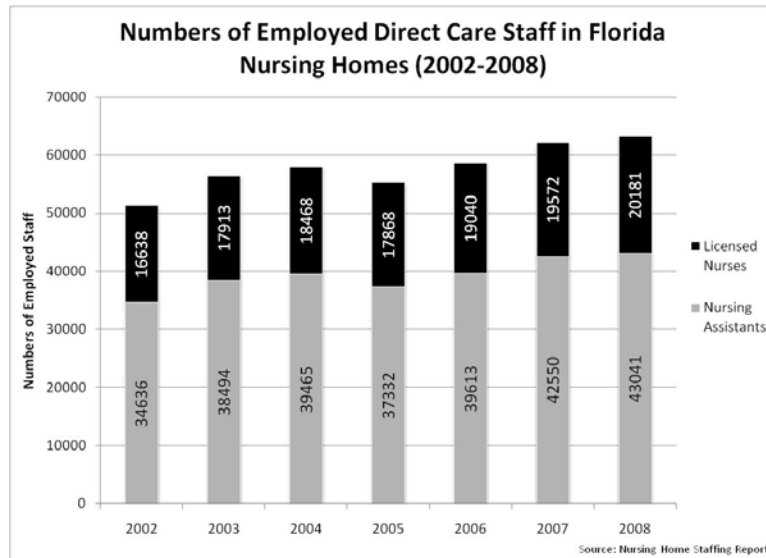


Figure 1.2, CNA Hours per Resident Day in Florida Nursing Homes (2002- 2008), indicates CNA hours average 2.49 HPRD in 2002, 2.71 in 2003 and 2.98 in 2007. These data support the conclusion nursing homes are complying with the mandate for a minimum of 2.3, 2.6, and 2.9 HPRD. They also indicate average staffing has decreased slightly in 2008 from 2.98 in 2007 to 2.94 in 2008 when the Legislature no longer required strict compliance with the 2.9 minimum HPRD. Figure 1.2 highlights another point: legislative requirement of “minimum number of hours per resident day” results in higher average HPRD than increasing staffing requirements “on average.” In 2002, the minimum staffing was 2.3 HPRD but average nurse staffing was 2.49 HPRD. Similarly, when staffing was a minimum of 2.6 HPRD, staffing across the state averaged 2.71 in 2003. The average HPRD staffing remained reasonably constant in 2004-2006 at 2.73-2.76 HPRD. The variation (standard deviation) around the mean decreased in 2006, suggesting that homes were better at managing nurse staffing levels. While the Legislature may have expected the increase in staffing from 2.6 to 2.9 HPRD to result in an additional 18 minutes of care (0.3 HPRD), the actual average increase was 13.2 minutes (0.22 HPRD). The subtle change in language from a minimum level of HPRD to an average number of HPRD obtained over one week resulted in an increase in staffing but a smaller increase than if the minimum standard had been imposed.

Figure 1.2 also shows a drop in CNA HPRD that began in July 2008 when the Legislature prohibited the Agency from imposing sanctions against a nursing home that was not staffing at 2.9 HPRD. As of the third quarter of 2008, CNA HPRD averaged 2.84, and by the fourth quarter was down to 2.8. The first quarter of 2009, facilities were slightly lower again, averaging 2.79 CNA HPRD. While some facilities were clearly maintaining the 2.9 level, the average was below 2.9 HPRD.

Figure 1.2: CNA Hours per Resident Day in Florida Nursing Homes (2002-2008)

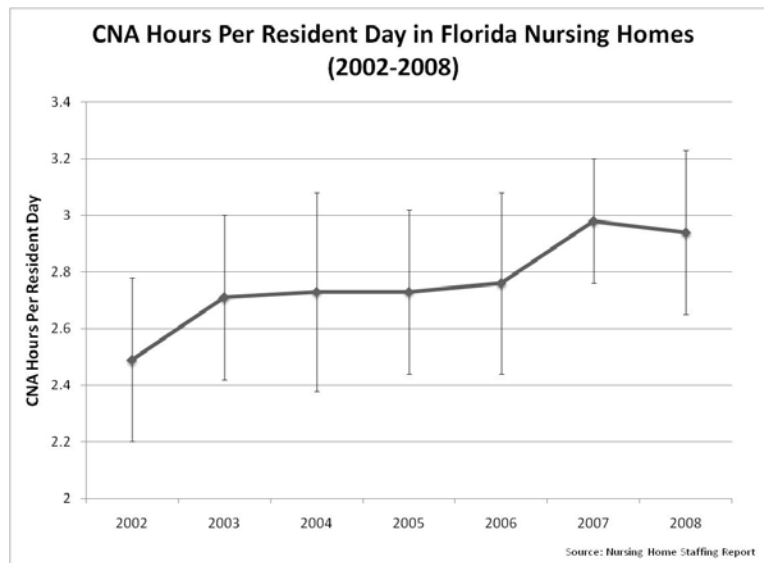


Figure 1-3 confirms the decrease in staffing per hour because it shows the number of terminated staff beginning in 2008. In the first quarter of 2008, there were 50,770 employed CNAs. By the fourth quarter of 2008, facilities reported having almost 36,900 (36,892) employed CNAs. These decreases in CNA staffing are presumably because the Legislature ordered the Agency not to impose sanctions on facilities staffing at levels below 2.9 but above 2.6. Occupancy also decreased in 2008.

Figure 1.3: Total Numbers of Terminated CNAs in Florida Nursing Homes (2002-2008)

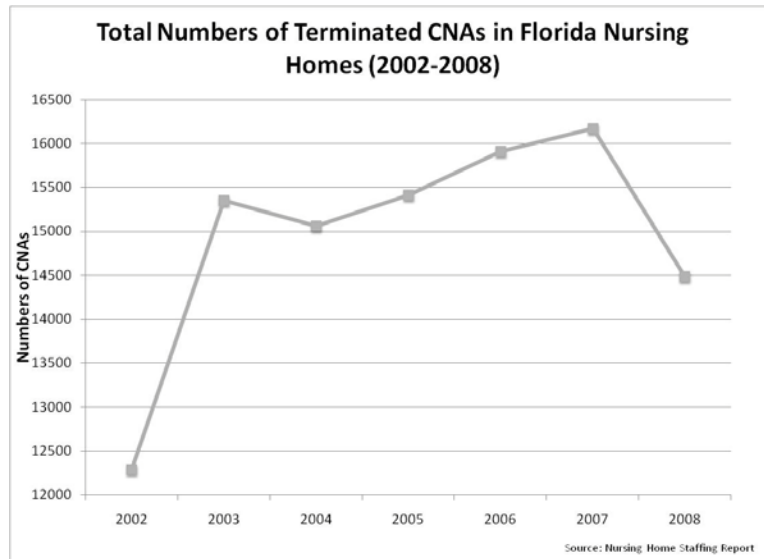


Figure 1.4 provides another insight into the labor market for CNA staff in 2008. Figure 1.4 is the sum of all terminated CNAs for all Florida facilities. The average quarterly termination per facility dropped from 24 to 22 CNAs. The decline in staffing per hour per resident day beginning in July 2008 is not reflected in higher turnover rate in 2008. Turnover declined in comparison to previous years.

Figure 1.4 CNA Annual Turnover in Florida Nursing Homes (2002-2008)

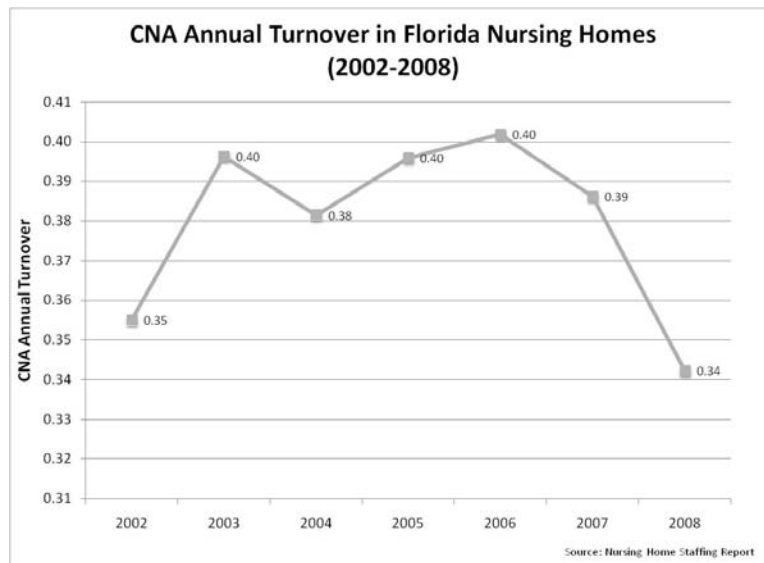
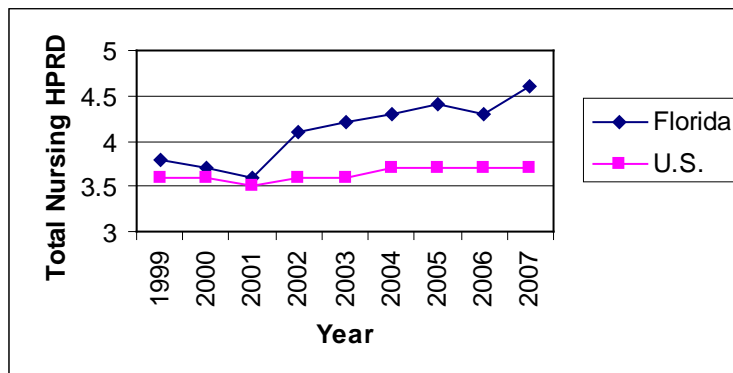


Figure 1.5, Total Nursing Hours per Resident Day in the U.S. and Florida Facilities (1999-2007), indicates that staffing as measured by HPRD increased when legislatively required, not with financial incentives. In 2000, Florida allocated \$40 million in financial incentives to improve quality in nursing homes with the direct care staffing adjustment. These monies were spent on direct care as required by the law, but as the figure indicates, the total average hours per resident day did not increase until minimum staffing requirements were established. Figure 1.5 clearly indicates that when providers are allowed to spend reimbursement as they deem appropriate, direct care hours per resident day decrease. The trend line of average staffing per resident day suggests that only when minimum standards are established and enforced do hours of per resident care increase.

Figure 1.5: Total Nursing Hours Per Resident Day in the U.S. and Florida Facilities (1999-2007)



From Hyer, Slack & Johnson (2009)³⁴

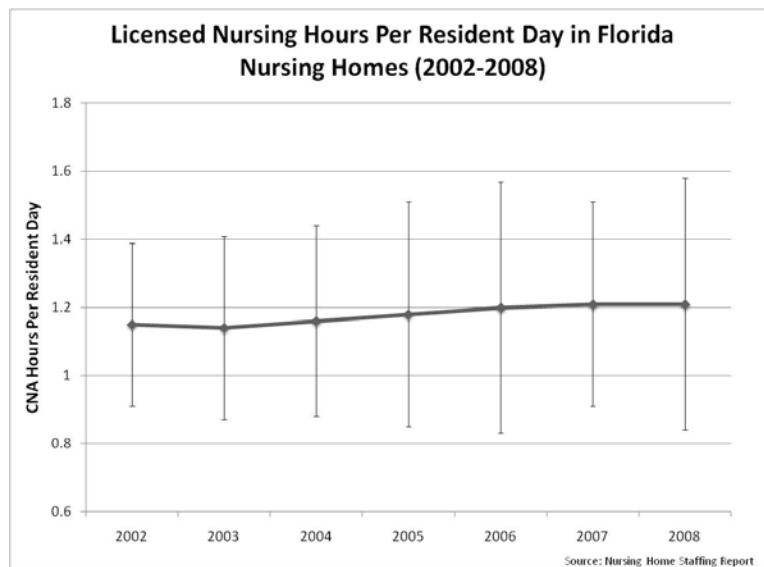
Figure 1.6, Licensed Nursing Hours per Resident Day in Florida Nursing Homes (2002-2008), provides another insight into nursing home operations. Florida standards increased nurse staffing levels from 36 minutes of licensed nurse staffing per resident (0.6 HPRD) to 60 minutes or 1.0 HPRD; however, licensed staffing was, on average, 20% above the 1.0 HPRD when the standard was established in 2002. Figure 1.6 indicates the licensed hours have increased slightly since 2002. Licensed nursing combines the hours of licensed practical nurses and registered nurses, and the mix of licensed practical nurse to registered nurse has changed. There is a steady decline with fewer registered nurses employed and lower registered nursing hours over the study years. Using data from Medicaid cost reports, the specific skill mix change was examined in the two types of licensed staffing (RNs and LPNs). Registered Nurses time with residents declined from 18 minutes

³⁴ Hyer, K., Temple, A., & Johnson, C.E. (2009). Florida's efforts to improve quality of nursing home care through nurse staffing mandates, regulation, and Medicaid reimbursement. *Journal of Aging and Social Policy*, 21, 318-337.

(0.31 HPRD) in 2002 to 16.8 minutes per resident (0.28 HPRD) in 2007, while LPN HPRD increased from 0.87 HPRD in 2002 to 0.98 HPRD in 2007. The RN level of time with residents in 2007 is at 36% of the “optimal” CMS level and IOM recommended level of RN staffing. Florida is at 62% of the CMS preferred minimum rate for RN HPRD staffing, at 27 minutes (0.45 HPRD) of registered nursing care.

The decline in registered nurse staffing is a concern because a number of studies reviewed earlier suggest that high quality patient care for complex nursing home residents requires the skills and supervision of a registered nurse. As Table 1 (page two) suggests, CMS studies calculated 0.75 hours or 45 minutes of registered nursing care per day as the optimal level—the level of registered nurse staffing found in the top 10% of nursing homes providing the highest quality of care when the studies were conducted 10 years ago. Florida’s continuous decrease in nursing skill mix suggests that establishing minimum standards for registered nurse hours per resident day within the 1.0 HPRD of licensed care may be warranted. National RN shortages may contribute to the decline in RN staffing hours³⁵.

Figure 1.6: Licensed Nursing Hours per Resident Day in Florida Nursing Homes (2002-2008)

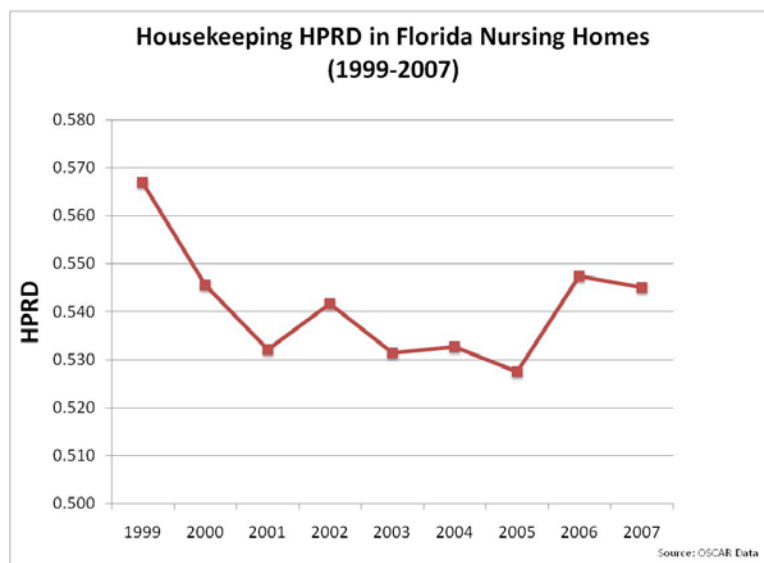


Figures 1.7 and 1.8 provide Housekeeping and Activity Staffing HPRD, for Florida from 1999-2007. The direct care staffing standards monitor only staff that is considered direct nursing

³⁵ American Association of Colleges of Nursing (AACN) *Nursing Shortage Fact Sheet*, Updated September 2008 <http://www.aacn.nche.edu/Media/FactSheets/NursingShortage.htm>

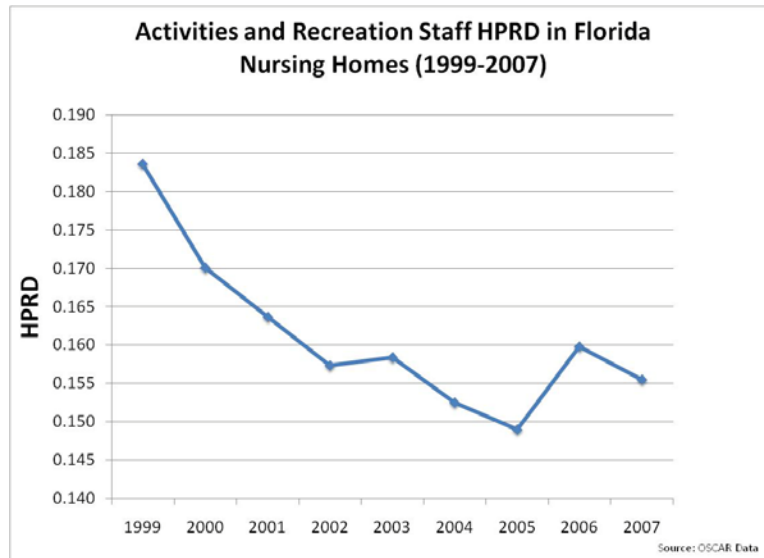
staff- certified nursing assistants, licensed practical nurses and registered nurses providing hands-on care. These numbers do not include other nursing home staff who provide non-nursing care for residents, such as dietary aides, activities, administrative and therapy staff. While reports are not available that show total nursing home staff changes since the implementation of SB1202, the authors of this report have published their findings on the changes in two types of non-direct care staff: the number of housekeeping staff and activities staff³⁶. Housekeeping HPRD fell beginning in 1999 and continued to decrease as direct care staffing increased in 2002 and 2003. Similarly, activity and recreational staff HPRD decreased following the staffing legislation.

Figure 1.7: Housekeeping Hours per Resident Day in Florida Nursing Homes (1999-2007)



³⁶ Thomas, K. S., Hyer, K., Andel, R., & Weech-Maldonado, R. (In Press). The unintended consequences of staffing mandates in Florida nursing homes: Impacts on indirect-care staff. *Medical Care Research and Review*.

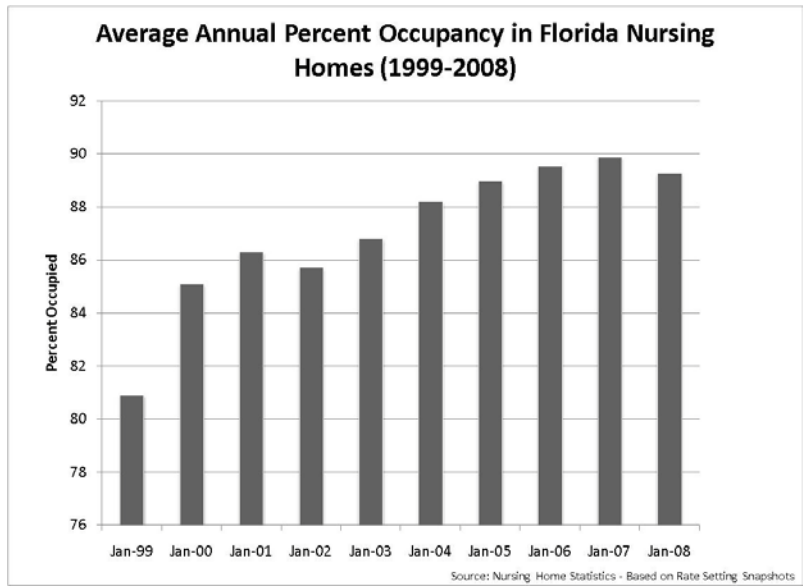
Figure 1.8: Activities and Recreation Staff Hours per Resident Day in Florida Nursing Homes (1999-2007)



Staffing mandates were set for direct care staff only. There were no changes in standards for non-patient care staff such as activities, housekeeping, dietary and maintenance staff. Figures 1.7-1.8 provide evidence of the decline in the rate of two non-direct care staff, specifically housekeeping and activities staff, per resident day. In 2006 both activities and housekeeping staff increased after years of decreases. However, in 2007 when CNA staffing increased, decreases were once again seen in both housekeeping and activities staff adjusted for hours per resident. These data are presented because housekeeping and activity staff provide important services in nursing homes. It is also important to note the growth in direct care nursing home staff reflects both the increased numbers of staff that had to be hired to comply with the state regulations and an overall growth in the number of nursing home residents.

Unlike many nursing homes nationally, from 1999-2007, Florida nursing homes are increasing the number of residents and improving occupancy rates. As shown in Figure 1.9, it appears the imposition of the moratorium on issuance of certificates of need for the establishment of new nursing homes in July of 2001 coincided with an improvement in the occupancy rates for nursing homes. Rates of occupancy dropped in January 2008 from the highest level of almost 90% in January 2007. However, the occupancy of Florida nursing homes improved over the decade from an average nursing home occupancy of 80.9% in 1999 to 87.80% in June 2008.

Figure 1.9: Average Annual Percent Occupancy in Florida Nursing Homes (1999-2008)



2. Quality of Nursing Home Care Findings- Deficiencies

This section addresses quality of nursing home care as measured by total federal deficiencies, quality of care deficiencies and quality of life deficiencies.

As described earlier, Florida, like other states, inspects its nursing homes yearly but within a 6-15 month window from the previous annual survey. Surveys are unannounced and can begin at any hour or any day. Facilities with poor records of quality are visited more frequently. During each inspection, nursing homes are evaluated on their ability to provide care meeting the state and federal standards for quality. If homes fail to meet the standards, inspectors issue citations for deficient care, generally referred to as “deficiencies.” Each deficiency is linked to specific violations of the federal or state code. The federal code categorizes deficiencies as quality of care violations (e.g., care provided was not consistent with what was planned), quality of life violations (e.g., activities are not appropriate; environment is not clean or safe) and resident rights violations (e.g., free from inappropriate use of physical or chemical restraint). Every deficiency is then rated on the scope and severity of the violation. Scope measures the number of residents affected and is categorized as isolated (one or a very few residents), pattern of deficient care (more than limited but violation occurs repeatedly), or widespread (pervasive) practice. The severity rating measures the potential for resident harm. Four severity categories rank violations as: no actual harm or potential for minimal harm; no actual harm but potential for more than minimal harm; actual harm but no immediate serious risk; and immediate jeopardy—the highest severity.

Deficiencies in this report are grouped into the following categories: (a) the average total number of deficiencies per nursing home as cited on the state/federal quality survey; (b) the average quality of care deficiencies per facility cited on the state quality survey; and (c) the average quality of life deficiencies per facility cited on the state quality survey. In addition to the average violations per nursing home, the report included the more serious violations by highlighting deficiencies that are cited as actual resident harm or potential for harm.

Whenever possible, deficiency-related outcomes for all Florida nursing homes were calculated. For this report, national published data were used for the charts to calculate national rates because the authors did not have additional data available. Since national data were used, the average includes Florida’s data rather than reporting a national average excluding Florida’s data.

Table 4: Average Quality of Care, Quality of Life and Total Quality Deficiencies per Facility in Florida vs. Nation (2002-2007)

| Year | Florida | | | National | | |
|------|------------------------------|------------------------------|----------------------------|------------------------------|------------------------------|----------------------------|
| | Quality of Care Deficiencies | Quality of Life Deficiencies | Total Quality Deficiencies | Quality of Care Deficiencies | Quality of Life Deficiencies | Total Quality Deficiencies |
| 2002 | 1.5 | 0.9 | 2.4 | 1.8 | 0.7 | 2.5 |
| 2003 | 1.3 | 1.0 | 2.4 | 1.7 | 0.7 | 2.4 |
| 2004 | 1.3 | 1.0 | 2.3 | 1.7 | 0.7 | 2.4 |
| 2005 | 1.4 | 1.0 | 2.4 | 1.9 | 0.7 | 2.6 |
| 2006 | 1.1 | 1.5 | 2.6 | 1.9 | 0.8 | 2.7 |
| 2007 | 1.6 | 1.1 | 2.7 | 1.9 | 0.8 | 2.7 |

Table 4 presents information on the effect of the legislation on nursing home quality as measured by federal deficiencies by providing the average number of quality of care deficiencies, quality of life, and total quality deficiencies in Florida from 2002-2007 compared to the nation. Figures 2.1-2.3 provide the same information in graphic form. For each year, Florida nursing homes are below the national rates of average quality of care deficiencies per home. Of particular concern, however, is Figure 2.1, which indicates the increase in average number of quality of care deficiencies in 2007 increased when the 2.9 staffing standard was implemented. While Florida still remains below the national average level of quality of care deficiencies in every year, the jump of average quality of care deficiencies between 2006 and 2007 warrants more careful analysis. It is important to note that Florida is also not below the average quality of life deficiencies per home, nor is Florida below the total number of deficiencies consistently.

Figure 2.1: Average Number of Quality of Care Deficiencies per Facility (2002-2007)

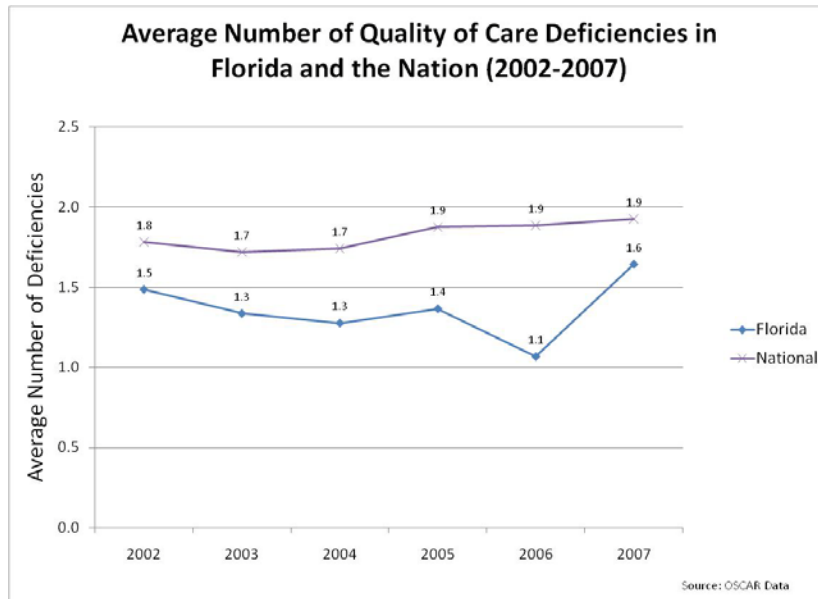
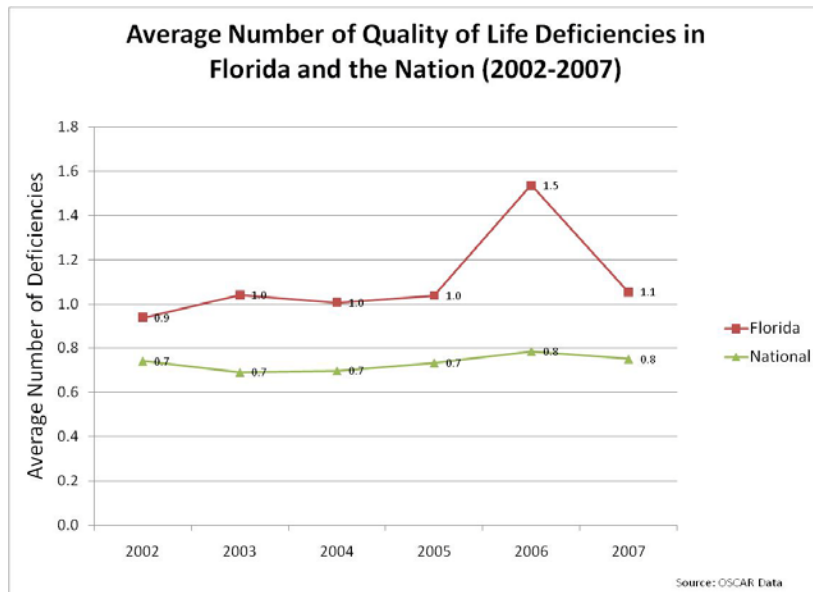


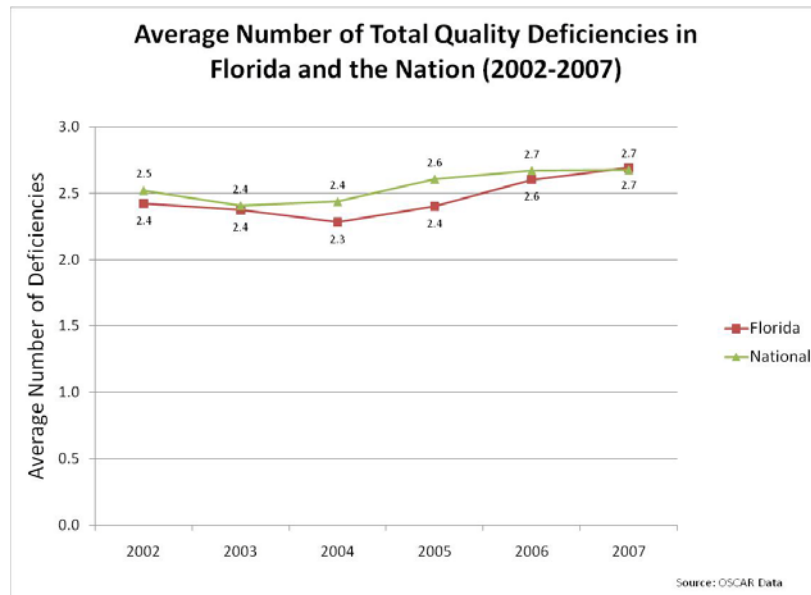
Figure 2.2: Average Number of Quality of Life Deficiencies per Facility (2002-2007)



A new federal survey process, the quality indicator survey process (QIS), was implemented in Florida during this time period, although is not likely to have had a significant impact in 2007; it is unclear if the change in average number of deficiencies relates to the new process which focuses

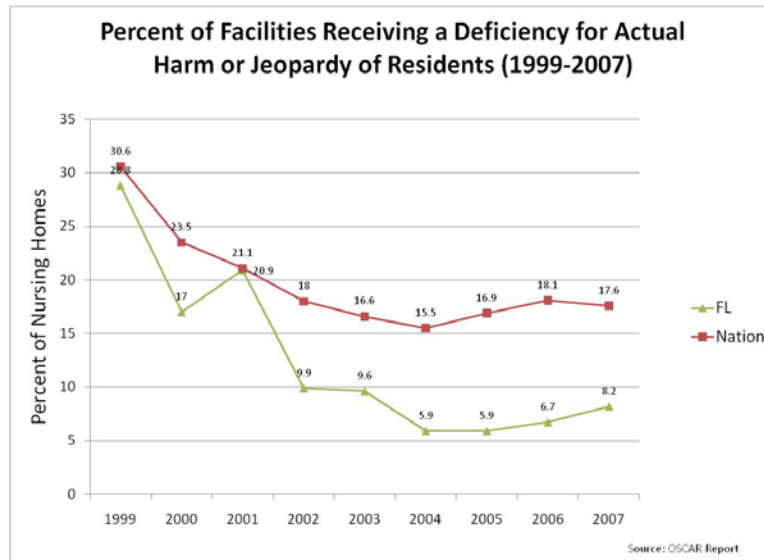
more on resident-centered care and is supposed to be more sensitive to quality of life issues. Because Florida is one of the first states to adopt the quality indicator survey process, the initial trend in increased quality of life deficiencies would not be found in the rest of the country.

Figure 2.3: Average Number of Total Quality Deficiencies per Facility (2002-2007)



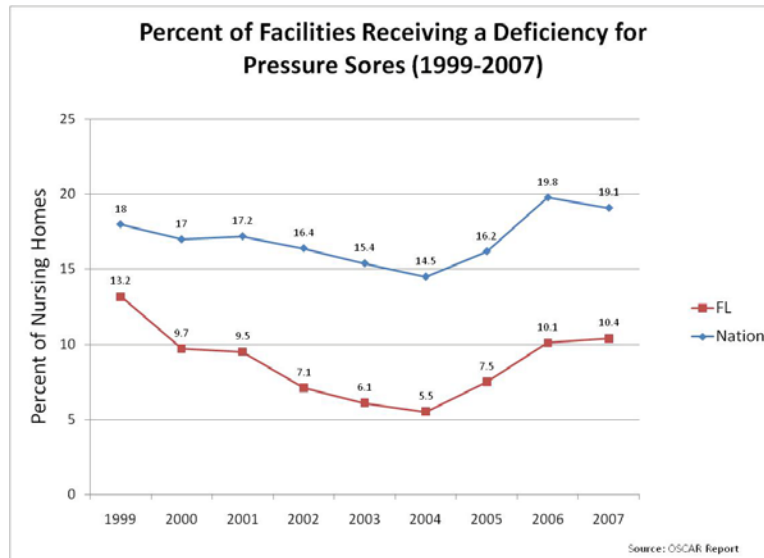
A deficiency citation for actual harm or jeopardy of residents is considered the most severe of all deficiency citations. Figure 2.4 shows the percent of facilities that received one or more deficiencies that caused harm or immediate jeopardy to residents (G-level deficiency or higher). It is evident beginning in 2002, the percent of facilities receiving a G+ deficiency citation decreased dramatically from 21.1 in 2001 to 9.9. In 2004 and 2005, only 5.9 percent of Florida nursing homes received a deficiency for actual harm or jeopardy of residents. Florida’s averages are lower than the national averages, and the gap is larger following the introduction of SB1202 in 2001.

Figure 2.4: Percent of Facilities Receiving a Deficiency for Actual Harm or Jeopardy of Residents (1999-2007)



Pressure sores are areas of the skin that die as a result of lack of blood supply. This is often caused by pressure or friction on bony prominences associated with lying in one position for too long. Pressure sores are often used as a measure to indicate adequate staffing and quality of care. Facilities that have residents who develop pressure sores may be cited for failing to meet care standards. As seen in Figure 2.5, Florida’s rate of quality of care deficiencies because of pressure sores is lower than the nation’s rate, and the gap expands beginning in 2002.

Figure 2.5: Percent of Facilities Receiving a Deficiency for Pressure Sores (1999-2007)



Residents who are unable to maintain their activities of daily living independently should be given “necessary services to maintain nutrition, grooming, and personal and oral hygiene” according to the federal standards of care. As seen in Figure 2.6, Florida receives substantially fewer citations than the national average for lack of providing activities of daily living services. The decline is particularly noteworthy after the staffing increases in 2002, and the decline continued until 2004 with fewer than four percent of all Florida facilities receiving a citation related to activities of daily living (ADL) services. Given the growth in paraprofessional staff, staff should be more available to help residents with activities of daily living. This is a very important quality of life and quality of care indicator. Declining ADL levels mean that residents are becoming more debilitated and dependent. Some decline may be unavoidable, but declines increase costs of care because residents are unable to do things for themselves, and this also decreases the quality of life for residents.

Figure 2.6: Percent of Facilities Receiving a Deficiency for Lack of Activities of Daily Living Services (1999-2007)

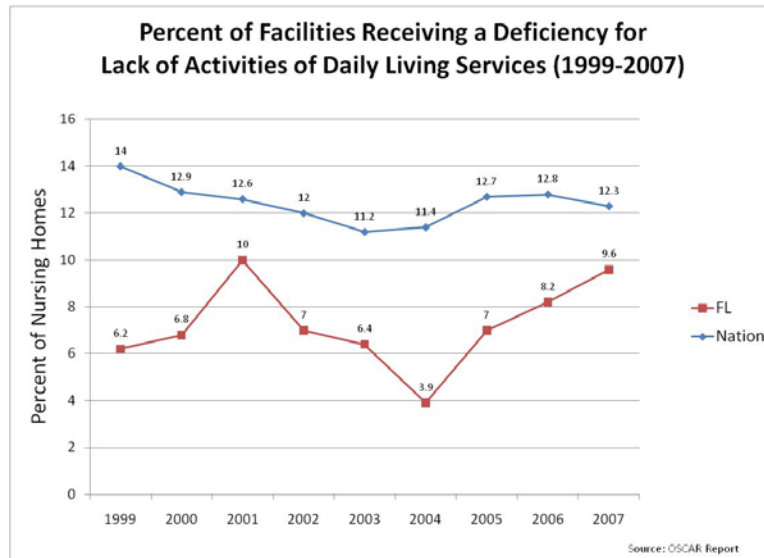


Figure 2.7 provides information on the percent of facilities receiving a deficiency for activities. Florida is above the national average for this citation. Florida facilities decreased from 11.8% of all facilities receiving a deficiency for activities to a low of 6.4% of facilities receiving this citation in 2003. In 2006 and 2007 Florida's rate for this citation mirrors the nation.

Figure 2.7: Percent of Facilities Receiving a Deficiency for Activities (1999-2007)

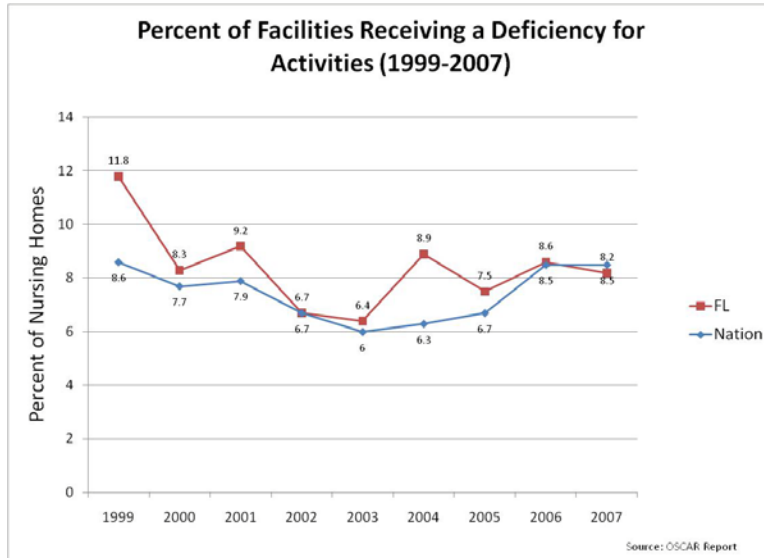
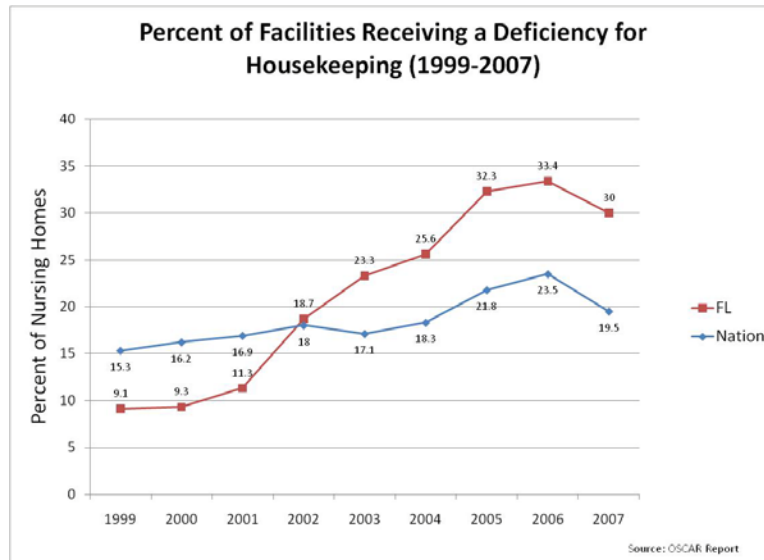


Figure 2.8 presents the percent of facilities receiving a citation for housekeeping. The percentage of facilities receiving a deficiency for housekeeping in 1999 is 9.1%. By 2006, one-third of all Florida facilities received a deficiency for housekeeping—a rate 43% higher than the rest of the country. By 2007 the Florida deficiency rate had fallen to 30% of all facilities, but this is very high (53% higher) in comparison to 19.5% of facilities in the rest of the country which received a citation for housekeeping.

Figure 2.8: Percent of Facilities Receiving a Deficiency for Housekeeping (1999-2007)

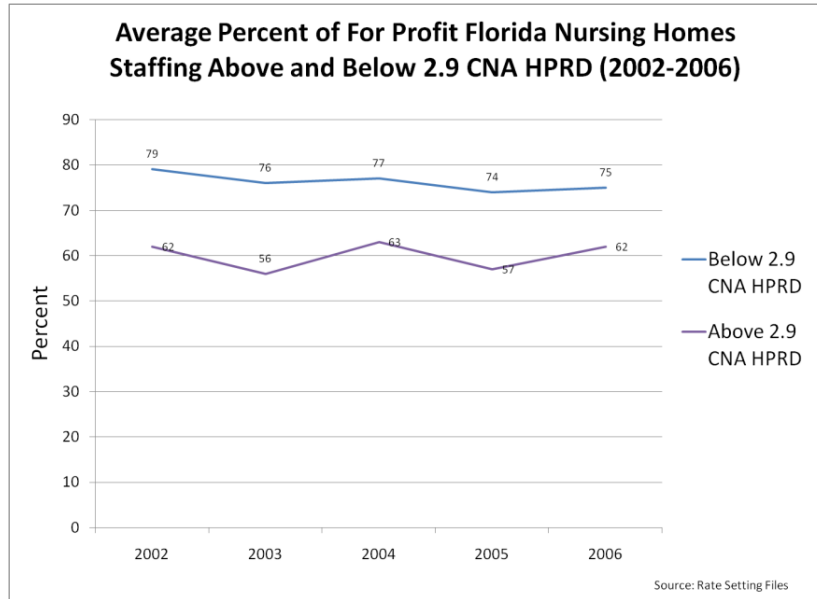


Variations by Facility Characteristics- To assess the impact of the 2.9 staffing ratio on quality of care and quality of life before the Legislature required all nursing homes to staff at 2.9 HPRD in 2007, this report compares differences between facilities staffing above 2.9 and those staffing below 2.9 from 2002-2006.

Figure 2.9 indicates the variation of staffing above and below the 2.9 hours per resident day standard. On average, 74% of Florida’s nursing homes are for-profit. Prior research has indicated that higher staffing levels and better quality of care outcomes is related to not-for-profit ownership³⁷. Consistent with these national findings, Florida has a higher percentage of not-for-profit facilities staffing above 2.9 CNA HPRD. From 2002-2006, 60% of facilities staffing above 2.9 were for-profit nursing homes; 76% of the facilities staffing below 2.9 were for-profit.

³⁷ Davis, MA. Nursing home ownership revisited: market, cost and quality relationships. (1993) *Medical Care* 31(11):1062-8.

Figure 2.9: Average Percent of For-Profit Florida Nursing Homes Staffing Above and Below 2.9 CNA Hours Per Resident Day (2002-2006)



To examine the impact of staffing above 2.9 CNA HPRD, the differences in quality are presented for facilities staffing above and facilities staffing below 2.9 CNA HPRD during years 2002-2006. The determination of staffing above or below 2.9 for each year comes from the Nursing Home Staffing Report. The report contains self-reported data, but provides the information for the largest number of facilities.

Table 5 indicates quality of care deficiencies are decreasing with increased staffing. This is the relationship we expected to find. Surprisingly, quality of life deficiencies have increased since staffing levels have increased for both those facilities staffing above 2.9 and those staffing below 2.9. Deficiencies, however, are clearly consistently lower in the higher staffed facilities. Quality of life deficiencies include activities staffing and housekeeping and the decline in those staff may be related to increases in these citations.

Table 5: Quality of Care, Quality of Life and Total Quality Deficiencies for Florida Nursing Homes by Staffing Levels Above and Below CNA 2.9 Hours Per Resident Day

| Year | Below 2.9 CNA HPRD | | | Above 2.9 CNA HPRD | | |
|------|------------------------------|------------------------------|----------------------------|------------------------------|------------------------------|----------------------------|
| | Quality of Care Deficiencies | Quality of Life Deficiencies | Total Quality Deficiencies | Quality of Care Deficiencies | Quality of Life Deficiencies | Total Quality Deficiencies |
| 2002 | 1.5 | 0.9 | 2.4 | 1.3 | 0.6 | 1.9 |
| 2003 | 1.4 | 1.1 | 2.4 | 1.0 | 0.8 | 1.7 |
| 2004 | 1.3 | 1.0 | 2.4 | 0.7 | 0.7 | 1.4 |
| 2005 | 1.4 | 1.1 | 2.4 | 1.2 | 0.8 | 2.0 |
| 2006 | 1.6 | 1.1 | 2.7 | 1.0 | 0.9 | 1.9 |

3. Changes in Quality Measures

The structure, process and outcomes model is used to examine the impact of the change in nurse staffing from 2.6 CNA hours per resident day to 2.9 CNA hours per resident day. Table 6 presents the results of the analyses of change in quality for percent of residents with restraint use, percent of residents experiencing a decline of four points in ADL activities from the previous quarter, percent of residents with worsening of bladder and bowel incontinence, and percent of residents with pressure sores, adjusting for the risk of pressure sore.

Table 6: Change in Quality of Nursing Home Resident Care with 2.9 CNA Hours Per Resident Day as Compared to 2.6 CNA Staffing

| Quality Measure | Coefficient | Odds Ratio | P-value | 95% CI |
|----------------------|-------------|------------|---------|------------|
| Restraints | -0.249 | 0.78 | <.001 | 0.69, 0.88 |
| ADL 4-Point Drop | -0.033 | 0.97 | 0.647 | 0.84, 1.11 |
| Bladder Incontinence | 0.197 | 1.22 | <.001 | 1.10, 1.3 |
| Bowel Incontinence | -0.056 | 0.95 | 0.376 | 0.83, 1.07 |
| Pressure Ulcer H/L | -0.013 | 0.99 | 0.879 | 0.83, 1.17 |

The results indicate that only two quality measures were statistically significant- decrease in restraint use and an increase in bladder incontinence. After the introduction of 2.9 staffing, the average nursing home appears to have decreased restraint use by 22% in comparison to the average restraint use from 2003-2006. Studies referred to earlier in our report support the importance of having sufficient staff to reduce use of restraints in nursing homes. Reducing restraint use has been an important quality improvement effort by numerous groups such as the Florida Quality Improvement Organization, AHCA and the nursing home associations. The interest in reducing restraint use may mean that staffing may not be the only factor in restraint use reduction, but staffing appears to be related to the improvement in reduction in use of restraints.

Surprisingly, there was a significant increase (22%) in worsening of bladder incontinence during the same period. This is unexpected, because studies have suggested that with high staffing bladder incontinence can be reduced because the staffing is sufficient to allow staff time to help residents go to the bathroom. Staffing at 2.9 should be sufficient to implement bladder training programs that should reduce bladder worsening. Further analyses are needed.

4. Expenditure Findings

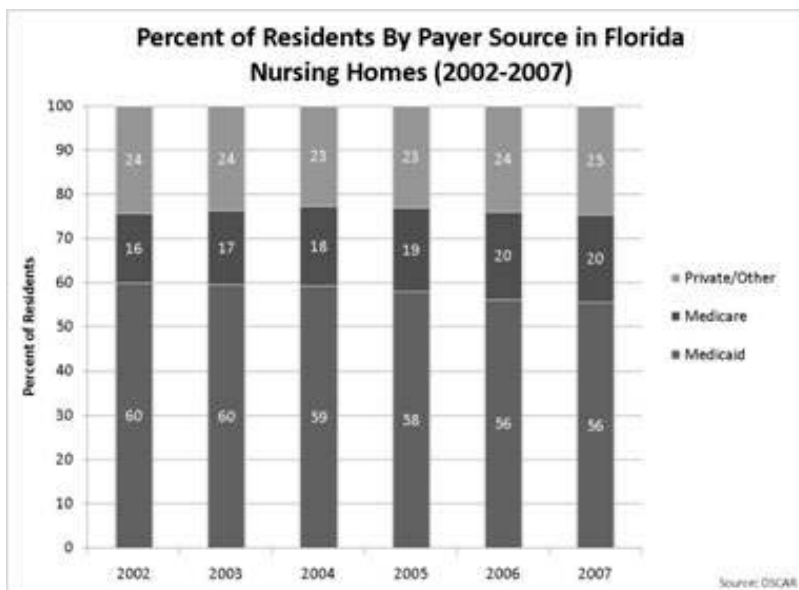
This final section details the impact of the staffing legislation on Medicaid per diem rates and expenditures, and how wages of direct care nursing staff have changed since the implementation of the minimum nurse staffing levels.

The final section provides an overview of the funding for the Medicaid residents in nursing homes. Data are provided on the changing reimbursement pattern and the decreasing number of Medicaid residents. Data are also provided on the increased reimbursement and how those costs have grown since the staffing standards were implemented in 2002. Nursing home costs are driven by labor costs. Providers would have been unable to implement the staffing standards if increased Medicaid reimbursement had not been available as the staffing standards were implemented. However, facility total costs and reimbursement rates are cumulative, and the state has paid for the 2.9 staffing standard even though the standards are no longer in effect. It is important to note the recently-adopted nursing home quality assessment legislation, Senate Bill 8A (2009) will increase the revenue available to nursing homes to care for residents.

Recognizing the focus on the 2.9 staffing standard, data on the direct care staffing costs for facilities staffing above and below the 2.9 standard before 2007 are provided, as is information on how expenses have been allocated as increased wages for direct care workers.

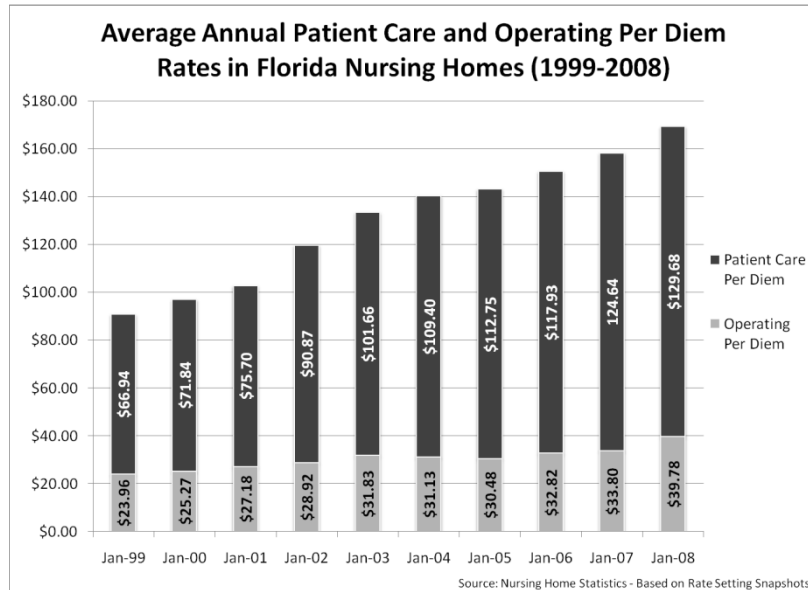
Figure 3-1, Percent of Residents by Payer Source in Florida Nursing Homes (2002-2007), indicates that Medicaid funding has decreased from 60% of revenue in 2002 to 56% in 2007. Medicare reimbursement has grown 25%, to a rate that one in five revenue dollars is paid by Medicare with private pay remaining constant. The increased emphasis on Medicare is part of a national trend.

Figure 3.1: Percent of Residents by Payer Source in Florida Nursing Homes (2002-2007)



Patient care encompasses both direct and indirect patient care components. As is evident from Figure 3.2, there has been a significant increase in the Medicaid per diem rate, primarily with the patient care component.

Figure 3-2: Average Annual Patient Care and Operating per Diem Rates in Florida Nursing Homes (1999–2008)



As Figure 3.3 indicates, in 2002, the patient care component made up 69% of the average Medicaid rate and it has increased to 79% in 2007. Care costs money. The state indicated the importance of quality of care through increased Medicaid rates and its willingness to pay increased costs. The goal of the increased payments is to ensure Florida Medicaid nursing home residents are receiving quality care.

Figure 3-3: Patient Care per Diem's Percent of Total Medicaid Per Diem Rate in Florida Nursing Homes (2002-2008)

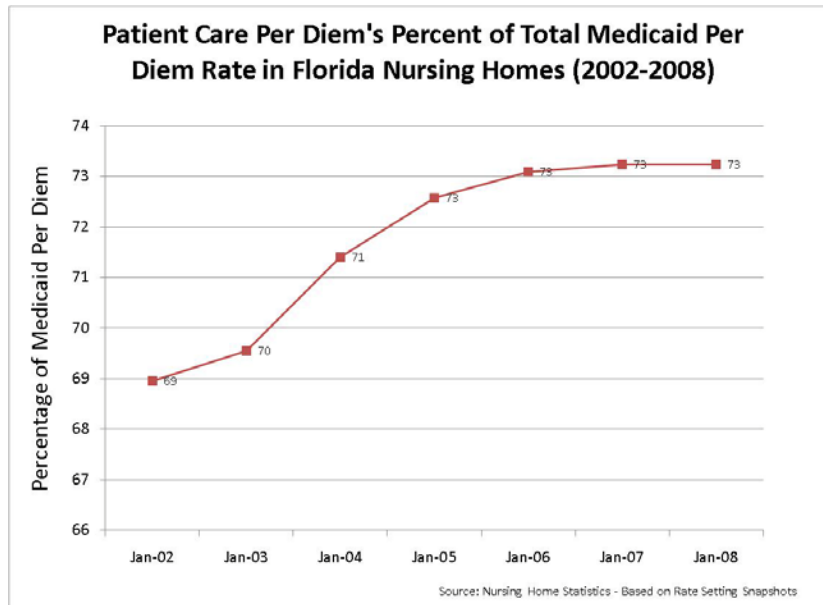
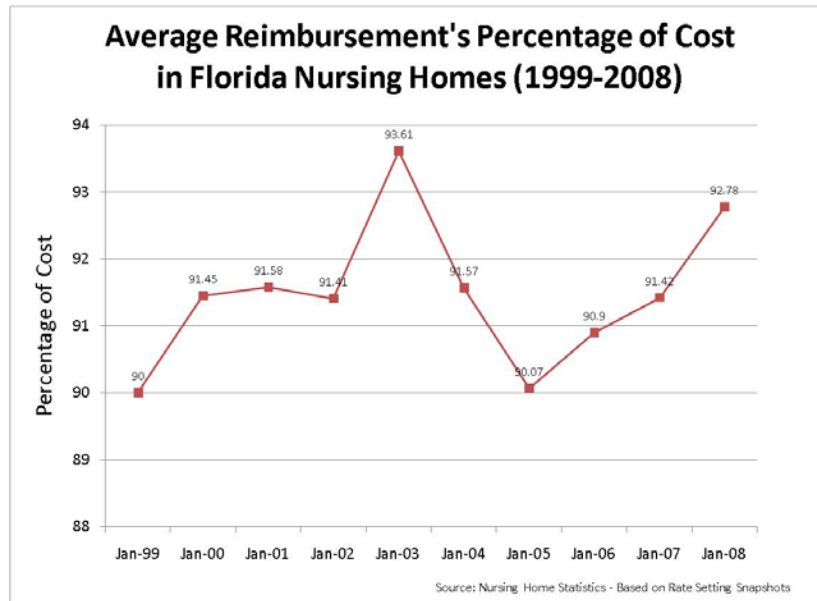


Figure 3-4, Average Reimbursement's Percentage of Total Cost in Florida Nursing Homes (1999-2008), provides another insight into funding Medicaid nursing home costs. Providers submit cost reports that reflect the total cost of providing care. Figure 3-4 shows the gap between costs and the average Medicaid reimbursement. The percentage of costs covered decreased to 90% in 2005 but has been steadily increasing since 2005. Percentage of total costs reimbursed spiked in January 2003 and January 2008. This is consistent with Florida's reimbursement system, which pays providers prospectively based on the previous year's costs. These increases in costs covered reflect a delay in paying providers their total direct care cost for new staffing requirements because 1) demand for new direct care workers increased wages; and, 2) actual average staffing hours exceeded the minimum required levels. Therefore, the increases in costs covered represent a lag in payment to providers being reimbursed for new staff. The January 2008 rate indicates almost 93% of all costs are covered.

Figure 3-4: Average Reimbursement's Percentage of Cost in Florida Nursing Homes (1999-2008)



Since 2002, Medicaid's Direct Care percentage of the per diem rate has increased in concert with the increases in staffing (see Figure 3-5). In 2002, 43% of the per diem rate was allocated to pay for costs associated with direct care. This increased in 2003 with the increase in the minimum staffing level to almost 45% of the per diem rate, and reached 49% in 2007.

Figure 3-5: Direct Care Per Diem's Percent of Total Medicaid Per Diem Rate in Florida Nursing Homes (2002-2008)

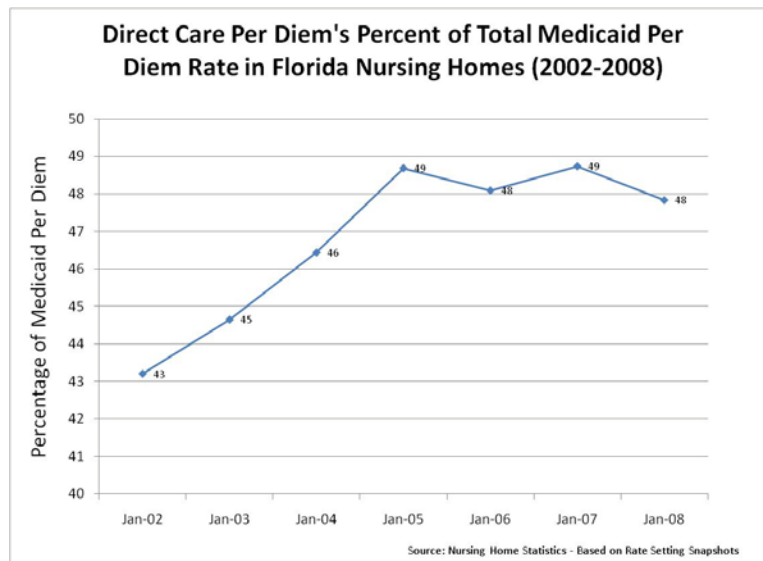


Table 7 provides information about the average Medicaid rate and staffing above or below 2.9 from 2002-2006. As expected, facilities consistently staffing above 2.9 receive higher Medicaid per-diem rates and considerably higher average total expenses per day than facilities with staffing below 2.9. As expected, facilities that staff consistently at higher levels have a lower percent of patient per diem costs covered than those that staff below 2.9. The table indicates the percent of patient care cost covered is higher if staffing is below 2.9.

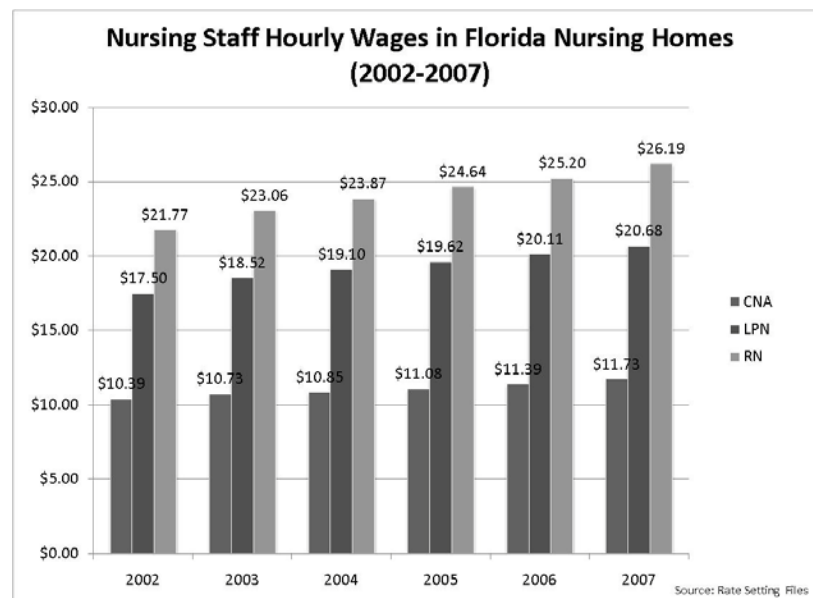
Table 7: Nursing Facility Expenditures for Facilities Staffing Above and Below 2.9 Hours per Resident Day (2002-2006)

| Florida Nursing Facility Expenditures for Facilities Staffing Above and Below 2.9 CNA HPRD, 2002-2006 | | | | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
| | >2.9 | <2.9 | >2.9 | <2.9 | >2.9 | <2.9 | >2.9 | <2.9 | >2.9 | <2.9 |
| Medicaid Per-Diem | 157.04 | 150.19 | 162.13 | 151.87 | 169.35 | 159.74 | 174.72 | 165.64 | 188.09 | 173.94 |
| Average Operating Cost per Day | 53.91 | 40.54 | 45.63 | 38.07 | 52.96 | 39.34 | 48.26 | 39.41 | 48.94 | 39.56 |
| Average Property Cost per Day | 12.59 | 16.38 | 15.38 | 16.20 | 16.25 | 16.92 | 15.11 | 17.02 | 15.53 | 18.24 |
| Average Patient Care Cost per Day | 112.23 | 106.43 | 119.13 | 110.59 | 124.22 | 115.59 | 126.57 | 119.73 | 135.85 | 127.07 |
| Average Total Expenses per Day | 194.19 | 165.24 | 189.49 | 166.08 | 205.60 | 173.15 | 199.71 | 176.81 | 208.31 | 184.70 |
| Percent Operating Cost | 28 | 25 | 24 | 23 | 26 | 23 | 24 | 22 | 24 | 21 |
| Percent Patient Care Cost | 58 | 64 | 63 | 67 | 60 | 67 | 63 | 68 | 65 | 69 |

Workers' wages and benefits are important and expected to be related to quality of care. Nurses and CNAs are important factors in the cost of nursing home care because of the large numbers employed. Nurses and CNAs are the people who work most closely with nursing home

residents in dealing with their day-to-day needs, keeping them clean and fed and monitoring their vital signs. For this reason, it is important they are paid at adequate levels. Following SB1202 (2001), there is an increase in unadjusted dollars for all three levels of nursing staff. As shown in Figure 3.5, the greatest increase in wages is among RNs, whose wages in 2002 averaged \$21.77 and increased to \$26.19 in 2007. There was also a \$1.39 increase in CNA wages from 2002-2007, and an increase in LPN wages from \$17.50 to \$20.68 during the six-year period.

Figure 3-6: Nursing Staff Hourly Wages in Florida Nursing Homes (2002-2007)



Closing Comments

This report clearly demonstrates that the direct care legislative staffing mandates have been implemented. The quality of care for nursing home residents indicates that care has improved as indicated by decreased citations. Citations for serious deficiencies in Florida nursing homes are much lower after staffing changes were implemented in 2002. Serious deficiencies in Florida facilities remain lower on average than serious citations found in the rest of the nation. Improvements in quality measures after Florida implemented its requirement of 2.9 CNA hours per resident day suggest that the percentage of residents with restraints has decreased significantly by 22%, but that the percentage of residents with bladder incontinence worsening has increased by 22% on average per facility. It is possible that resident acuity is increasing and accounts for part of the increased incontinence, but our model tries to account for changes in acuity. Other quality

measures have not demonstrated a statistically significant change. More analysis is warranted to examine the variation in quality within the state, because 2.9 CNA staffing hours should be sufficient to show improvements in quality measures. We also need further examination of homes improving in these measures verses those remaining constant or decreasing in quality measures. By analyzing the variability in quality and staffing, we might be able to provide further insights into what drives higher quality of care in Florida nursing homes.