

Evaluation of AB1629

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Chapter One: Overview, Summary of Conclusions, and Recommendations

What is AB1629?

AB1629 represents the first major revision in MediCal reimbursement for California nursing homes (NHs) since 1965. The bill replaces a flat rate system with a facility specific rate that is based on expenditures in four major cost centers. The intent of the bill was to create financial incentives for NHs to spend more on labor and labor related resources. However, the effectiveness of these incentives were hampered by several provisions of the bill and its implementation, including a sunset provision, global spending caps and thirty one to thirty nine month time lag between spending and reimbursement recognition. These may have limited expected NH provider response to these incentives even in those cases where it would appear that providers could significantly benefit and increase staffing. This evaluation was designed to determine how providers reacted to AB1629 and determine if staffing and quality improvements occurred as a result of AB1629.

Approach to evaluation

This evaluation of the effects of AB1629 was limited by the fact that 2006 was the first full year that NHs could react to AB1629, and this evaluation was conducted in 2007. We, thus, used staffing and quality data available from public reports that NHs submitted several years prior to 2006 but only for approximately one year after the implementation of AB1629. Furthermore, we had no quality data prior to AB1629 that was based on direct interviews or observations with residents and nursing staff and this type of information is highly relevant to quality of life and work issues. These limitations lead us to consider this evaluation as an early and first attempt to evaluate AB1629, which is itself in a very early stage of implementation. We conducted this first evaluation with the intent that it be comprehensive and feasible to repeat in the future when there would be more time for AB1629 to have an impact and to measure quality improvements with both measures reported by NHs and measures that could be independently gathered by research staff during site visits. We believe this comprehensive measurement approach is the best method available to accurately measure the effects of AB1629 during the early and later phases of AB1629 implementation, and this evaluation should be repeated in future years.

In terms of data available before AB1629 (e.g. cost reports, deficiency citations and MDS clinical data), we conducted analyses of changes in trends from before to after AB1629 which offer a robust method to determine how AB1629 potentially affected NH operations. We also conducted a state-wide mailed survey to identify NH providers' perceptions of AB1629 and their perceived barriers to improving staffing and quality. This mailed survey also allowed us to identify and recruit facilities for site visits that did and did not make staffing investments in reaction to AB1629. During the site visits, we interviewed residents and staff about quality issues and observed care with a standardized protocol to measure important clinical and quality of life variables. All of these survey and site visit data are independent of the quality and staffing data retrieved from public records and most directly relevant to how residents perceive their life quality and how staff perceives their work environment. A brief summary of our conclusions are presented in this chapter while the following chapters contain detailed description of the evaluation methodology and findings. A summary of the data and conclusions about research questions that were to be addressed under this contract are reported in each chapter.

Summary and conclusions

In general, we believe AB1629 has the potential to increase staffing in California NHs to levels that will improve quality. There is evidence that average health care expenditures, staff wages and revenues significantly increased as a result of AB1629, and we expect that a continuation of this trend might eventually result in quality improvements. It is also important to note that prior to AB1629, there was actually evidence for a decreasing trend in revenues and staff wages, which if continued, would very likely have eventually produced serious quality and staffing problems. However, we believe that changes in how AB1629 is implemented and further education of providers will be necessary to increase nurse staffing to those levels thought to be associated with better quality. We list recommendations for what these changes and educational efforts may be later in this chapter.

We find that 26% of California NHs made statistically significant new investments in staffing and plant operations beyond projected trends during the first full year that AB1629 was in effect. One would not expect this number of NHs to make such new investments without AB1629, and one could optimistically argue that this is a high number of facilities making investments given the brief time period that AB1629 has been in effect. Furthermore, there was a larger increase in average direct staffing hours in most homes (1063) between 2005 and 2006 than in any year since 2001 and 2002 which suggests the possibility that a new trend may be beginning. However, the number of facilities with statistically significant new investments beyond the projected trend (number = 287) was not sufficient to substantially change average levels of staffing hours across all California NHs; and, even in the facilities that made new investments, there were not large increases in nurse aide hours. Facilities that made new investments were more likely to significantly increase wages for all staff, and particularly nurse aide wages, but to increase hours only for licensed nurses and some selected categories of other staff (e.g. dietary).

It should also be noted that even though there was a significant increase in nurse aide wages in 2006 when compared to the predicted 2006 wage, this increase reversed a several-year decreasing trend for aide hourly wages. Therefore, wages in 2006 were actually lower than in 2004, if inflation is considered. One might speculate that it would still be difficult for NHs to compete in their labor markets and hire more aides given these wage rate realities.

A 2002 study provided evidence that California NHs staffed above 4.1 total hours per resident day provided significantly better care on several quality measures than lower staffed California NHs¹. These high-staffed homes were mostly 100% private pay or non-profits who subsidized their operations with endowments and gifts. It is possible that AB1629 could eventually allow more NHs, and particularly those with larger MediCal populations, to afford these higher staffing levels. However, given the yearly spending Caps that are imposed by AB1629 (5.5% in 2007 and 2008) it will take more than two years to reach these levels even if providers are motivated to hire more staff.

This issue of the motivation or ability of providers to make investments is a key point. Most of the NHs that did not make investments beyond the predicted trend after AB1629 had low expenditures prior to AB1629 and did not make larger investments either because of poor understanding of the bill or inability to absorb the initial costs of investment until higher reimbursements were realized. This is probably a group of NHs who are most in need of staffing improvements even though this group increased overall direct care staffing from 3.24 hours per resident day (HPRD) in 2004 to 3.31 in 2006. This is to be contrasted to an increase from 3.31 HPRD for homes who did invest beyond the trend in 2004 to 3.39 in 2006. . (See recommendations)

Several barriers to increasing staffing were reported by NHs, including those who did make new investments, which may explain why more facilities did not make changes in staffing. These barriers include lack of understanding about how AB1629 works to improve reimbursement; long delays (from 31 to 39 months) between spending and State recognition of the spending through a facility-specific MediCal rate; low caps on reimbursement and lack of confidence that AB1629 will be renewed because of the sunset provisions in the bill. It would appear that all of these barriers could and should be effectively addressed in future years with education and relatively minor administrative modifications to the implementation of AB1629.

However, facilities with small MediCal populations and those with low plant operation costs do not benefit as much from the reimbursement provisions of AB1629 and, hence, are not able or motivated to improve staffing unless more dramatic changes are made in the provisions of AB1629. It is noteworthy; that the few homes who invested below the projected trend after AB1629 were higher staffed before and after AB1629. This group (N=46) increased from 3.59 HPRD in 2004 to 3.60 in 2006. This reflects less of a staffing improvement from 2004 to 2006 than any other group of homes but this group continues to have higher staffing than even homes that made significant new investments. These higher staffing levels reflect low percentages of MediCal patients and the lack of new investment reflects how AB1629 did not increase revenues for this group of homes. Finally, it remains unclear if even NHs that have increased staffing investments will continue to do so and increase staffing levels. Increasing wages has proven the more popular reaction to AB1629. In sum, there is indication that at least some facilities made significant staffing investments as a result of AB1629, but many facilities have not and overall staffing levels in California have not dramatically changed as a result of AB1629.

One could argue that the number of facilities making new investments and the size of the investments in staffing will improve as NHs have had longer to react to AB1629 or if AB1629 is further refined.

It is clear that further evaluations similar to that conducted in this study should be repeated in the future because it is likely that further modifications to AB1629, as well as other interventions, may be necessary to increase staffing to levels associated with better quality and these evaluations can inform what these modifications and other interventions should be. Future evaluations would be better able to document improvements over time than was the case with this initial evaluation and identify issues that could be resolved to realize the full potential of a reimbursement mechanism whose intent is to encourage staffing investment.

The following specific conclusions are discussed in more detail in the remaining chapters of this report:

- There was a significant trend for a decrease in inflation adjusted MediCal and overall revenues for NHs prior to AB1629 that was reversed after AB1629.
- There was a small but statistically significant trend for an increase in total health care expenditures for four years prior to AB1629 but a more significant increase in expenditures occurred after AB1629.
- If NHs increased staffing beyond projected trends, they were more likely to increase staffing for licensed nurses.
- There were more NHs that elected to improve wages than NHs who elected to improve staffing levels and nurse aides, in particular, were frequent recipients of higher than expected wage increases which reversed a trend for a decrease in wages for this critical employee group who provides most of the direct resident care.
- There were no consistent improvements in clinical quality measures that could be tracked to AB1629. The absence of quality improvements were observed in facilities that made new investments in staffing and those that did not. However, changes in the survey process and factors other than quality of care very likely explain these results.
- Staff in a sample of NHs who reported making staffing investments was more likely to report improvements in their working conditions and particularly wages than in NHs who did not report making investments, which support the conclusions and validity of the cost report data.
- Resident interviews show that 72 percent of residents are highly or mostly satisfied with their care. However, many residents listed staffing issues when asked how they would improve care. The percent of residents who reported that their care was “very good” was significantly higher in homes staffed above 3.8 hours per resident day which suggests that this level of staffing is associated with higher quality.
- Observations of the quality of care and quality of interaction between residents and staff during mealtimes in a sample of 31 homes were similar to the same quality measures collected in 2002. Assistance was better, on several observational measures of quality for homes staffed above 3.8 hours per resident day which suggests these observational measures will be sensitive to staffing improvements that might occur in future years of AB1629.
- Most providers (80%) who responded to the survey indicated they would make more investments in the future as a result of AB1629 but several reasons were given for how AB1629 could be improved to encourage larger investments or why more investments would not be made. The most often cited reasons for improvement were faster reimbursement and higher reimbursement caps. A surprising number of survey respondents (15%) reported they were unclear about how AB1629 affected their reimbursement rates and one can only predict that even a higher percentage of providers who did not respond to the survey might also be uncertain.
- There was a surprising and significant difference in the characteristics of the 287 facilities who made significant investments beyond the projected trend and those who did not according to cost report data. Facilities that made significant changes in their investments from 2004 to 2006 also had significantly higher expenditures in 2004. More specifically, facilities that made new investments after AB1629 spent a median of \$179 per day on total health care expenses in 2004 and increased these expenditures by 9.3% to \$233 in 2006. These numbers are compared to \$166 in total health care expenditures in 2004

for facilities that did not significantly change investments beyond the predicted trend. These latter facilities increased expenditures by only 3.5% to \$177 in 2006. All cost data are adjusted for \$2006. These differences in expenditures probably reflect the increased financial capacity of some facilities to make investments despite a multi-year delay in reimbursement. One unintentional outcome of the delays in payments involved in the implementation of AB1629 may be that only NHs with higher expenditures and cash flow can take full advantage of the reimbursement provisions in the bill.

Recommendations

- 1. Goal: Increase the number of homes who make significant new staffing investments:** This goal can be partially accomplished by reducing time delay between new investment and changes in reimbursement by not requiring that cost report data be first audited and enacting a significant financial penalty for inaccurate cost reporting. Alternatively, conduct audits of cost reports in a timelier manner than is currently done. In addition, modify the sunset provisions so that providers have more confidence that investments will be reimbursed.
- 2. Goal: Conduct on ongoing evaluation for improvement purposes.** This report describes an evaluation of AB1629 at an early phase in its implementation and the evaluation should be repeated on a yearly basis to determine changes in investments; to identify barriers to investment; and on an 18-24 month basis to determine changes on quality measures. The direct reports of residents about their quality of life and care quality improvements should be an important component of these evaluations.

Chapter Two: Revenues, Expenditures, Staffing and Clinical Indicator Data.

Methodology

Study population

The study included all nursing homes submitting a cost report to the State of California and which are categorized as either a skilled nursing facility (SNF) or SNF/Residential Facility during the 2001-2006 period. We excluded facilities with multiple records for the year if they did not cover a 12 month period. The number of facilities included in the analyses ranged from 1,112 to 1,154 with a total number of beds ranging between 109,579 to 113,301 for an average of 98-99 beds per facility (see Table 1).

Table 1: Nursing Homes included in the study*

	Number of nursing homes	Number of beds	
		Average	Total
2001	1154	98	113,301
2002	1138	98	111,142
2003	1141	98	111,710
2004	1124	98	109,833
2005	1126	98	110,010
2006	1112	99	109,579

* SNF and SNF/Residential

Data

We obtained cost reports for all licensed nursing homes in the state of California for the period 2001-2006 from the Office of Statewide Health Planning and Development. These datasets include facility level financial information submitted by each nursing home annually. The data include information about revenues by payer type, expenditures by cost center, staffing levels by type, wages and turnover rates.

These data are submitted by all nursing homes to the state of California and are used by the state to set MediCal payment rates for nursing homes. Data quality is enhanced through an audit process implemented by the state. All the data we obtained have been audited except for the 2006 turnover data. At the time we obtained these data – summer of 2007 – the State has not yet completed its audit process for the turnover data. Therefore, findings related to turnover may be less accurate than other findings.

Annual reports were assigned to calendar years based on the end date reported in the cost report.

Variables:

Variables were created from the raw data as follows:

- All dollar figures were converted to 2006 constant dollars using the medical care services component of the Consumer Price Index for all urban consumers, published by the U.S. Department of Labor, Bureau of Labor Statistics.
- Expenditures, revenues and staffing levels were divided by the number of patient days for each nursing home.

Analyses

To evaluate the impact of AB1629 on revenues, expenditures, staffing and turnover we compared the levels of these variables in the post period – e.g. 2006 – to the trend in the pre period, 2001-2004. Because the legislation was enacted in August 2005, 2005 is a mixed year and we chose to exclude it from the analyses.

By comparing the 2006 levels to the 2001-2004 trend, we offer a stronger test of change than a comparison to 2004 alone would have provided. A comparison to 2004 alone might have been biased if 2004 happened to be an unusual year. A comparison to 4 preceding years provides a more robust test and allows us to attribute observed changes in trend to AB1629 with greater confidence.

The following analysis was repeated separately for each variable reported in tables 11-16. In the following we demonstrate the method with respect to expenditures per day. To estimate the trend during the 2001-2004 period, we estimated a random effect regression model in which expenditures per day for each facility for each year was the dependent variable, time was the independent variable and we allowed for a random facility intercept, as follows:

$$(1) \quad \frac{EXP}{Days_{i,t}} = \alpha + \beta t + v_{i,t} + \varepsilon_i$$

Where ε_i is the facility random effect error component. This specification assumes that all nursing homes are following the same trend over the period but that they may have started at different levels in 2001.

We used this estimated model to predict for each facility its own expected expenditures per day in 2006, if the 2001-2004 trends were to continue. We also estimated a 95% confidence interval (CI) for this predicted value. We compared each facility's actual 2006 value to the predicted value and report how many facilities were below and how many facilities were above the 95th percent CI. Those facilities that were outside the 95% CI are judged to have 2006 expenditure levels that were significantly different from the trends observed in the pre AB1629 period. A substantial number of such facilities would indicate that AB1629 has impacted a large number of nursing homes.

ANALYSES: QUALITY OF CARE – DEFICIENCY CITATIONS AND QUALITY MEASURES

To evaluate changes in quality of care we adopted a two pronged approach. We examined changes in the number of deficiency citations issued by California surveyors and changes in four risk-adjusted health outcome-based quality measures based on the quality measures (QMs) published by the Centers for Medicare & Medicaid (CMS) in the web based Nursing Home Compare report card. We describe each in more detail below.

Measuring quality using these two approaches offers complimentary perspectives on quality. Deficiency citations reflect facilities' compliance with federal and state standards of quality, as judged by the state surveyors². The QMs are measures of facility's performance that are based on health outcomes of its residents, such as decline in functional status, and offer more direct measures of the ability of the facility to maintain the physical health of its residents. Because the QMs depend on both the quality of care that residents receive, their initial health status when they enter the facility, and subsequent adverse health events (e.g. a stroke that may lead to decline in functioning), all the QMs we use in the analyses have been adjusted for residents health conditions, e.g. their risk factors. Thus, they can be interpreted as reflecting the impact of the care the nursing home provides on residents health status, controlling for differences in residents illness and frailty across facilities.

Limitations of these analyses

We note that quality measurements based on both deficiency citations and QMs are subject to important limitations that should be kept in mind when the findings are considered.

Number of deficiency citations issued reflects not only quality of care but also the policies of the survey offices and the resources available to the surveyors. Anecdotal evidence suggests that the increase in overall deficiency citations observed in California nursing homes in 2005 and 2006 might be due at least partially to the increase in staffing of the Licensing and Certification office, California Department of Health Services, which occurred in recent years. Thus, it is possible that quality has improved but that such improvement cannot be detected through a reduction in deficiencies because of other forces prevailing at the same time that resulted in increases in deficiencies.

The limitations of quality assessment based on QMs are two fold. First, to the degree that the risk adjustment is not comprehensive, the QMs reflect not only changes in quality but also changes in case mix over time. While we believe that we were able to account for most of the important patient risk factors that influence the health outcomes included in this study, it is possible that subtle changes in case mix have occurred which may have influenced some of these measures and may, therefore, mask some improvements in quality. Of more import is the fact that assessing quality based on QMs, in contrast to assessment based on deficiency citations, provides a more limited perspective of quality. In this study we were able to assess changes in trends in only 4 QMs. This leaves many areas, clinical and non-clinical, unevaluated. And because different dimensions of quality tend to be uncorrelated, our findings regarding the four QMs that we studied cannot be generalized to other areas of care.

Deficiency citations

Data and variables

Deficiency citations are issued by state surveyors during their annual survey of nursing homes. A citation is issued when a facility is found to be not in compliance with a state or federal standard. Deficiency citations are categorized based on their severity and scope, e.g. the number of individuals who are affected. Table 2 shows the 9 severity/scope categories. We performed the analyses categorizing deficiencies in two ways: all deficiencies and deficiencies of level G or above. The latter category includes the more severe and less frequent deficiencies.

Table 2: Definitions of Scope and Severity of Deficiency Citations

Severity of Deficiency	Scope of Deficiency		
	Isolated	Pattern	Widespread
Immediate jeopardy to resident health or safety	J	K	L
Actual harm that is not immediate jeopardy	G	H	I
No actual harm with potential for more than minimal harm that is not immediate jeopardy	D	E	F
No actual harm with potential for minimal harm	A	B	C

We obtained the Online Survey, Certification and Reporting (OSCAR) dataset from the CMS for the 2001-2006 periods for all nursing homes in California. This dataset includes information about all surveys conducted in these facilities, the dates of the surveys, the federal deficiency citations issued, their severity and scope. Following the methodology of the Office of Inspector General, Department of Health and Human Services³, we obtained from the dataset the latest survey in each calendar year for each facility and created variables that measure the number of citations in each of the two deficiency categories for each nursing home.

Risk adjusted QMs

Data

We obtained the Minimum Dataset (MDS) from the CMS for the period 2001-2006. The MDS is an individual level dataset with information about each nursing home resident. Data are collected at the time the individual enters the nursing home, at pre-determined subsequent times during the stay, and whenever there has been a substantial change in the resident's condition. This dataset includes information about resident demographics, payer status, diagnoses, functional and mental status. These data are used by the CMS to calculate the quality measures that are published on the web in the Nursing Home Compare report and the quality indicators that are used by surveyors in the survey process (the CHSRA QIs), as well as to determine RUGs III scores for Medicare payment.

The quality of the MDS data varies depending on the variables. Those that are being used to calculate RUGs III categories and those that are used in calculation of the QMs are expected to be of highest and least variable quality. An Abt Associates study⁴ reports that the average reliability estimates for variables that form the basis for the Abt QIs are high, indicating high agreement when two clinicians independently assessed the

same patient during the same time frame. This report also finds that MDS variables are valid, when comparing them or scales calculated from them to other instruments. They are also responsive – i.e sensitive enough to detect clinically meaningful changes in patient status. A more recent validation study by Abt Associates,⁵ in which nurses' assessments of 43 MDS data elements were compared to facility MDS assessments in 209 nursing homes in six states, reports only one with poor reliability (Kappa below 0.4) and 10 with moderate reliability (Kappa below 0.7). All other had excellent reliability.

Methodology for calculating risk adjusted QMs

We calculated 4 risk adjusted QMs: decline in the residents' functional status since the last assessment, prevalence of pressure sores for residents at high risk, prevalence of pressure sores for residents at low risk, and prevalence of physical restraints. The method used to calculate the risk adjusted QMs has been used in previous studies to develop such measures^{6; 7; 8; 9}. It included the following steps:

- 1) Outcomes were defined using the CMS methodology for the Nursing Home Compare QMs, applying the same inclusion and exclusion criteria¹⁰. All outcomes were defined as dichotomous variables, set to 1 if the resident experienced the outcome, 0 otherwise. See Table 3 for the definition of the outcomes.

Table 3: Definitions of outcomes for QMs

Quality Measures	Exclusion Criteria*
Percent of long-stay residents:	
whose need for help with daily activities has increased	(2) (3) (4) (5)
who have pressure ulcers (high-risk)	(1) (2) (6)
who have pressure ulcers (low-risk)	(1) (2) (6)
who were physically restrained	(1) (2)

* Exclusion Criteria:

- (1) Target assessment is an admission;
 - (2) The QM did not trigger (resident not in numerator) and/or there is missing or inconsistent data on Minimum Dataset (MDS) items required for quality measure (OM);
 - (3) MDS item cannot show decline because it has total dependence value if activity did not occur;
 - (4) Resident is comatose or comatose status is unknown;
 - (5) Resident has end-stage disease or receives hospice care;
 - (6) Not qualify as high-risk and bed mobility or transfer or comatose is unknown;
- 2) We identified risk factors (beyond those included in the CMS QMs) from the relevant literature. We then included all those that were available in the PPS, quarterly and annual MDS assessments and that were judged by a geriatrician, who is familiar with the nursing home population, to potentially influence the outcome. Risk factors were identified separately for each outcome. These are listed in Tables 4-7.

Table 4: Descriptive statistics for risk adjustment models – Decline in functional status (ADLs)

Variable	Mean
Late-loss ADL worsening (1 = yes / 0 = no)	0.13
Age	78.6
Female (1 = yes / 0 = no)	0.67
ADL self performance (range 0 - 4, 0 = independent / 4 = total dependence):	
bed mobility	1.72
transfer	2.20
eating	1.07
toilet use	2.59
Short-term memory problem (1 = yes / 0 = no)	0.75
Cognitive skills for daily decision making impaired (1 = yes / 0 = no)	0.57
Ability to understand others - sometimes or rarely (1 = yes / 0 = no)	0.26
Pain (1 = yes / 0 = no)	0.18
Fall (1 = yes / 0 = no)	0.27
Weight loss (1 = yes / 0 = no)	0.07
Ability to understand others – sometimes (1 = yes/0 = no)	0.22
Ability to understand others – rarely (1 = yes/0 = no)	0.05
Delirium (1 = yes / 0 = no)	0.01
Depression (1 = yes / 0 = no)	0.13

Table 5: Descriptive statistics for risk adjustment models – Pressure ulcers among *high-risk* residents

Variable	Mean
Prevalence of Pressure Ulcers,	0.14
Age	79.2
Female (1 = yes / 0 = no)	0.71
ADL limited assistance in bed mobility (1 = yes / 0 = no)	0.15
ADL dependence in bed mobility (1 = yes / 0 = no)	0.81
ADL dependence in transfer (1 = yes / 0 = no)	0.98
Loss of voluntary movement (1 = yes / 0 = no)	0.20
Bedfast (1 = yes / 0 = no)	0.09
Weight loss (1 = yes / 0 = no)	0.10

Table 6: Descriptive statistics for risk adjustment models – Pressure ulcers among *low-risk* residents

Variable	Mean
Prevalence of Pressure Ulcers	0.03
Age	76.4
Female (1 = yes / 0 = no)	0.62
ADL limited assistance in bed mobility (1 = yes / 0 = no)	0.23
ADL limited assistance in transfer (1 = yes / 0 = no)	0.39
Loss of voluntary movement (1 = yes / 0 = no)	0.03
Bedfast (1 = yes / 0 = no)	0.01
Incontinence bowel or bladder (1 = yes / 0 = no)	0.32

Weight loss (1 = yes / 0 = no)	0.06
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Table 7: Descriptive statistics for risk adjustment models – Physical restraints

Variable	Mean
Prevalence of Physical Restraints used daily	0.16
Age	78.1
Female (1 = yes / 0 = no)	0.67
Making self understood – sometimes (1 = yes / 0 = no)	0.21
Making self understood – rarely (1 = yes / 0 = no)	0.15
Physically abusive (1 = yes / 0 = no)	0.03
Socially inappropriate (1 = yes / 0 = no)	0.11
Resists care (1 = yes / 0 = no)	0.17
ADL limitation in bed mobility (1 = yes / 0 = no)	0.61
Fell in last 180 days (1 = yes / 0 = no)	0.23
Cognitive skills in decision making impaired (1 = yes / 0 = no)	0.64
Ability to understand others – sometimes (1 = yes / 0 = no)	0.24
Ability to understand others – rarely (1 = yes / 0 = no)	0.12

- 3) We randomly split the data into two. One half of the data was used for model development and the other half for model validation.
- 4) We estimated hierarchical random effect logistic models to identify the association of each risk factor with the relevant outcome. These models were based on individual level outcomes and risk factors, allowing for a random facility intercept to account for the potentially non-random clustering of residents within facilities, as follows:

$$(i) \quad \text{Ln} \frac{P_{i,j}}{1 - P_{i,j}} = \alpha + \sum_k \beta_k X_{i,j,k} + \varepsilon_{i,j} + \nu_j$$

where $p_{i,j}$ is the probability that resident i in facility j will experience the outcome, $X_{i,j,k}$ are the k risk factors for the resident, ν_j is a facility error component and $\varepsilon_{i,j}$ is the resident error component.

Model specification was guided by inspection of the C statistic, which measures the discrimination of the model, and the Hosmer-Lemeshow statistic, which measures the calibration of the model¹¹. Based on these criteria we determined that model fit improves when the risk models are stratified by age¹².

We, therefore, estimated separate models for each of four age groups: age less than or equal to 64, 65-74, 75-84 and 85+.

- 5) The models developed in step 4 were validated on the test dataset and the C and the Hosmer Lemeshow statistics were evaluated on this dataset.
- 6) The final model coefficients were estimated on the full dataset. These coefficients were then used to calculate the expected probability of the outcome for each resident, $E_{i,j}$, conditional on his or her specific risk factors, as follows:

$$(ii) \quad E_{i,j} = \frac{e^{\hat{\alpha} + \sum_k \hat{\beta}_k X_{i,j,k}}}{1 + e^{\hat{\alpha} + \sum_k \hat{\beta}_k X_{i,j,k}}}$$

where $\hat{\alpha}$ and $\hat{\beta}$ are the average estimated coefficients from the regression models given by equation (i).

- 7) The expected and observed facility rates were calculated as the average of the individual expected probability and the average of the observed outcomes respectively.
- 8) The risk adjusted QM was calculated as the ratio of the observed to expected rate^{13, 14, 15}.

Risk adjusted QMs

The final risk adjusted models and the goodness of fit statistics are shown in tables 8-11. Each table presents separate risk adjustment models for each of the age groups. The models predict the probability of the outcome, (e.g. the logit of decline in ADL for an individual resident given his or her age and other relevant risk factors). The table provides the coefficients for each risk factors and the statistical significance of that risk factor.

Table 8: Decline in Functional Status
Risk Adjustment Model Predicting the Log Odds by Age Group.

Risk factors	Age ≤ 64	Age 65 - 74	Age ≥ 75
Age	0.03***	0.03***	0.01***
Female	—	-0.03	-0.09***
ADL bed mobility	-0.23***	-0.17***	-0.15***
ADL transfer	0.07***	—	-0.04***
ADL eating	-0.09***	-0.11***	-0.15***
ADL toilet use	0.23***	0.09***	0.04***
Short-term memory problem	0.27***	—	0.10***
Cognitive skills impaired	-0.23***	0.08***	0.20***
Ability to understand others:		Reference category	
Always or usually		—	—
Sometimes or rarely	0.13**	—	—
Sometimes	—	0.23***	0.15***
Rarely	—	0.38***	0.24***
Delirium	—	0.38***	0.17***
Depression	—	—	0.10***
Pain	0.35***	0.18***	0.77***
Fall	0.51***	0.31***	0.19***
Weight loss	0.41***	0.34***	0.26***
Sample size	255,566	203,099	1,120,460
C statistics	0.82	0.81	0.77

Statistical significance of the risk factor: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

Table 9: Pressure Ulcers among high-risk residents
Risk Adjustment Models Predicting the Log Odds by Age Group.

Risk factors	Age ≤ 64	Age 65 - 74	Age 75 - 84	Age ≥ 85
Age	0.02***	—	—	-0.01***
Female	-0.21***	-0.23***	-0.33***	-0.44***
ADLs:				
Limited assistance in bed mobility	0.43***	0.22***	0.38***	0.39***
Dependence in bed mobility	0.76***	0.90***	1.05***	1.12***
Dependence in transfer	0.34***	0.44***	0.56***	0.63***
Loss of voluntary movement	0.38***	0.27***	0.32***	0.31***
Bedfast	0.97***	0.99***	1.12***	1.11***
Weight loss	0.87***	1.00***	0.97***	0.96***
Sample size	171,959	134,072	351,705	510,894
C statistics	0.95	0.93	0.93	0.92

Statistical significance of the risk factor: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

Table 10: Pressure Ulcers among low-risk residents
Risk Adjustment Models Predicting the Log Odds by Age Group.

Risk factors	Age <= 64	Age 65 - 74	Age 75 - 84	Age >= 85
Age	-0.01***	—	—	—
Female	-0.33***	-0.18***	-0.38***	-0.44***
ADLs:				
Limited assistance in bed mobility	0.20***	0.33***	0.38***	0.37***
Limited assistance in transfer	0.38***	0.75***	0.84***	0.75***
Loss of voluntary movement	1.50***	0.41***	0.42***	—
Bedfast	1.27***	1.19***	0.99***	1.09***
Incontinence bowel or bladder	0.31***	0.14**	—	0.08**
Weight loss	0.73***	0.98***	1.00***	1.01***
Sample size	164,136	105,923	217,754	283,867
C statistics	0.87	0.82	0.78	0.75

Statistical significance of the risk factor: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

Table 11: Physical Restraints
Risk Adjustment Models Predicting the Log Odds by Age Group.

Risk factors	Age < 65	Age 65 – 74	Age >= 75
Age	—	0.02**	—
Female	—	-0.06	-0.18***
Making self understood:			
Always or usually		Reference category	
Sometimes	0.81***	0.52***	0.44***
Rarely	1.39***	0.90***	0.61***
Behavior problems:			
Physically abusive	0.27***	0.33***	0.16***
Socially inappropriate	0.12***	0.14***	0.19***
Resists care	-0.10***	-0.13***	-0.00
ADL limitation in bed mobility	0.96***	0.96***	0.89***
Fall in last 180 days	0.48***	0.52***	0.40***
Cognitive skills	0.91***	1.36***	1.57***
Ability to understand others:			
Always or usually		Reference category	
Sometimes	0.50***	0.59***	0.47***
Rarely	0.78***	0.80***	0.58***
Sample size	320,154	235,378	1,350,989
C statistics	0.97	0.98	0.97

Statistical significance of the risk factor: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

RESULTS: REVENUES, EXPENDITURES, STAFFING AND TURNOVER; COST REPORT

Tables 12-15 report the findings of these analyses. Each table reports the average value for the relevant variable for the 2001-2004 period and for 2006, the regression estimated annual trend over the 2001-2004 period and whether or not the trend was significant, and in the last two columns the percent of nursing homes that in 2006 were significantly different from the 2001-2004 trend, those that were above and those that were below the trend. Note that for all of the statistics evaluated in this section, except for turnover, a positive impact of AB1629 would be a shift of the trend lines towards higher values, e.g. towards an increase in staffing, such

that we would expect to see a large percent of facilities above the trend line. For turnover, where the desired impact of AB 1629 is a decline, we would expect a larger number of facilities to be below the trend line in 2006.

For example, Table 12 first row reports the findings for MediCal revenues per day. In 2001 the average MediCal revenues per day (in 2006 \$) were \$141.61. By 2004 they declined to \$135.05. In 2006 the trend has reversed and revenues per day increased to \$156.67. It is clear from these data that there was a large increase in revenues in 2006, as expected due to AB1629. The regression estimated trend over the 2001-2004 period was indeed for a decline in MediCal revenues per day of \$2.43 per year, a decline that was statistically significant (at the 0.001 level). By 2006, 86% of facilities had MediCal revenues that were significantly above the prior, 2001-2004, trend, while 3.5% were below the trend, indicating that the vast majority of nursing homes experienced a significant increase in their MediCal revenues per day.

In evaluating the results reported in these tables it is important to note that we would expect some percent of facilities to be both above and below the 95th CI by chance alone. However, these percents should be relatively small, about 5%-10% and should be similar both above and below the trend line. In the example above we have a very strong indication of deviation from the trend because 86% of facilities are above the trend compared with only 3.5% below.

Trends in Revenues per day

While total revenues per day have been stable over the 2001-2004 periods in constant 2006 dollars, MediCal revenues have been declining slightly, and the share of MediCal in total revenues per day has declined by about 1% per year. This trend has been reversed for the vast majority of facilities by 2006; post AB1629, with 86% experiencing a significant increase in MediCal revenues and 50% experiencing an increase in the share of MediCal in total revenues. These results are not surprising, as this is the intention of AB1629.

Table 12: Trends in revenues per day

	Annual averages (2006 \$)					2001-2004 Annual Trend (2006 \$/day) ^a	2006 - % of nursing homes significantly ^b	
	2001	2002	2003	2004	2006		above the trend	below the trend
Total Revenues per day:								
Medi-Cal	141.61	138.9 4	135.1 5	135.0 5	156.6 6	-2.43***	86.0	3.5
Total	180.84	181.5 4	177.8 6	183.1 0	205.4 6	-0.15	54.1	2.4
Medi-Cal as % of total	82%	80%	79%	77%	79%	-1.00%***	50.4	13.4
Healthcare revenues per day	184.50	184.8 6	181.8 3	185.2 7	209.1 5	0.13	53.7	3.3

^a Statistical significance of the 2001-2004 trend: * 0.01 < p ≤ 0.05, ** 0.001 < p ≤ 0.01, *** p ≤ 0.001

^b Outside the 95th CI

Trends in expenditures per day

Total healthcare expenditures increased over the 2001-2004 period in constant 2006 dollars. Post AB1629, we observe a significant increase above and beyond this trend in a quarter of all nursing homes (25.9%) and a decrease in only a few (4.2%). This suggests that 25% of nursing homes have responded to AB1629 by increasing their expenditures above and beyond recent trends. While this is a substantial and significant number of nursing homes responding positively to the legislation, it is a much smaller proportion than the proportion experiencing an increase in revenues above the trend.

The 287 facilities that exhibited significant increases in total health care expenditures per day above the pre AB1629 trend had a median expenditure per day of \$233 in 2006 compared with \$177 in the facilities that did not exhibit a significant increase. These facilities also had higher expenditures per day in 2004, at \$179 compared with \$166, respectively (both in 2006 dollars). The average rate of increase over the two years, 2004 to 2006 was 9.3% among those with a significant increase in expenditures compared to only 3.5% in those without a significant increase. Nursing homes that have increased their expenditures were similar to all others in terms of number of mean beds (98 vs. 100 $p = 0.51$), percent non-profit (11.8 vs. 11.7 $p = 0.68$) and average turnover rates (55% vs. 57% $p = 0.46$) but had significantly lower average occupancy (84.6% vs. 89.6% $p = 0.00$).

The rest of the table identifies the categories in which much of the increase in expenditures occurred. Investment seemed to have focused in skilled nursing care more than in other types of routine care. Areas with a particularly large number of facilities likely to invest (a larger than 5 percentage point difference between those above and below the trend line) included physical and occupational therapy, pharmacy, other ancillary, plant operation, and dietary.

Table 13: Trends in expenditures per day

	Annual Averages (2006 \$)					2001-2004 Annual Trend ^a (2006 \$/day)	2006 - % of nursing homes significantly ^b	
	2001	2002	2003	2004	2006		above the trend	below the trend
Total healthcare expenses	187.6 5	191.7 5	189.2 6	191.8 7	207.60	0.64*	25.9	4.2
Total routine expenditures	79.26	82.12	81.41	83.11	85.71	0.80***	16.2	15.1
Skilled nursing expenses	75.08	76.94	76.28	76.93	79.06	0.42***	19.3	13.3
Physical Therapy	4.34	4.61	4.87	5.66	6.82	0.36***	25.2	13.4
Occupational Therapy	2.40	2.65	2.93	3.36	4.34	0.28***	26.4	20.2
Pharmacy	4.13	4.17	4.22	4.29	4.86	0.04	23.3	11.5
Other ancillary	1.25	1.18	1.09	0.96	1.45	-0.10***	13.4	6.8
Social Services	2.08	2.17	2.12	2.11	2.24	0.00	14.2	12.1
Activities	3.04	3.13	3.04	3.04	3.04	-0.00	13.3	15.3
Plant operation	8.74	8.63	8.09	8.00	8.74	-0.27***	27.3	4.0
Housekeeping	5.71	5.73	5.51	5.43	5.42	-0.11***	18.4	13.3
Laundry	3.43	3.42	3.23	3.19	3.05	-0.09***	20.7	16.3
Dietary	16.01	15.98	15.49	15.24	15.68	-0.30***	18.5	6.6

^a Statistical significance of the 2001-2004 trend: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

^b Outside the 95th CI.

Trends in staffing hours per resident day

Pre AB1629 trends were either toward decline or stable staffing hours per resident day for all categories except LVNs and nurses aides, which experienced an increase during the 2001-2004 periods. In 2006, over a quarter of nursing homes (26.2% and 29.4% respectively) increased RNs and LVN staffing levels significantly above the previous trend. However, only 11.7% exhibited a significant increase in nurse's aides staffing levels, compared with 21.7% of nursing homes that have experienced a significant decline in staffing of nurses aides,

suggesting that staffing levels of nurse's aides in general has not improved in 2006 compared with the prior period.

It is important to note, however, that the 2001-2004 increasing trend in nurse's aides staffing levels was driven primarily by the low level of staffing in 2001 followed by a large increase in 2002 when California changed their methodology for determining minimum staffing levels (i.e., LVN and RN hours were no longer counted two times more than CNA hours when determining facility staffing compliance with the same 3.2 hour per patient per day minimum staffing standard over a twenty-four hour period).. Staffing levels since 2002 were much more stable. We, therefore, also present an analysis based on trends starting in 2002. This analysis shows a much slower growth in nurse's aides staffing levels pre AB1692. And while the percent of facilities that in 2006 are significantly below the trend is not as large, it is still substantial and comparable to the percent of facilities that are significantly above the trend, suggesting that there were no substantial increases in nurses aides staffing compared to prior trends in response to AB1629.

Other large staffing increases (above 5 percentage point differences) are observed for plant operation, housekeeping and dietary. It is noteworthy that these areas experienced a decline in staffing pre AB1629 and perhaps the increase in 2006 was intended to compensate for a perceived shortfall that occurred during the previous period.

Table 14: Trends in staffing hours per resident day

	Annual Averages					2001-2004 Annual Trend ^a (hrs/day)	2006 - % of nursing homes significantly ^b	
	2001	2002	2003	2004	2006		above the trend	below the trend
Nursing staff:								
RNs	0.30	0.29	0.28	0.27	0.27	-0.011***	26.2	13.6
LVNs	0.59	0.61	0.62	0.64	0.70	0.016***	29.4	18.8
Nurses Aides	2.26	2.35	2.36	2.37	2.40	0.034***	11.7	21.7
Nurses Aides, Trend Excluding 2001		2.35	2.36	2.37	2.40	0.012**	12.9	14.5
Nurse Supervisors	0.11	0.11	0.10	0.10	0.09	-0.003***	12.5	15.1
Social Services	0.08	0.08	0.09	0.08	0.09	-0.000	18.5	13.2
Activities	0.16	0.16	0.16	0.16	0.16	-0.000	18.4	13.4
Plant operation	0.11	0.12	0.11	0.11	0.12	-0.000	19.7	13.1
Housekeeping	0.33	0.33	0.31	0.30	0.31	-0.010***	25.0	14.9
Laundry	0.17	0.17	0.16	0.16	0.16	-0.005***	21.6	18.2
Dietary	0.60	0.59	0.58	0.57	0.60	-0.010***	19.0	7.0

^a Statistical significance of the 2001-2004 trend: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

^b Outside the 95th CI.

Trends in wages per hour

All wages, except those of RNs and LVNs exhibited a declining trend in real 2006 dollars over the 2001-2004 periods. The wages for RNs and LVNs were stable over the period. In 2006 almost all categories show a substantial percent – around 25% - of facilities increasing wages above the previous trend, with many fewer being below the trend. Of particular interest is the large percent of facilities, 32.1%, that are above the trend for increasing wages for nurse's aides, compared with only 8.5% that are below the trend. This finding may shed light on the relatively small number of facilities that increased aide's hours, suggesting that perhaps labor market constraints and competition from other employers for this labor force, which unlike nurses and

LVNs is less specialized and therefore more mobile across industries, prevented nursing homes from increasing staffing levels as much as they would have liked to.

It is also noteworthy that nursing homes chose to increase wages in all categories. This may indicate either a perception that all staff categories required a wage correction or that the wage structure in nursing homes is strongly linked across categories and that labor relations may dictate that relative wage scales be maintained.

Table 15: Trends in wages per hour

	Annual Averages (2006 \$)					2001-2004 Annual Trend ^a (2006 \$/hr)	2006 - % of nursing homes significantly ^b	
	2001	2002	2003	2004	2006		above the trend	below the trend
RNs	30.17	30.56	30.18	30.53	31.44	0.05	25.5	13.9
LVNs	23.55	23.86	23.54	23.72	23.99	0.03	20.0	14.2
Aides	12.37	12.27	11.79	11.53	11.39	-0.30***	32.1	8.5
Nursing Supervisor	38.74	39.33	39.37	40.10	41.95	0.37***	23.8	17.2
Social Services	18.18	18.10	17.63	17.68	17.92	-0.21***	22.6	13.8
Activities	13.60	13.44	13.02	12.84	12.69	-0.28***	23.3	12.2
Plant operation	16.48	16.53	16.08	15.89	15.89	-0.23***	24.0	16.2
Housekeepi ng	10.39	10.27	9.90	9.70	9.57	-0.24***	27.1	8.3
Laundry	10.08	10.01	9.63	9.41	9.32	-0.24***	27.0	7.2
Dietary	11.99	11.90	11.47	11.23	11.29	-0.27***	36.8	10.0

^a Statistical significance of the 2001-2004 trend: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

^b Outside the 95th CI.

Trends in turnover

Turnover has been declining during 2001-2004 for all employees, for direct nursing and nurses aides. In 2006, over 30% of nursing homes were significantly above this trend and only about 8% were below the trend, suggesting that turnover has increased. We note that the 2006 turnover data we received from the state was not audited and these results may, therefore, not be as reliable as the other results based on the cost report data.

Table 16: Trends in turnover

	Annual Averages					2001-2004 Annual Trend ^a	2006 - % of nursing homes significantly ^b	
	2001	2002	2003	2004	2006		above the trend	below the trend
Turnover – All employee	71.39	61.68	56.90	53.93	56.19	-5.73***	38.41	7.48
Turnover – Direct nursing	78.97	67.95	62.99	57.78	60.65	-6.90***	34.36	7.75
Turnover – Nurses aides	80.95	70.84	63.96	57.97	59.57	-7.63***	33.63	7.12

^a Statistical significance of the 2001-2004 trend: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

^b Outside the 95th CI.

RESULTS: QUALITY OF CARE – DEFICIENCY CITATIONS AND QUALITY MEASURES

Table 17 reports the findings with respect to deficiency citations and the risk adjusted QMs. Because both the deficiency citations and the QMs are measures of adverse outcomes, the desired impact of AB1629 is a decline in these statistics and we will, therefore, expect to observe more nursing homes below the trend line in 2006 than above.

Table 17: Trends in quality

	Annual Averages					2001-2004 Annual Trend ^a	2006 - % of nursing homes significantly ^b	
	2001	2002	2003	2004	2006		above the trend	below the trend
Average # of deficiency citations per nursing home	11.8	10.6	9.4	10.2	11.7	-0.59***	34.6	8.0
Average # of deficiencies - G and above	0.21	0.07	0.07	0.10	0.32	-0.03***	14.1	1.3
Risk-adjusted <i>high-risk</i> pressure ulcers	1.04	1.06	1.05	1.04	1.02	-0.00	18.5	22.7
Risk-adjusted <i>low-risk</i> pressure ulcers	1.06	1.20	1.11	1.09	0.97	-0.00	13.6	24.8
Risk-adjusted decline in functional status	1.01	1.05	1.01	1.05	1.13	0.01	25.9	18.7
Risk-adjusted prevalence of physical restraints	1.87	1.75	1.56	1.54	1.40	-0.12***	25.7	19.4

^a Statistical significance of the 2001-2004 trend: * $0.01 < p \leq 0.05$, ** $0.001 < p \leq 0.01$, *** $p \leq 0.001$

^b Outside the 95th CI.

There was a significant decline in the average number of deficiency citations in the 2001-2004 period. In 2006, there was a reversal of this trend, with a substantial number of facilities, almost 35%, with overall deficiencies that were above the 95th CI for the trend line and only a few, less than 10%, below the 95th CI, suggesting a significant increase in deficiencies for nursing homes. There was a significant decline in G level and above citations during the 2001-2004 period as well, and similar to all deficiencies, this trend reversed in 2006 with 14.1% of facilities above the trend line and only 1.3% below. As noted beforehand, we caution against interpreting these data to imply deterioration in quality because at the same time the state staff conducting the surveys has increased and at least some of the increase in citation rate is likely related to that.

The risk adjusted QMs did not exhibit a trend over the 2001-2004 periods except for physical restraints that exhibited a trend towards improvement. For two of the measures, high-risk pressure ulcers and physical restraints, we find no substantial difference (no larger than 5 percentage points) between those above and below the trend. For one, low-risk pressure ulcers we find that a quarter of facilities exhibited an improvement (e.g. were below the trend line) compared with 14% that exhibited deterioration. For one measure, decline in functional status we find the opposite – about one quarter of facilities exhibited a deterioration and 19% exhibited an improvement. This analysis is ambiguous and does not offer a clear indication that quality has either significantly improved or deteriorated following implementation of AB1629 compared to prior trends.

CORRELATIONS BETWEEN EXPENDITURES AND QUALITY

The intent of AB1629 is to encourage investment in activity that is more likely to improve quality of care and residents outcomes than the NH reimbursement system that it replaced. While the data have not shown a substantial impact on quality and outcomes overall, we also examined the correlation between the deviation from the trend for expenditures (total and skilled nursing), wages and nursing hours per resident day by type (RNs, LVNs and aides) with turnover, deficiencies and QMs. Table 18 presents these correlations. Five of these correlations were significant at the 0.05 level. However, given the large number of comparisons (57) we need to apply the Bonferroni correction¹⁶ for multiple comparisons and adjust the significance level to 0.0009. At this level, none of the correlations are significant. We, therefore, conclude that there is no evidence for a significant relationship between changes in expenditures, hours per resident day or wages and either the risk adjusted QMs, deficiency citations or turnover.

Table 18: Correlations between investments and quality outcomes:
Correlation measured for 2006 deviation of actual from predicted trend

	Total Health Expenditures	Skilled Nursing Expenditures	Hours/Resident Day			Wages		
			RNs	LVNs	Aides	RNs	LVNs	Aides
Turnover – All	-0.04	-0.03	-0.05	0.03	-0.06	0.07*	0.01	0.03
Deficiency citation	0.02	0.02	0.03	0.03	-0.08*	0.07*	0.01	0.04
Deficiency citation – G and above	0.02	0.02	0.05	0.02	-0.02	0.02	0.00	-0.01
Risk-adjusted <i>high-risk</i> pressure ulcers	0.09**	-0.04	0.03	0.00	-0.03	0.01	0.02	0.01
Risk-adjusted <i>low-risk</i> pressure ulcers	-0.03	-0.07*	-0.02	0.01	-0.04	0.02	0.06	0.01
Risk-adjusted decline in functional status	0.02	0.02	0.06	0.04	0.05	-0.01	-0.01	-0.01
Risk-adjusted prevalence of physical restraints	-0.04	-0.06	-0.07	0.02	-0.02	-0.03	0.05	0.06

*** $p \leq 0.001$; ** $0.001 < p \leq 0.01$; * $0.01 < p \leq 0.05$

SUMMARY AND DISCUSSION

In these analyses we used cost report and MDS data available for all skilled nursing facilities in California to assess changes over the 2001-2006 periods to evaluate whether the enactment of AB1629 in mid 2005 resulted in divergence from historical trends observed between 2001-2004.

The data show that, as expected, both revenues and expenditures have increased above historical trends with a large percent of facilities experiencing an increase in Medi-Cal revenues and increasing their expenditures. Expenditure increases were spread over many cost centers, and not limited to direct care staffing, albeit direct care staffing saw major increase in expenditures and particularly expenditures for wages. Despite the increases in expenditures, cost report, deficiency and MDS based measures do not detect a discernable improvement in quality of care. The percent of facilities with a significant increase, e.g. deterioration, in turnover and deficiencies was substantially larger than the percent of facilities exhibiting a significant decrease, e.g. improvement, in these statistics. The results with respects to the risk adjusted QMs are equivocal, with one measure suggesting improvement but one suggesting deterioration. As noted before, these data should be interpreted with caution because of changes in the state survey staff during the period and the possibility that turnover data might be less accurate than other data.

It is noteworthy; however, that most of the significant staffing increase was focused on registered nurses (RNs) and licensed vocational nurses (LVNs) and not nurses aides. Comparing 2006 data to the 2002-2004 trend we find that while 13% of facilities significantly increased their aides hours per residents, a similar 14% significantly decreased their aides hours per residents. This might explain, at least in part, why we are unable to detect an impact on quality and residents outcomes. We do note, however, that significant wage increases occurred across the board, and in fact more facilities, over 30%, increased aide's wages, compared with those that increased RN and LVN wages, at 25.5% and 20% respectively.

This last observation, that nursing staff wages have significantly increased in a large percent of facilities, coupled with the observations that aides hours have not increased and that turnover in all nursing categories has increased is particularly puzzling and of concern. It leads us to speculate that perhaps the wage increases were not sufficient to increase the labor pool and to attract new workers to nursing homes from other industries, and that in effect they only encouraged nurse's aides to move across nursing homes in search of higher wages. Thus, the higher reimbursement rates may have created a spiral of increasing wages that increased mobility of nurse's aides across facilities, but that may not have been sufficient to attract labor from outside the nursing home industry, thus limiting the ability of nursing homes to increase staffing levels.

In summary, the analyses presented here based on cost reports, OSCAR and MDS data suggest that AB1629 has been a partial success. It was successful in increasing the revenue stream to nursing homes and encouraging investment and expenditures in cost centers directly related to patient care. These investments, however, did not translate into measurable improvement in quality, at least in terms of the measures available to us at this time of initial implementation

Chapter 3 Nursing Home mailed surveys

Survey development

The survey questions were developed by research staff in conjunction with all major stakeholder groups including representatives from NHs, local labor unions and consumer activists. The content areas of major interest and some specific questions relevant to these content areas were identified in an initial meeting with these stakeholder groups in January of 2006 in Sacramento. Research staff developed the final questions for the survey after further feedback and approval from representatives of NHs and the SEIU. The survey that was sent to all NHs participating in the California MediCal program is illustrated in Table 1.

The survey was designed to generate information about the following major questions;

- 1. Do providers understand the provisions in AB1629?**
- 2. Did NHs make investments in staffing as a result of 1629 and if so what changes were made?**
- 3. Did NHs make investments in areas other than staffing and if so what changes were made?**
- 4. Do providers plan future investments?**
- 5. Did NHs change policies in regard to acceptance of MediCal residents or discharge planning and if so what changes?**
- 6. Do providers believe that AB1629 has improved care and life quality and do they believe that provisions in the bill should be changed?**

The survey data to answer these questions required a combination of responses including financial data (e.g. how much wage increase) and also gave nursing homes the opportunity to make open ended comments about their reactions of AB1629 (e.g. How can it be improved?) The open ended comments were entered into the data base and codes developed to identify themes. Two research staff independently used the codes and obtained 88% agreement as to the number of comments made by providers that could be included under each specific theme.

The original plan was to send all nursing homes participating in MediCal one survey along with a letter of support signed by all stakeholder groups including representatives of the NH association. The first survey resulted in a return rate of approximately 17 %. Two other surveys were then mailed and the final response rate was 24% or 249 homes. Given the surprising low response rate, a series of descriptive analyses were conducted to determine if there were differences between nursing homes who responded and those that did not. In terms of ownership there were no difference between respondents and non respondents with 86% of responding homes being for profit and 14% non profit. These ratios are similar to ownership status ratios in non responding homes (88 %profit vs. 12% non profit.). There were also no differences between responding and non responding homes on the following measures: Total revenue; Total health care expense per day; Total employee hours per day; and turnover for any employee group. The survey results are summarized and discussed by the major questions that the survey attempted to address. The responses to each survey question are provided in Table 1.

Do NHs understand AB1629?

The survey question relevant to this question was “Do you or your financial staff understand how the provisions in AB1629 can affect your Medical reimbursement rate?”

Thirty five of the 236 homes (15%) responded to this question that they did not understand or were uncertain about how AB1629 affected their reimbursement rate. This is a surprisingly large number given the importance of the AB1629 for nursing home operations and one can only surmise that even a larger percentage of the homes who did not respond were uncertain about how the bill worked. In fact, given the importance of

the bill to NH reimbursement, confusion about how AB1629 worked as opposed to disinterest is the most plausible explanation for the surprisingly large number of homes who choose not to respond to the survey.

Did NHs make investments in staffing as a result of AB1629 and if so what investments?

Questions 3 on the survey were relevant to this question.

The vast majority of NHs who responded (95%) reported that they did make staffing investments after August 2005 which is the date estimate for when one could have expected to see changes as a result of AB1629. Wages and numbers of staff were reported to be increased across all employee groups with the largest benefactors being direct care staff and particularly nursing aides. More homes increased wages than numbers of staff and benefits were the least likely staffing investments.

Table 1 provides a summary of the investments made in staffing. For example, it can be seen from row 8 in Table 1 that forty two % of the respondents reported that they increased the number of nurse aides by 3.32 Full Time Equivalents per day and from row 3 that 85% increased wages for aides by 79 cents per hour. The data in Table 1 indicates that the group of NHs who responded to the survey made major investments in staffing and particularly in direct care staff as opposed to other types of staff (e.g. administrative staff). If the intent of AB1629 was to improve the workforce that provides direct resident cares than the AB1629 is having the desired effect for the group of homes who responded to this survey. Alternatively, relatively few homes (23%) reported increasing social work and discharge planning staff and the changes that were made were relatively small. It is also important to note that few homes reported increasing the use of registry staff (10%) or sub contracted indirect care staff such as laundry or housekeeping (15%).

What investments other than staffing were made?

Capitol / Equipment investments were reported by the most homes (63% for an average of \$145,111) while reducing debt (9%) and increasing liability (3%) insurance coverage were the least frequent investments. These data are not surprising since it is clear to most homes that made investments that capitol investments can be reimbursed under the provisions of AB1629.

What investments are planned for the future?

Most homes (83%) reported that they will make future investments due to AB1629 with the type of investment generally mirroring those that have already been made. These data are reported in the Table 1 question 5 a labeled "future investment". This column indicates that most homes are planning more investments in the direct care work force with an emphasis on wage, salaries, and nurse aides. Similarly, most homes are planning future capitol improvements (67%) as opposed to debt reduction and increases in liability insurance coverage. A major difference between investments that have already been made and future investments is that more homes are planning investments in RN staffing (44%) as opposed to LVN staffing (27%). Two primary reasons for not planning future investments were given by the relatively small number of homes (17%) who reported that future investments were not forthcoming. These data are illustrated by the two categories of comments presented in Table 1 for question 5 b. Forty four percent of the group who reported no planned future investments also reported that they had already made enough investments to assure quality or that there were no resources available for new investments. Twenty % were unclear how future investments would affect their reimbursement.

Did providers change business model or discharge planning process?

The majority of providers (87%) responded to question 7 "Did you change business model or discharge planning process with a no or negative response". This report is consistent with the survey data reported for the staffing question (number 3) in that relatively few providers reported increasing investments in social work or discharge planning staff.

These data regarding changes in staffing or activity regarding community placement may be disappointing to advocates even though it should be noted that there are problems with transitioning long term

stay MediCal residents to the community that will limit the effectiveness of most NH transitioning efforts even if well staffed. A recent report submitted to the state regarding a Money Follows the Person pilot program will document that problems with community housing and resources are limiting factors to even intense efforts to transition residents who can not live alone and who do not have housing ¹⁷.

Do providers believe that AB1629 has been effective and do they think further improvements in AB1629 are necessary?

A large majority of respondents believed that AB1629 even as currently structured was effective in improving direct care staffing (76%); quality of care (71%); and quality of life (69%). However, a substantial portion (64%) also believed that AB1629 should be modified to so that providers would spend more on direct care. The suggestions for changing AB1629 that were solicited from the open ended comments were coded into categories or themes and the most popular themes are illustrated in question 9 in Table 1. We list the number of comments made for each category in parentheses ().

1. Faster Reimbursement (86); 2. Stability of law and funding (14); 3. Better education accountability of new reimbursement system (10); 4. Increase spending caps reimbursement rates and what is reimbursable (81); 5. Need more specifics about all components of bill including what's allowed for reimbursement (16); 6. Need integrity/clarity from California about audits and how to get funds (8). It is clear from the comments that faster recognition of costs spent (category 1) and increased spending caps that limit spending growth (category 4) are the most popular ideas for improving AB1629.

A substantial percentage of respondents also wanted reassurance that the reimbursement provisions of the bill were stable and could be relied upon over a period of years, which reflects concerns about the sunset provision of the bill. Finally, categories 6 and 7 could be considered as both related to a common desire to improve specific information about how the bill and reimbursement systems actually work to change reimbursement. These latter data are consistent with the relatively high number of providers (15%) who reported to question 1 that they were uncertain about how the provisions AB1629 affected their reimbursement system.

There were also a small number of facilities who responded to the survey who were very vocal in their dislike of AB1629 and in their desire for changing the bill. These homes can be largely divided into two groups. The first group is those with a high private pay population. In these cases the reasons for disliking the bill is obvious. This group has to pay the Quality Assurance Fee for all residents but receive only marginal or no increase in revenue depending on how many Medical residents are in their population. The antipathy of this group for the bill is exaggerated by the fact that NHs that are part of continuing care communities are exempt from the Quality Assurance Fee even though they do benefit from the increased MediCal reimbursement rates funded out of the Fees paid by other NHs that produce the additional federal matching funds. The most common solution suggested by this group of homes is to exempt private pay residents from the Quality Assurance Fee. The second group of homes appears to be those with very low capital costs and reduced ability to incur the cost of increased investments that would lead after a delay to increased reimbursement. This group of homes often consists of older homes with little capital debt but who do have high MediCal populations. These homes were able to survive under the old reimbursement system by providing care at lower costs than other homes but they are less able to make the investments needed under the AB1629 cost based reimbursement system to increase their revenue.

Table 1: Percentage Results of the AB1629 Survey.

1. Do you and/or your financial staff understand how the provisions in AB1629 can affect your Medi-Cal reimbursement rate? **(Circle one answer)**

YES **85%** NO **3%** UNCERTAIN **4%** N/A – NOT A MEDI-CAL PROVIDER

2. In the table below, please list your: (a) total per diem Medi-Cal reimbursement rate for each of the three rate periods, and; (b) the approximate date (mo / yr) when you received the AB1629 reimbursement money (if any).

Rate Period	(a) Total amount per diem (\$)	(b) Date reimbursement money received (mo / yr)
2004 – 2005	\$ 123	
2005 – 2006	\$ 144	
2006 – 2007	\$ 153	

3. What new investments in operations have you made since implementation of the new Medi-Cal reimbursement rate system (August 1, 2005), if any? **(Check all that apply, and provide estimate of the date and size of change.)**

INVESTMENTS MADE	APPROX. DATE INVESTMENTS WERE MADE (MO/YR)	SIZE OF INVESTMENT
4% None		
39% Increased wages of administrative staff		\$ 1.41 (Average increase per hr)
85% Increased wages of CNAs		\$ 0.79 (Average increase per hr)
78% Increased wages of LVNs		\$ 1.50 (Average increase per hr)
72% Increased wages of RNs		\$ 2.20 (Average increase per hr)
Increased wages of indirect care staff (e.g. dietary, 68% laundry, housekeeping)		\$ 0.81 (Average increase per hr)
15% Increased employee benefits		\$ 156,347 (Total amt spent) Please describe below.
42% Hired additional CNAs		# of FTEs: 3.3 (per day)
35% Hired additional LVNs		# of FTEs: 2.1 (per day)
30% Hired additional RNs		# of FTEs: 1.5 (per day)
10% Increased use of registry staff(CNAs / LVNs / RNs)		# of FTEs: 1.8 (per day)
Increased use of subcontracted staff (e.g. dietary, 15% laundry, housekeeping)		# of FTEs: 0.4 (per day)
Hired additional social work and 23% discharge planning staff		# of FTEs: 0.67 (per day)
23% Hired additional administrative staff		# of FTEs: 1.3 (per day)
Hired additional other indirect care 29% staff (e.g. activity, nutrition)		# of FTEs: 1.7 (per day)
64% Improved equipment / capital		\$ 145,111 (Total amt spent) Please describe below.
9% Reduced debt		\$ 262,896 (Total amt spent) Please describe below.
3% Increased liability coverage		\$ 283,033 (Total amt spent) Please describe below.
12% Increased caregiver training		\$ 38,281 (Total amt spent) Please describe below.

OTHER (Write brief description of other investments, and/or a specific description of new investments in benefits, caregiver training or equipment/capital if such investments were checked in the above list): _____

4. Do you currently plan to make future investments to increase your Medi-Cal reimbursement rate? **(circle one answer)**

YES 83% NO 17% %uncertain

5a. **IF NO to Question 4, skip down to Question 5b. IF YES,** check the areas that you plan to make investments in: **(check all that Apply)**

<input type="checkbox"/> NONE	<input type="checkbox"/> _52_ Hire additional CNAs	<input type="checkbox"/> _5_ Hire additional administrative staff
<input type="checkbox"/> _17_ Increase wages of administrative staff	<input type="checkbox"/> _28_ Hire additional LVNs	<input type="checkbox"/> _28_ Hire additional other indirect care staff (e.g. activity, nutrition)
<input type="checkbox"/> _66_ Increase wages of CNAs	<input type="checkbox"/> _45_ Hire additional RNs	<input type="checkbox"/> _67_ Improve equipment / capital
<input type="checkbox"/> _63_ Increase wages of LVNs	<input type="checkbox"/> _1_ Increase use of registry staff (CNAs / LVNs / RNs)	<input type="checkbox"/> _6_ Reduce debt
<input type="checkbox"/> _60_ Increase wages of RNs	<input type="checkbox"/> _20_ Increase use of subcontracted staff (e.g. dietary, laundry, housekeeping)	<input type="checkbox"/> _3_ Increase liability coverage
<input type="checkbox"/> _46_ Increase wages of indirect care staff (e.g. dietary, laundry, housekeeping)	<input type="checkbox"/> _22_ Hire additional social work / discharge planning staff	<input type="checkbox"/> _28_ Increase caregiver training
<input type="checkbox"/> _34_ Increase employee benefits		

5b. **IF NO to Question 4,** why will you not make new investments? **(check all that apply)**

- _18_ I have already invested enough to ensure quality.
- _12_ I do not trust that my reimbursement rate will change.
- _18_ There are no resources available for new investment(s).
- _11_ Labor shortages in my area prevent me from increasing staff.
- _5_ I do not have enough Medi-Cal residents to make it desirable.
- _26_ I am unclear as to how increased investments will change my reimbursement.
- _19_ Other **(Write brief description of other reasons):** 1. Made enough investments or no resources available for more investment (44%) 2. unclear how future investment will help (20%).

6. Is your staff unionized? **(check all that apply)**

3%_ RNs _8%_ LVNs _23%_ CNAs _19%_ Other _76%_ None

7. Has AB1629 changed your business model in regard to discharge planning or the number of MediCal-eligible resident days? **(circle one answer)**

YES 10% NO 89%

If YES to Question 7, how have you changed? too few responses to identify theme

8. One of the major goals of AB1629 is to increase direct care spending in nursing homes. Do you think AB1629, as it is currently structured, will achieve this goal in most nursing homes? **(circle one answer)**

YES **76%** NO **20%** Do not Know **2%**

9. Do you think AB1629 should be modified so that providers will be more likely to invest in direct care spending? **(circle one answer)**

YES **65%** NO **29%** Uncertain **5%**

If YES to Question 9, what improvements could be made? 1.Faster reimbursement (86); 2. stability of law and funding (14) 3 better education and accountability (10) 4. increase spending caps and reimbursement rates (81) 5.more specifics about bill((16) 6.INTEGRITY ACCOUNTABILITY FROM STATE (8).

10a. Do you perceive that the residents' quality of life has improved as a result of AB1629? **(circle one answer)**

YES **69%** NO-UNCHANGED **15%** UNCERTAIN **16%**

10b. Do you perceive that the quality of care in your facility has improved as a result of AB1629? **(circle one answer)**

YES **71%** NO-UNCHANGED **16%** UNCERTAIN **13%**

11. Would you be willing to participate in a follow-up interview or site visit? **(circle one answer)**

Interview only Site visit only Both

12. What is your current position / job title?

THANK YOU VERY MUCH FOR TAKING THE TIME TO COMPLETE THIS SURVEY.

Chapter 4 Site Visit Data

Site visits were conducted in a subset of facilities who returned the mailed survey and who agreed to a site visit. The site visit involved direct interviews with residents and staff as well as observations of the quality of assistance provided to residents during mealtimes. The major objective of the site visits was to obtain data about quality that were independent of the mailed survey reports and to confirm the mailed survey data in cases where it was reported that improvements in staffing were made.

One obvious limitation of this approach was that it was not possible to obtain observation and interview data prior to AB1629 and the site visit data described in this report was collected approximately one year after nursing homes could have made changes in response to AB1629. We had originally planned several strategies to compensate for this large limitation.

First, we attempted to recruit facilities for the site visits that reported changes due to AB1629 and those who did not. We could then theoretically compare quality between facilities that made staffing improvements and those who did not. However, most facilities responding to the survey, and particularly those that agreed to the site visit, reported improvements in staffing which made these comparisons difficult. We were able to visit only 7 facilities who reported they did not make changes as a result of AB1629.

Secondly, we used some interview questions and observational quality measures that had been previously used in a California Nursing Home study and which were known to discriminate quality in high and low staffed homes. We could thus determine if the results obtained during the current site visits on these questions and observations conformed to what would be expected for the high staffed homes in this previous reference sample.

Thirdly, we regarded our current efforts to evaluate quality with on site observational and interview protocols as a first and early measurement point to evaluate the initial effects of AB 1629 which might not have had sufficient time to affect staffing levels or quality. We anticipated that observational and interview measures taken in future years could be compared to these initial measures to estimate improvement trends that might occur as AB1629 has had more time to work or when changes are made in AB1629 that induce more homes to improve staffing.

Site visit sample and methodology

Eighty nine facilities agreed to a site visit on their returned mailed surveys. We were budgeted for up to 40 site visits and we attempted to recruit facilities according to the following priorities: 1. complete information available on the survey form about investments made 2, invested in both wage and staffing numbers. 3. Made no changes in staffing due to AB1629. This selection procedure resulted in an attempt to contact 54 facilities. Thirty one of these facilities agreed and set a date for the site visit and were actually visited. Unfortunately only a small number of facilities (7) agreed to site visits who indicated that they did not make changes as a result of AB 1629 and we were able to visit all of these facilities. Thus 24 facilities were visited who claimed to make relatively large investments in staffing.

The average overall direct care staffing level of the facilities visited and who reported making changes as a result of AB1629 was 3.4 while the staffing level of homes that did not make changes was 3.8. The higher staffing levels of the homes who did not make changes in staffing is not surprising since homes who were opposed to AB1629 and who did not change their operations were largely private pay with small MediCal populations.

Each site visit lasted for one 10-12 hour day and efforts were made to interview as many as nurse aides, licensed nurses and indirect care staff as possible. Homes were offered the option to interview staff in a group setting or to approach staff individually. All homes preferred the individual approach. Staff were approached

during the 7am to 7pm time period and asked to provide consent to the interview. A small number of staff refused. In all 31 homes a total of 28 RNS, 86 LVNs, and 224 aides were interviewed. In addition 199 indirect care staff including 31 staff responsible for discharge planning was interviewed.

We also attempted to interview up to 15 residents per home. We attempted to approach all residents who were not behind closed doors during time periods when we were not observing meals or interviewing staff and used a brief cognitive screen that is predictive of a resident's ability to answer questions on an interview. Seventy residents failed this screen and 311 residents who passed the screens who were interviewed. All resident and staff interviews were conducted beyond the hearing distance of other staff and residents.

Interview protocols

The resident and staff interview protocols are attached in appendix 1. The questions were developed after extensive consultation with all stakeholders and were designed to be completed in less than 10 minutes. Questions for residents were designed to permit a simple response (good or poor) and also included open ended questions. One example of a question is, "How would you rate the quality of care you receive here?" Good – ok - not very good). If a resident answered good or not very good they were asked follow up questions. For example if they said care was good they were asked "would you say very good or good". This procedure was designed to produce more discrimination in resident satisfaction ratings without forcing the resident to choose between four to five response alternatives at the same time.

However, perhaps the most important questions on both staff and resident interviews were open ended in which respondent comments were recorded verbatim. For example, a resident question was "What would you change about the care here?" We have demonstrated in previous work that resident's comments to these types of questions can be reliably coded into themes and that this evaluation approach elicits more specific comments about care and quality of life than do closed ended questions that require residents to make a choice between response alternatives chosen by the interviewer. In addition, this approach also elicits more comments that can be labeled as reflecting unmet needs than do questions that force a response about satisfaction.

Observational protocol

The quality of assistance that residents received from staff was observed at two separate meals in each nursing home with a standardized protocol that has been extensively used in previous research. The protocol generates accurate and quantitative information about quality of care and quality of life that is expressed in an "if – than" indicator format. The "if" statement is designed to identify the residents who need the specific care described in an indicator and the "than" statement describes the care that is to be provided. These indicators are scored as pass which indicates acceptable quality or fail. These indicators are listed below:

- If a resident eats less than 50 % of their food they should receive at least 5 minutes of assistance.
- If a resident eats less than 50% of their food or complains about their food they should be offered a substitute.
- If a resident receives physical assistance with eating they should also receive verbal notification of the assistance or prompting.
- All residents should receive social stimulation while eating.

The rationale for the indicators have been extensively described in previous work and are consistent with both interpretative guidelines used in the survey process to measure quality and best practice guidelines. For example, there is evidence that residents who eat less than 50% of their food are at risk for weight lost and that many of these residents will eat more if they receive at least 5 minutes of assistance. It is important to note that the indicator would be scored as pass if a resident received 5 minutes of assistance even if they did not eat more in reaction to the assistance. There is published data that higher staffed nursing homes (above 4.1 hours per resident day) score significantly better on these indicators than lower staffed homes who are staffed at the California State minimum of 3.2 hours per resident day.

Direct Care staff interview data.

Wages and salary

The hourly salary reported by staff in homes who reported making staffing investments was 33.88, 22.73, and 11.11 for RNs, LVNs and aides respectively. All staff who had worked for at least one year reported hourly wage increases of 0.80, (RN) 0.61 (LVN) and 0.33 (CNA). The percentage of staff who reported a change in their work conditions in the last year ranged from 54% for RNs to 74% for aides. Most staff who indicated there was a change reported that the changes in their job were positive (62% RNs, 62% LVNs and 71% aides). The most often cited aspect of the job change that was considered positive was salary increases by all three groups of employees. LVNs and aides most frequently reported too high of a work load as the most negative aspect to their job while RNs were more likely to complain about too low of a salary. A very few number of people in any of the work groups were familiar with AB1629 and hence very few tracked positive or negative changes in their job to this bill.

Due to the small number of facilities who were visited who did not change as a result of AB1629 (7) there were not enough interviews with licensed nurses to make comparisons with the sample of homes who did report making changes. However, 42 aides were interviewed in these seven non participating facilities. Aides in these non participating facilities reported an hourly wage of 10.75 per hour and that their last wage increase was 0.21 per hour. Thus, wages and last salary increase reports are lower than in the homes that reported making changes. A smaller proportion of these aides (24%) also reported a change in their working conditions than was the case with homes who participated in AB1629 but a similar percentage of these aides indicated the changes were positive (78%).

In general, the results for wages and salary were in the direction to support the argument that homes who did report participating in AB1629 made more staffing changes than homes who did not participate.

Work load

To assess the employee perception of their work load two questions were asked. 1. How many patients are you normally responsible for? 2. How many residents could you be responsible for and feel like you had enough time to provide good care? A discrepancy between these numbers in a negative direction (e.g. # do care for-# to do good job) would indicate a negative perception about work load. There were in fact negative discrepancy scores for all three employee groups. RNs reported they were responsible for 28 but ideally could care for 19 producing a discrepancy score of 9. LVNs reported they care for 30 residents but ideally could care for 23 producing a discrepancy score of 7. Finally, aides reported they care for 10 residents but could provide good care to only 8 residents which is a discrepancy score of 2 residents.

There was adequate data from aides in non participating facilities to estimate similar work load statistics and these aides reported normally caring for 10 residents while the preferred number was 9. This is a discrepancy score of 1.

In sum, the workload reported by staff in facilities who made staffing improvements are similar to the work load reported in facilities who did not report staffing changes which is not surprising given the fact that facilities who did not change house more private pay residents and were at a higher staffing level prior to AB1629..

Indirect Care staff wages and salary

Seventy nine staff in nursing homes who reported increasing wages and benefits and who were not direct care staffs was interviewed. These staff included maintenance workers, social services staff, and kitchen workers. The average hourly wage of this group was self reported to be 11.47 per hour and the group who were employed for over 11 months reported that their last hourly wage increase was 54 cents per hour. Forty three percent of these workers reported a change in working conditions in the past year with increases in salary and benefits being the most frequently reported change. Twenty four staff members who reported they were responsible for discharge planning were interviewed and none of these staff reported that there had been changes to their discharge planning model in the last year.

Forty seven indirect care staffs were interviewed in the homes that did not change staffing due to AB1629 and these workers reported an hourly wage of 10.16 per hour. Workers who had been employed for over 11 months reported that their last hourly wage increase was 53 cents per hour. A lower percentage of these

workers reported a change in working conditions in the last year (20%) than was the case with indirect care staff in facilities who did report making investments (43%). Seven staff members responsible for discharge planning were interviewed and all reported no change in their approach to discharge planning in the last year.

In sum, the hourly wage and employee perception of changes in working condition data supports the argument that homes who reported improvements in indirect care staff wages in fact did so. It should be noted that few homes reported on the survey that they changed the number of indirect care staff and these data are supported by direct interviews with employees who report little changes in workload or staffing.

Resident interviews

Interviews were conducted with 290 residents in homes that increased staffing or wages and with 93 residents in homes that did not. Residents in homes who changed staffing responded to the question “How would you rate the quality of care you receive here?” as very good (54%) good (18%) Ok (22%) or poor (4%). However, in response to more specific questions about staffing issues 20% reported that staff does not spend enough time with them and 52% reported that they had to wait longer than they would like to get help from people who work there.

These more negative perceptions of care quality related to staffing were reinforced by the analysis of resident comments to the open ended question “what would you change about the care here?” Twenty five percent of the residents made comments that staffing levels should be improved and 12 % indicated that staff training and attitudes needed to be improved. The only frequent comment for improvement that was not staffing specific related to improving the food (14% of residents made this comment). Twenty Five % of the residents also indicated that no changes had to be made in care using phrases such as “everything was fine”.

Sixteen percent of the residents could remember someone talking to them about returning to the community with 9 % of these reporting that the conversation was with the social worker. Most residents were uncertain when the last conversation about returning to the community was conducted even though 50% responded “yes” to the question “Do you want to go back to where you came from before you came to the facility.” The resident interview results from the group of facilities who did not participate in AB1629 were virtually identical for all questions to the results reported above for facilities that did participate and will not be presented here.

In sum, the resident interview data relevant to quality are difficult to interpret due to the absence of similar data prior to the implementation of AB1629 as was discussed earlier in this section.

Observational data

Two hundred and forty two residents were observed in homes who reported an increase in staffing and the average duration of assistance observed during mealtimes was 5.5 minutes per resident. However, 71 % of the residents observed in these homes who ate less than 50 % of their food also received less than 5 minutes of assistance and only 14% of these residents who ate less than 50 % were offered a food substitute. In terms of the quality of interaction between residents and staff, 69% of residents were observed to receive social interaction from staff during meals and 42% of residents who required physical assistance received verbal prompting or cueing in conjunction with this physical assistance.

The quality of care during meals was significantly better for some indicators in the homes who did not report increasing staffing but who in fact were higher staffed before and after AB1629. This finding is not unexpected given the fact that the homes that did not increase staffing in this sample housed largely private pay populations. The observational indicators measuring mealtime quality are known to be particularly sensitive to staffing levels.

The average duration of assistance in the latter group of homes was 7.2 minutes as compared to 5.5 minutes in homes that increased staffing. In addition to differences in average duration of assistance, indicators upon which these homes scored significantly better than homes with lower staffing were the following: 1. Forty one percent of residents who ate less than 50% were given at least 5 minutes of assistance as opposed to 30 % of the patients in homes that changed staffing. 2. Eighty Seven percent of residents who required physical assistance were given verbal prompting or cueing in conjunction with this assistance as compared to 42% of

residents in homes that changed staffing. There were no differences between homes in the percent of residents who received social stimulation (71% vs. 69%) and no difference in the percent of residents who ate less than 50% and who were offered a substitute (14% vs. 14%).

In sum, similar to the resident interview data, interpreting the observational quality data is made difficult by the absence of observational data in homes before AB1629. However, also similar to the interview quality data, the observational quality data shows significant room for quality improvement in all homes studied and particularly those homes who appear to have increased staffing after AB1629 but who still remain at about 3.5 hours per resident day. Further increases in staffing which could be reimbursed under the provisions of AB1629 are likely necessary to document quality of care and life improvements.

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