

The Impact of Minimum Quality Standard Regulations on Nursing Home Staff Levels, Staff Composition, and Exit Decisions

John R. Bowblis
Miami University

Andrew Ghattas
University of Iowa

In order to protect these nursing home residents and ensure a guaranteed level of quality, states may attempt to regulate nursing home through minimum quality standards. Since the primary input of nursing home quality is nurse staffing, which is easy to regulate, many states have implemented minimum quality standards in the form of nurse staffing requirements. These staffing requirements mandate the amount and composition of nurse staffing a nursing home must employ. The goal of this regulation is to assure a minimum level of staffing, and indirectly a minimum level of quality of care provided by the nursing home. Staffing requirements are associated with higher staffing levels, but consumers have heterogeneous tastes and the implementation of staffing requirements could make some nursing home residents worse off. Additionally, staffing requirements can also affect market structure, with some nursing homes choosing to exit the market instead of increasing staffing levels. This can reduce access to nursing home care, further harming consumers.

The primary objective of this paper is to analyze the impact of minimum quality standards in the form of minimum direct care staffing (MDCS) regulations in the nursing home industry. We study how newly implemented state regulations in New Mexico and Vermont affect nursing home staffing decisions in terms of staffing levels and composition. As a second objective, we investigate how these regulations affect the decision of some nursing homes to exit the market. The implementation of MDCS regulations provides a particularly good opportunity to evaluate the effect of minimum quality standards on quality. Since total nurse staffing levels are considered a measure of quality, MDCS regulations directly regulate an observable measure of quality, nurse staffing. In addition, prior to the effective date of the regulation in each state, neither state had a mandate for the minimum amount of direct care staffing a nursing home must employ. This implies prior to the regulation nursing homes are free to choose staffing levels to maximize their objectives without significant government restraints. In turn, MDCS regulations cause nursing homes to face either binding or non-binding constraints when the mandate becomes effective. The freedom to choose staffing levels prior to the effective date allows for classification of nursing homes into high, middle, and low quality types and we track how the nursing homes in each category respond to the regulation.

This work builds on an existing, but limited literature on the effect of nursing home staffing regulations, which generally uses one of two strategies. The first strategy is to use a national sample of nursing homes and estimate the effect of changes in staffing requirements on staffing levels (See Stearns and Park (2009), Bowlblis (2011b), and Lin (2011)). These studies find higher staffing standards are associated with increases in staffing, but nursing homes met these requirements using a high proportion of low quality nurses (i.e., certified nurse aides). The second strategy, and similar to the one used in this paper, is to study the effect of a specific staffing change in one or two states. For example, Chen (2008) and Matsudaira (2010) study the effect of nursing home staffing law changes in California and Ohio. Both papers find that nursing homes below the standard increased staffing, but to meet the standard, mostly utilized low quality nurse staff. While these studies find similar results, they do not address what occurs to nursing homes that have staffing levels that are significantly above the newly implemented standard.

By studying the effect of staffing regulations on nursing home staffing levels and nursing home exit decisions, our contributions to the literature are twofold. First, this paper is the first to study the effect of new MDCS regulations when none previously existed. While Chen (2008) and Matsudaira (2010) study changes in staffing requirements, the states they study had MDCS regulations prior to these changes, and in the case of Ohio, the change in the MDCS regulation was also associated with changes to licensed staff requirements. The existence of a MDCS regulation prior to the new requirement could force some nursing homes to exit the market, and the existing regulation is taken into consideration in the staffing choices of nursing homes. This could cause the effect of enforcing a more strict staffing regulation to be different than implementing a brand new regulation. Therefore, by studying the outcomes of staffing levels, staffing composition, and exit decisions, we are able to contribute to our understanding of how consumer welfare may be affected in terms of quality preferences and access to care when there is no preexisting regulation. Given constant pressure from nursing home advocates for higher staffing levels, this paper will inform policy-makers regarding the intended and unintended consequences of MDCS regulations.

Our second contribution is empirically testing the theoretical literature on minimum quality standards. There is some ambiguity into how firms respond to minimum quality standards in the theoretical literature. Specifically, the literature suggests that low quality firms will increase quality, but there is ambiguity if low or high quality firms exit the market first and the distribution of quality available to consumers after the minimum quality standard is enforced.

Studying MDCS regulations in nursing homes provides a rich environment to empirically test these theoretical models.

For this purpose we assemble a panel dataset of nursing homes for New Mexico and Vermont for the period of two and half years prior to and three and half years after the effective date of the MDCS regulation using the Online Survey Certification and Reporting System (OSCAR). The resulting dataset contains detailed information on nursing home characteristics, including staffing levels and staffing composition. High, middle, and low quality type nursing homes are categorized based on percentage difference between their staffing levels in the period prior to the effective date of the regulation and the required staffing level enacted by the new regulation. This period is before nursing homes would suspect any regulatory changes. High type nursing homes have staffing levels 10% above the mandated staffing levels, whereas low types are 10% below the mandated staffing levels. The empirical strategy exploits the fact that MDCS regulations are non-binding for the middle type nursing homes on average, and the average staffing levels for the group are constant over the period. We use the middle types as a control group in a difference-in-difference framework to determine how staffing levels and staffing composition change over time in response to the implementation of the MDCS regulations. A similar approach is used to look at exit decisions over the study period. One concern with this method is the middle types may respond to staffing changes of competitors, making it an improper control group. Therefore, following work by Chen (2008), we present sensitivity analysis that uses nursing homes from other states that did not change staffing laws as the control group. The results are not sensitive to using the middle types or facilities from different states as a control group.

We have two sets of findings. First, there is a slight increase in the average quality provided of all nursing homes as measured by total staffing levels, but there is some evidence of changes in staff composition associated with using lower quality staff. This increase in staffing is associated with low type nursing homes being forced to increase their staffing levels to meet the requirements of the regulation by the effective date. The magnitude of these changes is not trivial. Total nursing home staffing hours per resident day (HPRD) increase by 0.71 to 0.85 hours, depending on model specification, after the effective date. This corresponds to a 100 bed nursing home increasing nurse staffing time equivalent to 14.2 to 17 full-time nurses. Additionally, low types have a lower proportion of staff that is a registered nurse or licensed nurse (i.e. registered or licensed practical nurse) after the effective date. Taken together, these findings indicate that low types increase staffing, but use low quality nurses to fulfill the requirements of the regulation. In contrast, high types reduce staffing levels in response to the regulation with an effect size in the range of -0.37 to -0.55 HPRD. Further, high types tend to have higher quality staff compositions after the effective date of the requirement, but this result

is not statistically significant. Overall, MDCS regulations result in lower quality dispersion between nursing homes, potentially harming residents with heterogeneous tastes for quality.

Second, we examine if nursing homes exit the market in response to the MDCS regulations and if the probability of exit is different for high or low types. Among non-government owned nursing homes, 18.4% of high types closed compared to 9.3% in the middle and 4.8% in the low type nursing homes. This would suggest that high types are more likely to exit, but regressions that adjust for potential heterogeneity find no difference in the probability of exit by quality type.

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