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Impact of Nurse Staffing Adequacy on Quality Outcomes and Workforce Sustainability

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Abstract

The issue of nurse staffing is quite significant and defines the quality of provided care, the safety of residents and the efficiency of the overall performance of the nursing home in the U.S. This paper discusses the existing staffing level in the long-term care facilities, gaps with the recommended recommendations and how adequacy in staffing affects the patient outcomes. The study, based on a mixed-method approach, which incorporates quantitative analysis of staffing ratios and qualitative information provided by nursing personnel, demonstrates the relationship between adequate nurse availability and lower rates of adverse events, better resident satisfaction, and increased staff morale. Results highlight the importance of policy changes and workforce strategy planning to ensure the best nurse-to-resident ratios in order to ensure high-quality care and sustainable nursing home business.

Keywords: ***Nurse staffing, nursing homes, long-term care, patient outcomes, workforce planning, quality of care, United States.***

1.Introduction

Adequate and well-trained nursing personnel to address the complex health and personal care needs of the residents is the core of nursing home care. This correlation between staffing and the quality of care has been widely reported over decades of studies, but it remains the case that many facilities still have understaffing that harms resident safety and health outcomes and the quality of life. To know how to appropriately evaluate the adequacy of staffing, a systemic methodology must be applied taking into account various variables such as the acuity of residents, the regulations, evidence-based standards, and quality indicators(1).

The difficulty of establishing the right staffing level has been compounded by the fact that the populations in nursing homes have become more medically frail and cognitively impaired. The current population of long-term care residents needs more acute nursing services, chronic disease-related care, and activities of daily living help than earlier generations. At the same time, the nursing workforce continues to experience shortages, high turnover rates, and competing demands with other healthcare industries, and thus, facilities must ensure that their staffing resources are as effective as possible.

FIGURE 1 Nursing Home Staffing Adequacy

Federal regulations put in place minimum staffing standards required in nursing homes, which means that the facility must provide a minimum number of nursing staff members who are competent enough to provide adequate safety to the residents and also ensure that the residents attain their highest practicable standard of physical, mental, and psychosocial well-being. But these rules mostly leave the definition of adequate staffing to each individual facility, and they must carry out an evaluation of their own resident populations and care requirements. It is this

flexibility, which is required to suit various facility characteristics, that has also contributed to a great deal of variability in staffing practices and staffing results across the industry.

The implications of poor staffing go way past the concerns of regulation. Studies have repeatedly shown that low staffing is tightly linked with pressure ulcers, falls, infections, medication errors, hospitalization, and mortality. Patients in understaffed homes have a higher chance of waiting longer to get attended to, their call bells remaining unanswered, missing their medication schedule, and developing complications that can be avoided. Not only do these outcomes negatively affect individual residents, but they also result in extra expenses on the healthcare system and put facilities in a place where they can incur liability(2).

On the other hand, those facilities that are adequately staffed have improved performances in various quality measures. Increased nurse staffing is linked to better resident functional outcomes, decreased physical and chemical restraints, improved pain management, improved infection control and reduced emergency department visits. This is especially significant when there are enough registered nurses, as they possess advanced clinical competencies and can identify the changes in health early, organize the complex plans of care, and control the work of other nurses.

The methodology suggested in this guide offers some systematic guidance of assessing adequacy of staffing in five interrelated steps. First, the facilities should effectively measure the aggregate acuity and care requirements of their resident population based on standard assessment tools and system of classification. This is the initial step towards making sure that staffing choices are made on the basis of objective data concerning resident traits and care needs and not on historical trends or financial limitations.

Second, the facilities should identify their true staffing levels in all nursing categories, registered nurses, licensed practical/vocational nurses and certified nursing assistants. The analysis should consider the difference in staffing patterns between various shifts, days of the week and seasons since in most facilities, the level of staffing changes greatly between shifts but might not be reflected in an average.

The third step is to be able to set the right staffing goals on the basis of evidence about the results of research works, recommendations of experts, and rules(3). This process should consider both the minimum safe staffing levels but also take into account the acuity mix and care needs that will be identified on the first step. Various resident populations need varying levels of staff, and homes need to change their staffing arrangements.

Fourth, facilities need to review various sources of information about the adequacy of their current staffing, such as quality indicators, deficiency reports, resident and family complaints, reports of missed care by staff, turnover rates, and adverse events. Such a broad overview would assist in pinpointing any potential gap between the existing staffing and care requirements that can not be detected by relying on numbers alone.

The last step is that the methodology requires a systematic comparison of actual staffing with a predetermined target, specifying particular gaps and working out improvement strategies. This analysis must not only be based on the number of hours of staffing, but also the number of various types of nursing staff and how the staffs are distributed per shift and unit.

2.Assessing the Cognitive and Maintenance Needs of All Residents

All decisions on staffing in nursing homes will be based on accurate acuity of the residents. This is a significant initial step that will ensure the facilities can assess the care requirements of their whole population of residents in a systematic manner through standardized assessment instruments and classification mechanisms. This task has become more complicated due to the medical complexity of nursing home residents who now demand advanced methods to help them realize all the nursing care needs.

The Minimum Data Set (MDS) is the main instrument used to measure the acuity of residents in nursing homes and is an extensive assessment tool that the federal regulations require each resident of a nursing home to receive. The MDS is used to document in-depth data regarding the functional conditions of residents, their cognitive capabilities, behavioral indicators, medical diagnoses, treatments and service requirements. This standardized test should be done on admission, annually, and whenever there is any major change in condition of the residents, this gives the facilities up to date information about their residents(4).

Recently, there has been an increase in the number of acuity grading tools that can better assess the unique care requirements of nursing home. The most recent method of segmenting residents according to their care needs is the Patient-Driven Payment Model (PDPM) that was implemented in 2019. PDPM groups residents into nursing categories that indicate the intensity of required nursing care as well as the presence of comorbid conditions that

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may complicate care. This system acknowledges that the needs of residents who have similar functional limitations can vary drastically in the amount of nursing intervention they require based on their treatment needs and medical conditions.

The shift in the previous classification systems such as Resource Utilization Groups (RUGs) to PDPM is associated with increasing knowledge of factors that contribute to nursing workload. Despite its strong emphasis on therapy services, RUGs is less representative of the nursing care requirements of chronic conditions, behavioral symptoms and complex medical interventions than PDPM. This change has significant staffing implications in that facilities are no longer allowed to base their staffing decisions on a limited set of factors when calculating their nursing requirements.

Activities of daily living (ADL) scores continue to be the primary outcome of acuity assessment, assessing the self-care ability of the residents to perform personal basic tasks. These tests include bed mobility, transfers, toileting, eating, and personal hygiene with scoring systems which indicate the amount of help they need. Patients who need considerable support or complete dependence in most ADLs create much more nursing workloads than their moderately dependent counterparts. However, the ADL scores themselves do not provide a complete picture of care requirements because it is not a sufficient measure of the complexity of the medical condition, behavioral symptoms, or cognitive impairment(5).

Cognitive evaluation is a process that has become quite critical as the number of nursing homes with cases of dementia has increased. Cognitively impaired residents may need special care delivery methods, more supervision to prevent falls, and behavior intervention that demands more nursing time. Due to the unpredictability of behavioral symptoms linked to dementia, it is important that the facilities have enough staffing flexibility to adapt to the circumstances at the end of every shift.

The other dimension to acuity assessment is medical complexity because patients with many chronic conditions, complicated drug treatments or complex medical treatments require high-level nursing care and monitoring. Patients under intravenous therapy, wound management, pain, or end-of-life care impose nursing workloads that are potentially not well represented in traditional acuity metrics. These extra care needs need to be identified and considered in staffing calculations by the facilities.

The dilemma in terms of aggregating individual resident evaluation to facility-level acuity measures necessitates keen attention to the distribution of care requirements throughout the resident body and interactions of the various categories of care requirements. Workflow efficiencies in the facilities with high shares of heavy-care residents can offset individual care needs to some degree, whereas workflow efficiencies in facilities with more diverse acuity levels might be challenged by the need to allocate staff effectively to the various kinds of residents.

Seasonal fluctuation of resident acuity also brings about other complexities in staffing planning. Fluctuations in the resident mix in many facilities over the course of the year cause spikes of higher acuity, which necessitate short-term staffing changes. Strong acuity assessment systems need to take these differences into consideration and supply facilities with data to facilitate leverage staffing strategies.

More complex methods of assessing acuity have become more widespread with technology, with electronic health records and dedicated software applications allowing real-time tracking of resident care needs and automatic calculation of staffing requirements. Such systems can integrate multiple data sources, track resident condition changes over time and provide predictive analytics to facilitate proactive staffing response.

Quality improvement efforts have also focused on the need to engage direct care staff during acuity assessment processes because they are up close with residents and understand the daily care needs of the residents that may not be fully reflected in formal assessments. Formal methods of collecting staff feedback regarding resident care needs can be a useful addition to staffing decisions.

The last goal of critical acuity assessment is to ensure that they have the right and current information on the care requirements of the residents of their facilities to enable them to make evidence-based decisions on staffing. It is guided by the capability to better align the staffing resources to the needs of care and enable quality as well as efficient utilization of the resources. Regular review and optimization of acuity assessment processes may help facilities stay up to date with their staffing plans in response to the evolving needs of the resident population.

3.Calculating the Real Labor Levels in Sites

To develop accurate measures of real nursing staffing, it is necessary to systematically gather and process staffing data on various levels, such as categories of staff, shifts, and time intervals. It has become simpler and more precise

with the adoption of the Payroll-Based Journal (PBJ) reporting system, which demands facilities to provide information about their daily staffing in detail to federal regulators. But the facilities need to exert more than what is needed in basic reporting to establish overall knowledge of their staffing trends and fluctuations.

The cornerstone of precise measurement of staffing is appropriate classification of the nursing staff into separate groups that indicate their training, extent of practice, and input to patient care. On the clinical side, the greatest amount of clinical oversight is carried out by registered nurses (RNs), who assess, create care plans, prescribe complex medications, and provide supervision to the rest of the nursing team. Vocational or licensed practical nurses (LPNs/LVNs) provide direct nursing care under the supervision of an RN, such as the administration of medications, wound care, and clinical monitoring. Most of the practical personal care, such as activities of daily living, mobility, and routine monitoring, is given by certified nursing assistants (CNAs) (6).

Conventional staffing measurements include calculations of hours per resident day (HPRD), which is the total number of hours that the nurse has worked divided by the number of resident days that one has worked within a certain timeframe. Although this method offers helpful background data, it may conceal critical changes in staffing patterns which influence the quality of care and staff workload. Facilities should look at staffing during various shifts, days of week and seasons in order to establish patterns that could lead to coverage deficiencies.

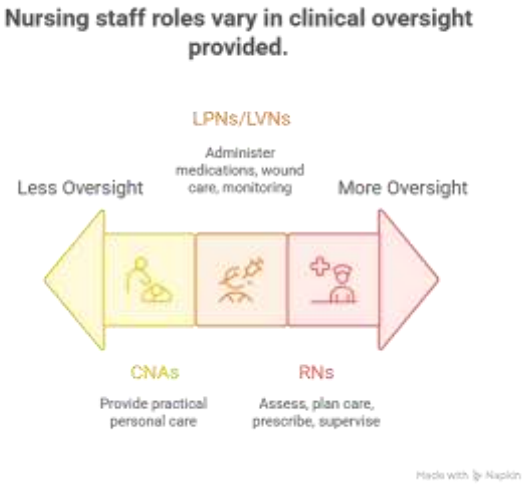

FIGURE 2 Nursing staff roles vary in clinical oversight

The adoption of PBJ reporting has demonstrated that there is a substantial range of differences in staffing levels at nursing homes, with many nursing homes demonstrating significant differences in weekday and weekend staffing, day and evening shifts versus night shifts, regular and holiday periods staffing. These fluctuations represent planned staffing policies as well as unplanned shortage caused by staff attrition, sickness, or recruitment difficulties. Knowledge of these patterns is critical to formulating plausible evaluation of true adequacy of staffing.

Another significant difference in measuring staffing is administrative versus direct care nursing hours. Several of these also cover administrative nursing roles like directors of nursing, assistant directors and quality assurance nurses as part of the total number of nursing hours. Although these roles play a role in ensuring quality care by supervising, coordinating, and implementing quality improvement processes, they are not involved in actual resident care. In determining their capacity to respond to the urgent care needs of residents, facilities should explicitly determine direct care hours and administrative hours.

Contract and agency staffing plans create an extra layer of complexity to staffing measurement since these employees can work odd hours, need more training, and can be familiar with facility policies and resident demand to varying extents. Although the contract staff could be useful in allowing facilities to work with minimal staff during shortages, contract staff might not offer the same quality/efficiency of care as the regular employees. Facilities must monitor the rate of care delivered by temporary staffs and the quality indicators to identify the negative impact.(7)

The rate of staff turnover has a substantial effect on the level of effective staffing since high turnover causes periods of under-staffing, raises the cost of training, and lowers the overall level of experience of the nursing staff. The facilities with high turnover might seem to be adequately staffed in terms of occupied positions but are actually subject to frequent shortages caused by longer recruitment and orientation processes and lower productivity of

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new employees. Voluntary and involuntary separations, the cause of the separation, and replacement time should be covered under turnover tracking.

The technology has increased the precision and timeliness of staffing measurement, and electronic scheduling systems, time and attendance tracking, and ties to payroll systems now yield detailed information regarding actual hours worked. Such systems are capable of producing real-time reports regarding staffing levels, patterns of overtime usage, and assist in predictive analytics related to workforce planning. Nonetheless, facilities need to make sure that their technology platforms are capable of capturing all the staffing-related information and offer valid reports to make decisions.

The interactions between the budgeted, planned, actual staffing levels will give information on the effectiveness of management of the facility and resource sufficiency. The facilities should also routinely compare their staffing budgets to their actual deployment patterns to identify discrepancies that could represent an unrealistic budget assumption, insufficient recruitment activity, or simply changes in the needs of residents. Significant differences between planned and actual personnel can indicate endemic issues that need to be addressed at the management level.

Staffing level assessment can be placed in the context of benchmark comparisons with other facilities, but this comparison should consider the differences in resident acuity, facility characteristics, and local labor market conditions. The aggregate staffing data in national and state databases may be used by facilities to compare their performance to other facilities, but not to substitute the facility-specific assessment of staffing adequacy.

Staffing scheduling practices play a crucial role in the quality of provided nursing hours and well-designed schedules allow staffing levels to optimally match the care needs of residents across the entire 24-hour span. Facilities need to review their scheduling patterns to be sure that, they have adequate coverage during peak care periods, sufficient overlap between shifts to facilitate communication and adequate staffing during generally tough times, like morning care routines and evening medication passes.

The accuracy of the staffing data must be checked periodically as part of quality assurance exercises that audit time records, verify staff qualifications, and confirm actual versus reported hours worked. Any future analysis and decision-making is rendered weak by inaccurate staffing data and hence data integrity is a vital area of workforce management.

4.Using Resident Cognition to Determine the Right Nursing Staff Rates

Evidence-based minimum staffing targets need to be intertwined with facility-specific adjustments to acuity of the residents and complexity of care. This is done by assessing research results, specialist suggestions, and regulations to build minimum staffing levels, which are adjusted to the particulars of each facility and its resident population. This task is complicated by the variety of factors that determine nursing workload, as well as the necessity to make individualized decisions regarding staffing decisions.

Minimum staffing requirements are based on research findings on proper staffing decisions. This led to widely used minimum levels of 0.75 hours per resident day of registered nurses, 0.55 hours of licensed practical/vocational nurses and 2.8 hours of certified nursing assistants, each adding up to 4.1 nursing hours per resident day as set in the landmark 2001 study Centers for Medicare and Medicaid Services. These minimums are the staffing requirements that are needed to avoid injury or risk to residents and provide minimal quality of care. These standards are, however, indicators of minimum acceptable levels but not optimal staffing to provide high quality care.

To ensure the delivery of consistently good care, professional organizations and expert panels have suggested increased staffing rates. The average number of hours of total nursing care recommended is between 4.1 and 4.55 hours per resident day, including at least 30 percent of the total hours by licensed nurses (RNs and LPNs/LVNs), and 24-hour coverage by RNs. Other researchers recommend even greater standards, especially in facilities where residents have complex medical histories or behavioral symptoms. These improved standards are indicative of increased knowledge on the relationship between staffing level and quality results.

The Staff Time Measurement (STM) trials carried out by CMS in the 1990s give comprehensive information on the amount of nursing time needed by individuals in various levels of acuity. These studies implemented electronic monitoring to monitor real nursing time given to residents in different Resource Utilization Group (RUG) categories, which form empirical bases of acuity-scaled staffing guidelines. Although certain elements of these

studies have been criticized, they are the most data-rich source on the topic of resident characteristics and nursing time requirements to date.

Staffing based on acuity considers that patients with greater care needs consume more nursing time in proportion to those with less acuity. Patients who need comprehensive support in activities of daily living, patients with multifaceted health issues, and patients with behavioral symptoms related to dementia are associated with much greater nursing workloads. Best staffing criterion should take into consideration such differences and offer higher staffing to the high-acuity residents without jeopardizing staffing coverage to all the residents.

The Patient-Driven Payment Model (PDPM) classification system offers a method of acuity-based staffing changes, and classifies residents into groups to indicate their nursing care needs. These classifications can be used by facilities to establish differentiated staffing criteria aligned with the intensity of care required based on the type of resident. PDPM categories were developed, however, to serve more as a means of payment than as a staffing optimization tool, and should be interpreted with care when used to make staffing decisions(8).

Niche care demands generate extra staffing requirements which might not be wholly reflected in common acuity indices. Individuals who are under wound treatment, intravenous medication, mechanical ventilated, or end-of-life care need specialized nursing expertise and extra time that need to be included in the staffing estimates. Meeting the needs of such individuals requires adjustments in the staffing expectations of facilities that serve large populations, which can involve specialized nursing roles or additional education of current employees.

Behavioral symptoms of dementia and other cognitive deficits pose special staffing issues that demand creative ways of delivering care. Unpredictable residents might continue to need more oversight, specialized intervention approaches, and care methods involving increased nursing time. Staffing should be improved to ensure that the facilities offer sufficient coverage of both behavioral interventions and routine care to all residents.

Facilities can have some geographic and structural aspects that may affect staffing needs and have more nursing time needed due to the increasing size of the unit, the presence of multiple floors, or the complexity of layout. These physical features should be taken into account during the determination of staffing levels as they influence the efficiency of nursing services provided and may demand an increase in staffing levels in order to ensure sufficient coverage of residents.

The use of technology can affect the right level of staffing through efficiency in nursing, communication, and providing assistance in clinical decision making. Better outcomes with relatively reduced staffing may be attained in facilities with more developed electronic health records, medication administration systems, and resident monitoring technology than facilities with largely paper-based systems. But technology must not substitute proper staffing of nursing, because human component of care cannot be substituted with technology.

Skill mix aspects must take into account what is the right proportion of various types of nursing personnel, since the clinical complexity of nursing home residents has been growing over the years. Clinical supervision and specialized interventions may require increased percentages of licensed nurses (RNs and LPNs/LVNs) in facilities. An ideal skill mix depends on resident features, and more licensed nurses are needed with more acute populations. Local differences in labour market conditions, wages, and regulatory standards can impact on the appropriate staffing targets, with facilities having to compromise between quality objectives and economic sustainability. Such factors, however, should not come at the cost of basic safety standards or the ability of the facilities to meet the basic care needs of the residents. Operations in challenging markets might require developing innovative methods of recruitment, retention and skill development as a way of ensuring that they have the right level of staffing.

Staffing standards are constantly monitored and modified so that they can be kept in line with resident needs, regulatory standards, and best practices. The staffing targets of the facilities should also be subject to regular review based on quality outcomes, staff feedbacks, and emerging best practices. The continuous improvement cycle can be used to ensure the best balance is achieved between the quality of care, employee satisfaction, and efficiency.

5.Conclusion

The staffing nursing home assessment that is presented in this guide is a paradigm shift away of the traditional budget-based evaluation of staffing to an evidenced-based practice grounded in the needs of the home-in long and the quality of care delivered to the home-in long. This will be needed to meet challenges that are inexhaustible in terms of long-term care facilities, quality, compliance regulatory and workforce instability. Nursing homes can

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design sustainable gains, which can benefit residents, families, staff members, and the entire healthcare system by adopting holistic staffing evaluation methodologies.

The five-step model offers nursing home leaders with the practical tools to make informed decisions about staffing that reflects their particular resident base and care needs. This personalized approach acknowledges that no staffing formula or industry average will do the trick. Rather, it involves critical examination of facility-specific issues such as the acuity of residents, complexity of care, physical setting, and resources available. The facilities that adopt this organisational strategy are in a better position to maximise their staffing resources and attain high results.

Evidence-based staffing practice implementation needs strong organizational commitment and cultural transformation in the nursing home setting. The leadership teams should focus on quality outcomes rather than short-term cost savings as sufficient staffing is an investment in staff retention, resident safety, and financial sustainability. Such a change in perspective challenges most traditional approaches to nursing home operations but represents an increasing understanding of the relationship between staffing adequacy and organizational success.

The flexibility of staffing practices under changing conditions and emerging evidence will be ensured by continuous monitoring and adaptation, the essence of the methodology. The populations in nursing homes keep changing, and residents are increasingly more complex in their medical conditions, cognitive and behavioral issues. The assessment of staffing needs has to evolve in response to these changes and retain the primary concepts of safe and caring care. Consistently revising and refining staffing practices also help facilities to keep their resources aligned with the needs of residents.

The integration of technology has great potential in increasing the effectiveness and efficiency of staffing assessment procedure. Predictive analytics, real-time monitoring systems and electronic health records can give facilities more visibility into their operations and results than ever before. Technology must however, complement and not replace the human judgment and clinical expertise that are still key in the proper management of the nursing home. Most likely the most successful facilities will be those that strategically integrate technology capability with effective leadership and dedicated employees.

The larger ramifications of better nursing home staffing are much wider in scope than any given nursing home, and include the social policy, the health economics, and the health of the population at large. Proper staffing in nursing homes can help decrease hospital readmissions, avoid complications in which costly treatment is necessary, and help vulnerable populations successfully age in place. These advantages generate value to health care systems and insurance plans, and society in general and is worth an investment in staffing enhancement even where short-term benefits may not be obvious.

Professional growth and labor sustainability are found to be the critical variables in long-term workforce success. Low wages, lack of career development opportunities, and negative attitudes towards long-term care jobs are some of the systemic issues that the nursing home industry should deal with. The facilities which are investing in their employees by offering them competitive rewards, continuous training and good working conditions are bound to achieve a stable, adequate workforce. These types of investments will require upfront funds, but they tend to pay off through reduced turnover, increased productivity, and improved quality of care.

Aligning the regulatory framework with the policy and supporting the application of evidence-based staffing practices on a large scale hold significant importance. Current policies provide minimum conditions but may not be sufficient to encourage optimal staffing practice or reflective of the needs of different groups of residents. Policy makers should consider change options that will help facilities to achieve appropriate staffing levels without compromising their responsibility to achieve quality care and patient safety. This can be in terms of modified payment practices, human resource development programs, or technical support programs.

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Conflicts of interest

The authors have no conflicts of interest to declare

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