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Nurse staffing legislation: Empirical evidence and policy analysis

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Abstract

Unsafe nurse staffing conditions in hospitals have been shown to increase the risk of adverse patient events, including mortality. Consequently, United States and international professional nursing organizations often advocate for safer staffing conditions. There are a variety of factors to consider when staffing nurses for patient safety, such as the number of patients per nurse, nurse preparation, patient acuity, and nurse autonomy. The complex issue of staffing nurses often is compounded by cost issues and can become politicized. When nurse organizations' recommendations for safe staffing measures are disregarded by hospital administrations, nurse lobbyists and interest groups often pursue legislative action to protect patients and nurses from unsafe staffing conditions. This article presents a narrative review of safe nurse staffing factors and an analysis of nurse staffing legislation. Using a patient-centric lens, three state-level nurse staffing policies (mandated nurse-to-patient ratios, public reporting of staffing plans, and nurse staffing committees) were evaluated by empirical evidence, cost to hospitals and state governments, political feasibility, and potential to affect patient populations. Although nurse staffing policy analysis can be conducted in several ways, it is crucial that nurses consider empirical evidence related to staffing policies as well as evaluations of implemented policies and political influences.

KEYWORDS
evidence-based, nurse staffing, patient safety, policy

Hospital nurse staffing has been researched for decades because it can directly affect patient care quality.[1–3] However, research is not the only factor driving nurse staffing processes. The authority to enact nurse staffing public policy often rests with U.S. state legislatures and, to some extent, the U.S. Centers for Medicare and Medicaid Services (CMS).[4] To analyze nurse staffing policies effectively for the sake of positive patient outcomes, nurse leaders, state legislators, and hospital administrators must consider multiple perspectives and factors. The purpose of this paper is to provide (1) a narrative review of 4 nursing staffing factors (nurse-to-patient ratios, nurse preparation, patient acuity, and nurse autonomy); (2) an analysis of state-level nurse staffing policy options; and (3) an assessment of nursing staffing policy options that reflects the circumstances and complexity of the policy-making process.

We regard the term "nurse staffing" as more than just the literal act of staffing an agency by a certain number. In this paper, nurse staffing encompasses how nurses are assigned to patients, how many nurses are staffed, and nurse staffing factors that can affect patient outcomes. This narrative review of the literature and subsequent policy analysis utilizes a patient-centric lens. While nurse staffing factors, such as nurse-to-patient ratios, can also affect the well-being of nurses,[5–7] this review and analysis focuses on outcomes relative to

patients rather than nurses. An overall goal of this paper is to encourage readers to review nurse staffing empirical evidence to inform their perspectives as they engage with nursing organizations, hospital organizations, and state legislatures for nurse staffing policy. This policy analysis is not a client-directed or single stakeholder analysis, which is why this analysis will not include a policy recommendation. In lieu of a policy recommendation, we offer nurse staffing policy principles that can aid nurses as they review and lend their support to state-level nurse staffing policy options.

1 | BACKGROUND

Appropriate nurse staffing in hospital settings is a crucial component of patient care, as patients lacking sufficient nursing care are at higher risk for adverse events (e.g., nosocomial infections, falls, and even mortality).[2] While research consistently highlights the importance of sufficient nurse staffing levels,[1–3] the process of staffing nurses in hospital settings is more complex than solely acting on evidentiary support.

Nurse leaders, state legislators, and hospital administrators need to acknowledge how complex economic and social forces can influence this issue. While wage increases and decreases can alter hospital nurse supply,[8,9] low-quality work environments—often characterized by poor staffing—also negatively affects nurses and their patients.[10] For example, nurses taught to maintain patient safety and high care standards can become morally distressed or burned out when they cannot do so because of poor work environments.[5,6,11,12] Furthermore, nurses in such environments may choose to leave the hospital setting, which may contribute to nurse shortages that can adversely affect patient outcomes.[5,13]

Nurses who are treated like commodities in a supply and demand system rather than qualified, respected healthcare professionals may join professional organizations that lobby for laws to protect their workspaces from becoming unsafe for patients.[14,15] While it may seem drastic for professional nurses to seek legislated nurse-to-patient ratios rather than working with individual hospital administrations to determine safe staffing plans, pursuing legislative action often is the result of nurse recommendations being disregarded by hospital administrations.[15–17] Given such circumstances and that patient outcomes are at stake,[2] it is essential that nurses are engaged with nurse staffing legislation and nurse staffing policymaking efforts.

While all U.S. hospitals participating in federal Medicare programs are required to have *adequate numbers* of nurses to provide patient care, this vague term remains open to interpretation in the absence of state laws providing concrete legislative language.[4] Despite limited research designating optimum nurse-to-patient ratios for all hospital situations, research suggests that lower nurse-to-patient ratios (i.e., 1 nurse: 5 patients vs. 1 nurse: 8 patients) are associated with better patient outcomes.[1–3,18] In fact, increasing nurse availability to their patients, which occurs with lower nurse-to-patient ratios, has been linked to higher survival rates for hospitalized patients.[18,19]

Conversely, as nurse-to-patient ratios increase, so do patients' risks for poor outcomes. For example, across countries and varying healthcare systems, adding one additional patient to a nurse's assignment has resulted in a 7% increase in 30-day mortality risk.[2,18] Similar research conducted within New York state has also shown that an additional patient added to a nurse's assignment can increase patients' risk for in-patient mortality by 19% (odds ratio [OR]: 1.19; confidence interval [CI]: 1.10–1.29).[20] Researchers have also identified racial disparities when nurse workloads increase.[21] Brooks Carthon et al.[22] found that, while adding additional patients to a nurse's assignment increased mortality risk for all patients, Black patients experienced higher odds of mortality (OR = 1.10) compared to their White counterparts (OR = 1.03).

Although the nurse-to-patient ratio is a vital factor, achieving adequate nurse staffing for positive patient outcomes also involves considering the factors of nurse preparation, patient acuity, and nurse autonomy. The following narrative review of patient outcomes related to four key nurse staffing factors, which were selected with guidance by the International Council of Nurses' 2018 evidence-based nurse staffing position statement,[23] is an important first step in identifying evidence-informed nurse staffing policy.

1.1 | Patient outcomes related to nurse-to-patient ratios

Nurse-to-patient ratios define the maximum number of patients a nurse is required to care for at one time; as more patients are added to a nurse's assignment, the nurse-to-patient ratio increases. Patients benefit from lower ratios (fewer patients per nurse) and can be harmed by higher ratios (more patients per nurse), experiencing increased fall incidence, hospital-acquired infections, hospital-acquired pressure injuries, length of stay (LOS).[19–27] Higher nurse to-patient ratios have also been identified as a predictor of missed nursing care (e.g., not ambulating with patients or providing patient education),[28,29] particularly when nursing labor demands grow due to patient volume and/or acuity level.[29] For example, Cho et al.[30] found a 3% increased risk of incomplete nursing care with each additional patient in acute hospital settings. Indeed, several types of missed care opportunities have been associated with higher nurse-to-patient ratios: nursing documentation, care planning, psychological support, emotional support, patient communication, and patient education.[31,32] In addition to missed care, missed patient observations are more likely to occur among nurses with higher patient ratios and this can contribute to higher failure-to-rescue rates among patients.[33,34] Missed patient observations also serve as a mediator between low nurse staffing levels (i.e., fewer nurses to care for multiple patients) and patient mortality.[31]

The negative impact of high nurse-to-patient ratios occurs not only during hospitalization,[2] but also after discharge in the form of increased hospital readmissions.[35,36] For example, Giuliano et al.[36] found significant readmission rate increases in heart failure patients among lower staffed nursing groups ($p = 0.02$).[36] Likewise, Lasater

and McHugh[35] found that each additional patient per nurse increased postsurgical patients' readmission risk by 8%–12%.

Conversely, when nurses have more time with their patients, which often occurs through lower nurse-to-patient ratios, patient care improves.[37] Griffiths et al.[37] found that increasing the number of nursing hours per patient resulted in a 3% decrease mortality risk and a 0.23 mean decrease ($p < 0.001$) in hospital LOS, which was defined as the number of days patients spent in the hospital. While it may seem minor, a 0.23-day LOS decrease equates to nearly 6 h, during which hospitalized patients can be safely discharged and other patients admitted. While lower nurse-to-patient ratios can improve patient outcomes, it is also important to consider how nurses are prepared to manage patient assignments and associated workloads.

1.2 | Patient outcomes related to nurse preparation

Nurse preparation in this paper relates to nurses' highest level of education (e.g., bachelor's degree in nursing), clinical expertise (e.g., specialty certification), and years of nursing experience. In the United States, nurses can be educationally prepared for practice through three types of programs: diploma, associate degree in nursing, and bachelors of science in nursing (BSN).[38] Researchers have found that variations in nurse preparation can affect patient outcomes.[29,39] For example, increasing the proportion of registered nurses in hospitals, rather than licensed practical nurses and unlicensed support staff, has been associated with reductions in patient mortality.[23,40] Additionally, hospitals with more BSN-prepared nurses have been shown to have fewer incidences of in-patient falls and patient mortality.[24,30,41] For example, Harrison et al.[41] found that among hospitals with a 10%-point increase in the proportion of BSN prepared nurses, patients who experienced a cardiac arrest were 24% more likely to survive the event with positive cerebral outcomes (OR: 1.24; 95% CI: [1.08–1.42]; $p < 0.01$).

Nursing expertise can also impact patient outcomes, with an increase in nursing expertise associated with a lower likelihood of hospital-acquired infections and mortality.[39,42] Furthermore, among 12,324 observed congenital cardiac cases with a complication rate of 34.4%, Hickey et al.[42] identified that pediatric cardiac complications decreased significantly among children's hospitals with higher proportions of BSN-prepared nurses (OR: 0.83; CI: 0.70–0.99; $p = 0.04$) and nurses certified as critical care registered nurses (OR: 0.86; CI: 0.76–0.97; $p = 0.02$).[42]

Years of nursing experience is another factor that can affect patient outcomes. Across bivariate and multivariate models, Schneider and Geraedts[43] found that pressure ulcer incidence decreased when patients were cared for by nurses with at least 3 years of experience. Conversely, fewer years of nursing experience has been associated with adverse patient outcomes. For example, Bowden et al.[44] found that, among 344 patient falls on medical surgical units, 30% of in-patient falls were associated with nurses who had less than 1 year of experience.[44] A nurse's level of preparation should be considered when making patient assignments. When nurses have patient assignments that adequately reflect their training and expertise, patient care can improve[23,39,41–44]; this is increasingly important as patient care becomes more complex. Therefore, nurse staffing should also reflect patient acuity.

1.3 | Patient outcomes related to acuity

Patient acuity relates to patients' illness severity and the intensity of nursing care required.[45] In the 21st century, patients typically are sicker when they enter the hospital, have a rising acuity level, and are discharged sooner.[46] Patient acuity is an important consideration, as nurses with multiple high acuity patients are more likely to miss critical nursing care.[47]

Some hospitals use patient acuity tools to classify patients into different risk categories so they can be safely assigned to nurses who are prepared to care for them.[48] Because patient acuity levels may decrease during weekends, evenings, and holidays,[49,50] some hospital administrations lower nurse staffing levels during these times. However, when staffing nurses by patient acuity rather than by day of the week or season, researchers have found that staffing levels should be maintained, not lowered, to enhance patient safety.[51] Similarly, De Cordova et al.[26] noted that patients were more likely to have a longer hospital LOS when staffing levels were lower during nightshift compared to dayshift.[24] It is often recommended by leading nursing organizations that nurse staffing levels align with patient acuity. Along with clinical decision making, appropriate and timely patient acuity assessment is considered a function of nurse autonomy in hospital settings.[52]

1.4 | Patient outcomes related to nurse autonomy

In this analysis, nurse autonomy represents nurses' abilities to act on their knowledge to provide quality patient care and to influence hospital policy and procedures to shape best practices for patient care. Nurse autonomy is often exemplified through shared governance or shared decision-making models.[53,54] Increased nurse autonomy also has been linked to improved patient outcomes.[53,55] For example, Rao et al.[53] found that a one point increase in nurse autonomy, was associated with lower odds of patient mortality (OR: 0.81; CI: 0.71–0.91; $p < 0.001$) and failure-to-rescue rates (OR: 0.83; CI: 0.74–0.95; $p < 0.01$).[53] Furthermore, nurse involvement in hospital decision making and governance has been found to improve hospital patient safety scores.[56] Finally, nurse autonomy is an essential staffing factor because it encompasses frequent nursing evaluation of the other staffing factors.[23]

After identifying evidence-informed staffing factors in the four areas discussed above, a next step is to evaluate policy options for their potential effect on patient outcomes, while also considering the more traditional policy analysis aspects of cost and political

feasibility. Given these considerations, this analysis is driven by the following question: how can nurses comprehensively evaluate nurse staffing policy for the sake of improving patient outcomes? In the subsequent sections, three state-level policy options are presented along with a review of stakeholders and an analysis of the policy options.

2 | CURRENT AND PROPOSED STATE NURSE STAFFING POLICIES

A review of U.S. state nurse staffing policies revealed three main types: mandated nurse-to-patient ratios, public reporting of nurse staffing plans, and nurse staffing committees.[57] Currently, 14 states have some type of nurse staffing legislation (Table 1). Two states (California and Massachusetts) have mandated nurse-to-patient ratios (ratios for all units in California and ratios for intensive care units only in Massachusetts). These options set maximum nurse-to-patient ratios in each hospital by unit type, require that nurses be assigned to patients based upon a patient acuity system, and ensures that hospitals are held accountable to maintain nurse-to-patient ratios by regulatory body oversight[58]; such as the State Department of Public Health in California[58,59] and the Health Policy Commission in Massachusetts.[60] In addition to regulatory body oversight, the California state legislature passed a law in 2019 that would allow the California Department of Public Health to conduct unannounced hospital visits to assess for ratio compliance and administer financial penalties for hospitals not in compliance with the ratios.[59]

Five states (Illinois, New Jersey, Rhode Island, New York, and Vermont) have policies requiring hospitals to publicly report their staffing plans and/or staffing information.[57] For example, New Jersey's online forum reports the average nurse-to-patient ratios for each type of unit in all state hospitals.[62] Because state residents can review a critical component of their nursing care, this policy option promotes staffing transparency.

Lastly, seven states (Connecticut, Illinois, Nevada, Ohio, Oregon, Texas, and Washington) have nurse staffing committees, which are mandated by state law and organized at the hospital level, that include direct-care nurses, nurse managers, and nursing executives. Committee members meet throughout the year to formulate nurse staffing policy, which can include nurse-to-patient ratios for each unit, nurse preparation assessment, and acuity-based staffing plans.[57]

While other state legislatures have considered implementing similar legislation, California is the only state with mandated nurse-to-patient ratios for all hospital units; staffing ratios were phased in, with all hospitals required to meet the staffing ratios by 2004.[58] Although Massachusetts already has state-mandated nurse-to-patient ratios for intensive care units, a ballot initiative to mandate hospital wide nurse-to-patient ratios was rejected by voters in 2018.[63] Additionally, it is important to note that although Illinois law requires nurse staffing committees in all hospitals and public reporting of staffing plans, nurse unions continue to lobby for a nurse-to-patient ratio bill.[63] In 2019, Pennsylvania representative Gene DiGirolamo introduced House Bill 867, which sets nurse-to-patient ratios by unit type similar to those used in California.[64] This bill was referred to the Health committee on March 18, 2019, but the committee has not acted on the bill.[65]

3 | STAKEHOLDER ANALYSIS

Stakeholder analysis—a critical policy analysis component[66]—is conducted to determine whose interests should be considered when evaluating policy options. Stakeholders include people and organizations with a vested interest (or *stake*) in the problem and the policies proposed to address it.[67] Understanding stakeholder positions, interests, influences, and perspectives is key to evaluating a policy option's likelihood of acceptance. Three stakeholder groups were reviewed for the current analysis: hospitals, state governments, and nursing organizations. Although this analysis is focused on hospitalized patient outcomes, patients (as a group) were not included as stakeholders, as they generally are not engaged in nurse staffing legislation efforts. Rather, patient populations can be affected by nurse staffing legislation.

3.1 | Hospitals

Nurse staffing policies can directly affect hospital budgets and quality of care. About 56% of hospital operating budgets are labor and wage expenditures,[68] with nurse employment costs constituting some of the largest expenditures.[69] In 2011, the average cost of hiring, insuring, and recruiting a nurse in the United States was $98,000 per year.[70] In 2012, salary expenses made up approximately 49% of U.S. hospital operating budgets, with nursing salaries comprising 30% of all salary expenses.[69] However, the available data for nursing labor is more than 5 years old and it is possible labor costs may have risen since 2011–2012.

The hospital industry—traditionally operating via fee-for-service models—is a business with a social responsibility to provide safe, quality healthcare services.[71] Additionally, hospital systems in the United States are transitioning towards value-based purchasing, which places more CMS payment reimbursement on clinical outcomes rather than just service quantity.[72] Given that the amount and type of nursing services affect patient outcomes and satisfaction,[2,20,73] hospitals must consider how nursing services factor into value-based purchasing models.

Hospital administrators also must consider how nursing services and nursing work environments affect CMS reimbursement status. While nurses are a major hospital operating expense, they also are vital to achieving good patient outcomes, fostering quality care, and increasing value for patients.[2,31,35] All three of these factors are important for Medicare reimbursement, which accounted for 88%–91% of payments for inpatient hospital stays from 2000 to 2015.[74] It is also important to note that improvements in nurse

TABLE 1 Nurse staffing laws in 14 U.S. states

State	Nurse-to-patient ratios	Public reporting	Nurse staffing committees	Specifics	Year enacted
California	✓			Mandated maximum nurse-to-patient ratios for each hospital unit; use of a patient acuity system to help determine ratios	1999
				Amended to increase enforcement of law through increased oversight by the California Department of Public Health and financial penalties for repeated ratio violations	Amended 2019
Connecticut			✓	Nurse staffing committee to create or shape staffing policy	2008
Illinois		✓	✓	Public reporting of nurse staffing information	2003
				Nurse staffing committee to create or shape staffing policy	2007
Massachusetts	✓			Mandated nurse-to-patient ratios in intensive care units **only**, with a maximum ratio of 1:2; use of patient acuity tools	2014
Minnesota				Chief nursing officer or designee required to create staffing plan with input of other RNs	2013
Nevada			✓	Nurse staffing committee to create or shape staffing policy	2009
				Amended to increase enforcement of law through increased oversight and financial penalties; requires staffing matrices be created by committees and followed by hospital administrations	Amended 2013
New Jersey		✓		Public reporting of nurse staffing information	2005
New York		✓		Public reporting of nurse staffing information	2009

TABLE 1 (Continued)

State	Nurse-to-patient ratios	Public reporting	Nurse staffing committees	Specifics	Year enacted
Ohio			✓	Nurse staffing committee to create or shape staffing policy	2008
Oregon			✓	Nurse staffing committee to create or shape staffing policy	2001
				Amended to increase enforcement of law through increased oversight and financial penalties; statewide nurse staffing advisory board created	Amended 2015
Rhode Island		✓		Public reporting of nurse staffing information	2005
Texas			✓	Nurse staffing committee to create or shape staffing policy	2009
Vermont		✓		Public reporting of nurse staffing information	2006
Washington			✓	Nurse staffing committee to create or shape staffing policy	2008
				Amended to increase enforcement of law through increased oversight and financial penalties; mediation guidelines for impasses between committees and hospitals	Amended 2017

Note: U.S. state nurse staffing laws are of public record and available online.[57,61]

TABLE 2 State political ideologies and the three common types of nurse staffing legislation

Political ideology	Nurse-to-patient ratios	Nurse staffing committees	Public reporting
More liberal than conservative	Massachusetts	Washington	New York, Vermont
Less conservative than average	California	Connecticut, Illinois, Oregon	Illinois, New Jersey, Rhode Island
About average	N/A	Nevada	N/A
More conservative than average	N/A	Ohio, Texas	N/A
Highly conservative	N/A	N/A	N/A

Note: U.S. state nurse staffing laws are of public record and available online.[57,88,]

staffing levels have been associated with decreases in adverse patient events, readmission rates, and patients' length-of-stays in hospitals[36,75–77]; this is crucial for hospital cost-savings since adverse patient events, hospital readmissions, and increased patient length-of-stays can contribute to nearly 200 million in hospital cost.[78] Researchers have also identified that increasing the proportion of RNs, as opposed to increasing RN work hours, acquires less cost to hospitals ($811 vs. $7,538 million).[40] Similarly, more recent research has shown that if medical-surgical units in New York hospitals maintained nurse-to-patient ratios of 1:4 (as opposed to the average of 1:6), hospitals could have saved $720 million over 2 years due to decreases in hospital readmissions and shorter patient length-of-stays.[79]

The CMS will not reimburse hospitals for hospital-acquired conditions[80]—those that can be prevented or minimized through nursing services (e.g., fall-related injuries, infections, pressure injuries, and pneumonia).[24,41,43,81] CMS also has programs that hold hospitals accountable for providing effective and safe healthcare. For example, hospitals can be penalized for having high rates of hospital-acquired conditions.[82] Additionally, the CMS Hospital Readmissions Reduction Program withholds reimbursements from hospitals with high readmission rates.[82] While preventing hospital readmissions often entails nurses providing appropriate discharge preparation, care coordination, and patient education, it also involves having an adequate number of nurses to provide these services in a timely manner.[36,75–77]

In addition to high quality patient care and avoiding CMS penalties, hospital administrators also value flexible operating margins that can account for various unforeseen expenses (e.g., uncompensated care or capital resources for new medical equipment).[83,84] When hospitals implement a constant expenditure, such as a mandated nurse-to-patient ratio, they lose some budget flexibility and may experience increased labor costs.[83,84] Therefore, hospital organizations often lobby against certain types of nurse staffing legislation, particularly nurse staffing policy options that either limit operating margins or increase state government regulation of their business practices.[85] The effectiveness of the hospital industry's lobbying efforts was evident in Massachusetts when a mandated nurse-to-patient ratio bill was rejected by voters in 2018.[63] The Coalition for Patient Safety, a lobbying group supported almost entirely by the Massachusetts Hospital Association, contributed almost 25 million dollars—nearly twice as much as the nurse lobbyist group, Committee to Ensure Safe Patient Care—to defeat the ballot initiative.[86] In addition to having lobbying power, hospitals can make nurse staffing changes and formulate in-house staffing policy in the absence of state legislation. While hospital administrations appreciate the power to promote positive patient outcomes, they also value providing quality services at lower costs.

3.2 | State governments

While state legislators from any political party generally agree that healthcare is important, valuable, and should be high quality, they often debate how it should be delivered and funded. Furthermore, legislators often disagree about how and to what extent state legislatures should regulate healthcare services, including hospital nurse staffing.[87] The discussion of state legislators as stakeholders is nuanced because each state has a different complement of legislators with various perspectives and party affiliations.

Some political trends have been noted among the 14 states that have passed nurse staffing legislation (Table 2). Using data from a 2018 Gallup poll, where state residents were asked to describe themselves as "conservative," "moderate," or "liberal," U.S. states' majority political ideologies seemed to align with the types of nurse staffing legislation that was passed.[88] State classifications of "highly conservative," "more conservative than average," "about average," "less conservative than average," and "more liberal than average" were based upon measured conservative-liberal point gaps.[88] States with mandated staffing ratios tended to be less conservative than average or more liberal than conservative. Additionally, none of the 14 states with nurse staffing legislation was listed as a highly conservative state in 2018. These trends could certainly change in coming years, considering that Gallup researchers in 2020 found a slight decline in self-described conservatism and a slight incline in self-described liberalism among Americans during the first half of 2020 (January–June).[89] In light of this information, state legislators must consider the political feasibility of passing healthcare legislation in their state based upon the values of their constituents and colleagues.

3.3 | Nursing organizations

While nurses—represented mostly by nursing organizations—are major stakeholders in nurse staffing issues, as a pluralistic group they

TABLE 3 Policy options by policy criteria

Option criteria	Nurse-to-patient ratios	Public reporting of nurse staffing	Nurse staffing committees
Supported by nurse staffing evidence factors			
Nurse-to-patient ratios	✓	☒	✓
Nurse preparation	☒	☒	✓
Patient acuity	✓	☒	✓
Nurse autonomy	☒	☒	✓
Cost	Moderate-high	Low-moderate	Low-moderate
Political feasibility	Low-moderate	Moderate-high	Moderate-high
Positive patient outcomes secondary to policy implementation	✓	⚠	⚠

Note:

✓ Satisfies criteria.

☒ Does not satisfy criteria.

⚠ Not enough evidence to assess against criteria.

Low-Moderate: Indicates a range of either low to moderate cost to hospitals/state governments or political feasibility.

Moderate-High: Indicates a range of either moderate to high cost to hospitals/state governments or political feasibility.

are not always united on policy issues. Nursing organizations want safe staffing measures in all hospitals for the sake of positive patient outcomes, but nursing organizations may disagree with other nursing organizations on how to achieve safe staffing. Rather than legislating nurse-to-patient ratios, the American Nurses Association (ANA) promotes nurse autonomy over practice and advocates for staffing plans to be continually assessed and crafted by nurses working in hospitals.[90] Between 1995 and 2010, eight state ANA affiliates severed ties with the ANA. In 2009, three nursing unions joined to form National Nurses United (NNU).[91] In contrast to the ANA, a goal of the NNU is to enact safer nurse-to-patient ratios through legislation to improve patient safety and working conditions for nurses.[14,91] The organizational differences within the nursing profession—reflected in the divergent perspectives and agendas of ANA state affiliates, the NNU, and other labor organizations—could dilute the profession's overall power in state policymaking activities. Each state's dominant political ideology tends to align with its nurse staffing policymaking efforts on both ends of the political spectrum, but less so in the middle (Table 2). Furthermore, no highly conservative states have enacted nurse staffing policies (Table 2).

Currently, 36 U.S. states do not regulate nurse staffing, yet the need for safe nurse staffing continues to be approached with policy solutions. State representatives in New York, Michigan, and Pennsylvania are discussing nurse-to-patient ratio legislation,[17,63] with bills in committee. Additionally, in recent years two nurse staffing bills (one with mandated ratios and one with staffing committee formation) have been introduced at the federal level: the *Nurse Staffing Standards for Hospital Patient Safety and Quality Care Act*[92] and the *Safe Staffing for Nurse and Patient Safety Act of 2018*.[93] With nurse staffing legislation being considered at state and federal levels, policy options are analyzed in the subsequent sections using an established methodology.[66]

4 | POLICY OPTION ANALYSIS

Policy analysis is not research, but a systematic comparison used to evaluate existing or proposed policies. The aim of policy analysis is to determine the best way to solve a societal problem, with consideration given to how well a proposed policy meets the goals linked to the problem it is designed to address. To be effective, policy analysis should be informed by research and evaluation. The following analyses do not provide recommendations, as is common in client-directed or single stakeholder policy analysis.[66] Instead, we will conclude the analysis with guiding nurse staffing policy principles, which are intended to help nurses comprehensively evaluate nurse staffing policy options.

Three state-level policy options are addressed: mandated nurse-to-patient ratios for each hospital unit, public reporting of nurse staffing plans and/or information, and nurse-based staffing committees that create staffing policies and procedures. Note that some states have implemented a combination of these policies (Table 1). Each option is analyzed using four criteria: use of nurse staffing evidence, cost, political feasibility, and evaluation of the policy's effects on patient outcomes. A summary table of this analysis can be found in Table 3.

For this analysis, the evidence criterion pertains to whether the policies address or have the capability to address four designated

nurse staffing factors, which were selected with guidance from the International Council of Nurses' 2018 evidence-based nurse staffing position statement,[23] (nurse-to-patient ratios, nurse preparation, patient acuity, and nurse autonomy). While this criterion does not include all possible staffing factors, four are included to present an approach that considers more than one area of evidence. The cost criterion relates to how much a policy will cost hospital administrations and state governments. Political feasibility relates to the policy's likelihood of becoming a law. A policy's political feasibility is not static, and it can change depending on windows of opportunity, availability of timely supporting research, or changes in state political climates; however, for the purposes of this analysis, political feasibility considers previous trends in state nurse staffing laws and a state's majority political leanings as of 2018 (i.e., conservatism vs. liberalism). The cost and political feasibility criterions were selected as the more traditional criterions of a policy analysis per Teitelbaum & Wilensky.[66] As seen with traditional policy analysis,[66] there is often a criterion for targeted impact, which is meant to assess a policy option's impact on certain populations or selected phenomena. Since each nurse staffing policy option has been implemented in at least one state, we sought to assess a policy's potential effects on patient populations by evaluating research surrounding the policy options; this serves as our targeted impact criterion.

4.1 | Mandated nurse-to-patient ratios

4.1.1 | Evidence

While this policy option is most informed by the evidence related to staffing ratios, patient acuity, and how patient outcomes improve with fewer patients per nurse,[2,30] it does not address the need to assess nurses' preparation or promote active nurse autonomy over staffing policies and procedures. For example, although California's staffing ratios were determined by the state's Department of Health Services with guiding nurse testimonies, such as those from the California Nurses Association,[58] the policy does not include a requirement for direct care/staff nurses to consistently assess whether the mandated ratios are sufficient to meet patient needs (i.e., should mandated ratios be changed for certain units?).

4.1.2 | Cost

This policy option could be considered the costliest because all state hospitals, regardless of size or trauma level, would need to abide by the mandated ratios. In addition, nurse wages may increase, as seen after the staffing mandate in California.[94] Hospitals also could incur other labor expenses, such as those associated with recruitment bonuses, nurse training, sign-on bonuses, and a short-term reliance on staffing agencies for temporary nursing staff.[95] However, hospitals already staffed at state-mandated ratios may not experience an immediate financial expenditure[96] and this option would likely come with a phase in period, giving hospitals a few years to fully meet their requirements.[58]

This option has been shown to decrease hospital operating margins and increase operating expenses, and its financial impact would likely be absorbed mainly by hospitals rather than state governments.[97] Although, publicly owned hospitals with a high reliance on Medicaid funding could require increased state Medicaid reimbursements after policy implementation.[97] This policy option could be considered the costliest option in terms of labor expsenses,[94,97] but it should also be noted that this is the only policy option associated with reductions of hospital costs in the long term through decreasing adverse patient events, readmissions, and length-of-stays.[36,75–77,79]

4.1.3 | Political feasibility

Compared to the other two policy options, mandated staffing ratios have had the lowest degree of political feasibility. California passed their hospital-wide ratio legislation over 20 years ago, and states besides California have tried to pass similar legislation without success. Despite Massachusetts having mandated nurse-to-patient ratios for intensive care units, voters rejected ratios for all hospital units in a 2018 ballot initiative.[63] However, Massachusetts nursing organizations continue to lobby for a mandated ratio bill, citing the hospital organizations' attempt to sway voters against the staffing mandate as unethical and based on questionable research findings.[63] A mandated ratio law also places more state regulation on hospital business practices, which may be more accepted in liberal leaning states rather than conservative leaning states.

In recent years, the Illinois state legislature declined to vote on a maximum nurse-to-patient ratio bill due to concerns that it would decrease hospital staffing flexibility.[17] Additionally, although the Democratic Governor of Pennsylvania, Tom Wolf, has expressed support for a mandated ratio bill, the bill would also need some support from the conservative state legislature majority for its passage.[63] Because mandated state ratios increase government regulation, bipartisan support may at times be difficult to achieve. Compared to the other two options, mandated nurse staffing ratios seem to cause more discord among state legislatures and healthcare interest groups.[63]

4.1.4 | Patient outcomes after policy implementation

Patient outcomes after implementation of a nurse-to-patient ratio policy have been extensively researched, particularly patient mortality rates.[98–100] For example, Flanagan et al.[99] identified significantly lower ($p < 0.001$) pneumonia readmission rates in California,[99] compared to those of Massachusetts and New York. Additionally, Aiken et al.[97 98] noted a decrease in patient mortality rates after policy implementation in California, compared to two states without such mandates (New Jersey and Pennsylvania). Using a predicted probabilities approach, Aiken et al.[98] suggested that if New Jersey and Pennsylvania hospitals used California's mandated

staffing ratios, surgical deaths would have decreased by 13.9% in New Jersey and 10.6% in Pennsylvania.

Although lower nurse-to-patient ratios have reduced patient mortality rates and adverse patient events,[2,35,98] some researchers have not seen patient outcome improvements after policy implementation.[101] For example, in Massachusetts, Law et al.[100 101] found no significant differences in mortality or complication rates between pre and post implementation periods (2015–2017) after implementation of mandated nurse-to-patient ratios for hospital ICUs. Other researchers have documented mixed patient outcome results after nurse-to-patient ratio legislation. After assessing patient outcome data between pre- and post-regulation periods, Mark et al.[96] noted that some California hospitals experienced significant decreases in failure-to-rescue rates. However, other California hospitals saw increases in postoperative sepsis and infections compared to 12 U.S. state hospitals without such staffing initiatives.

To assess how nurse-to-patient ratio legislation has affected patient access to quality nursing care, some researchers have assessed relationships between missed nursing care and nurse workloads in California. Orique et al.[102] found no significant correlations between missed nursing care and unit-specific nurse workloads among California nurses. While the authors attributed this finding to the staffing mandate resulting in fewer patients per each nurse, pre-staffing mandate data were not assessed for comparison. Other researchers have noted that the staffing mandate could be the reason that adverse patient outcomes did not significantly rise despite increases in patient acuity across California hospitals during the mandate's implementation period.[103] The conflict among study results from Law et al.,[101] Mark et al.,[96] and Orique et al.[102] may be related to other nurse staffing factors (e.g., nurse autonomy) not considered in evaluations of relationships between patient outcomes and nurse-to-patient ratio implementation.

Nurse-to-patient ratio legislation can help improve patient outcomes and prevent adverse outcomes.[98–100,102] Despite these advantages, this type of legislation may have varying effects in different healthcare systems, depending on how high ratios were before implementation. Finally, while this option may hold the most evidentiary support for positive patient outcomes in the United States and internationally,[98–100,102,103] post-implementation evidence is limited in the United States to California and Massachusetts.

4.2 | Publicly reporting staffing plans

4.2.1 | Evidence

Some states require hospitals to publicly report their staffing plans and/or staffing information,[57] but it is unknown how often the public uses this information or whether they understand its significance.[104] Although this policy option gives consumers access to staffing information, it does not standardize how the information is presented. In fact, state-to-state variations in reporting approaches could affect how patients understand the information. New Jersey, for example, reports the average number of patients per nurse,[62] while Vermont reports the number of nurse hours per patient per day.[105] Using different staffing information metrics without explaining what they mean could lead to patient confusion. Furthermore, patients unable to make sense of the information may disregard it when they are selecting a hospital. In sum, while this policy option allows for the dissemination of nurse staffing information, it does not promote assessment of the number of patients per nurse, patient acuity, nurse preparation, or nurse autonomy and does not call for specific nurse staffing actions through policy. Thus, this policy option is least informed by nurse staffing evidence.

4.2.2 | Cost

Of the three policy options, public reporting of staffing plans and/or information requires the least amount of ongoing hospital expenditures. For example, nurse staffing information from New Jersey and Vermont are readily available on their department of health websites.[62,105] While hospitals and state departments of health will incur some administrative and technological costs for compiling staffing information on an accessible website, the exact costs and which organizations will absorb most of them are unknown. Furthermore, while this option offers the most hands-off approach to hospital staffing policy, it may have indirect effects on staffing levels, which could subsequently lead to increases in nursing costs over time. For example, New Jersey hospitals experienced nurse staffing level increases after adopting the reporting policy.[104]

4.2.3 | Political feasibility

Public reporting of nurse staffing, which is mandated by law in five states,[57] is often regarded as a politically feasible policy option.[106] The public likely would favor this option because it promotes healthcare service transparency.[106] However, using a public reporting system to choose a hospital requires high levels of literacy, critical thinking, and an understanding of what constitutes quality care.[107] Patients may be more likely to choose hospitals based on recommendations from family members, their insurance plans, or personal experiences rather than a public reporting system.[107] This option, regarded as a compromise to mandated staffing ratios,[106] may be able to garner more bi-partisan support in conservative leaning states that typically disfavor state government regulation.

4.2.4 | Patient outcomes after policy implementation

While New Jersey saw nurse staffing level increases after implementing a nurse staffing public reporting system,[104] there is no evidence to indicate this option improved patient outcomes. It could be hypothesized that this option would improve patient outcomes due to more hospital nurses being hired, but this result has not been demonstrated. As seen in New Jersey,[104] this option could exert public pressure on hospitals to improve

ratios, which eventually could help improve patient outcomes. This result is similar to that of the sentinel effect, in which increased oversight is linked to improved behavior.[108]

4.3 | Nurse staffing committees

4.3.1 | Evidence

Public policies requiring hospital nurse staffing committees have been implemented in Oregon, Washington, Texas, Connecticut, Illinois, Nevada, and Ohio.[57] These laws contain language that addresses evidence-informed nurse staffing factors (e.g., assessing patient acuity, the number of patients per nurse, and nurse preparation among hospitals).[109–111] This option is most informed by evidence related to nurse autonomy because direct-care nurses are involved in creating hospital staffing plans and policies.[61] Since this option is informed by nurse autonomy, it is broad enough to encompass the evidence supporting nurse assessment of nurse-to-patient ratios, nurse preparation, and patient acuity.[23]

4.3.2 | Cost

Costs associated with this option would likely be absorbed by hospitals rather than state governments since committees are organized at the hospital level. Since nurse committee staffing plans would be hospital-specific, the cost of this option would vary by hospital and the recommendations of nursing staff. For example, after this policy was implemented in Texas, hospitals with staffing levels below committee standards hired more nurses over time.[112] Another hospital cost could be acquiring a patient acuity system, an expenditure that would vary according to each hospital's budget and committee discretion. After the implementation of this policy in Illinois, committees either purchased an acuity system or developed their own.[113]

4.3.3 | Political feasibility

Nurse staffing committees generally are a politically feasible option, that hospital and nursing interest groups regard as a compromise to improve patient outcomes while maintaining flexibility in hospital operating margins.[113] The general language of established state statutes describes who should be on the committees but leaves the selection of direct-care nurses to the hospitals' discretion.[109–111] This option has been implemented in seven states,[57] both in states with liberal and conservative ideological leanings[88] (Table 2).

Despite this policy being regarded as a valuable bipartisan option,[113,114] there have been reports of hospitals not following their state's mandate. When this situation occurs, state legislators have had to amend original mandates to uphold nurse staffing committees' ability to create evidence-based staffing plans.[16,115] Additionally, although Illinois hospitals are required to have nurse staffing committees, some Illinois nurse interest groups still are lobbying for mandated nurse-to-patient ratio legislation.[17] While this option may be politically feasible, there is some evidence to suggest that further political intervention may be necessary after the policy is implemented.

4.3.4 | Patient outcomes after policy implementation

Patient outcomes, such as increases in patient safety and quality of care, improve when nurses are structurally empowered to act autonomously and be involved in hospital policy and procedure formulation.[53,55,56] However, there is limited evidence on how nurse staffing committee legislation affects patient-specific outcomes (e.g., falls, pressure ulcers, and mortality rates). In the available studies, researchers have used surveys or interviews with committee members to learn how the policy was implemented.[113,114] For example, after interviewing nurses, nurse managers, and chief nursing officers from seven Oregon hospitals, Seago et al.[114] found that the mandate gave nurses a voice in patient care quality and safety. However, the researchers did not measure any patient-centric factors.

This analysis illustrates an approach for assessing nurse staffing policy options, which highlights nursing and traditional policy considerations. Using a patient-centric lens, we sought to understand not only how nurse staffing policies affect patient outcomes, but also how nurses can evaluate policies in patients' best interests. Furthermore, because nurse staffing legislation also can affect hospital nursing workforce satisfaction and retention,[81,116] these issues should be considered in subsequent nurse staffing policy analyses.

In lieu of a policy recommendation,[66] we recommend nurses consider the following nurse staffing policy principles as they review and lend their support to state-level nurse staffing policy options: empirical support, contextual environments, political environments, targeted impact, and measurement of policy outcomes. As nurses review nurse staffing policy options, may they consider these questions as part of their evaluation: (1) is the policy option supported by empirical nurse staffing evidence? (empirical support); (2) who will be affected by the policy option and what are their values? (contextual environments); (3) what is the political landscape and how do the prevailing power dynamics help or hinder the success of the policy option? (political environments); (4) does the policy option in question target the problem to be solved, such as improving patient outcomes or improving nurse work environments (targeted impact); (5) have similar enacted policies been evaluated for effectiveness or does the policy option in question include plans to evaluate policy implementation? (measurement of policy outcomes). Asking these questions may help nurses formulate their perspectives on nurse staffing policy and create plans for successful nurse staffing policy lobbying.

5 | DISCUSSION

As affirmed by this review and analysis, many factors must be considered when discussing nurse staffing evidence and state policy. Additionally, implications for policy, research, and nursing practice can be drawn from this analysis. Policymaking is an ongoing and evolving process. Policy formulation—the first step in the process—consists of establishing broad parameters of government action (e.g., the agreement within a state to pursue a nurse staffing strategy). The following is a discussion of the translation of intentions into policy creation, implementation, results, and modification.

Because of the pluralism that defines U.S. policymaking, most policymaking efforts tend to preserve the status quo rather than enact sweeping change. Indeed, most policy change is achieved through the accumulation of incremental changes.[117] For example, nurse staffing committee laws in Oregon, Washington, and Nevada have been amended over the last decade to increase accountability and enforcement of committee recommendations through fines and penalties. Additionally, the amendments also have led to more clarity in nurse staffing committee roles and plans to investigate/solve complaints from hospital administrations and staffing committees.[115,118,119]

Opportunities exist to highlight the importance of nurse staffing, link staffing to patient outcomes, and promote supportive policies. One opportunity is to add nurse staffing factors to the CMS *Hospital Compare* reports, which provide consumer-friendly care quality information on more than 4000 Medicare-certified hospitals nationwide.[120,121] Another opportunity is persuading the U.S. Government Accountability Office to examine how evidence-based nurse staffing could save money and improve Medicare program value.[122]

Although research has influenced nurse staffing legislation, there are opportunities to use research results to promote better patient outcomes. Evidence-based policymaking can be used to inform new policies or improve existing policies.[123] Using previous and new research findings about nurse staffing and patient outcomes and evaluating the effects of policy implementation are important steps for ensuring that policies achieve goals effectively and mitigate the issues they were intended to solve.[123]

As noted, limited research evaluates the effects public reporting and nurse staffing committee legislation have on measurable, patient-specific outcomes. To address this gap, researchers could study whether quality care measures (e.g., patient mortality or readmission rates) improved after implementation of these two options. Such measures, when assessed alongside nursing workforce outcomes, can promote a holistic understanding of a policy's impact. Additionally, there is limited research on the implementation or value of nurse staffing committee legislation, and essentially no formal, peer-reviewed research on the topic in Ohio, Connecticut, or Nevada (three states with nurse staffing committee mandates). Moreover, of the studies conducted in states with such legislation, researchers have typically used only one method, either quantitative or qualitative, to evaluate the legislation.[112–114] For example, Jones et al.[112] documented an increase in nurse staffing levels after nurse staffing committee legislation was implemented in Texas. However, without subsequent qualitative exploration, nurse researchers can only speculate on the legislation's role in this trend. Similarly, there is limited formal research on public reporting staffing policy effects on nurse staffing patterns[104] and patient care quality in Vermont, Rhode Island, New York, and Illinois. There could be changes in these states related to the sentinel effect where, due to increased oversight, hospitals want their publicly reported information to reflect better staffing levels to compete with other hospitals.[107] To understand the effect nurse staffing committee and public reporting legislation have on patient outcomes, qualitative and quantitative research should be conducted. Moreover, this research should be conducted in each state where such policies have been implemented, as a policy's impact and implementation process can vary from state to state.[113,114]

This analysis focused on patient outcomes relative to nurse staffing policy. However, nurse staffing policy also impacts nurses' work environments and can subsequently affect nursing workforce outcomes, such as burnout and job satisfaction.[7,18] Nurses are a human resource, which is why researchers have found correlations between nurse burnout and poor patient outcomes.[124] Higher rates of burnout among nurses have been shown to increase the odds of patient mortality, failure-to-rescue, and hospital length-of-stay, yet researchers have found that improvements in hospital work environments, such as improvements in nurse staffing levels, can lower the odds of inpatient mortality by 14% ($p < 0.001$), failure-to-rescue by 12% ($p < 0.001$), and hospital length-of stay by 4% ($p = 0.003$).[7] In sum, the care nurses can provide is affected by their overall wellbeing and hospital work environment.[7,10,124]

Nurse staffing legislation often is informed by evidence and advocacy efforts led by nurses in professional nursing organizations.[91,125] Although advocacy efforts for nurse staffing legislation may begin with patient outcome discussions, the focus quickly can shift to nursing outcomes and labor rights issues.[126] Recognizing that nurse staffing legislation affects both patient and nurse outcomes can help nurse leaders assess the connected yet distinct values of nurse staffing policy. This awareness could lead to more informed discussions about nurse staffing policy issues, such as what to include in policy language, how policies should be enforced, whether they protect or neglect nurses, and how they are translated in nursing practice environments. As the U.S. migrates towards a value-based healthcare system,[72] nurses should be considered partners in achieving good patient outcomes, rather just a cost of doing business, as they may traditionally be viewed in fee-for-service models.

6 | LIMITATIONS AND CONCLUSION

Because nurse staffing is a complex process with many related factors, we were not able to consider all relevant factors in this analysis (e.g., patient turnover). Similarly, this analysis reviewed policy options using only four criteria. While these criteria were carefully chosen to reflect nurse staffing evidence and scholarly policy analysis, other evaluation criteria are available. Therefore, subsequent nurse staffing policy analyses should not be limited by these four criteria. Available data to support our presentations of state political affiliations are from 2018,

which may be slightly out of date considering that more recent data suggests a shift in Americans' political affiliations since 2020 (an increase in self-described liberalism and a decrease in self-described conservatism).[89] In conclusion, we present an approach to nurse staffing policy analysis that is focused on the goal of improving patient outcomes by assessing evidence related to nurse staffing, cost, political feasibility, and patient outcomes related to policy implementation. Regardless of their policy analysis approach, nurses must be involved in the comprehensive evaluation of nurse staffing policy for the sake of patient outcomes and the health of the nursing workforce.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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