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Public Reporting of Nurse Staffing in the United States

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Abstract

Extensive evidence supports the association between increased nurse staffing and improved quality of patient care. Public reporting or public disclosure of nurse staffing patterns aims to incentivize hospitals to improve staffing by making comparison data available for consumers as well as nurses and hospital administrators. Currently, eight states in the United States publicly report and disclose information on nurse staffing levels to the public. We review the available public reporting mechanisms by systematically categorizing and comparing states that report nurse staffing. We also discuss the implications for future state and federal policy with regard to publicly reporting or disclosing nurse staffing.

Keywords

Healthcare quality; hospitals; nurse staffing; patient care; public disclosure; staffing laws

Since the publication of the Institute of Medicine's *To Err is Human: Building a Safer Health System* report (Kohn, Corrigan, & Donaldson, 2000), there have been efforts to improve healthcare safety in acute care hospitals, including evidence-based initiatives aimed at reducing healthcare-associated infections, medication errors, and patient falls (Joseph, Henriksen, & Malone, 2018). One important area of focus has been organizational nurse staffing levels and their association with healthcare safety. In a systematic review published in 2007, researchers found higher registered nurse (RN) staffing was associated with lower hospital-related mortality, death from complications, cardiac arrest, and healthcare-associated infections (Kane, Shamliyan, Mueller, Duval, & Wilt, 2007). Since 2007, the evidence supporting the association between RN staffing and patient safety has multiplied. For example, in recent systematic reviews, researchers found inadequate RN staffing was associated with higher rates of healthcare-associated infections (Mitchell, Gardner, Stone, Hall, & Pogorzelska-Maziarz, 2018) and medication errors (Di Muzio et al., 2019).

Additionally, primary evidence supports the association between RN staffing and patient falls (Kim, Kim, Park, & Lee, 2019).

Although evidence supports the association of RN staffing with patient outcomes, there is little information available on strategies that hospital leaders can use to improve RN staffing policies. There are several factors that influence the implementation of staffing models (Annis et al., 2017). In a systematic review evaluating RN staffing ratios as a patient safety strategy, the researchers found that none of the 15 studies evaluated an intentional change in RN staffing to improve patient outcomes (Shekelle, 2013). Therefore, with little evidence on how to effectively implement ratios, nurse administrators' staffing models for their organizations are likely to vary widely.

An explanation for this limited evidence may be related to the complexity of nurse staffing. According to the American Nurses Association (ANA), factors that influence nurse staffing ratios include patient acuity; number of admissions, discharges, and transfers; nurse skill level; the physical layout of the nursing unit; and access to technological support (ANA, 2015, p. 4). Nurse staffing ratios also vary by unit type (i.e., intensive care unit [ICU], step-down, or medical-surgical unit). Additionally, nurse managers make staffing decisions while under cost containment pressures from hospital administrators, with nurse staffing accounting for the largest share of hospital labor costs (Jones, Heui Bae, Murry, & Hamilton, 2015). In hospitals, nurse leaders may have no control of the hospital budget, which may be preset or limit finances allocated to nursing resources (i.e., staffing). Therefore, despite the data-driven evidence to support staffing changes, implementing ratios may not be fiscally possible (Annis et al., 2017).

Legislative Review

To ensure optimal outcomes for patients and reduce their risk for complications during a hospitalization, it is imperative to evaluate laws, regulations, and policies aimed at ensuring safe nurse staffing. As of 2019, 14 states had laws or regulations representing one of the following approaches: (a) mandated nurse-to-patient ratios for all hospital units; (b) mandated staffing committees; and/or (c) mandated public reporting by hospitals of nurse staffing levels. (A list of these states is available on the ANA's website [ANA, 2019].) These laws and regulations were passed by state senators and representatives to protect patients and ensure safe care despite controversial debates among stakeholders, including unions and hospital organizations, on whether these approaches should be mandated by the government.

Currently, California is the only state that mandates a ratio for all hospital specialties, whereas Massachusetts mandates a ratio for ICUs (ANA, 2019). Seven states—Connecticut, Illinois, Nevada, Ohio, Oregon, Texas, and Washington—have legislation in place for hospitals to implement staffing committees to develop staffing plans. Minnesota follows The Joint Commission standards with a chief nursing officer developing a staffing plan with other nurses (ANA, 2019). These staffing committees allow clinical nurses a forum to participate in nurse staffing decision-making (ANA, 2019). The common component in the staffing committee regulation is to have direct care RNs and leaders (e.g., nurse managers and chief nursing officers) develop nurse staffing plans (Seago, Davidson, & Waldo, 2012).

In evaluating mandated staffing committees in Texas, researchers found varying effects of these committees depending on the organization (i.e., bed size, public vs. private, or urban vs. rural hospital) (Jones et al., 2015). However, there is wide variation on implementation of staffing plans based on staffing committees. For example, in some states, hospitals are not required to implement the plans because most hospitals assign operations decision making to their board of directors.

Besides staffing ratios and committees, another approach requires hospitals to report and disclose staffing patterns to the public. This process makes data about hospital staffing comparable and readily available to consumers, nurses, and hospital administrators. With data transparency, consumers may base healthcare decisions on hospital ratings. However, in a recent meta-analysis of 27 studies, the evidence is inconsistent on whether mandated public reporting has increased patient safety and improved patient outcomes (Campanella et al., 2016). For providers, there are also concerns with mandated reporting that hospitals with different setting type and patient capacity may impact whether hospitals have the resources available to meet state requirements (Pogorzelska-Maziarz et al., 2019). Public reporting, however, may improve the delivery of care as providers identify underperforming areas, increase consumer trust in the health system, and support healthcare decision-making (Dunt, Prang, Sabanovic, & Kelaher, 2018). Furthermore, there may be some beneficial effects of mandating public reporting of nurse staffing. For example, in New Jersey, there was a slight increase in the number of RNs assigned to patients among nine out of 12 hospital units after mandated reporting was implemented (de Cordova, Rogowski, Riman, & McHugh, 2019).

Some nursing labor unions criticize reporting as a tactic to delay mandated staffing ratios, whereas others view reporting as a compromise (Wallis, 2015). In New York, a state that mandates reporting, nursing labor unions continue to advocate for mandated staffing ratios (Brooks, 2019). Interestingly, in Massachusetts and Minnesota, which do not mandate reporting legislation, the hospital associations are responsible for presenting the staffing data. This may be an attempt by the hospital associations to curtail labor union support for a nurse ratio and to demonstrate that hospitals are held accountable to report staffing numbers.

Although reporting of quality outcomes has gained momentum in U.S. health policy, the literature is scarce on the evaluation of public reporting of nurse staffing. In this study, we aim to fill that gap by reviewing the laws, regulations, and voluntary strategies of public reporting of nurse staffing in acute care hospitals. Our purpose is determine what states use public reporting and provide evidence policymakers and others can use to strengthen existing or future reporting strategies. We also discuss the implications for future state and federal policy with regard to publicly reporting nurse staffing.

Methods

Design

We conducted a review of laws, regulations, and policies pertaining to public reporting of nurse staffing. In this review, we examined all 50 U.S. states to identify which states mandated public reporting as well to identify other states that publicly reported regardless of a mandate. Following recommendations by Rebelo Da Silva et al. (2016), our first step was

to understand the scope of the evidence base prior to conducting a review. Therefore, our aim was to provide a critique of the public reporting laws, regulations, and policies implemented in the United States, rather than to synthesize research studies and assess the quality of evidence, which is typical in systematic reviews.

Search Strategy

As a first step, we searched the ANA website to identify states that mandated public reporting by legislation. Next, we conducted searches of the Lexis Research System and Westlaw databases to identify states that mandate public reporting of nurse staffing. Specifically, in Westlaw, we searched the term "regulations," and results were broken down by each of the 50 states and Washington, DC. Our search terms included a combination of words including "public reporting," "mandates," "nurse staffing," and "data transparency." We also searched state department of health websites and online statutory compilations to capture more information about the mandated or voluntary requirements of public reporting. In some instances, where the data abstracted needed clarification, we identified and contacted state department of health coordinators to elicit more information. For a state to be included in our review, it had to publicly report nurse staffing levels. We excluded states with mandated staffing committees and states that did not indicate whether levels were reported. Our search was conducted between January 2017 and December 2018.

Data Collection and Analysis

After the search, we abstracted data by developing a matrix that included the following components: (a) whether the reporting was by mandate or had been voluntarily adopted; (b) the time of the implementation; (c) the frequency of data collection (e.g., yearly, quarterly, each shift/unit); (d) how often data were made available to the public; and (e) how RN staffing was operationalized. We revised this matrix and synthesized pertinent information in Table 1. After aggregating the state-level data, we critiqued the legislation, if applicable, and/or the publicly available information online.

Ethics Approval

This study used a review of publicly available information and was not considered to be human subjects research. Thus, institutional review board approval was not needed.

Results

After our review of all 50 states, we were able to identify that as of 2019, eight states—Illinois, Massachusetts, Minnesota, New Jersey, New York, Rhode Island, Vermont, and Washington—publicly reported levels of nurse staffing, whether voluntarily or as mandated by legislation. Five of the eight states (Illinois, New Jersey, New York, Rhode Island, and Vermont) mandated public reporting, and Illinois also mandated hospitals have staffing committees composed of at least 50% direct-care nurses (Nurse Staffing by Patient Acuity Act, 2008). The three remaining states (Massachusetts, Minnesota, and Washington) disclosed nurse staffing voluntarily. In Washington, staffing legislation amended in 2017 and enacted on January 1, 2019, now requires hospitals to submit and post nurse staffing plans annually (Washington State Department of Health, n.d.). Massachusetts does not mandate

reporting; however, staffing data for all hospitals (and the Hospital Association of Rhode Island data) are available on a website called PatientCareLink. PatientCareLink is supported by the Massachusetts Health and Hospital Association; the Organization of Nurse Leaders in Connecticut, Massachusetts, New Hampshire, Rhode Island, and Vermont; the Home Care Alliance of Massachusetts; and the Hospital Association of Rhode Island (PatientCareLink, 2018). PatientCareLink also includes staffing information for Rhode Island hospitals, a state that mandates public reporting. In Minnesota, staffing data are presented on the Minnesota Hospital Association website rather than on a state governmental website (Minnesota Hospital Association, n.d.-a). In Washington, reporting is voluntary, but hospitals must post the staffing plan, including the nurse staffing schedule for each shift (Nurse Staffing Committee, 2017).

Measuring Nurse Staffing

Each of the eight states that publicly report data have varying definitions on how nurse staffing is measured. For example, some states measure nurse staffing as hours per patient day or a nurseto-patient ratio (Table 2). Three states (New Jersey, New York, and Rhode Island) present staffing data as a nurse-to-patient ratio measured at the unit level, as opposed to aggregating staffing at the hospital; however, how the nurse-to-patient ratio is defined varies. New Jersey uses the metric “number of patients/RN staff.” New York uses “number of patients/RN full-time equivalents,” where a full-time equivalent is defined as the total number of worked hours by one full-time nurse. Rhode Island uses a ratio that is defined as the “number of staff ordinarily assigned/8-hr shift.” Four states (Illinois, Massachusetts, Minnesota, and Vermont) measure RN staffing using a ratio of the “worked nursing hours/ patient day,” which is defined as the total number of direct care hours provided by nursing staff compared with the number of patients on the unit during that 24-hour period. Washington varies by hospital in how nurse staffing is operationalized.

All eight states report staffing levels for licensed practical nurses and other nursing staff, such as certified nurse assistants and/or unlicensed assistive personnel (UAPs), as well as RNs. Skill mix, defined as the proportion of RNs compared with other nursing staff, is an indication that each state recognizes the importance of RN staffing compared to UAP staffing. Among the states, Massachusetts hospitals provide the most comprehensive collection of skill mix data by reporting the breakdown of how many RNs and UAPs are staffed in a 24-hour period (PatientCareLink, 2018). This method allows the public to identify skill mix changes within a 24-hour period. In the literature, nurse staffing is often conceptualized as RN staffing; however, other personnel, including UAPs, often care for hospitalized patients. Patient outcomes are better when patients receive care from RNs as compared to UAPs (Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002).

Among the eight states, New York uses the strongest metric to capture RN staffing. For example, New York hospitals are required to account for the conversion of hours worked by parttime RNs in addition to full-time RNs, a practice that ensures RN hours are captured regardless of the type of personnel providing the care. By comparison, Rhode Island calculates nurse staffing from the “average daily census,” which is not necessarily the actual numbers of staff or patients but rather the expected number of staff per shift and the average

number of patients per day. Using staffing numbers based on the expected number of nurses may result in measurement error, which may not reflect the true staffing levels in the hospital.

Public Availability of Data

Four of the states that mandate public reporting (Illinois, New Jersey, Rhode Island, and Vermont) require hospitals to publicly report the nurse staffing levels to the state (Table 3). New York also mandates that hospitals report staffing data, but only when a consumer provides a request (Nursing Care Quality Protection Act, 2009). Except for New York, the other seven states disclose nurse staffing levels on the internet via public websites.

Illinois, New Jersey, Rhode Island, and Vermont are also mandated to post staffing levels in each hospital in the state for patients and family members to view while hospitalized. In Illinois, a public reporting clause under the Hospital Report Card Act of 2003 requires that "the written staffing plan shall be posted in a conspicuous and accessible location for both patients and direct care staff" (Hospitals and Ambulatory Care Facilities, 2007). In New Jersey, nurse administrators or charge RNs in hospitals are required to complete and post a daily patient care staffing form on each unit. In addition, New Jersey specifically requires hospitals to count the number of patients and the number of staff based on hours worked 1 hour before the end of each shift on each day of each month and to post these data no later than 1 hour after the beginning of the next shift (New Jersey Department of Health & Senior Services, 2008). In Rhode Island, each facility is mandated to post RN staffing levels by shift in a public place and to maintain these data for no less than 3 years (Hospital Staffing Plan, 2005). Hospitals in Vermont are required to post staffing levels on the hospital unit daily so that they are accessible to patients and visitors for a period of 1 week (Bill of Rights for Hospital Patients, 2007).

Only two states mandated to report, Illinois and New Jersey, provide comprehensive instructions online for data collection for each hospital and provide information to the public on the specific methodology used to calculate staffing ratios. In these two states, each hospital is required to have a hospital designee who is responsible for compiling and collecting the staffing data and also post their data submission deadlines online. For the other states, the lack of specificity on who should calculate and report staffing data may raise questions about the reliability of the public reporting numbers because the role of the person performing the reporting may differ across hospitals.

Discussion

To out knowledge, this is the first article to describe state mandates for public reporting of nurse staffing levels either by mandated legislation or through voluntary means. We found only eight states are required to publicly report nurse staffing, which represents 16% of all states. Although it can be argued that other states have staffing regulations in place, the number of states that publicly report is surprisingly low. We also found that among the eight states that report, there is variation in how each requires the data to be presented, making comparisons among states difficult. It remains unclear whether these legislated reporting mechanisms improved nurse staffing in hospitals or had other impacts. Future research

should build on our work of evaluating public reporting of nurse staffing, including critiquing public reporting indicators and potentially developing frameworks for nurses and policymakers to use to optimize the impact of public reporting.

We found that existing public reporting mechanisms for nurse staffing vary widely in terms of what data are collected and how the data are presented. Such variation may be explained by the fact that legislators may have drafted laws to meet the needs of their constituents while crafting language to minimize a possible burden of reporting for hospital administrators. How states present data also plays a big role in accessing the nurse staffing data. We found there is no standardization for how the states publicly report, nor how consumer friendly the reports may be; therefore, consumers may not have the ability to simply compare hospitals. Although the states should be commended for attempting to provide transparency of staffing information, these data were not necessarily meaningful for a consumer who may be unknowledgeable about appropriate staffing.

Publicly reported data should be easy for the consumer to obtain. For instance, Illinois has a comprehensive, readily available website; however, New York does not provide a website. A consumer can obtain the reports in New York by providing a written request to the hospital, which has 30 days to respond with staffing numbers. Additionally, no method is in place to acquire data from all New York hospitals at one time, as compared with Massachusetts, which provides a comprehensive website focusing on quality reporting.

We also found most states did not include explicit instructions on how staffing data should be collected across reporting hospitals. Without these explicit instructions, variation in data collection may be introduced. For example, if there are no specific instructions on what constitutes a nurse to be counted in the staffing calculation, the hospital designee may count a charge RN without a patient assignment or an RN on orientation as a direct care provider, whereas another designee may not consider these providers as staff.

The ANA supports public reporting of staffing and skill mix data through the National Quality Forum (ANA, n.d.). These guidelines recommend that nurse staffing variables be measured following the National Quality Forum metric for both nursing hours per patient day and for skill mix (ANA, n.d.). Aligned with the ANA's quality policy advocacy and based on our review of the states that report, reporting staffing measures publicly may result in an "effective quality policy lever" to reduce variation in hospital nurse staffing that is associated with adverse patient outcomes (ANA, n.d.). We recommend more consistent methods on operationalizing nurse staffing and a national commission that standardizes the reporting process. From the consumer perspective, these reports should be available online, and state departments and/or hospital associations should engage in outreach public announcements to increase consumer awareness. Although researchers found there was low-certainty evidence that public release of performance data may make little or no difference to healthcare utilization by consumers (Metcalfe et al., 2018), transparency of data is still encouraged.

Limitations

Our synthesis was descriptive in nature, and we did not attempt to assess whether public reporting as a policy improves staffing or patient outcomes in hospitals. Although we attempted to be exhaustive in our search of state-level legislations and regulations concerning public reporting and disclosure, we may have missed some recent updates. Additionally, because the topic of nurse staffing legislation is ongoing, as evidenced by a ratio bill that was voted upon in Massachusetts in November 2018, it is possible that requirements regarding public reporting may have changed since we conducted our search.

Policy Implications

The ideal, standardized design for public reporting legislation originates in the current laws but requires revisions. Based on our review, we recommend the following strategies to improve the process of public reporting of nurse staffing, should future state and/or federal bills be considered.

First, when public reporting policies are crafted, nurses and hospital administrators need to be involved in creating uniform staffing definitions. Hospital administrators should have clear and comprehensive instructions on how to collect and calculate staffing data and how to report those data. We also recommend that policymakers invest in consumer outreach efforts to increase the potential value of public reporting and data transparency. Additionally, in the true spirit of reporting, there should be no barriers to patient access to data. As mentioned, New York only provides data to consumers upon request, a limitation that undermines the rationale for public reporting. Removing this barrier may increase consumer use. For public reporting and disclosure to be meaningful to consumers, policymakers and hospital administrators need to improve how they inform the public of when these initiatives get passed and enacted, convey more clearly the benefits of public reporting, and provide specific guidance on how consumers can access the information. This can be done through simple press releases, local hospital newsletters, and use of social media. Notifying consumers that publicly available data regarding nurse staffing are available will likely increase consumer engagement.

State health departments that provide data online need to provide clearly defined terminology that consumers can understand. By defining staffing jargon, they may increase consumer use of public reports. For the five states that mandate public reporting, the regulations have specific language, but these terms are not well defined for consumers. Several of these states collect data on other personnel, such as respiratory therapists, medication technicians, physical therapists, and laboratory technicians. Future legislation would benefit from clearly defining the type of personnel for whom data should be provided.

Conclusion

In this review, we described the process of public reporting of nurse staffing for eight states that provides information for stakeholders. We believe that public reporting is beneficial because it requires hospitals to be accountable for nurse staffing and provides data for patients to make informed decisions about their healthcare. However, the variation in

reporting mechanism between states inhibits evaluation of the mandates on a larger scale. It remains unclear whether consumers use nurse staffing reports when selecting a hospital and whether these data improve hospital nurse staffing. Ultimately, these public reporting requirements are aimed at holding hospitals accountable for nurse staffing, and future work should investigate whether these mandates affect staffing levels.

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TABLE 1

Description of Public Reporting Requirements by State

	IL	MA	MN	NJ	NY	RI	VT	WA
Does the state mandate public reporting of hospital staffing?	Yes	No	No	Yes	Yes	Yes	Yes	No
Year when staffing legislation was passed	2004	2014	2013	2005	2009	2005	2006	2008, amended in 2017
Year when staffing legislation was enacted	2007	2014	2014	2008	2010	2012	2009	2008, new law on January 1, 2019
If there is a public reporting mandate, how often are hospitals required to submit staffing data to the state?	Monthly	NA	NA	Monthly	Only if state requests	Yearly	Quarterly	NA, but staffing plans are required annually
Does the state also mandate a staffing plan/committee for hospitals?	Yes	No	Yes	No	No	Yes	No	Yes

Note. IL = Illinois; MA = Massachusetts; MN = Minnesota; NJ = New Jersey; NY = New York; RI = Rhode Island; VT = Vermont; WA = Washington; NA = not applicable

TABLE 2

Definitions of RN Staffing by States That Publicly Report

Metric	**How Each State Measures Nurse Staffing**	**State**[a]
Nurse-to-patient ratio	Number of patients per RN staff	NJ
	Number of patients per RN FTE	NY
	Number of RN staff assigned per each 8-hour shift	RI
Worked nursing hours per patient day	Number of direct care hours provided by RN staff per number of patients on the unit during that 24-hour period	IL, MA, MN, VT
Term	**Definition**[b]	**Steward**
RN hours per patient day	The number of productive hours worked by RNs with direct patient care responsibilities per patient day for each in-patient unit in a calendar month	ANA (February 15, 2018)
Total nursing care hours per patient day	The number of productive hours worked by nursing staff (RN, LPN/LVN, and UAP) with direct patient care responsibilities per patient day for each in-patient unit in a calendar month	ANA (February 15, 2018)
Nurse staffing hours	Percentage of daily work in hours by the entire group of nurses or nursing assistants spent tending to patients	Centers for Medicare & Medicaid Services (May 8, 2012)

Note. IL = Illinois; MA = Massachusetts; MN = Minnesota; NJ = New Jersey; NY = New York; RI = Rhode Island; VT = Vermont; RN = Registered Nurse; LPN LVN = Licensed Practical Nurse/Licensed Vocational Nurse; UAP = Unlicensed Assistive Personnel; FTE, = total number of worked hours by one full-time nurse; ANA = American Nurses Association.

[a]For Washington, RN staffing varies by hospital because staffing plans, not actual hours, are mandated.

[b]Definitions according to the National Quality Forum (2019).

TABLE 3

Nurse Staffing Data Public Availability

	Hospitals are required to report to the state	Available online	Website	Frequency of staffing data reported online	Ease of use for consumers to search for staffing data	Hospitals post staffing numbers for each unit
IL	Yes	Yes	http://www.healthcarereportcard.illinois.gov	Monthly	Easy	No
MA	No	Yes	http://patientcarelink.org	Yearly	Easy	No
MN	No	Yes	http://www.mnhospitalquality.org/#/consumer/	Yearly	Difficult	No
NJ	Yes	Yes	https://web.doh.state.nj.us/apps2/nursestaffing/quarterly.aspx	Quarterly	Easy	Yes
NY	No	No	None	NA	NA	No
RI	Yes	Yes	http://patientcarelink.org	Yearly	Easy	Yes
VT	Yes	Yes	http://www.healthvermont.gov/health-statistics-vital-records/health-care-systems-reporting/hospital-report-cards	Yearly	Difficult	Yes
WA	No	Yes	https://www.doh.wa.gov/DataandStatisticalReports/HealthcareinWashington/HospitalandPatientDataHospitalPolicies	Yearly	Easy	Yes

Note. IL = Illinois; MA = Massachusetts; MN = Minnesota; NJ = New Jersey; NY = NewYork; RI = Rhode Island; VT