

Missed Nursing Care: Understanding and Improving Nursing Care Quality in Pediatrics

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Over the last 2 decades, researchers from diverse disciplines have explored the relationship between hospital nursing characteristics, such as patient-to-nurse staffing ratios and work environments, and patient outcomes, including mortality, length of stay, and readmission. The overall body of evidence supports a positive association between more favorable nursing characteristics and better outcomes in pediatric and other patient populations,¹ and yet hospitals and health systems grapple with nursing resource allocation, a significant line-item operating expense. What are missing from the literature, and what research end users desire, are robust evaluations of likely causal mechanisms underlying these associations. How does a lower patient-to-nurse ratio meaningfully influence patient care? How do better work environments for nurses translate into better clinical outcomes? And, on the basis of these answers, which interventions are most likely to work, be adopted, and be sustained over time? Missed nursing care, or required patient care that is omitted or delayed,² is considered a plausible explanation for the observed associations between hospital nursing factors and patient outcomes. Exploration of missed nursing care as a process outcome of these hospital structural factors is a logical, if early, step in answering end users' questions.

In this issue of *Hospital Pediatrics*, Lake and colleagues³ describe the frequency and patterns of missed nursing care reported by registered nurses working in general pediatric units, NICUs, and PICUs. They also examine associations among nurse staffing ratios, work environments, and missed care. To do so, they present retrospective analyses of registered nurse survey data collected from 2006 to 2008 as part of a larger study on nurse workload and patient outcomes. A total of 2187 general pediatric, NICU, and PICU nurses reported on a variety of characteristics of their last shift worked, including the number of assigned patients and essential nursing care not provided because of time constraints, otherwise referred to as missed care. Nurses also completed the Practice Environment Scale of the Nursing Work Index, a validated scale that measures the characteristics of the hospital's professional practice environment for nurses. Just over half of nurses reported missing at least one of 12 essential nursing care activities, with care planning, providing comfort, and teaching missed most frequently. Pediatric nurses working in hospitals with better or mixed environments were significantly less likely to report leaving care undone compared with peers in hospitals with poor environments, and as the number of assigned patients increased, a nurse's odds of missing care increased by 70% (odds ratio: 1.70, 95% confidence interval: 1.51–1.90).

Studies of missed care are largely based on nurse self-reporting and may be vulnerable to social desirability bias and underreporting. In its severest form, missed care represents a breach in the standard of care that could increase a nurse's risk of professional sanction, especially if the omitted care can be directly linked to patient harm

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or other undesirable outcomes. Although nurses in the parent study responded confidentially and responses were not linked to individual outcomes, it is possible that nurses conservatively reported on “care undone due to time constraints,” a framing that could be viewed as less threatening or perceptibly gentler to a respondent than “missed care.” It’s also possible that nurses would have responded even more conservatively to the survey if the questions had directly addressed missed care, in which case the results of the analysis would have changed.

Cross-sectional analyses are useful for establishing proof of concept and directionality of relationships but fall short of approximating causality. The results provide evidence that nurses working in hospitals with better work environments and with lower patient loads also report less missed care. The relationship between staffing ratios and missed care is intuitive: when load increases but resources and time remain constant, nurses make trade-offs influenced by both clinical judgement and time pressure.⁴ The mechanistic relationship supporting a direct influence of the nurse work environment on missed care independent of nurse workload is less clear. Organizations with better nurse practice environments are also known to be more financially resourced, which is also associated with better nurse staffing resources and greater investment in quality improvement of infrastructure. Disentangling the effects of these interrelated factors is an important step toward identifying the organizational interventions best leveraged to address missed care. For example, the authors advocate for the pursuit of Magnet status to improve the work environment and, presumably, reduce missed care. A recent analysis of missed nursing care in NICUs found no differences in the amount of missed care reported by nurses in Magnet and non-Magnet organizations,⁵ suggesting that Magnet designation itself does not necessarily prevent nurses from missing key aspects of patient care.

Two important and related questions are raised by these findings: Does missed care,

a process measure of nursing care quality, affect clinically meaningful patient outcomes? If so, what interventions best address missed care? Establishing a causal relationship between missed care and patient outcomes is important for justifying continued research efforts on the topic. The quality-improvement literature on central line-associated bloodstream infection prevention offers clues. Multiple studies demonstrate that when nurse adherence to infection prevention guidelines increases, infection rates decrease.⁶ Conversely, when adherence to guidelines decreases, infection rates increase.⁷ The longitudinal nature of quality-improvement data increases confidence in a causal relationship between nurse guideline adherence, a special case of missed care, and infection rates. Future research on missed care and patient outcomes will have the strongest impact when missed care measures are specific enough to facilitate intervention development, meaningfully address total omission as well as the spectrum and quality of care completion, and are aligned with outcomes that are meaningful to patients, payers, and health system leaders.

Once a clear relationship between missed care and outcomes is established, intervention development, evaluation, and spread are imperative. Although interventions targeting an individual clinician’s practice patterns may be helpful in some cases, a broader focus on the work system has potential to improve care for all patients. Human factors can provide a useful framework for thinking about missed care as a system failure that is preceded by hazards in the work system and that can result in harm to patients. The study of human factors is “the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance.”⁸ Multiple researchers have applied human-factors approaches to understand nursing care problems. For example, Gurses et al⁹ identified the performance obstacles in the ICU work

system that increase nurse workload and, as a result, negatively impact the care quality. On the basis of direct observations of nurses’ use of bar code medication administration technology, Carayon et al¹⁰ identified various work system factors (eg, automation surprises, false alarms, difficulties with access to the bar code medication administration devices, and messy or disorganized patient rooms) that can negatively impact nurses’ medication administration practices.

One specific human factors model called the Systems Engineering Initiative in Patient Safety (SEIPS) can be a useful framework to guide the conceptualization of future efforts to address missed care. The SEIPS model is based on the work system model by Smith and Carayon-Sainfort and the structure-process-outcome model of Donabedian.¹¹ According to SEIPS, the clinical work system is a complex and dynamic sociotechnical system comprising individuals (eg, nurses and their individual experience levels) performing a range of tasks (eg, patient and family teaching) by using various tools and technologies (eg, educational materials, electronic health records); these activities occur in a physical environment (eg, in the unit) and within an organizational context (eg, in a care team or culture). Missed care, an indicator of care process quality, occurs as a result of the design of these work system elements and their interactions with each other. Hence, missed care can be reduced by redesigning the work system element in ways such as adjusting staffing ratios, improving teamwork, and enhancing the design of space, tools, and technology. The question remains about where and how to intervene to reduce missed care. This article sheds some light on this question; more innovative and less costly approaches than increased staffing may be possible on the basis of detailed human factors analyses of the clinical work system. Once these interventions are identified, rigorous studies that evaluate their impact on patient outcomes are needed.

Improving the quality and safety of care delivered to children is the work of all clinicians. The contribution of timely and appropriate nursing care to good patient

outcomes should not be underestimated. Understanding the role of missed nursing care in pediatric outcomes and identifying interventions to reduce its occurrence and/or impact is an important emerging area for interprofessional research and improvement in pediatric hospital care.

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