

Hospital-Level Variability in Outcomes of Patients With COVID-19

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Several studies have examined variation in outcomes of patients with COVID-19, with emphasis on hospital-level factors such as geographic location, workforce and resource availability, and COVID-19 community prevalence.^{1,2} Block et al¹ examine variation in COVID-19 mortality across 117 US hospitals, exploring whether COVID-19 admission volume was associated with mortality. While their results suggest that patients admitted to hospitals in the highest quintiles of COVID-19 caseload had higher odds of in-hospital death, the authors were not able to fully adjust for severity of illness, tempering our ability to draw conclusions. However, their finding is consistent with work showing that emergency department crowding and high hospital utilization are associated with excess mortality.

Block et al¹ also found variation *within* quintiles of COVID-19 burden, suggesting that other hospital-level factors are influencing their performance. In response to the initial surge of COVID-19 in the United States, hospitals and healthcare systems made rapid, often major, adjustments to provide care. Four interdependent components contribute to an effective surge response: system, space, staff, and supplies. Although all four components are important, effective systems are critical. Systems domains include command, or the creation of leadership teams throughout the organization; control, or management, of infrastructure; communication of rapid, comprehensible messages internally and externally; coordination of resources across departments and professions; and continuity of operations.³ Little is known about how well hospitals have implemented these systems components throughout the pandemic, and while Janke et al² examined the association of resources with outcomes, neither their study nor Block et al's was able to account for other organizational or systems-based aspects of surge response.

Studies that help us understand the organizational factors and care-delivery adaptations associated with better outcomes for patients with COVID-19 are sorely needed, and could provide important insights for organizational adaptation and change more generally. Janke et al² and, in their accompanying editorial, Auerbach and Greysen,⁴ call for "innovative protocols" and "flexibility" to meet the needs of high-demand, novel situations. However, organizations' ability to innovate and adapt relies on their relationships and teamwork capability.

The relational infrastructure within an organization provides the basis for effective teamwork, facilitating other aspects of an

organization's surge response and ability to adapt. Relationships characterized by trust and mindfulness create a context of psychological safety that encourages sharing new ideas, and enable teams to rapidly make sense of new situations and create shared understandings that facilitate effective action: improvising, adapting, and learning. Trust and psychological safety are especially important during crises, as decision-making tends to evolve toward top-down processes in times of crisis.

Hospitals currently collect few data that speak to relationships and teamwork, limiting our ability to study these vital organizational characteristics and their role in the larger COVID-19 response. Surveys related to patient safety culture or provider wellness and burnout are likely the only data regularly collected by hospitals. Expanding these data to include measures of relational infrastructure will create more robust data not only to conduct research regarding organizational factors that are associated with patient outcomes, but also to allow health systems to improve relationships and teaming as a means of improving outcomes. Examples include relational coordination,⁵ relationships,⁶ and learning scales.⁷

The hospitals to which patients are admitted make a difference in patient survival. The study by Block et al¹ highlights the importance of assessing the factors that enable health systems to adapt and innovate so that we can better understand hospital-level variation in outcomes.

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