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## Are disruptions to geographic cohorting safe?

Geographic cohorting, or localizing clinically similar hospitalized patients, is associated with improved outcomes among certain populations, hypothesized to be due to clinician expertise and availability, in-person multidisciplinary training, and communication. For example, cohorting critically ill patients is associated with decreased in-hospital mortality and length of stay (LOS), and better adherence to quality metrics.<sup>1</sup> While beneficial for subspecialty populations,<sup>2</sup> cohorts among general medicine ward patients have been associated with mixed results. Within this broader population, it is unknown who may benefit from geographic cohorting, and who may be harmed by cohorting disruptions, known as bedspacing.

The article by Zannella et al. in this month's issue of *Journal of Hospital Medicine* describes one of the largest cohorts of cohorted versus bedspaced general medicine patients.<sup>3</sup> In a retrospective cohort of 40,440 general medicine admissions from the emergency department (ED) between 2015 and 2017 at five academic hospitals and one community hospital in Ontario, Canada, bedspacing was common (27%) despite active geographic cohorting policies. The authors demonstrated that in their overall population, bedspacing was not associated with harm—there was no association with in-hospital mortality, and bedspacing was associated with a slightly decreased median hospital LOS and 30-day general medicine hospital readmissions.

Findings were generally consistent across sensitivity analyses, however, several point estimates and wider confidence intervals (CIs) do not exclude harm. Specifically, patients at greatest risk for adverse outcomes (i.e., intensive care unit transfers, high-risk diagnoses, and high comorbidity burden with greater severity of illness) may experience harm when bedspaced given that the 95% CIs included up to an 18%–26% greater adjusted hazard of mortality among these subgroups. Also, more consideration is needed to the type of ward that patients are bedspaced to, as patients bedspaced to mixed medical–surgical wards may have greater mortality compared to specialty medical wards (adjusted hazard ratio [aHR]: 1.14, 95% CI: 0.81–1.60). Finally, the effect of bedspacing may depend on definition. When defined by the last hospital location rather than the first hospital location, there was a greater potential risk of mortality (aHR: 1.11, 95% CI: 0.95–1.29). However, we agree with the authors that methodologic challenges of immortal time bias and confounding make this interpretation fraught, and favor the approach of using initial location. These findings merit further investigation of populations at particularly high risk for adverse outcomes prior to concluding that bedspacing is safe for all general medicine patients. This is true particularly in light of the cohorting protocols at each hospital to avoid bedspacing the sickest and most complex patients, similar to the literature surrounding cohorting critically ill patients.<sup>1</sup>

Given the findings of this study in the context of the broader literature surrounding geographic cohorting, we recommend that hospitals cohort ward patients to avoid bedspacing, especially for the sickest patients with the most complex care needs. However, as shown in this study, bedspacing is inevitable to accommodate hospital throughput and patient flow. In the absence of clinical trial evidence, this study reassures us that it is safe to bedspace less acutely ill or less complex general medicine ward patients. The findings of this study support more flexibility in triage to facilitate expedited care, particularly since prolonged ED stays are associated with adverse patient-centered outcomes.<sup>4</sup>

We have identified several directions for this field. First, future studies investigating cohorting should be designed as noninferiority studies with the objective of ensuring patient safety. Second, we need research on additional potential benefits of cohorting, including multidisciplinary team dynamics and communication, clinician burnout, and patient and caregiver experience.<sup>5</sup> Third, to mitigate bedspacing, health systems may benefit from partnerships with various industry experts to apply best practices in patient flow, including systems engineering. Finally, and possibly most importantly, we agree with the authors' framework for evaluating cohorting at each institution, given vast differences in hospital operations and policies. While bedspacing is inevitable as hospital-wide capacity strain continues to increase, it is imperative to understand which patients truly benefit from geographic cohorting.

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### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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