



PERSPECTIVE

Closer to or Farther away from an Ideal Model of Care? Lessons Learned from Geographic Cohorting

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Geographic “cohorting,” “co-location,” “regionalization,” or “localization” refers to the assignment of a hospitalist team to a specific inpatient unit. Its benefits may be related to the formation of a team and the additional interventions like interdisciplinary rounding that the enhanced proximity facilitates. However, cohorting is often adopted in isolation of the bundled approach within which it has proven beneficial. Cohorting may also be associated with unintended consequences such as increased interruptions and increased indirect care time. Institutions may increase patient loads in anticipation of the efficiency gained by cohorting—leading to further increases in interruptions and time away from the bedside. Fragmented attention and increases in indirect care may lead to a perception of increased workload, errors, and burnout. As hospital medicine evolves, there are lessons to be learned by studying cohorting. Institutions and inpatient units should work in synergy to shape the day-to-day work which directly affects patient and clinician outcomes—and ultimately culminates in the success or failure of the parent organization. Such synergy can manifest in workflow design and metric selection. Attention to workloads and adopting the principles of continuous quality improvement are also crucial to developing models of care that deliver excellent care.

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Geographic “cohorting,” “co-location,” “regionalization,” or “localization” refers to the practice of assigning a hospitalist team to a specific inpatient unit with the expectation that the majority of the team’s patients will be on their assigned unit. The benefits are thought to be rooted in the enhanced physical proximity between clinicians, bedside nurses, patients, and the interprofessional team—with gains expected in efficiency, communication, collaboration, and patient centeredness.^{1,2} Pre-pandemic, cohorting was adopted by nearly a third of the non-teaching services of US hospital

medicine groups surveyed.³ Cohorting is complex and like therapeutic decisions is associated with benefits, risks, and unintended consequences. Examining this complexity provides insights that may allow us to design better models of care.

Each inpatient unit can be viewed as a clinical microsystem—the functional unit of the entire organization—the place where the work happens and where the outcomes that coalesce into the success or failure of the organization originate.⁴ Models of care utilizing bundled unit-based interventions to improve the care of hospitalized patients have demonstrated improvements in lengths of stay, costs of care, and mortality.^{5,6} In these models, cohorting was deployed alongside other mutually reinforcing interventions such as interdisciplinary rounding and leadership dyads, which become practical only when the proximity facilitated by cohorting and the creation of a team is assured. Yet, the adoption of unit-based interventions to improve care appears to be piece-meal across institutions with few deploying a bundled approach and many instituting cohorting alone.³

A survey of hospitalists in the USA revealed that the strong positive perceptions of cohorting cluster around the benefits of collaboration with bedside nursing colleagues, improved nursing satisfaction, increased patient centeredness, and improved efficiency and team building. Strong negative perceptions were reported around increases in interruptions, erosion of group camaraderie, discontinuity in patient care, and issues related to implementation. Academic practices and longer durations of cohorting were associated with positive perceptions while higher patient loads were associated with negative perceptions.² Studies investigating the impact of cohorting as a stand-alone intervention have shown some results supporting and others refuting these perceptions.

The proportion of bedside nursing colleagues agreeing with the statement “I experience good collaboration with house staff” increased from 10 to 40% following the implementation of cohorting.⁷ More patients perceived that their physicians spent more than four minutes with them and discussed their anxiety and emotions following cohorting.⁷ Cohorting has also been associated with increases in the likelihood of repeated visits to a patient in a day and increased time spent on the unit.⁸

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Cohorting, however, is not a panacea—with the gains accompanied by downsides. Despite intending to foster patient-centered care, cohorting has not been associated with improvements in Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores and in some settings may be associated with increases in length of stay.^{9–11} In a single-center time-motion study, cohorted hospitalists were interrupted as often as once every eight minutes—rates similar to those seen in Emergency Department settings—and were also noted to spend more time in computer interactions than their non-cohorted counterparts.⁸ These findings are consequential—interruptions erode attention, increase perceived workload, increase the risk of errors, and increase the time it takes to complete tasks.¹² Tasks that detract from direct patient care contribute to burnout—rates of which have increased among hospitalists since the onset of the pandemic.¹³ Fragmented attention can lead to bias and failure to recognize the declining trajectory of a patient.¹⁴ Interruptions, inattention, and their consequences are difficult to measure—with few studies in hospital medicine quantifying their burden and impact. With careful attention to design and implementation, cohorting may be successful in improving communication without increasing unnecessary interruptions—but such refinement requires close monitoring and continuous improvement which are often lacking in strained hospital medicine environments.

Workload, communication, and outcomes are inexorably linked in hospital medicine. While cohorting may be associated with modest increases in the duration of each patient care encounter, these gains are fragile—and may be easily lost or reversed by increases in patient loads.⁸ The evidence also suggests that while cohorting increases shallow availability or “reachability” and the *quantity* of communication, it may not alone ensure deeper interpersonal communication or improve the *quality* of communication.^{14,15} Perversely, this increased reachability and decreased travel time may be used to rationalize increases in daily patient loads for cohorted teams. A focus on increasing productivity in turn may further increase interruptions, decreasing attention and impacting downstream outcomes that are not routinely monitored—such as the quality of communication, cognitive load, cognitive bias, diagnostic errors, and satisfaction with a job well done.

“Every system is perfectly designed to get the results it gets”—and it is time to scrutinize the systems in which hospitalists work every day. The complexities of geographic cohorting we have examined provide insights that may allow us to design better models of care. We propose attention to the following principles (Fig. 1):

1. Strengthening synergies between the clinical microsystem and the institution

In many instances, the COVID-19 pandemic clearly demonstrated what effective synergies can achieve. Driven by the crisis of the pandemic and potential personal protective

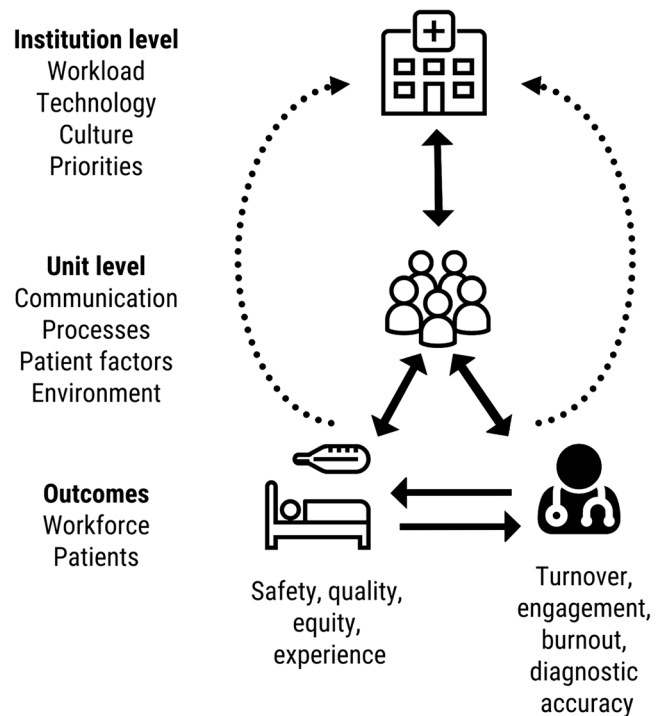


Fig. 1 The connectedness between the inpatient unit, institution, patient, and outcomes.

equipment shortages, many institutions successfully and rapidly deployed hospitalist cohorting, a feat many previously struggled to achieve. However, in many cases, cohorting was quickly dismantled—highlighting the barriers that institutions and hospitalists face to prioritize and sustain geography—and which neither can overcome alone.¹⁶ While each inpatient unit represents a microcosm of the parent organization and drives its outcomes, it in turn relies on its parent organization—and the links between the work done within the clinical microsystem every day with that of the organization need to be strengthened. Workspace design, staffing targets, electronic medical record performance, and non-clinical administrative tasks all impact cognitive load and outcomes but are beyond the control of individuals. These complex issues require monitoring, feedback between the frontline and administrators, and a commitment to drive change at every level of the institution.

2. Defining and standardizing measures of success to reflect shared priorities

Effective collaboration between the clinical microsystem and the institution is also crucially conveyed by what is measured and organizations signal their priorities by the metrics audited. To date, hospitalist literature has focused heavily on length of stay, and cohorting has been associated with increases, decreases, or no changes in length of stay. Such findings raise the question of whether the intervention was well-designed to impact the outcome measured and/or whether different metrics would better reflect the benefits of the intervention. Selected metrics should represent the shared

mission of the frontline clinicians and the organization. Hospital medicine groups should carefully evaluate how they (or others) measure their quality and value, and what the measures drive. There are pitfalls in metric selection that may frustrate hospitalists, and metrics should reflect what is valued, impactful, within the locus of control of hospitalists and not based on what is expedient to measure.¹⁷ As hospitalists evolve into problem solvers, communicators, educators, researchers, advocates, and boundary spanners, our metrics should mature in tandem to prevent stagnation and drive progress. This evolution will require a thoughtful investment in the infrastructure of each hospital medicine group.

3. Re-imagine and re-define optimal workload

Few studies have evaluated optimal daily patient loads for hospitalists—with fifteen patients per day often cited as the threshold past which outcomes suffer.¹⁸ However, the landscape in hospital medicine has changed seismically—nursing shortages and turnover impede team building and team communication, acuity of illness continues to increase, text-based messaging may have further increased the quantity of communication, and the COVID-19 pandemic has amplified the focus on length of stay and hospital capacity while eroding the optimism and resilience of the workforce. These factors necessitate an urgent reevaluation of optimum hospitalist workloads. In trying to maximize short-term productivity measured by the numbers of patients seen and relative value units generated, we may jeopardize the very gains we are trying to achieve. For example, increasing patient loads are associated with negative hospitalist perceptions about cohorting's impact on patient safety, collaboration with nursing colleagues, and hospitalist satisfaction² whereas reducing patient loads for hospitalists may actually yield cost savings for institutions.¹⁹ Initiatives to increase productivity must be accompanied by an assessment of the impact on the hospitalist, and on patient and institutional outcomes. As we reimagine workloads, we must account for the cognitive intensity of the hospitalist workday. In addition to patient volume, the cognitive burden is also influenced by patient acuity, hospitalist experience, the work environment and processes, interruptions, tasks, and the performance of the electronic medical record—factors that on some days may outstrip the impact of patient numbers alone.

4. Adopting a continuous quality improvement approach to drive improvements

Certain other principles emerge as we create frameworks for the way forward. Before deploying practice models, the purpose should be clearly defined—is it a way to improve patient experience? to improve the quality of communication? Studies on cohorting have measured and reported outcomes as diverse as the number of steps walked in a day, the number of pages received, agreement on the plan of care between physicians and nursing colleagues, and length of stay. Each institution may

have its own unique priorities that need to be addressed, and the problem that is being solved for should be explicitly identified and the solution optimized specifically to address the issue. Without such forethought, plans may be subverted by the expectation of creating a “silver bullet” intervention—a solution viewed as the answer to multiple problems—and thus fall short by the resulting dilution of the original intent by the tacking on of adjacent issues. Interventions need to be specific not only to the issues, but to each setting. The environment of each hospital and each hospital unit is unique, and interventions should be tailored accordingly. For example, when nursing or physician turnover is high, how do you form relationships and foster psychological safety within the team? Cohorting alone may not overcome the barriers to team building in such a setting. Continuous improvement also requires attention to the current and emerging data around models of care. Adopting cohorting alone, without the associated interventions that have been linked with improved outcomes, may invoke all the downsides without achieving potential gains. Different combinations of elements of care, some of which may not include cohorting at all, could influence specific outcomes more than others.²⁰ When interpreting literature, we should be mindful that many investigations report favorable short-term pre-post outcomes but do not reflect the downstream emergence of unintended consequences. An infrastructure that supports the continuous monitoring of outcomes, surveillance for unintended consequences, and agile course correction when needed should be developed and deployed alongside models of care.

Lessons learned from examining the strengths and weaknesses of cohorting provide a roadmap for building better systems. The stressors that undermine the gains from unit-based interventions may be beyond the locus of control of any inpatient unit and require synergy between the unit and the organization. This synergy is reflected in patient loads, workspaces, and metric selections that impact the models we deploy at the level of the unit. What we do every single day—and how we do it—has implications for our patients, our communities, our wellbeing, and the future of hospital medicine.

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Declarations:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

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