

# How Suboptimal Consolidation of Care During the COVID-19 Pandemic Can Teach Us to Do Better

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The coronavirus disease 2019 (COVID-19) pandemic has had far-reaching impact on medical care in the United States. Over the past year, local spikes across many regions in cases requiring hospitalization led to significant resource scarcity. Given that the most severe cases of COVID-19 resulting in hospitalizations and deaths have been primarily in adults, multiple organizations, such as the Children's Hospital Association, the American Academy of Pediatrics, and the Association of American Medical Colleges, recommended, in the setting of resource scarcity, preferentially transferring children who require hospital care from general hospitals to dedicated pediatric hospitals.<sup>1</sup> The consolidation of pediatric care in dedicated children's hospitals could not only serve to optimize resource use during the pandemic crisis but also promote regionalization of pediatric care to centers with subspecialty pediatric expertise. In this issue of *Hospital Pediatrics*, Clark et al<sup>2</sup> report their work examining whether the suggested pediatric consolidation occurred. They compared new admissions (defined as no admission within the previous 3 years) to children's hospitals during 2 time periods, one pre-pandemic and one during the early months of the US pandemic.

What they found was nuanced. Overall admissions to children's hospital significantly decreased during the pandemic time period compared with pre-pandemic levels. There were different patterns of discharge diagnoses during the 2 study periods. An admission encounter was more likely to be a new patient during the pandemic time period, but the frequency of new patient encounters did not differ between study periods after accounting for discharge diagnoses. After categorizing hospitals by rate of local COVID-19 incidence, children's hospitals in areas of medium and high COVID-19 transmission had increased odds of experiencing a new patient encounter. All this suggests that there were changes in pediatric hospitalizations during the COVID-19 pandemic, including some consolidation of pediatric care in regional children's hospitals. However, the degree of consolidation appears relatively low. Of note, the group excluded patients <6 months of age as well as maternal care encounters. It is not entirely clear why they excluded the youngest patients. Incorporating the care records of hospitalized neonates and infants could have added to knowledge regarding consolidation of care for all pediatric patients, including those requiring neonatal intensive care.

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Drs Kolaitis, Fry, and Paquette conceptualized and designed the manuscript, drafted the initial manuscript, and approved the final manuscript as submitted.



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It is difficult to know why the regionalization of pediatric patients was present but low. There could have been contributing factors on both an individual level and a systems level. Individual choice is one theme noted to broadly emerge in responses to COVID-19. People across the country have made different choices regarding such behaviors as social distancing, mask wearing, and vaccination. Parents of sick children and their medical providers made analogous choices about their care during the pandemic. This might mean a push toward maximizing outpatient treatment to avoid hospitalization. Across the globe, some pediatric diagnoses and care were delayed.<sup>3</sup> Repeating this study at a time point later in the pandemic and eventually after the pandemic could give valuable insight into evolving patterns. Finally, it could mean that parents and pediatricians drove the observed patterns (some children could have been directed to children's hospitals to avoid contact with sick adults).

Because of systemic factors, demonstrating effective regionalization of pediatric patients during the COVID-19 pandemic would also be hard for a number of reasons. School closures, social distancing, shelter-in-place orders, and other public health measures enacted during the early phases of the COVID-19 pandemic led to a dramatic decrease in the incidence and transmission of viral infectious diseases.<sup>4</sup> As a result, given that a primary driver of inpatient pediatric hospitalizations is viral illness, many pediatric hospitals experienced a dramatic and sustained decrease in both emergency department visits and inpatient hospitalizations. For these reasons, the significant overall reduction in rates of pediatric inpatient hospitalizations may have obviated the need for regionalization of pediatric patients in some areas. In addition, although overall pediatric inpatient hospitalizations were reduced, many pediatric hospitals found that patients with medical complexity or mental health needs awaiting placement in an inpatient psychiatric unit continued to be admitted at the same or higher rates

throughout the pandemic.<sup>5</sup> Regionalization of pediatric patients may have been challenging for these patient populations given that patients with medical complexity often have an established medical home. Transfer to a new institution could introduce concerns related to disrupting existing continuity of care and coordination of care plans within the patient's existing institution, which may be a dissatisfier to patients and families. Furthermore, limited availability of access to pediatric mental health practitioners and inpatient psychiatric beds may have reduced opportunities of regionalization of patients with mental or behavioral health needs.

Additionally, whether individual institutions would have participated in regionalization of pediatric patients depends on the number of hospitals, inpatient beds and inpatient bed breakdown (pediatric versus adult), and the degree to which acute resource strains occurred in a given region. We know that each region in the country had a varying time line for peak COVID-19 incidence and, therefore, variable time lines for when resources were potentially strained. The study time frame from March to June 2020 may not have captured the resource strains that some hospitals experienced during later COVID-19 surges in the summer and fall of 2020 that may have led to regionalization of pediatric patients. In addition, on the basis of lower volumes and financial strains, individual hospitals may have been going through their own internal reorganization to ensure operational efficiency and financial optimization of institutional resources. These institution-based adjustments in staffing models may have impacted the ability for some institutions to support regionalization of pediatric patients.

Finally, a major barrier to regionalization stems from the logistics required to efficiently and effectively regionalize patients in a public health emergency. Hospital systems throughout the country have unique catchment areas that drive hospital transfers, admissions, and referral patterns. These established

systems were designed to meet the prepandemic needs of communities and regions. To quickly rearrange and reorganize existing patterns of hospital flow would require a great deal of organization, messaging, and coordination among numerous varying and potentially competing hospital systems and networks that may or may not have had existing partnerships. These practical considerations may have played a large role in the ability of institutions to effectively regionalize patients. For example, some hospitals attempted to aid in regionalization by increasing the age at admission in addition to taking pediatric transfers from adult hospitals. But how was information about one pediatric hospital expanding the age range to accepting young adults communicated to regional adult hospitals? How was this information communicated to patients and families in the community? Would this communication be sufficient to change patterns of hospital presentation? We believe operationalizing a change in hospital patterns of admission of this scale requires a great deal of attention to and support for the practical logistics required for effective regionalization of pediatric patients.

Multiple reasons may have accounted for less regionalization within pediatric institutions than expected given widespread recommendations. Clark et al<sup>2</sup> indeed acknowledge many of the possible explanations for their findings. However, the inadequacy of prepandemic planning for rapid accommodation of changing needs during the public health emergency should be highlighted. Like many other aspects of pandemic preparedness, the inability to quickly regionalize and optimize the use of pediatric institutions reflects underprepared underlying public health infrastructures. For multiple regional hospitals, to rapidly engage and coordinate resources requires collaboration with local and regional government authorities to identify the time at which entry into emergency states requires such coordination and identify clear guidance to regional facilities and transparent public messaging about

coordination efforts. Some states implemented comprehensive plans to provide such coordination based on preexisting emergency preparedness programs.<sup>6</sup>

As described, there are strong forces that impact the flow of patients within and between hospital systems in periods of nonemergency. Altering those forces requires strong messaging from those with authority to potentially address some of the barriers to optimal flow. For example, to alleviate concerns about loss of medical homes, emergency privileges may be granted to try to facilitate continuity of relationships between medically complex children and their known providers. Without an already established mechanism to implement such changes in a rapid manner, however, any efforts to consolidate resources will necessarily experience a lag.

Whether the authors choose to report on their research question at a later point during the pandemic, their current work provides evidence for a need for better planning moving into the future to permit an immediate response when emergency conditions first arise. Such planning should recognize that although the epidemiology of the next emergency may

differ, the capacity for adapting to surge states can be met by advanced planning, including tools to identify the availability of resources, a plan for messaging when resources or patients need to be differently mobilized, and a robust response to barriers to optimizing resources across a region. The motivations for coordination in the case of the current pandemic were strong. It would have been unjust to subject part of a region to the consequences of severe resource strain that would have left some without needed critical care services.<sup>7</sup> Although the level of strain did not reach the ultimate critical state, there were lessons learned that can and should lead to better preparation for future emergencies.

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