

# Defining Hospital Settings: The Thorn in the Side of PHM

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In this month's issue of *Hospital Pediatrics*, Ahuja et al<sup>1</sup> examined characteristics of technology-dependent children (TDC) admitted to children's versus nonchildren's hospitals. With discharge data from 1408 total hospitals, categorized as 63 children's hospitals and 1345 nonchildren's hospitals, they found that the majority of TDC were hospitalized at nonchildren's hospitals. However, given the proportionately large number of nonchildren's hospitals, the exposure rate to TDC at nonchildren's hospitals was lower than at children's hospitals. Ultimately, these findings highlight several important conclusions. First, TDC are cared for across hospital types; accordingly, all hospitals should know how to assess and stabilize TDC. Second, understanding hospitalization patterns of TDC may help to inform which subpopulations of TDC may benefit from the regionalization of care. Inherent to exploring the latter, however, is the need to have clear and consistent definitions of the terms used to define hospital settings.

In the analysis by Ahuja et al<sup>1</sup>, they dichotomized hospital types using the Healthcare Costs and Utilization Project Kids' Inpatient Database (KID) from 2012. Within KID, hospitals are stratified by geographic region (ie, northeast, Midwest, west, and south), control (ie, public, private, or proprietary), urban or rural setting, teaching or nonteaching as determined by the American Hospital Association Annual Survey, bed size (ie, small, medium, and large), and "hospital type – freestanding children's or other hospital."<sup>2</sup> By using an identifier within KID, freestanding children's hospitals are assigned a unique stratification element that can identify them within the data set. Any children's hospital that is not freestanding does not possess this specific identifier. Before 2012, children's hospitals within general hospitals (or nested children's hospitals) could be selected by using a separate data identifier. Unfortunately, beginning with the 2012 data, that identifier is no longer available; as such, the only hospitals stratified as children's hospitals within KID are freestanding children's hospitals.

KID verifies its internal use of the term "children's hospitals" against hospitals participating within the Children's Hospital Association (CHA). CHA is an international organization representing >200 children's hospitals within the United States.<sup>3</sup> Within KID, there are 80 hospitals identified as children's hospitals. Given this is less than half of the total number of children's hospitals represented by CHA, the current strategy for capturing a children's hospital within KID underrepresents the total number of children's hospitals within the United States.

## WHY ALL THE CONFUSION?

By undercapturing children's hospitals, the classification of "not a children's hospital" within KID likely includes many hospitals considered by CHA to be children's hospitals. For studies such as Ahuja et al's in which the

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categorization of a nonchildren's hospital potentially includes many children's hospitals, the imprecision has significant implications for research and applicability of study findings for frontline providers. Furthermore, often the term "nonchildren's hospital" is used to imply a community hospital, and yet there is a wide range of services, pediatric specialty availability, and resource use across the diversity of settings known as nonchildren's hospitals.

Acute inpatient pediatric care can be broadly conceptualized to occur in 4 distinct settings: freestanding children's hospitals, children's hospitals nested within general hospitals, pediatric units within general hospitals, and nonspecific medical-surgical beds within general hospitals. Although there is variation even within freestanding children's hospitals, these hospitals all share distinct properties of availability of pediatric subspecialties and the provision of tertiary and quaternary care.

If we exclude freestanding children's hospitals as a clear delineation, the next setting includes children's hospitals nested within general hospitals. This seems on the surface as if this may be a clear delineation as well, but we must examine the hospitals that would group together into this category. First, Johns Hopkins All Children's Hospital is a 258-bed hospital with pediatric subspecialties ranging from lung transplants to hypoplastic left heart repair. It is connected to the Johns Hopkins Hospital and as such is technically a nested children's hospital. Also, a nested children's hospital is Mary Bridge Children's Hospital, a part of Multicare Tacoma General Hospital. Mary Bridge is an 82-bed hospital with a 13-bed PICU and no transplant services. Are these hospitals similar enough to group together?

Next, and probably most standardly, when the term "community hospital" is used, it is used to represent pediatric units within general hospitals and nonspecific medical-surgical beds within general hospitals. Within this categorization, however, institutions vary broadly in the structure and capacity for pediatric care services. For example, Providence Regional Medical Center in Everett, Washington, has a 13-bed mixed pediatric-adult unit with in-house

pediatric hospitalists affiliated with the University of Washington but without access to on-site subspecialty consultation and no PICU. Rochester General Hospital in Rochester, New York, has a 22-bed pediatric-specific unit staffed by pediatric hospitalists, without a current university affiliation and no PICU but has a pediatric-specific emergency department. Lastly, Community Children's at Community Medical Center in Missoula, Montana, is a critical access hospital that has 14 pediatric beds and a 4-bed PICU but no pediatric subspecialists. Although all 3 of these hospitals are traditionally labeled community hospitals, they offer differing care capabilities for patients and diverge in resources for providers.

### WHY DOES IT MATTER?

The use of differing definitions and unclear terminology leaves physicians and researchers to wonder if they are comparing the same populations in similar hospitals. For frontline providers, it is often unclear how to interpret results from nonchildren's hospitals and know if findings are generalizable to individual practice settings. Recognizing that <30% of children are hospitalized at freestanding children's hospitals,<sup>4</sup> understanding the quality, safety, and effectiveness of pediatric inpatient care across the diversity of hospital settings is paramount.<sup>5</sup> To do so, rigorous and strategic work needs to be done within our field to define commonly used terms and bring standardization so that comparison of results across studies can be drawn.

### STEPS TOWARD REPRESENTING THE DIVERSITY OF PRACTICE WITHIN INPATIENT PEDIATRIC ACUTE CARE

First, we need to move past the correlation between the labels of nonchildren's hospitals and community hospitals in studies done with administrative data. As described above, the designation of nonchildren's hospitals on the basis of administrative data sets from databases such as KID is misleading because many nested children's hospitals such as Johns Hopkins are grouped together in that categorization. The term "nonchildren's

hospitals" is then not only a misnomer but makes conclusions about care provided within this highly diverse category of hospitals challenging.

Second, we need an accepted way to define hospital settings through services provided. An extensive diversity exists across the spectrum of care in access to pediatric-trained staff, pediatric subspecialties, and working with trainees. Institutions are frequently labeled "teaching" or "nonteaching" institutions, although many medical students complete third-year rotations at "nonteaching" institutions.<sup>6-8</sup> In addition, we need to move away from classifying hospitals as "academic" or "nonacademic" because institutions across hospital settings are involved in many academic pursuits, as evidenced through diverse participation within national networks such as the Value in Inpatient Pediatrics Network.<sup>9</sup>

In an attempt to define the categories of children's and nonchildren's hospitals, Piper et al<sup>10</sup> developed a 4-tiered approach on the basis of hospital characteristics and resources. They defined children's hospitals as tier A (hospitals that primarily serve children) and tier B (non-tier A hospitals with a pediatric emergency department, NICU, and PICU). They defined nonchildren's hospitals as tier C (non-tier B hospitals with limited pediatric services) and tier D (hospitals with no pediatric services). This definition is a start because it aligns the terminology of nonchildren's hospitals more consistently with other accepted definitions of community hospitals, characterized by having limited pediatric resources, often functioning without the typical pediatric ancillary support or full complement of pediatric specialists standard in children's hospitals.<sup>11</sup>

Third, we need strategic research to capture the diversity of hospital settings and begin to build administrative databases that represent the spectrum of care provided across acute inpatient pediatrics. Because an increasing focus within pediatric hospital medicine represents care provided in limited pediatric-specific resource settings, these hospitals need a way to be adequately represented and captured through administrative databases. Continuing to rely

on describing care for children through databases such as Pediatric Health Information System, representing only children's hospitals, and KID, limited in the inability to parse out the categorization of nonchildren's hospitals, is no longer sufficient to describe the scope of care or practice within pediatric hospital medicine. Although defining the terms we use when discussing the diversity of practice settings for inpatient pediatric acute care is increasingly complex, we need to come to a shared agreement on clearer definitions and terminology. In doing so, we will not only better represent our patients but also ourselves and the care we provide.

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