

# Things We DON'T Do for No Reason

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In 2010, Dr Howard Brody introduced the idea of “the top 5 list” in the *New England Journal of Medicine*, calling on medical specialties to identify items of overuse to provide high-value care.<sup>1</sup> This led to the “choosing wisely” campaign to identify commonly overused measures in medicine in >70 different medical specialties.<sup>1</sup> One aspect of this campaign is the “Things We Do For No Reason” articles in the *Journal of Hospital Medicine*, which focus on the evidence behind common overuse, overdiagnosis, or high-value care issues. These discussions are an important part of pediatric hospital medicine, and efforts to promote this subject must continue. As hospitalists, we also have an obligation to reassess things we should be doing. We will discuss 3 examples briefly in this article but encourage this discussion to continue, at conferences, meetings, and break rooms everywhere.

## ENTERAL TUBES IN BRONCHIOLITIS MANAGEMENT

Bronchiolitis is the most common reason infants are hospitalized, and over half require nonoral hydration.<sup>2,3</sup> Multiple studies have shown that enteral and nasogastric hydration is comparable to intravenous (IV) hydration in terms of safety and tolerance.<sup>2,4,5</sup> A large, randomized controlled trial of infants hospitalized with bronchiolitis did not reveal any significant difference in rates of ICU admission, oxygen therapy duration, ventilator support requirement, or length of stay when comparing IV with nasogastric hydration.<sup>2</sup>

In a 2018 survey, only 12% of physicians and nurses would choose nasogastric hydration for a healthy infant with bronchiolitis.<sup>6</sup> Many practitioners reported concerns about nasal obstruction, parental resistance, and aspiration risk, and 66% did not know that nasogastric hydration was a documented option in the national American Academy of Pediatrics bronchiolitis guidelines.<sup>6</sup>

In addition to being safe, nasogastric tubes provide the opportunity to administer nutritional support rather than hydration alone. Providing adequate nutrition to ill children may influence overall outcomes and length of stay.<sup>7</sup> In a recent quality improvement study, 80% of parents whose children received both nasogastric and IV hydration stated they would choose nasogastric hydration if their children were hospitalized again.<sup>3</sup> Enteral feeding may help alleviate parental concerns about hunger. In addition, cost analysis done in Australia and New Zealand, where nasogastric tube use is more prevalent, has shown that nasogastric tube use has a lower intervention cost than IV hydration (\$113 vs \$74).<sup>8</sup>

Although bronchiolitis is one instance in which nasogastric hydration is underused, there are numerous other missed opportunities for providing fluids and nutrition via nasogastric tube. Despite nasogastric tube hydration being as safe as IV fluids and providing additional nutritional benefit and cost savings, it remains a practice that we do not do for no reason.

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## SUBCUTANEOUS FLUID HYDRATION

Hypodermoclysis, the subcutaneous infusion of fluids, has been described as far back as the 1910s, when it was used to treat infantile diarrhea.<sup>9</sup> The use of subcutaneous hydration was widespread in the 1940s to 1950s until reports surfaced of complications, later shown to be due to improper technique, like inappropriate volumes infused or use of hypotonic fluids.<sup>9</sup> These rumors, coupled with the invention of disposable supplies for IV fluid administration, meant that subcutaneous hydration fell out of favor and is now used primarily in geriatric and palliative care patients.<sup>9</sup>

Researchers have shown subcutaneous fluid hydration to be an acceptable alternative for rehydration in mild to moderately dehydrated patients when oral rehydration has failed and IV access is difficult. The use of hyaluronidase can be used in conjunction with hypodermoclysis to improve fluid absorption and toleration. Studies revealed higher rates of successful line placement, physician rated ease of procedure, and parental satisfaction with hyaluronidase use.<sup>10,11</sup> The success rate for peripheral IV placement ranged from 76% to 79%, whereas subcutaneous catheter placement was successful 90% to 100% of the time.<sup>10–12</sup> A mean cost comparison showed subcutaneous fluids with hyaluronidase cost \$722 per patient versus \$889 for IV fluids. The main difference in cost was due to shorter time in the ER and faster and easier placement of subcutaneous catheters.<sup>12</sup>

Although subcutaneous rehydration is not ideal when there is a need for rapid fluid administration, a number of mildly to moderately dehydrated patients could be ideal candidates, with researchers of some studies suggesting 15% to 20% of children in an emergency department (ED) with moderate dehydration are unable to tolerate oral rehydration.<sup>10,11</sup> Despite this, many pediatric hospitalists are unfamiliar with hypodermoclysis, and it remains an infrequently used technique. Subcutaneous rehydration has a good safety profile, good patient outcomes, and cost data yet remains something we do not do for no reason.

## ANALGESIA FOR LUMBAR PUNCTURES IN INFANTS

Surprisingly, it remains a question whether to use analgesia in infants before performing a lumbar puncture (LP). Embedded in the question is often the historical misconception that infants do not feel pain. Additionally, there may be concern that local infiltration of lidocaine may obscure landmarks negatively affecting success of the LP. The question of infant pain perception has been settled for decades. Infants have a sufficiently developed nervous system to experience pain, demonstrate behavioral and physiologic responses to pain, and have demonstrated pain memory.<sup>13</sup> In 1 study, male infants circumcised with placebo analgesia had increased pain behaviors at 4- and 6-month vaccination compared with uncircumcised boys. Additionally, a trend toward lower pain behaviors during vaccine administration in boys previously circumcised using analgesia compared with those receiving placebo analgesia suggests that effective analgesia cannot only treat pain at the time of procedure but also reduces risk for future hyperalgesia.<sup>14</sup>

It has been demonstrated that infiltration of lidocaine before LP decreases infant struggling (and presumably pain) during LP without adversely affecting the success rate of LP.<sup>15</sup> More so, it has been shown that lack of local anesthetic use is actually a risk factor for traumatic or unsuccessful LP in children.<sup>16</sup>

Analgesia during infant LP is still not done routinely. As recently as 2011, a study of physicians practicing in pediatric EDs revealed wide variability in practice related to analgesia during infant LP, with many respondents reporting never using lidocaine (41%) or anesthetic cream (49%).<sup>17</sup>

When we fail to provide effective analgesia to infants during LP, we are causing unnecessary pain and potentially contributing to future hyperalgesia and other chronic pain conditions. Providing analgesia to infants during painful procedures is simple and effective, yet continues to be something we do not do for no reason.

## CONCLUSIONS

In the early 2000s, multiple studies were published showing little correlation

between higher spending and higher quality of care.<sup>18</sup> With the rise of the Dartmouth Atlas of Health Care came congressional hearings, multiple popular books, conferences like Preventing Overdiagnosis and the Lown Institute–sponsored Right Care Conference, and a high-value care focus from major medical journals such as the *JAMA Internal Medicine* Less is More series and *The BMJs* Too Much Medicine campaign. This heightened the medical community's awareness of high-value care, overdiagnosis, and overuse in medicine. However, this movement popularized the perception that less care is always better care, or even that more care is harmful.<sup>18</sup>

Although reducing unnecessary care is important, in the medical community's quest to minimize, we may be overlooking details of a more complex picture. The original Dartmouth claim that 30% of health care dollars are wasted did not account for severity of illness, regional price and practice differences, or type of insurance.<sup>18</sup> Sometimes more is more, like a recent study in which researchers show that Medicare beneficiaries discharged from EDs with low admission rates were 3.4 times as likely to die within a week as those discharged from EDs with high admission rates even when accounting for patient severity.<sup>19</sup> Current learners are being raised to assume that “first, do no harm” means “try to do nothing” and may tend to oversimplify the medical situation instead of evaluating each patient on a case by case basis.

Along with focusing on opportunities to safely do less, we should also identify where additional care is necessary and when current practices ignore the best available evidence. For example, an unnecessary viral respiratory panel might prove valuable in a febrile neutropenic patient or a child with a ventriculoperitoneal shunt and vomiting. Although we only briefly discussed 3 examples in this article, we encourage this discussion to continue along with other examples (Table 1). Furthermore, it is our responsibility as hospitalists to advocate for improvement in all clinical settings by partnering with colleagues in other disciplines, including perioperative services,

**TABLE 1** Additional Things We Do Not Do for No Reason

Inpatient counseling of patients and parents who use tobacco
Inpatient discussion and placement of contraception in appropriate hospitalized patients
Developmental screening and documentation in pediatric patients with injuries
Effective analgesia during acute abdominal pain workup
Acquisition of discharge medications for families before discharge (“meds to beds”)
Early discussion of goals of care before major intervention or clinical decline
Catch-up immunizations in the inpatient setting
Inpatient screening for depression and suicidality, with psychiatry involvement

the ED, and outpatient services. For example, few surgeons and ED physicians consistently use effective analgesia to treat abdominal pain during a diagnostic workup, despite the fact that researchers of a randomized, double-blind trial comparing oxycodone with saline in children with undifferentiated abdominal pain found that oxycodone was associated with significant improvement in pain without a decrease in diagnostic accuracy.<sup>20</sup> As leaders in quality improvement, pediatric hospitalists should lead the effort to critically evaluate existing practices by the standard of what is best for the patient, whether “less” or “more.”

We should advocate for best practice, even if this means changing our perception that high-value care always means doing less. As pediatric hospitalists, we should push ourselves and our colleagues to think about opportunities for safely doing better.

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