

# A Universal, Trauma-Informed Approach to Pediatric Hospital Medicine

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Olivia, a 13-year-old neurologically intact patient with cerebral palsy, arrived from a routine abdominal procedure screaming in pain. The medical team was baffled as to why she experienced such agony despite receiving copious doses of morphine. We spoke with her adoptive parents to obtain more history. They revealed long-standing physical and sexual abuse before Olivia's adoption 6 years ago and noted extreme distress to all medical procedures and prolonged surgical healing time. Although her parents hoped to give her a better life and ensure she received appropriate care for her condition, they felt helpless that Olivia was at risk for retraumatization (reexperiencing posttraumatic symptoms from her original traumas) each time she came to the hospital.

The amplification of pain and delayed medical recovery secondary to a history of psychological trauma and adverse childhood experiences (ACEs) is well recognized.<sup>1-3</sup> Health care institutions are aware of the need for the integration of trauma-informed care into practice, yet they struggle to find the right approach. Although screening for ACEs has been widely adopted as a trauma-informed practice, there are multiple concerns with ACEs screening, including operating from a deficit- versus strength-based model, risk for traumatization from screening, and limited follow-up resources.<sup>4</sup> ACEs scores also do not fully capture trauma and posttraumatic stress symptoms, which may be better predictors of negative outcomes than ACEs alone. Many organizations have now implemented the Substance Abuse and Mental Health Services Administration guidelines of educating clinicians on realizing that trauma exists, recognizing signs of trauma, responding to trauma, and actively resisting retraumatization. Clinicians also learn the 6 principles of trauma-informed care: safety, trustworthiness, peer support, collaboration, empowerment, and cultural sensitivity.<sup>5</sup> These guidelines are extremely important when conceptualizing trauma-informed care, yet interpreting them within a medical setting can prove difficult. How do hospitals change their practices to establish higher trustworthiness levels? What concrete, measurable steps can they take? How do we assess whether these changes result in better child health and well-being over time? Right now, trauma-informed care is framed in the language and practices of the behavioral health arena in which it originated. We need trauma-informed practices that are clearly defined, measurable, and, most importantly, translatable to our medical institutions.

When thinking about ACEs, trauma, and trauma-informed care, we must turn the lens to ourselves and consider how medical interventions may be potentially traumatizing or retraumatizing. Medical traumatic stress, defined as responses to medical events that include posttraumatic stress symptoms,<sup>6</sup> may result from undermanaged or undertreated pain, repeated procedures, receiving a serious diagnosis, or experiencing frightening or invasive treatments. Although many children are resilient and do well after medical intervention, we must consider the

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significant proportion who struggle afterward. Children with a history of ACEs or trauma may be primed for medical traumatic stress and may especially be likely to experience posttraumatic stress or retraumatization after medical events.<sup>7</sup> Even if we screen for ACEs, we may not always know a child's full psychosocial background (eg, many children keep sexual abuse hidden for years) and must consequently treat every patient with a universal precautions approach. We must also use a trauma-informed care framework that reduces risk for medical traumatic stress and avoids patient retraumatization.

In line with the American Academy of Pediatrics' position statement,<sup>8</sup> we emphasize the need to adopt ecobiodevelopmental frameworks to address "toxic stress," or stress leading to maladaptive brain alterations, which negatively affects child health and well-being. These frameworks must be applied to our own practice as well. Although NICUs have not been featured prominently in trauma-informed discussions, they have been the setting for groundbreaking developments in ecobiodevelopmental care. Nationally and internationally, NICUs have adopted the framework of neuroprotective care, also called neurodevelopmental or developmental care. This framework is believed to buffer infants' brains and their subsequent development from "toxic effects of the NICU" and is considered a trauma-informed care approach.<sup>9</sup> It was historically developed for infants but has recently been expanded to cardiac ICUs and a wider age range.<sup>10,11</sup> Although infancy is a known critical period of brain development, windows during which the brain is more sensitive to trauma occur throughout childhood and adolescence. Consequently, neuroprotective care may have protective effects at all ages.<sup>12</sup>

Neuroprotective care consists of 5 core practices: (1) minimizing pain and stress, (2) promoting activities of daily living, (3) establishing a healing environment, (4) protecting sleep, and (5) supporting family collaborative care.<sup>9</sup> Examples of

interventions include teaching patients nonpharmacologic coping strategies (eg, breathing, distraction, relaxation) to manage pain and stress as well as creating a schedule for daily living activities. Sound, light, and room temperature levels are routinely assessed and modified to encourage sleep and provide comfort. Nighttime care is clustered whenever possible, and nonpharmacologic sleep aids (eg, earplugs, sleep masks) are provided. Families are encouraged to be present during procedures and/or caregiving as well as during bedside rounds and the change of shift report. The core practices of neuroprotective care are broken down into clear steps for implementation. They can be quantifiably measured and tracked to determine if patients are buffered from the negative impact of hospitalization.

Evidence indicates that, at all ages, individual components of neuroprotective care reduce risk for medical traumatic stress, resist retraumatization, and improve short- and long-term consequences of medical intervention. For example, common painful procedures lead to needle phobias in some children,<sup>13</sup> which then result in reduced appropriate health care use and medical noncompliance.<sup>14</sup> The level of child pain and family stress during hospitalization also predicts posttraumatic symptoms.<sup>15</sup> Simple, effective nonpharmacologic pain and stress management approaches could prevent these negative consequences.<sup>16</sup> Increased physical activity, as well as improved sleep, can buffer against stress sensitization,<sup>7</sup> a risk factor for developing posttraumatic stress. Early inpatient mobilization also improves functional recovery and leads to quicker discharge.<sup>17,18</sup> Quieter, more peaceful health care environments can improve pain, reduce need for medications, improve mental state, and lead to speedier discharge.<sup>19,20</sup> Finally, clinician and family collaboration increases quality and safety of health care, decreases associated costs, and increases parent satisfaction.<sup>8</sup> Taken as a whole, neuroprotective care offers universal principles that help promote resilience of all children. It fits both an

ecobiodevelopmental and trauma-informed care framework by considering the effects of the medical environment on the child, accounting for the child's biological and developmental needs, buffering against medical traumatic stress and retraumatization, and supporting positive short- and long-term health outcomes.

Outside of NICUs and cardiac ICUs, components of neuroprotective care are used but not systemically integrated. They also tend to be applied more reactively versus proactively. For example, nonpharmacologic pain management is implemented only when pharmacologic measures fail to work. A sleep schedule is set once a child's sleep pattern is grossly shifted. Universal implementation of neuroprotective care may reduce burnout among clinicians who feel as though they are playing catch-up on children's sleep and pain. Integrated with education on ACEs, trauma, medical traumatic stress, and Substance Abuse and Mental Health Services Administration principles, systematic institution of neuroprotective care into our hospitals is a reasonable undertaking and has minimal financial cost.

For Olivia, we taught her nonpharmacologic pain and stress management approaches, encouraged mobilization, protected her sleep through clustering nighttime vitals, and ensured her family was heavily involved in her care. She was discharged two days ahead of expectations based on previous stays. Her parents conveyed appreciation and hope for Olivia's improved response to both inpatient and outpatient visits. The care Olivia received should be the standard of care in all pediatric hospitals. We must incorporate frameworks supporting child resilience into policies, procedures, and practices just as effectively as we do for infection control. The obligation to preserve a child's mental state is as strong as the obligation to keep the child physically healthy. Neuroprotective care provides a measurable, tailored, systemic trauma-informed approach to preserving the well-being of our children.

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