# An Interdisciplinary Approach to Toxic Stress: Learning the Lingo

Laura V. Livaditis, MD

*In conjunction with the Editorial Board of* Pediatrics, *the Editorial Board of the SOPT Monthly Feature is proud to present the winning essay of the First Annual Advocacy Essay Competition, written by Dr Laura Livaditis. Inspired by the Advocacy Campaign of 2017, "Partnering for Resilience: Learn, Empower and Connect to Address Toxic Stress," this year's essay competition sought to increase awareness on this critical topic by asking for submissions that examine the effects and management of toxic stress. The following pages feature Dr Livaditis's article, in which she demonstrates the importance of developing medical-legal partnerships as a means of combating toxic stress.*

Catherine Spaulding, MD, Editor, *Pediatrics*, SOPT Monthly Feature

As I prepared to meet one of the founders of a legal advocacy nonprofit organization, I reminded myself of the buzzwords I wanted to slip into the conversation: "adverse childhood experiences," "health disparities," "trauma-informed care," and "toxic stress." During the discussion, the lawyer responded with her own jargon: "juvenile lifer," "*Graham v Florida*," and "mitigation hearings." She then told me a story that seemed unbelievable: that the United States is the only country in which youth can be sentenced to life in prison without the prospect of parole; that the Commonwealth of Pennsylvania single-handedly contributes nearly 25% of the world's juvenile lifers to the prison system[1]; and that only within the past decade has the US Supreme Court committed to incorporating neurodevelopmental research into its decisions regarding capital punishment. In fact, only in 2012 was mandatory life without parole deemed unconstitutional for youth less than 18 years of age.[2] It became clear to me that what had started as a conversation about juvenile justice had become a discussion about health and the consequences of toxic stress. Although our terminology was different, our goal was the same: to combine our expertise to advocate for youth at risk for incarceration for life.

Children who become familiar with the effects of incarceration experience nearly every aspect of what is known as toxic stress. The American Academy of Pediatrics defines toxic stress as the excessive or prolonged activation of the physiologic stress response systems in the absence of the buffering protection afforded by stable, responsive relationships.[3] For a busy community pediatrician, toxic stress is a daunting issue. Just teasing apart the definition reveals layer on layer of complexity: the elements of chronicity and severity, the exaggerated activation of innate stress responses and maladaptive rewiring of neural pathways, and the lack of meaningful interpersonal connection over time. Nearly every pediatrician is aware of the impact of adverse childhood experiences on future health outcomes. Unfortunately, the demand for effective and evidence-based interventions

*Department of Pediatrics, Johns Hopkins Hospital, Baltimore, Maryland*

Dr Livaditis conceptualized and crafted this essay. As the solitary author, she approves the final manuscript as submitted and agrees to be accountable for all aspects of the work.

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Address correspondence to Laura V. Livaditis, MD, Department of Pediatrics, Johns Hopkins Children's Center, 1800 Orleans St, 8th floor, Baltimore, MD 21287. E-mail: llivadi1@jhu.edu

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to address toxic stress continues to exceed the supply of effective and evidence-based resources, challenging community pediatricians across the country.

In response to stagnating progress in improving outcomes related to toxic stress, the American Academy of Pediatrics directed pediatricians to tackle toxic stress through "bold, creative leadership" and the construction of interdisciplinary teams "who are truly ready to work together (and to train the next generation of practitioners) in new ways."[4] However, 5 years after publication of the report, we seem to be caught in a bottleneck, propelled forward by an exponentially growing body of literature on toxic stress but restricted by the reality that many "continue to struggle with the basics of developmental screening, routine referral, and ongoing collaboration with community-based programs outside the medical system."[3] As a pediatric resident aspiring to become a community pediatrician, I feel the urgency. Even if we identify appropriate psychosocial supports, our ability to meaningfully reduce the effects of toxic stress is limited by the relative infrequency of our clinical interactions with patients. To broaden our impact, we need to increase our presence outside the clinic. One promising way to do this involves collaborating with non-medical professionals as advocate leaders, bringing our clinical expertise into interdisciplinary efforts like medical-legal partnerships.

Families most vulnerable to toxic stress tend to lack the financial and social capital needed to advocate for themselves when legal issues arise. According to Zuckerman et al,[5] low-income American families typically have 2 or 3 unmet legal needs. Virtually all of these needs are directly or proximally connected to health status. In the early 1990s, Zuckerman et al[5] at Boston Medical Center created what is now known as the medical-legal partnership model. The model focuses on the outpatient clinic, where families are screened for various legal needs, including housing, income supports, employment, and legal status. Those who demonstrate need are referred to an established network of legal support services, which are often on site and part of the medical home.[6] Currently, there are nearly 300 medical-legal partnerships affiliated with health care institutions in 41 states.[7]

Since inception, multiple aspects of medical-legal partnerships have been shown to be effective in a wide variety of geographical locations and practice settings, including the community clinic. In one randomized trial, components of the medical-legal partnership model were incorporated into the support provided by a family specialist to low-income parents of newborns. The infants included in the intervention were more likely to have completed their 6-month immunizations on time and to have attended at least 5 preventive visits in their first year of life. They were also less likely to have visited the emergency department by 6 months of age.[8] In another retrospective review of a medical-legal partnership's database, families of children with sickle cell disease were positively impacted when access to legal services was incorporated into the care plan. Over 20% of completed legal cases resulted in measurable benefits to the families involved, gains which were directly attributable to the interventions made by the medical-legal partnership.[9] Additionally, trainees who work with medical-legal partnerships learn valuable lessons about how to expand referral patterns to include non-medical professionals, as well as learning how to advocate for patients' health in an interdisciplinary setting.[6]

Although this model for medical-legal partnerships has been successful, it is becoming increasingly evident that taking a bold and creative approach to addressing toxic stress will require pediatricians to mobilize their advocacy skills outside of the clinical setting. Starting as trainees, pediatricians should consider serving as medical ambassadors to the legal community. Collaborating with a legal nonprofit organization expanded my perception of how advocacy can be performed: I became well versed in case law relating to adolescent neurodevelopment, and I used evidence from adolescent neurodevelopmental literature to argue for compassionate sentencing for incarcerated youth. The current model for medical-legal partnerships has shown that the co-location of legal services improves health outcomes for those most at risk for toxic stress. However, the next generation of medical-legal partnerships may involve our seeking out short-term, high yield relationships with legal advocates to more effectively change a specific medical-legal conversation.

Perhaps the most fulfilling aspect of this type of advocacy is derived from witnessing the retraction of policies that propagate toxic stress in vulnerable youth. In June 2017, the Supreme Court of Pennsylvania ruled that prosecutors need to prove that juvenile defendants are incapable of rehabilitation before considering a sentence of life without parole.[10] This significant step toward diminishing toxic stress in families affected by incarceration supports the effectiveness of medical-legal partnerships. More broadly, it speaks to the power of presenting existing evidence to a new audience in effecting meaningful change. Although defining common terms can be difficult initially, finding common ground with legal advocates enables a new valence to be added to the conversation about

life-changing issues like juvenile justice. From trainees to seasoned practitioners, pediatricians should challenge themselves to learn the lingo needed to communicate and partner with organizations that provide psychosocial support in their communities, because that will be what our most vulnerable youth need and deserve.

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