

Disrupting toxic stress in children to prevent long-term health impacts

July 25 2018, by Kate Vidinsky



Dayna Long, MD, medical director for the Department of Community Health and Engagement at UCSF Benioff Children's Hospital Oakland, is finding ways to use health care settings as a buffer against toxic stress in order to help kids achieve better outcomes. Credit: Noah Berger

Homelessness, neglect, malnutrition, or forced parent-child separation have long been known to cause toxic stress levels in childhood that harm developing brains and bodies.

Two decades ago, the link between adverse childhood experiences (ACEs) and long-lasting health effects surfaced in a pivotal study. Now, clinicians and researchers are taking a deep dive into how the [stress](#) produced by these experiences influences lifelong changes in children's genetics and health, while developing tools to combat negative health outcomes.

Dayna Long, MD, medical director for the Department of Community Health and Engagement at UCSF Benioff Children's Hospital Oakland, for one, considers it unacceptable that some children face worse health outcomes simply because they were dealt a bad hand. She has been propelled to find ways to use health care settings as a buffer against toxic stress in order to help kids achieve better outcomes.

"I breathe this work every single day. It is always on my mind," said Long, who started working at UCSF Benioff Children's Hospital Oakland as an intern nearly 20 years ago. "I became dissatisfied and restless simply giving vaccines or prescribing medications without addressing the root cause of the problem."

Long is working in Oakland and collaborating with other UC San Francisco researchers on multidisciplinary clinical programs, trials and partnerships to address disparities that will help improve the health of all children.

"We know the environment in which we live deeply impacts our health, and by simply providing basic needs, kids are more able to walk through the doors of opportunity," Long said. "I know we can never make all the bad go away, but I also believe it is our duty as [health care providers](#) to offer coping mechanisms and regulatory skills that can help a family unit be resilient."



Neeta Thakur, MD, a UCSF assistant professor and pulmonary and critical care physician, is among UCSF researchers working to address negative health outcomes associated with toxic stress. Credit: Barbara Ries

The Landslide of the Toxic Stress Response

When children experience traumatic events that are out of their control, the biological stress they endure can change their growing brains and bodies, putting their long-term health at risk. The landslide of negative health outcomes caused by toxic stress is driven primarily by a prolonged increase in the release of [stress hormones](#) like cortisol and adrenaline.

According to Neeta Thakur, MD, a UCSF assistant professor and pulmonary and critical care physician, elevated cortisol levels affect every system in the body – especially growing bodies – and over time can result in changes to the brain's architecture, a weakened immune

system, and impaired hormonal balance.

"Stress is actually a survival mechanism. We all experience it," Thakur said. "There is positive stress, like speaking in front of a crowd, which allows us to adapt and contributes to evolution. There is also more sustained stress, such as grief, that can be buffered by positive influences around you and self-regulation. But when we talk about toxic stress, there is no end in sight and there are no buffers, and that's what leads to real damage."

Research has shown that children who experience the kind of trauma that triggers a toxic stress response are more likely to develop chronic conditions like hypertension, coronary artery disease and asthma, to name a few, and all of this can lead to a shorter life expectancy by as much as 20 years.

The issue of trauma in youth is widespread. According to a 2007 study, about two-thirds of children in the U.S. have experienced at least one major traumatic event in their lives, and one-third have experienced two or more.



PEARL study participant Airanna Smith, 8, gets blood drawn at UCSF Benioff Children's Hospital Oakland. The study combines specimens such as blood samples with parent surveys to screen children for toxic stress. Credit: Noah Berger

Innovative Programs and Studies

In an effort to address ACEs in young patients in Oakland, Long in 2012 created the hospital's Family Information and Navigation Desk, or FIND Program. Operating within the children's [primary care](#) clinic, FIND screens families for basic social needs and connects them with community resources, such as counseling, food-stamp programs and housing support. Follow-up is also critical to ensure families are getting what they need.

The FIND Program currently employs core volunteer resource specialists and staff trained by a social worker to navigate the maze of resources, government agencies and nonprofits, that can help minimize the social and environmental factors negatively impacting patients' health.

Long and Thakur are also key members of The Bay Area Research Consortium on Toxic Stress and Health, which brings together partners from UCSF, UCSF Benioff Children's Hospital Oakland, and the Center for Youth Wellness, to comprehensively address negative health outcomes associated with toxic stress.

The consortium is currently leading a multidisciplinary study designed to unravel the connection between ACEs and health, and transform the delivery of primary care for children in a way that addresses toxic stress as a major risk factor for chronic disease.

Now in its second year, the PEdiatric ACEs Screening and ResiLiency Study, or PEARLS, is the first randomized controlled trial of early childhood adversity in a pediatric safety net clinic.

The multipronged study screens kids for toxic stress through parent surveys during regular primary care visits. At a subsequent visit, specimens including blood, stool and DNA samples are collected in order to investigate how stress may affect a number of key biological factors, including telomere length, gut health, hormone levels and immune response.

Finally, patients enrolled in the study who screen positively for early trauma and toxic stress are randomly assigned to receive tailored interventions through the FIND Program or a pilot group therapy-based resiliency clinic to help address the underlying stress and environmental challenges.

Long and Thakur are hopeful that the PEARLS trial will result in improved screening tools and interventions that will have a real impact on [health](#) disparities caused by [toxic stress](#).

"This project is so deeply a representation of what is possible. It is only possible because we have a community-based clinic in a community that trusts us, and clinician-scientists who want to roll up their sleeves and dig in," Long said. "It truly takes all of us working together."

Provided by University of California, San Francisco

Citation: Disrupting toxic stress in children to prevent long-term health impacts (2018, July 25) retrieved 6 May 2024 from

<https://medicalxpress.com/news/2018-07-disrupting-toxic-stress-children-long-term.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--