

MEDICAL TRAUMATIC STRESS AND ITS IMPACT ON NICU FAMILIES: A REVIEW OF LITERATURE

Heather A. Tanner, MSA, BSBA, Stephanie M. Vaughan, MPS, CAPM®, and Brittney A. C. Gray, PsyD.

A neonate’s somatosensory awareness of harmful stimulation is intact at 23-24 weeks gestation. This suggests that neonates and infants are capable of experiencing Medical Traumatic Stress (MTS), a condition that not only affects the child but also impacts the entire family unit.¹

Introduction

NICU families face unique experiences of trauma and toxic stress that necessitate psychosocial support and a trauma-focused lens. While in the hospital, patients and their families experience high levels of stress, negative medical encounters, and invasive, painful, or frightening treatments. Studies suggest that 80% of ill or injured children and their families experience some traumatic stress reactions following medical trauma². Without proper mental health care, there are significant negative impacts on future healthcare outcomes. Given the established connection between medical trauma and mental health, parents and caregivers of children in the NICU require resources and an understanding of stress disorders in the pediatric medical setting.

Definitions

- 1

PEDIATRIC MEDICAL TRAUMATIC STRESS (PMTS)
A range of **psychological** and **physiological** responses to pain, illness, injury, or frightening medical procedures experienced by children and their families.²
- 2

ACUTE STRESS DISORDER (ASD):
A short-term stress response to trauma, including symptoms such as nightmares, dissociation, negative mood, avoidance, and hyperarousal.²
- 3

POST-TRAUMATIC STRESS DISORDER (PTSD):
A longer-lasting psychiatric condition involving intrusive memories, avoidance, mood changes, and hyperarousal. Symptoms persist for more than one month and interfere with daily life.⁴

Impact

- 4

ON NICU INFANTS
Infants may show signs of hyperarousal such as increased cortisol, rapid heartbeat, and **agitation**.⁵
- 5

POST-NICU RISKS
 - » Up to **40% of school-aged children** with chronic illness are at risk for PMTS.³
 - » Trauma and mental health issues are **among the top 4 causes of suicide** in children ages 5–11.⁶
- 6

ON HEALTHCARE PROVIDERS³
 - » 99% of providers recognize that PMTS has a direct impact on medical outcomes.
 - » 68% report PMTS negatively affects care plan adherence.
 - » 50% note poor medication adherence.
 - » 39% report missed appointments.

Solutions

- 7

TRAUMA-INFORMED CARE: THE DEF PROTOCOL²
After the medical ABCs, use the **DEFs**:
 - D** Reduce **Distress**
 - » Ask about pain, fears, and worries.
 - E** Provide **Emotional** Support
 - » Identify who or what the patient needs now.
 - F** Remember the **Family**
 - » Understand and support family stressors and needs.
- 8

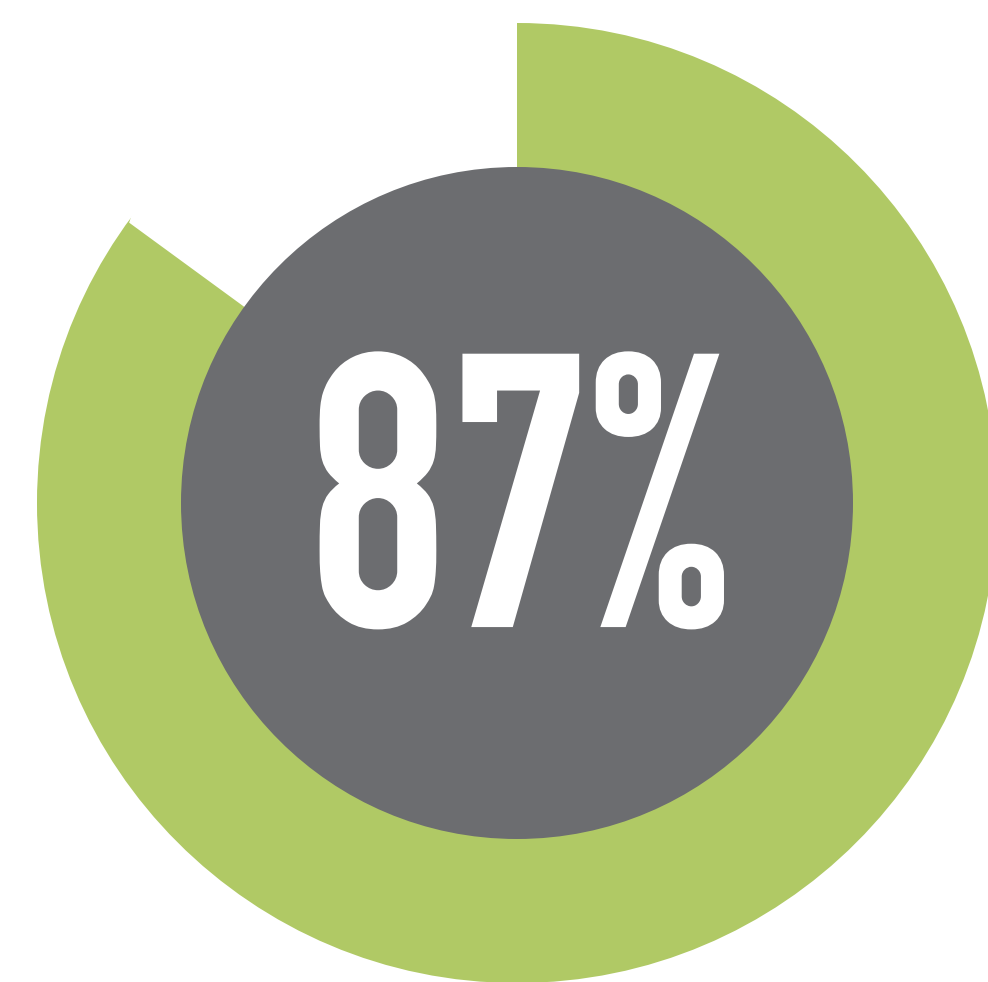
EMPOWER FAMILIES THROUGH LANGUAGE
Families need the language to name their trauma. Raising awareness of PMTS helps caregivers seek support and advocate for care.
- 9

RESOURCES
 - » [HealthCareToolbox.org](https://www.healthcaredtoolbox.org)
 - » National Child Traumatic Stress Network

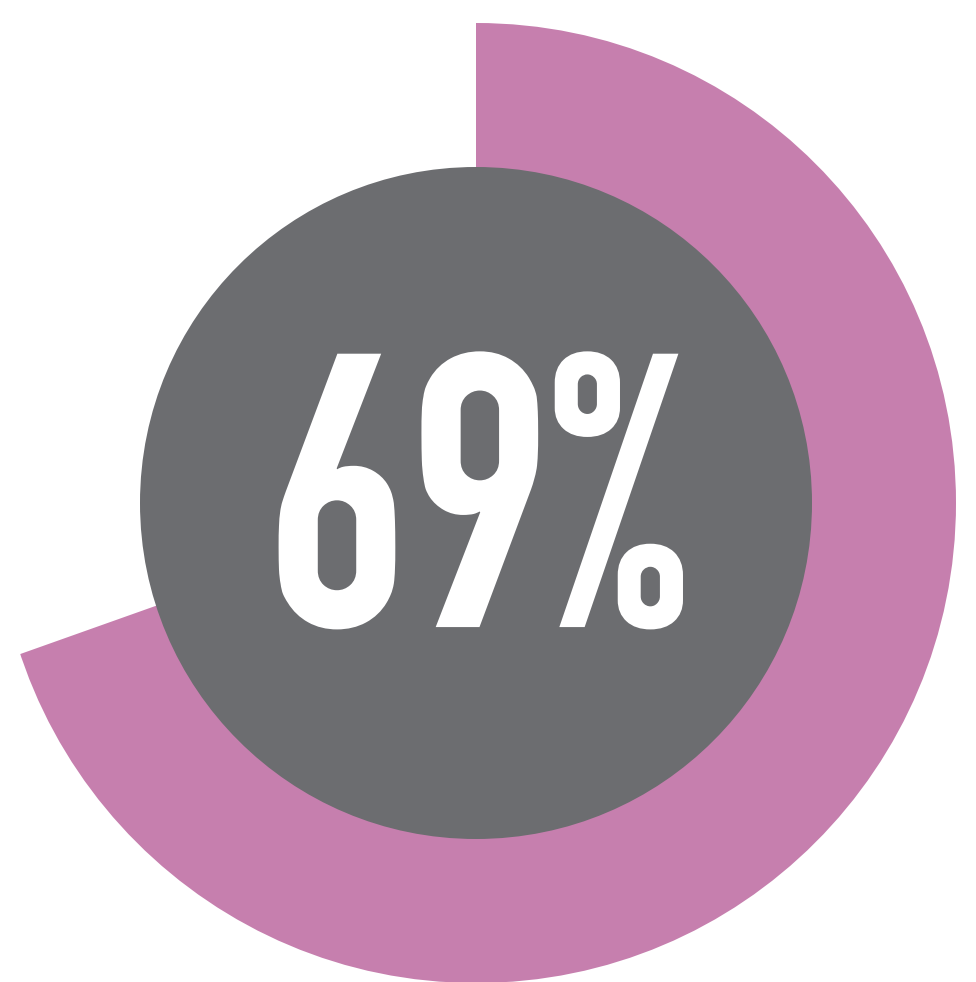
A majority of pediatric patients and their caregivers experience symptoms of PMTS.³



of healthcare providers agree that PTMS impacts patient health.³



of patients



of caregivers

These findings highlight the urgent need for parent-focused interventions that support both the child and family through trauma.⁷

Implications for Practice

We cannot begin to change the outcome of their experiences until we educate families and those impacted by NICU admissions about stress disorders. Once trauma education and stress assessments are in place, accessible resources and mental health support can be provided. If traumatic stress is not recognized and treated, the negative impacts on future healthcare outcomes can include psychological, physiological, developmental, behavioral, cognitive, relational, and emotional pathology⁸.

Additional impacts include “alterations in brain microstructure and function, changes in biological set-point circuitry, aberrations in stress responsivity and stress-sensitive behaviors, alterations in brain oscillations that negatively impact visual perceptual capabilities at school age, and a predisposition to a number of neuropsychiatric and behavioral disorders that can severely limit the infant’s quality of life”⁹.

Endnotes
1. Lagercrantz & Changeux, 2010; McGlone, Wessberg, & Olsson, 2014.
2. National Child Traumatic Stress Network, n.d.
3. Cuneo et al., 2023.
4. American Psychiatric Association, 2025.
5. Johnston & Stevens, 1996; Grunau et al., 2005.

6. JAMA, 2021.
7. Yagiela et al., 2019.
8. Coughlin, 2014.
9. Anand & Scalzo, 2000; Coughlin, 2014; Doesburg et al., 2013; Grunau, 2013; Vinall & Grunau, 2014.



Dedication
This poster presentation is dedicated to Colton James, who was born at 30 weeks and is now 12 years old; and to Shaymus Sebastian and Morgan Leary, who were born at 28 weeks and one day and are now 14 years old. It honors their lived experiences of being born preterm.

