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Toxic Stress, Resilience and Trauma Informed Care – Promoting Complete Wellness

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Introduction:

Hello everyone! My name is Manisha, I am a third-year medical student at the University of Alberta. One of my passions is looking at how individuals can develop resiliency – both at a young age and throughout their lives. Today I want to talk to you about toxic stress and trauma informed care.

This PedsCase episode will discuss the following **learning objectives**, by the end of the podcast learners should be able to:

1) Differentiate between and define toxic stress and trauma
2) Develop an understanding of how stress and trauma can affect development
3) Outline the pillars of trauma-informed care
4) Discuss ways in which physicians and caregivers can encourage resiliency in children and create safe and stable environments to promote emotional, psychological and physiologic growth and development.

A Case from NJEM: A 7-Year-Old Girl with Severe Psychological Distress after Family Separation[1]

I would like to start this discussion with a case. On June 25th, 2020 the New England Journal of Medicine released an interesting case discussing the experiences of a 7-year-old girl and her mother seeking asylum in the United States from Central America. Upon crossing the US-Mexico border, the pair was detained and eventually separated in accordance with the Zero Tolerance Policy[2]. Two months after separation, the pair was reunited in New England so that the child could undergo a Forensic Medical Evaluation or FME. An FME is conducted when someone wishes to seek asylum. The FME is designed to "document the psychological consequences of past trauma" and can provide context for a medicolegal asylum case.[1]

As we go through the rest of the podcast, I want you to keep this case in mind and I will add more details as we go through each section.

What is toxic stress?

Toxic stress, as defined by the National Scientific Council on the Developing Child, is what occurs when children face or are subject to extreme, prolonged distress without adult support.[3] It is important to note that toxic stress is **not** a deficit in the coping skills of a child, rather it is an extended activation of the normal fight-flight response initiated by the sympathetic nervous system. Stress is not always toxic, and the fight or flight response is evolutionarily beneficial to protect us from certain situations. However, when this response becomes hypervigilant or uninhibited, this is when toxic stress occurs and can begin to have significant consequences. In 2016, Kathryn Magruder and her team deemed traumatic stress a public health crisis and created a call to action in the global public health agenda. Rather than deeming toxic stress an individualistic burden, they explored the impacts that toxic stress can have on communities and ultimately society at large.[4] Before I go into the long term impacts of toxic stress, I am going to talk to you briefly about the difference between toxic stress and trauma.

What is trauma?

The definition of trauma has many iterations, however, one definition states that, "Trauma is the emotional, psychological, and physiological residue left over from heightened levels of toxic stress that accompanies experiences of danger, violence, significant loss, and life-threatening events.[5]" In the case we discussed before, the 7-year-old-girl was diagnosed with post-traumatic stress disorder or PTSD. PTSD has a slightly modified definition because it involves "direct or indirect exposure to actual or threatened death, serious injury, or sexual violence.[6]" In our case, the girl was exposed to domestic violence inflicted upon her and her mother by her father, food insecurity, bullying and torment while separated from her mother, as well as sleep deprivation and poor access to medical care while in immigration detention. Applying our first definition of trauma, the girl faced multiple emotional and psychological challenges as a result her experiences. These included aversion to certain foods, severe nightmares and the inability to sleep independently, impaired ability to interact with others and form relationships, as well as developmental regressions. Gartland and his colleagues discussed in their case study that the diagnosis and management of PTSD in children is particularly nuanced because the DSM criteria do not accurately capture the developmental changes and/or regressions that can occur as well as the severity of functional changes that a child may experience.[1]

How does toxic stress/trauma affect development?

I am going to discuss a few key concepts from the National Scientific Council of the Developing Child and their working paper *Excessive Stress Disrupts the Architecture of the Developing Brain.*[3]

#1) "Sustained activation of the stress response system can lead to impairments in learning, memory, and the ability to regulate certain stress responses."[3]
Research has shown that when children experience toxic stress, this can lead to overactivation of hormonal stress circuits such as the Hypothalamic-Pituitary-Adrenal (HPA) Axis. As a result, cortisol levels can remain higher for longer periods of time. This "prolonged peak" of stress hormones begins to disrupt other areas of the brain. Young children are thought to be at greater risk because their brains are still maturing. Disruption (or exposure to toxic stress) during these critical periods are thought to contribute to the developmental or behavioural impacts that can be seen later in life. For example, from birth to 2 years of age the hippocampus (centre for memory) is thought to be developing the most rapidly and trauma experienced at this time may disproportionately affect this area of the brain. Similarly, the amygdala and frontal cortex are thought to be more prone to toxic stress in adolescence. The effects of stress do not just begin once a child has been born, it has been shown in both human and animal models that stress in the prenatal period can contribute to lower birth weight, increased basal activation of the HPA axis, behavioural problems such as ADHD, sleep disorders and psychiatric conditions later in life.[7] Therefore, it is important not only to recognize stressors/trauma that a child may have endured but also counsel women of reproductive age about the negative effects of stress on the growing fetus.

#2) "The relationships children have with their caregivers play critical roles in regulating stress hormone production during the early years of life."[3]

You may have heard of the "Still Face" experiment done by Edward Tronick at the University of Massachusetts.[8] In this experiment, a mother and her child engage in play. First, the mother responds to her child and continues to play while being receptive to her child's actions, then she is told to maintain a blank face regardless of how her baby reacts or tries to engage the mother. This experiment became the foundation for what is known as the Serve and Return Phenomenon. This phenomenon describes the necessity for caregivers to respond and remain attentive (RETURN) to their child's expressions (SERVE) – beginning with babbling and cooling. The "return" by caregivers has been shown to be vital in the development of brain architecture and contributes to neural foundation for learning. When the serve and return process occurs, synapses and neural connections in the brain form and provide the framework for emotional and cognitive functions that develop later in life. Studies have shown that neglect or the lack of serve and return in early childhood can be related to 1) increased basal stress activation and 2) predisposition to adult psychological disorders.[9] In an attempt to further characterize when these physiological manifestations can occur, four types of unresponsive care have been defined. Firstly, *occasional inattention* has not been correlated with any negative impacts and can at times actually be beneficial to promote

healthy development and self-soothing. Next, *chronic under-stimulation* (ie recurrent failure to respond to a child's "serve") has been correlated with developmental regressions. *Severe Neglect in a family context* combines under-stimulation with a failure to meet the child's basic needs. This has been correlated with severe developmental regressions and can be life threatening. Finally, *Severe Neglect in an institutional setting* is defined as an environment where a child receives little to no individual interaction and is usually attended to by rotating staff, therefore never establishing reliable or consistent adult connections. This type of neglect has been associated with severe impairment in cognitive, physical and psychosocial development.[9] As such, it is important that as physicians we take detailed social and family histories in order to capture potential deficits in care that may contribute to a child's developmental trajectory. Some studies have shown that children who have been neglected but later receive sensitive and supportive care can have their glucocorticoid levels stabilize back to normal ranges in 10 weeks.[10] Although hormonal levels do not correlate directly to developmental progression, these findings are promising and illustrate the need to assess children and families as early as possible. Interventions may not always be successful but if they can be initiated earlier rather than later, we may be able to elicit positive effects during this dynamic developmental period.

What is trauma informed care?

The Heart and Stroke Foundation of Canada's Pediatric Advanced Life Support (PALS) Course outlines a basic algorithm for responding to trauma: triage, primary survey, resuscitation, secondary survey, stabilization, transfer, and definitive care.[11,12] The first three components consist of assessing immediate danger or harm and working through the ABCDEs to stabilize the patient – Airway, Breathing, Circulation/C-Spine, Disability and Exposure. Once these have all been stabilized the physician begins to work through the secondary survey – which typically includes taking a SAMPLE history and completing a thorough physical exam. I have included a link in additional resources for the SAMPLE history for those that are interested. Once this has been completed, the patient is stabilized and transferred if additional care is needed, followed by definitive treatment/intervention such as surgery.

The PALS approach to trauma and emergency care is a pillar of medical education and is designed to instill the above algorithm as an intuitive response in healthcare professionals. Undoubtedly, the PALS course and algorithm saves lives. However, the PALS program is a guide to physical trauma, it does not provide information or guidance when it comes to dealing with other forms of trauma and the psychological impacts of trauma.

Trauma informed care (TIC), in my opinion, bridges this gap and helps healthcare professionals foster resilience in patients who have experienced trauma. An understanding and appreciation of the long-term effects of trauma such as depression, anxiety and school-related problems is a core component of TIC. These effects are especially important to screen for in immigrant and refugee populations as they may

face additional trauma when seeking asylum or moving to a new country. Trauma experienced after migration may include: anxiety surrounding the potential for deportation or safety of family members, familial conflict, unsafe community, bullying – especially at school and family separation.[13]
An excellent review from *Children* has outlined 10 pearls for applying Trauma Informed Care.[13] I have summarized these pearls below to help provide you with a clear introduction to TIC.

1. **Practice a Strength-Based Approach to Care** – this involves acknowledging the many hardships that a patient has faced and highlighting the inherent strength that is required to endure such adversity. Health care professionals can encourage and support patients in recognizing these inherent strengths and utilize them for growth, development and healing.

2. **Create an Immigrant-Friendly Healthcare Environment –** it is important for us to recognize that for immigrant, refugee and BIPOC populations, "health care environments can be a source of trauma, racisms and xenophobia.[13]" I want to highlight that this is not unique to refugees and immigrants. We must seek to create inclusive and safe spaces that celebrate diversity in tangible ways. This can include display materials that are culturally sensitive or announce "this is a safe space," to resources that are printed in difference languages to signs that inform patients of office staff who speak other languages. Furthermore, this can also be achieved through the knowledge/education of staff. Health care professionals should educate themselves on the basic cultural norms/customs of patients' countries of origin and approach interactions with an open mind.

3. **Promote Trusting Relationships within the Health Care Environment –** as with any doctor-patient relationship, rapport is essential. In TIC, this may involve learning about the cultural norms and customs surrounding healthcare in the patient's country of origin and establishing trust and expectations.

4. **Asking for Permission to Discuss Potentially Difficult Subjects –** a large component of TIC is avoiding retraumatization. As healthcare professionals, we need to recognize that patients may not be ready to share what they have experienced, and we must not try to elicit information prematurely as this can do more damage than good. Importantly, the authors also suggested that a similar approach should be used when approaching a physical exam. Physicians and healthcare practitioners should 1) ask for permission to complete each portion of the physical exam 2) explain **why** it is necessary and 3) reassure patients that they can ask for the exam to be stopped or paused at any time.

5. **Treat Trauma-Related Disorders Appropriately –** as I mentioned above, when treating trauma we must address both the short-term and long-term impacts. Addressing the long-term impacts can sometimes be neglected and a preventative and collaborative approach is recommended. Prevention can occur through providing resources or educating patients regarding: stress/anxiety management, adjusting to a new culture, community supports. If referrals are made, it is important to look for practitioners that have experience in TIC and ask youth about their preferences for modes of treatment/practitioners.

6. **Recognize the Impact of Trauma on the Developing Brain, Various Manifestations of Trauma, and Screen for Trauma and Associated Mental Health Conditions –** we already discussed some of the impacts of trauma/toxic stress above, however, the important point here is the **need to screen**. Many studies have found that individuals who have experienced trauma, especially immigrants and refugees, are less likely to be screened for associated mental health conditions. Screens to consider include: GAD, SCARED, PTSD Screening, Sleep Disorder Screening and the PHQ-9.

7. **Utilize a Two-Generational Approach to Care –** as was mentioned in regard to toxic stress, caregivers/parents play a crucial role in combating the negative impacts of trauma. Stable, supportive and safe relationships with caregivers help promote healing and protect youth from further trauma. When utilizing TIC healthcare practitioners must also treat/triage caregivers and ensure that they are adequately supported. The authors discussed the concept of "adultification" whereby children may have had to take on the role of the adult in their country of origin but may also take on this role as they learn new cultural norms and language faster than their caregivers. It is important to support youth and caregivers through this process and the uncomfortable role filling that may emerge.

8. **Know Your Own Local Resources and Make Sure They Are Trustworthy –** this is perhaps one of the most important pearls from this article. In order to offer effective support to our patients, we must be adequately informed. I have included a few Canadian resources below that can offer a start to your resource catalogue.

9. **Recognize that Trauma May Not End after Migration** – Racism, bullying and microaggressions are commonly experienced by youth after their arrival. Importantly, the authors noted that "chronic exposure to racism has been associated with negative long-term health outcomes.[13]" We must again take a preventative approach in these cases and have open discussions – where appropriate – and offer additional resources/support when warranted.

10. **Advocate for Your Patients Both in and outside of the Clinic –** healthcare professionals have a unique and powerful opportunity to advocate for policies and social change. A few ideas for advocacy include: writing letters to local newspapers and highlighting the need for anti-racist policies, sharing your experiences with other health care professionals to promote TIC, request additional learning or mental health support for your patients from their schools or community.

Final Remarks:

I hope this podcast has given you a basic overview of toxic stress, trauma and trauma informed care. While the case and clinical pearls I chose were focused on immigrant/refugee youth, these principles can be widely applied especially when working with BIPOC populations. BIPOC youth have higher chances of experiencing trauma throughout their lives and it is important to consider trauma even in the absence of a "clear" event such as migration or family separation. As I mentioned previously, chronic racism has been associated with negative health outcomes by several studies. We must use this information to guide the care we provide. Additionally, as Canadian practitioners we must be sensitive and educated about the trauma that our indigenous populations may have faced, including but not limited to: racism, stigma, stereotyping, systemic bias, physical and sexual abuse and transgenerational trauma. Trauma informed care requires a basic understanding of historical, racial and systemic sources of trauma. Please see the additional resource section below for more information.

Closure of NJEM Case:
I will finish by sharing what the management for the 7-year-old girl on our case looked like. The child continued to suffer from anxiety, PTSD and emotional lability even after settling in New England and being reunited with her mom. She was bullied at school and struggled when interacting with classmates – especially boys. Her mother reported that she had gained a significant amount of weight due to overeating which she believed was a coping mechanism. Physicians attempted to reach out to the child's school to provide counselling services however there were issues with resources and a lack of Spanish-speaking therapists. One year later, the child was connected to a Spanish-speaking therapist in her community. The mother's asylum case has been postponed multiple times and although the pair has legal representation, the case is scheduled for 2022.

I really want to reiterate that in cases such as above, physician's must broaden the scope of their practice/treatment plan and recognize that advocacy is just as important as attending to medical/physiological ailments. The Physicians of Human Rights Group conducted an analysis of families who were affected by the Zero Tolerance Policy and concluded that the impacts (especially psychological) met the international definition for torture.[1] We must, at all times, remain cognizant of the magnitude of these experiences and the profound loss and grief that these individuals have likely faced. I want to share

a poem with you called *Home* by Warsan Shire. She captures the brevity of migration and her poem helps remind me that while we treat patients in the present and monitor their progress in the future, we must not forget their past and furthermore, we must honour the pain that may never go away. Please see the attached script to read the poem. I hope this poem reminds you, as it has reminded me, that advocacy and the initiation of changes to public health measures and policy must accompany our management plans – especially when practicing trauma informed care.

Home by Warsan Shire[14]

no one leaves home unless
home is the mouth of a shark
you only run for the border
when you see the whole city running as well

your neighbours running faster than you
breath bloody in their throats
the boy you went to school with
who kissed you dizzy behind the old tin factory
is holding a gun bigger than his body
you only leave home
when home won't let you stay.

no one leaves home unless home chases you
fire under feet
hot blood in your belly
it's not something you ever thought of doing
until the blade burnt threats into
your neck
and even then you carried the anthem under
your breath
only tearing up your passport in an airport toilets
sobbing as each mouthful of paper
made it clear that you would not be going back.

you have to understand,
that no one would put their children in a boat
unless the sea is safer than the land
no one burns their palms
under trains
beneath carriages
no one spends days and nights in the stomach of a truck
feeding on newspaper unless the miles travelled
means something more than journey.
no one crawls under fences
wants to be beaten
wants to be pitied

no one chooses refugee camps
or strip searches where your
body is left aching
or prison,

because prison is safer
than a city of fire
and one prison guard
in the night
is better than a truckload
of men who look like your father
no one could take it
no one could stomach it
no one's skin would be tough enough

the
go home blacks
refugees
dirty immigrants
asylum seekers
sucking our country dry
niggers with their hands out
they smell strange
savage
messed up their country and now they want
to mess ours up
how do the words
the dirty looks
roll off your backs
maybe it's because the blow is softer
than a limb torn off

or the words are more tender
than fourteen men between
your legs
or the insults are easier
to swallow
than rubble
than bone
than your child body
in pieces.
i want to go home,
but home is the mouth of a shark
home is the barrel of the gun
and no one would leave home
unless home chased you to the shore
unless home told you
to quicken your legs
leave your clothes behind
crawl through the desert
wade through the oceans
drown
save
be hungry
beg
forget pride
your survival is more important

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no one leaves home unless home is a sweaty voice in your ear
saying-
leave,
run away from me now
i dont know what i've become
but i know that anywhere
is safer than here

Additional Resources

1. **SAMPLE History** (https://www.ems1.com/patient-assessment/articles/how-to-use-sample-history-as-an-effective-patient-assessment-tool-J6zeq7gHyFpijlat/)
2. **Canadian Pediatric Society Immigrant and Refugee Health Resources** (https://www.cps.ca/en/programs/immigrant-and-refugee-health)
3. **Caring For Kids New to Canada Website** (https://www.kidsnewtocanada.ca/)
4. **AHS Trauma Informed Care Course** (https://www.albertahealthservices.ca/info/Page15526.aspx)
5. **Crisis & Trauma Institute Online Training Courses** (https://ca.ctrinstitute.com/online-training/)
6. **Community Mental Health Action Plan** (https://mentalhealthactionplan.ca/)
7. **Bringing trauma-informed care to children in need can ease toxic stress** (https://www.statnews.com/2017/12/06/trauma-children-toxic-stress/)
8. **Canadian Pediatric Society – Early Interventions to Mitigate Adverse Childhood Experiences**
9. **Aboriginal People and Historic Trauma: The processes of intergenerational transmission PDF**
10. **National Collaborating Centre for Indigenous Health**
    a. **Understanding Racism** (https://www.nccih.ca/495/Understanding_racism.nccih?id=103)
    b. **Indigenous Experiences with Racism and its Impacts** (https://www.nccih.ca/495/Indigenous_experiences_with_racism_and_its_impacts.nccih?id=131)
    c. **Policies, Programs and Strategies to Address Anti-Indigenous Racism** (https://www.nccih.ca/495/Policies,_programs_and_strategies_to_address_anti-Indigenous_racism__A_Canadian_perspective.nccih?id=132)
11. **University of Waterloo Anti-Racism Resources** (https://uwaterloo.ca/human-rights-equity-inclusion/anti-racism#A-1)

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