Brief
Reflections on Childhood, Trauma and Society

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Neurodevelopment, Maltreatment & the Juvenile Justice System

Over the last twenty years advances in neuroscience have provided invaluable insights that have implications for understanding human development and behaviour. Among these insights is the profound impact that childhood trauma and maltreatment have on the brain; this, in turn, plays a major role in creating complex...
and multi-dimensional problems that impact every sector of our society including the juvenile justice system.

This brief is an overview of key concepts related to brain development, brain functioning and traumatology that provide invaluable perspective when crafting juvenile justice practice, programs and policy.

Summary

Key Implications for Juvenile Justice Programs and Policy


2. Punitive practices do not build new skills or promote healthy development; they do not lead to effective remediation or rehabilitation. Punitive practices often create new problems and make existing issues worse. Simply stated punitive practices do not result in the intended decrease in recidivism, offending or rehabilitation.

3. Respectful, relationally enriched, humane and “trauma-informed” interventions will have highest probability of success.

4. Promoting relational health by increasing the quality, number and density of supportive, nurturing and trauma-informed people is the most effective and enduring form of “intervention.” Connection to family, community and culture facilitate healthy development including healing from traumatic experiences, minimizing substance abuse and developing of new skills.

5. Total systemic exposure to — and adoption of — developmentally aware and trauma-informed practices will be essential for juvenile justice models to optimize outcomes for individuals and for society.
Brain Development: Timing and Process

The brain develops most rapidly in the first five years after conception but it continues to have important maturational changes through young adult life. This developmental process proceeds from lower to higher (i.e., brainstem to cortex: see Figure 1) areas and is characterized by “use-dependence.” When the developing neural networks are stimulated at the right times in development with the right kinds of experiences, they will change and become optimally functional. The actual neural architecture of the brain – and the resulting functional capabilities – mirrors the nature, timing and pattern of experience. When a child grows up in a home and community enriched in healthy relational interactions that provide cognitive, motor and social stimulation, they can express their potential to become creative, productive and humane. When a child has chaos, neglect, threat, violence and other adversity, their potential is stunted, distorted and fragmented (see below); the youth in our juvenile justice systems are all too often coming from these fragmented childhoods.

The most “human” areas of the brain – the cortical networks involved in self-control, complex language, planning and abstract thinking develop latest with crucial re-organizational and “strengthening” processes taking place only in late adolescence. Furthermore, the balance between the healthy development and functioning of these top parts of the brain and the lower areas of the brain plays a key role in self-control and executive functioning; when development and functioning of the higher, cortical areas is delayed, disrupted or impaired, the risk for more self-absorbed, impulsive, aggressive, violent and anti-social behaviour increases. Similarly when the development of the lower brain’s regulatory systems is dis-
rupted (see below) a comparable risk for these unhealthy behaviors increases. When healthy development of both higher and lower areas (or networks) is disrupted profound regulatory, learning, social and behavioural problems are highly likely (see Figure 1).

**Implications for the Juvenile Justice System**

By the time a child is 4 years old more than 80% of the primary neural architecture has been established. The primary implication of this is that experiences of early childhood will have a disproportionate influence on shaping the individual; high quality early interventions can divert children in a high-risk environment out of trajectories that increase risk for ending up in the juvenile justice system. Further, these principles of neurodevelopment help us understand that the capacity of the brain for optimal self-regulation cannot be reached until well past adolescence. Simply stated, the brain of a youth will be more likely to lead to poor judgement and impulsive, high-risk behaviors – and this is under ideal developmental conditions. Introduction of maltreatment and trauma (see below) will predictably alter development and result in emotional, social, cognitive and behavioural functioning that is well below the chronological age of the youth. The result may be a 15-year-old with the self-control of a three-year old and the reasoning capacity of a five-year old. Unfortunately while most of our juveniles in the juvenile justice system have these splinter developmental capacities we create expectations, programs, practice and policy based upon their chronological age; and the outcomes from these efforts predictably fail.

**Bonding and Attachment**

Human beings are social creatures. The very glue of a productive, creative civil society is the capacity to form and maintain healthy relationships. Without this fundamental capacity, human interactions are characterized by selfish, manipulative and exploiting behaviors. Others are viewed as less valuable and worthy resulting in anti-social or even abusive, aggressive behaviors to satisfy self-interests. The creation of a core neurobiological capacity for healthy relationships requires healthy caregiving and parenting. Furthermore, the development of robust and re-
silent stress, reward and social neural networks depends upon attentive, attuned and responsive caregiving. With these early relational experiences an infant can develop the neurobiological capacity to form and maintain healthy relationships, to share, to become empathic, to love and become a productive member of a community.

**Implications for the Juvenile Justice System**

Many studies have demonstrated that youth in the juvenile justice system have high rates of attachment problems (50-85%). As outlined below the rates of transgenerational trauma, neglect, substance use and abuse, domestic violence and other factors that disrupt optimal early bonding experiences is very high in the juvenile justice population. This has two primary implications; the first is that the stress-response systems of individuals will be more “sensitized” and overly reactive leading to a host of problems with learning, social development and self-regulation (e.g., more impulsive reactive and less rational behaviours - see below) and that typical relationally-mediated rewards that serve to shape behaviour during development will be less effective. These factors, in combination with those listed below, mean that typical contingency-based and punitive interventions will be ineffective and even inappropriate with these individuals (see below).

**Neglect, Trauma and Adversity**

Intrauterine drug use, developmental chaos, neglect, domestic violence, and all manner of child abuse and other developmental adversity alter the development of the brain. Multiple studies have documented long term risk for health, mental health, academic, social and anti-social following these adverse experiences (see Addendum materials). Unfortunately the rates of all of these developmental adversities are very high in the juvenile justice population – and are likely major factors in the etiology of the dysregulated, impulsive, substance-using and anti-social behaviors that lead to involvement in the system.
Earlier in life, the anxiety, depression, hopelessness and disconnection which are manifestation of these trauma-related changes in the brain often can lead to increased risk for school failure, social problems, behavioural and self-medicating use of alcohol and drug. This of course can cascade into the actions that lead to involvement in the juvenile justice system. Early in life these are treated as mental health and educational problems but as children age the very same trauma-related issues enter the arena of truancy, assault, possession, defacing of public property, etc.

**Implications for the Juvenile Justice System**

The primary implication is that it is impossible to understand a child or youth in the juvenile justice system without understanding their developmental experiences. Understanding their individual path to the present will be the best way to create effective approaches, supports, interventions and resources to help them succeed. This means that a developmentally informed assessment with a focus on trauma and on potential resilience related factors must be part of an effective juvenile justice program. Further this means that any “one-size-fits-all” intervention or “punishment” will not be effective. Individualized, humane and developmentally matched interventions will have a high probability of success. In contrast, developmentally mismatched and non-trauma informed interventions will have minimal probability of success; they may provide temporary containment, isolation, retribution but they can not provide long-term meaningful change that will ultimately enhance or protect the community.

**Stress Reactivity and “State-dependent” Functioning**

The brain has a set of crucial neural networks that mediate the stress response. When an infant has attentive, attuned caregiving and their development is characterized by typical supportive emotional, motor, social and cognitive experiences they develop a flexible and well-regulated stress response system. This, in turn, leads to a cascade of healthy developmental experiences that shape the child in a healthy way. When trauma or attachment problems alter these systems, a resulting dysregulation occurs. The neural networks involved in the stress response
become “reactive” and can lead to a host of problems (see below). Trauma-related alterations in these systems can shut down areas of the brain that would usually modulate impulsivity; further, these alterations make it much more difficult to learn traditional cognitive content (e.g., it is harder to learn to read). The result can be devastating to development. The children will be more anxious (more likely to be vulnerable to self-medicating behaviors with drug), more reactive and impulsive (more likely to do anti-social and aggressive behaviors) and more globally dysregulated (vulnerable to a host of emotional, social, cognitive and physical problems).

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The Arousal Continuum: When we are under threat, our minds and bodies will respond in an adaptive fashion, making changes in our state of arousal (mental state), in our style of thinking (cognition), and in our body’s physiology (e.g., increase heart rate, muscle tone, rate of respiration). To understand how we respond to threat, it is important to appreciate that as we move along the arousal continuum--from calm to arousal, to alarm, fear and terror--different areas of our brain control and orchestrate our mental and physical functioning. The more threatened we become, the more ‘primitive’ (or regressed) our style of thinking and behaving becomes. When a traumatized child is in a state of
alarm (because they are thinking about the trauma, for example) they will be less capable of concentrating, they will be more anxious and they will pay more attention to “non-verbal” cues, such as tone of voice, body posture, and facial expressions. This has important implications for understanding the way the child is processing, learning and reacting in a given situation.

The key to understanding traumatized children is to remember that they will often, at baseline, be in a state of low-level fear--responding by using either a hyperarousal or a dissociative adaptation--and that their emotional, behavioral and cognitive functioning will reflect this (often regressed) state. The key points that have been outlined in this booklet help a caregiver provide the structure, predictability and sense of safety that can help keep traumatized children from staying in a state of fear too long. And help them understand how the behaviors of the child can regress (move to the right on the Arousal Continuum).

Adapted from:


Implications for the Juvenile Justice System

The implications for the Juvenile Justice system are profound; multiple studies have documented that essentially all of the youth in the JJ system have been exposed to multiple traumatic experiences. Indeed many of the anti-social or illegal activities that resulted in adjudication were directly related the neurobiology of trauma and neglect. Therefore it is absolutely imperative that JJ practices, policy and programs learn more about the impact of trauma on development and work to become “trauma-informed.” This is of utmost importance in the area of rehabilitation and remediation. Currently in the US and many other countries the juvenile justice programs use a set of practices that will predictably escalate and further dysregulate traumatized or maltreated youth.

The juvenile justice approaches that are punitive or operant based: a) have no capacity to generalize any behaviour changes outside of the specific context of the program or setting; b) do not create internal motivation that will provide the
moral and social values to modify self-absorbed, anti-social or illegal behavior; c) do not teach new skills and d) will predictably escalate and further dysregulate a youth who has trauma-related problems, resulting in higher rates of aggression, impulsivity, non-compliance and learning problem. In other words, practices, policy and law that are not developmentally respectful and trauma-informed, while well-intended, will not help children and youth in the juvenile justice system and will frequently make their complex problems worse.

**Malignant Combination of Experience:** Neurodevelopmental experiences of trauma or neglect alter a variety of brain areas and functions important in predisposing to violence. Depending upon the time in development, the nature and extent of the abuse and the presence of attenuating factors, the developing brain will be impacted differentially. These experiences may occur in utero or in the perinatal period, impacting the brainstem and resulting in symptoms of anxiety. Experiences in the perinatal and first few years of life can impact the midbrain resulting in impulsive
and aggressive symptoms. Trauma and neglect during infancy and childhood can impact the sub-cortical and limbic areas, resulting in dysthymic, depressed or unattached individuals. Finally, experiences throughout childhood can impact the development of cognitive capabilities resulting in processing and problems solving styles that predispose to violent solutions. Ultimately, however, being anxious or impulsive or depressed or unattached or cognitively impaired do not alone lead to violence. It is a malignant combination of one or more of these vulnerabilities in concert with a facilitating or encouraging belief system that leads to violent behaviors.

From:


Prepared for:

Anne Lindboe, M.D., Ombudsman for Children, Norway

Recommendations to the UN General Assembly re: Juvenile Justice Policy 2013
About the Author

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Dr. Perry is the Senior Fellow of The ChildTrauma Academy, a not-for-profit organization based in Houston, TX (www.ChildTrauma.org), and adjunct Professor in the Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine at Northwestern University in Chicago. He serves as the inaugural Senior Fellow of the Berry Street Childhood Institute, an Australian based
center of excellence focusing on the translation of theory into practice to improve the lives of children (www.berrystreet.org.au).

Dr. Perry is the author, with Maia Szalavitz, of *The Boy Who Was Raised as a Dog*, a bestselling book based on his work with maltreated children and *Born for Love: Why Empathy is Essential and Endangered*. Over the last thirty years, Dr. Perry has been an active teacher, clinician and researcher in children’s mental health and the neurosciences holding a variety of academic positions.

Dr. Perry was on the faculty of the Departments of Pharmacology and Psychiatry at the University of Chicago School Of Medicine from 1988 to 1991. From 1992 to 2001, Dr. Perry served as the Trammell Research Professor of Child Psychiatry at Baylor College of Medicine in Houston, Texas. During this time, Dr. Perry also was Chief of Psychiatry for Texas Children's Hospital and Vice-Chairman for Research within the Department of Psychiatry. From 2001 to 2003, Dr. Perry served as the Medical Director for Provincial Programs in Children's Mental Health for the Alberta Mental Health Board. He continues to consult with the government of Alberta on children’s issues and serves as a founding member of the Premier’s Council of Alberta’s Promise.

Dr. Perry has conducted both basic neuroscience and clinical research. His neuroscience research has examined the effects of prenatal drug exposure on brain development, the neurobiology of human neuropsychiatric disorders, the neurophysiology of traumatic life events and basic mechanisms related to the development of neurotransmitter receptors in the brain. His clinical research and practice has focused on high-risk children. This work has examined the cognitive, behavioral, emotional, social, and physiological effects of neglect and trauma in children, adolescents and adults. This work has been instrumental in describing how childhood experiences, including neglect and traumatic stress, change the biology of the brain – and, thereby, the health of the child.
His clinical research over the last ten years has been focused on integrating emerging principles of developmental neuroscience into clinical practice. This work has resulted in the development of innovative clinical practices and programs working with maltreated and traumatized children, most prominently the Neurosequential Model©, a developmentally sensitive, neurobiology-informed approach to clinical work (NMT), education (NME) and caregiving (NMC). This approach to clinical problem solving has been integrated into the programs at dozens of large public and non-profit organizations serving at-risk children and their families.

His experience as a clinician and a researcher with traumatized children has led many community and governmental agencies to consult Dr. Perry following high-profile incidents involving traumatized children such as the Branch Davidian siege in Waco (1993), the Oklahoma City bombing (1995), the Columbine school shootings (1999), the September 11th terrorist attacks (2001), Hurricane Katrina (2005), the FLDS polygamist sect (2008), the earthquake in Haiti (2010), the tsunami in Tohoku Japan (2011) and the Sandy Hook Elementary shootings (2012).

Dr. Perry is the author of over 500 journal articles, book chapters and scientific proceedings and is the recipient of numerous professional awards and honors, including the T. Berry Brazelton Infant Mental Health Advocacy Award, the Award for Leadership in Public Child Welfare and the Alberta Centennial Medal.

He has presented about child maltreatment, children's mental health, neurodevelopment and youth violence in a variety of venues including policy-making bodies such as the White House Summit on Violence, the California Assembly and U.S. House Committee on Education. Dr. Perry has been featured in a wide range of media including National Public Radio, The Today Show, Good Morning America, Nightline, CNN, MSNBC, NBC, ABC and CBS News and the Oprah
Winfrey Show. His work has been featured in documentaries produced by Dateline NBC, 20/20, the BBC, Nightline, CBC, PBS, as well as dozen international documentaries. Many print media have highlighted the clinical and research activities of Dr. Perry including a Pulitzer-prize winning series in the Chicago Tribune, US News and World Report, Time, Newsweek, Forbes ASAP, Washington Post, the New York Times and Rolling Stone.

Dr. Perry, a native of Bismarck, North Dakota, was an undergraduate at Stanford University and Amherst College. He attended medical and graduate school at Northwestern University, receiving both M.D. and Ph.D. degrees. Dr. Perry completed a residency in general psychiatry at Yale University School of Medicine and a fellowship in Child and Adolescent Psychiatry at The University of Chicago.
The ChildTrauma Academy

The ChildTrauma Academy (www.ChildTrauma.org) is a not-for-profit organization based in Houston, Texas. The mission of the CTA is to improve the lives of traumatized and maltreated children and their families. To achieve this, the CTA works to catalyze systemic change within the primary institutions that serve high-risk children including child protective services, mental health, public education and juvenile justice.

The CTA is a unique collaborative of individuals and organizations with a common vision. We recognize the crucial importance of childhood experience in shaping the health of the individual, and, ultimately, society. Further, the CTA recognizes the need for cross-sector, collaborative and innovative approaches to the complex problems related to childhood trauma and maltreatment. The CTA, therefore, is comprised of selected individuals from multiple disciplines, such as psychiatry, social work, psychology, child law and education and partners with public and private organizations, institutions and corporations.