

The Effects of Psychological Trauma on Children and Adolescents

**Report Prepared for the Vermont Agency of Human Services
Department of Health
Division of Mental Health
Child, Adolescent and Family Unit**

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June 30, 2005

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Definition of Psychological Trauma and Post Traumatic Stress Disorder (PTSD)

Trauma is defined as a physical or psychological threat or assault to a child's physical integrity, sense of self, safety or survival or to the physical safety of another person significant to the child (Vermont CUPS Handbook, p. 170). Children may experience trauma as a result of a number of different circumstances, such as:

- Abuse, including sexual, physical, emotional
- Exposure to domestic violence
- Severe natural disaster, such as a flood, fire, earthquake or tornado
- War or other military actions
- Abandonment
- Witness to violence in the neighborhood or school setting, including fights, drive-by shootings, and law enforcement actions
- Personal attack by another person or an animal
- Kidnapping
- Severe bullying
- Medical procedure, surgery, accident or serious illness.

Posttraumatic stress is traumatic stress that persists after a traumatic incident has ended and continues to affect a child's capacity to function. If posttraumatic stress continues and the child's neurophysiologic responses remain chronically aroused, even though the threat has ended and the child has survived, then the term post-traumatic stress disorder (PTSD) is used to describe the child's enduring symptoms. Because trauma affects the child's ability to self-regulate, both physically and emotionally, post-traumatic symptoms in infants and young children may encompass one or more of a broad range of behaviors, including the following:

- Difficulty sleeping, eating, digesting, eliminating, breathing or focusing
- A heightened startle response and hyper alertness
- Agitation and over-arousal, or under-arousal, withdrawal or dissociation
- Avoidance of eye contact and/or physical contact
- Terrified responses to sights, sounds or other sensory input that remind the child of the traumatic experience(s), (for example, a dog, police siren or the smell of alcohol on a person's breath)
- Preoccupation with or re-enactment of the traumatic experience (for example, a child's play may take on an urgent, rigid quality and be dominated by people shooting each other with police cars and ambulances arriving at the scene).

Psychological trauma may occur during a single traumatic event (acute) or as a result of repeated (chronic) exposure to overwhelming stress (Terr, 1992). Children exposed to chronic trauma generally have significantly worse outcomes than those exposed to acute accidental traumas. In addition, the failure of caregivers to sufficiently protect a child may be experienced as betrayal and further contribute to the adversity of the experience and effects of trauma. Traumatic stress may be transmitted by parents to their children. Parents who suffer from untreated post-traumatic stress disorder often have difficulty establishing a secure attachment with their children; they may viscerally

transmit their own feelings of anxiety, rage and helplessness, and in so doing, color the child's internal model of self and the world.

When caregivers are threatening, hurtful or frightening, the intentional human-to-human quality of the trauma causes more severe negative consequences for the child than trauma from accidental causes (for example, a flood, fire or injury). In truth, however, all trauma may engender feelings of victimization, loss of control, despair and hopelessness and beliefs that the world is unsafe and life unfair.

Limits of DSM-IV-R Definition of PTSD

Van der Kolk and colleagues explored the significance of dissociation, affect dysregulation, and somatization as "associated features" of PTSD (van der Kolk, Pelcovitz, Roth, Mandel, McFarlane & Herman, 1996b). Among other things, they found that "associated features" often persist for years, even after full-blown PTSD symptoms subside. They concluded that even though acute PTSD symptoms may subside below criteria for PTSD, long-term pervasive and often somatic consequences of exposure to traumatic stress continue. These 'associated disorders' must be viewed as part of the continuum of diffuse physiological changes initiated by a traumatic event, and associated initially with the syndrome of PTSD. In real life, "the expression of trauma is not rigidly set, but composes a continuum based on the type and severity of the trauma, the past experience of the victim, the prevalence of dissociation, age, gender, and many other factors (Scaer, 2001, p. 130)." Ignoring somatic symptoms and the many subsyndromal expressions of trauma creates an inappropriately limited appreciation of the disastrous effects of life trauma on individual and societal health.

Although the DSM-IV definition of PTSD may be necessary for standardization of diagnosis and treatment, it creates an artificial barrier to the diagnosis of traumatization, especially where infants and young children are concerned. Scheeringa, Zeanah and colleagues (1995, 2001, 2003) have assessed three groups of preschool children who suffered severe traumas and found the DSM-IV criteria for PTSD inadequate for this age group. They have developed criteria for diagnosing PTSD that are anchored in observable behaviors, more objective than the DSM-IV criteria, and sensitive to the developmental differences of young children (the Posttraumatic Stress Disorder Semi-Structured Interview and Observation Record for Infants and Young Children developed by Scheringa & Zeanah, 1994). Among other differences, infants and toddlers are preverbal or barely verbal and cannot describe with words their feelings and thoughts. Adults often speculate about what is going on with a child and make inferences from their behavior, but these are necessarily subject to bias and error. Certain items included in these new criteria appear to occur only in infants and toddlers and not in older children or adults (such as loss of acquired development skills, especially language regression and loss of toilet training, separation anxiety and the development of new fears, including fear of the dark, fear of toileting alone, fear of strangers, and new aggressive behaviors. Failure to recognize these symptoms of trauma may lead to under-diagnosis or misdiagnosis of trauma in infants and young

children. And, as Norris (1992) stated in reference to adults, it certainly appears true for children that the limitations and constraints of the DSM-IV criteria result in a definition of PTSD that “represents only the tip of the iceberg in terms of experienced distress” (p. 416).

The Effects of Psychological Trauma

Severe psychological trauma causes impairment of the neuroendocrine systems in the body. Extreme stress triggers the fight or flight survival response, which activates the sympathetic and suppresses the parasympathetic nervous system. Fight or flight responses increase cortisol levels in the central nervous system, which enables the individual to take action to survive (either dissociation, hyperarousal or both), but which at extreme levels can cause alterations in brain development and destruction of brain cells.

In children, high levels of cortisol can disrupt cell differentiation, cell migration and critical aspects of central nervous system integration and functioning. Trauma affects basic regulatory processes in the brain stem, the limbic brain (emotion, memory, regulation of arousal and affect), the neocortex (perception of self and the world) as well as integrative functioning across various systems in the central nervous system. Traumatic experiences are stored in the child’s body/mind, and fear, arousal and dissociation associated with the original trauma may continue after the threat of danger and arousal has subsided.

Development of the capacity to regulate affect may be undermined or disrupted by trauma, and children exposed to acute or chronic trauma may show symptoms of mood swings, impulsivity, emotional irritability, anger and aggression, anxiety, depression and dissociation. Early trauma, particularly trauma at the hands of a caregiver, can markedly alter a child’s perception of self, trust in others and perception of the world. Children who experience severe early trauma often develop a foreshortened sense of the future. They come to expect that life will be dangerous, that they may not survive, and as a result, they give up hope and expectations for themselves that reach into the future (Terr, 1992).

Among the most devastating effects of early trauma is the disruption of the child’s individuation and differentiation of a separate sense of self. Fragmentation of the developing self occurs in response to stress that overwhelms the child’s limited capacities for self-regulation. Survival becomes the focus of the child’s interactions and activities and adapting to the demands of their environment takes priority. Traumatized children lose themselves in the process of coping with ongoing threats to their survival; they cannot afford to trust, relax or fully explore their own feelings, ideas or interests. Characterological development is shaped by the child’s experiences in early relationships (Johnson, 1985; 1987). Young trauma victims often come to believe there is something inherently wrong with them, that they are at fault, unlovable, hateful, helpless and unworthy of protection and love. Such feelings lead to poor self-image,

self-abandonment, and self-destructiveness. Ultimately, these feelings may create a victim state of body-mind-spirit that leaves the child/adult vulnerable to subsequent trauma and re-victimization.

Trauma and Attachment

Children who lack a secure attachment relationship are at greater risk for extreme dysregulation of affect in the face of trauma and the development of enduring post-traumatic stress symptoms. Conversely, the presence of a secure attachment relationship can buffer the adverse effects of trauma and provide the safety and nurturing that allows the child to process the traumatic events and return to a sense of safety and well-being. Secure attachment bonds serve as primary defenses against trauma-induced psychopathology in both children and adults (Finkelhor & Browne, 1984). In children who have been exposed to severe stressors, the quality of the parental bond is probably the single most important determinant of long-term damage (McFarlane, 1988, p. 184).

Caregivers play a critical role in modulating children's physiological arousal by providing a balance between soothing and stimulation; this balance, in turn, regulates normal play and exploratory activity. Adequate caregivers maintain an optimal level of physiological arousal; unresponsive or abusive parents often promote chronic hyperarousal in these children. Chronic hyperarousal, in turn, contributes to a child's inability to self-soothe or modulate strong emotions. Recent research has shown that as many as 80% of abused infants and children have disorganized/disoriented attachment patterns, including unpredictable alterations of approach and avoidance toward their mothers, as well as other conflict behaviors (e.g., prolonged freezing, stilling, or slowed "underwater" movements) (Lyons-Ruth, 1991). In this way, early attunement may combine with temperamental predispositions to "set" each child's capacity to regulate arousal; limitations in this capacity are likely to play a major role in long-term vulnerability to psychopathology after exposure to traumatizing experiences.

Children form an internal working model of themselves and of the world around them through their experiences in primary attachment relationships. Self and worldviews are undermined by violence, hostility and fear. Insecurely attached children lack protection in their most important relationships and if exposed to trauma, their limited coping abilities are more likely to be completely overwhelmed by stress. Coping alone, with few options or resources, children respond with hyperarousal or dissociation. Perry (2001) has found that younger children and girls are more likely to respond to trauma with dissociation while older children and boys are more likely to respond with hyperarousal. A response pattern that incorporates both dissociation and hyperarousal may allow for more immediate recovery from trauma and a quicker return to pre-trauma functioning. Trauma shocks the body and dysregulates the parasympathetic and sympathetic nervous systems. The child's initial neurophysiologic response to overwhelming stress establishes a pattern of responding that will be triggered again and again, at lower and lower thresholds of threat. In this way a patterned response, linked

to the child's survival, becomes embedded in the child's neurophysiology. Embedded response patterns become more embedded with use and more difficult to change.

If it is true that traumatized people tend to become fixated at the emotional and cognitive level at which they were traumatized – as was observed by Janet, Kardiner, and many subsequent students of trauma – they will tend to use the same means to deal with contemporary stresses that they used at the stage of development at which the trauma first occurred. Since reciprocal, supportive interactions within secure attachment relationships appear to be the primary vehicle through which children learn to regulate internal state changes (Putnam, 1988), “the negotiation of interpersonal safety needs to be the first focus of treatment” (van der Kolk, et al., 1996, p. 204).

Trauma and Brain Development

We now know that brain development continues after a child is born and that early experiences shape the development of the central nervous system and the child's sense of self. The brain mediates threats with a set of predictable neurobiological responses. Two predominant adaptive response patterns to extreme threat occur along 1) the hyperarousal continuum (fight or flight) and 2) the dissociative continuum (freezing, numbness and surrender). Dissociation is a defense against fear or pain. It allows children to escape mentally from frightening or painful things that are happening to them. Each of these response patterns activates a unique combination of neural systems. The neurophysiologic activation seen during an acute stress response in a child is usually immediate and reversible. However, this response pattern tends to occur again and again at increasingly low thresholds of stimulation, and the more the pattern is activated, the more it tends to be re-activated. In this way, an acute stress response can become a long lasting, posttraumatic pattern of responding to stress.

Severe trauma in early childhood affects all domains of development, including cognitive, social, emotional, physical, psychological and moral development. The pervasive negative effects of early trauma result in significantly higher levels of behavioral and emotional problems among abused children than non-abused children. In addition, children exposed to early trauma due to abuse or neglect lag behind in school readiness and school performance, they have diminished cognitive abilities, and many go on to develop substance abuse problems, health problems and serious mental health disorders. Serious emotional and behavioral difficulties include depression, anxiety, aggression, conduct disorder, sexualized behavior, eating disorders, somatization and substance abuse. Early childhood trauma contributes to negative outcomes in adolescence, including dropping out of school, substance abuse, and early sexual activity, increasing the occurrence of sexually transmitted diseases, early pregnancies and premature parenting. Early childhood trauma contributes to adverse adult outcomes as well, including depression, post-traumatic stress disorder, substance abuse, health problems (likely related to increased stress and wear and tear on the immune system) and decreased occupational attainment (Harris, Putnam & Fairbank, 2004).

Although the relative effects of child abuse and neglect vs. family environmental and genetic factors have been debated, recent twin studies confirm a significant causal relationship between child abuse and major psychopathology (Kendler, Bulik, Silberg, Hettema, Myers & Prescott, 2000). Severe trauma in early childhood seems to set in motion a chain of events – a negative trajectory that places those children who have the greatest exposure and the fewest positive mediating or ameliorating factors at greatest risk of significant debilitating effect on development and increased occurrence of psychopathology (Perry, 1997, 1999, 2001; Eth & Pynoos, 1985; Pynoos, 1994).

Long-term Effects of Trauma

Van der Kolk, et al., (1996b), described the following long-term effects of trauma:

- Generalized hyperarousal and difficulty in modulating arousal
 - Aggression against self and others
 - Inability to modulate sexual impulses
 - Problems with social attachments – excessive dependence or isolation
- Alterations in neurobiological processes involved in stimulus discrimination
 - Problems with attention and concentration
 - Dissociation
 - Somatization
- Conditioned fear responses to trauma-related stimuli
- Loss of trust, hope, and a sense of personal agency
- Social avoidance
 - Loss of meaningful attachments
- Lack of participation in preparing for the future

Cole and Putnam (1992) proposed that people's core concepts of themselves are defined to a substantial degree by their capacity to regulate their internal states and by their behavioral responses to external stress. In children traumatized by abuse, a lack of development, or loss, of self-regulatory processes leads to profound and tragic problems with self-definition, including 1) disturbances of the sense of self, such as a sense of separateness, loss of autobiographical memories, and disturbances of body image; 2) poorly modulated affect and impulse control, including aggression against self and others; and 3) insecurity in relationships, characterized by distrust, suspiciousness, lack of intimacy, aggression and isolation.

The lack or loss of self-regulation is possibly the most far-reaching effect of psychological trauma in both children and adults. The DSM-IV field trials for PTSD clearly demonstrated that the younger the age at which the trauma occurred, and the longer its duration, the more likely people were to have long-term problems with the regulation of anger, anxiety and sexual impulses (van der Kolk, Roth, Pelcovitz, & Mandel, 1993, p.187).

In addition, children exposed to trauma have been shown consistently to have increased vulnerability to infections, including the common cold virus, respiratory infections, Epstein-Barr, hepatitis B, Herpes simplex and cytomegalovirus. Antibodies to these viral infections have been shown consistently to rise with stress. Scaer (2001) hypothesized that “exposure to high levels of chronic stress may increase susceptibility to infectious diseases due to immune suppression” (p. 73). Acute trauma in children increases vulnerability to infectious disease when serum cortisol is elevated. However, in chronic PTSD, serum cortisol levels tend to be low, a state where the modulating effect of cortisol on the immune system is decreased. Under these circumstances, the biological effects of prolonged and overwhelming stress may undermine functioning of the HPA (hepatic-pituitary-adrenal) axis, increase immune system activity and ultimately create greater vulnerability to autoimmune diseases. Additional data related to this hypothesis is needed. However, a clue to this process may be found in studies of chronic autoimmune disorders in populations of patients whose histories include prolonged and severe exposure to traumatic stress (Scaer, 2001, p. 74).

Children and youth who experience overwhelming psychological stress, particularly those with the greatest number of vulnerabilities and the fewest number of protective factors, are most at risk for alterations in brain neurophysiology, imprinting of trauma-based response patterns (i.e., dissociation, numbing, freezing, hyper vigilance, hyperarousal), and compromised integration of brain functioning that adversely affects learning, character development, self-esteem and immune system functioning.

Who is at Greatest Risk?

In three major studies of children and youth exposed to trauma in the United States (i.e., the Great Smoky Mountain Study [GSMS], the New York City [NYC] study and the National Institute of Justice [NIJ] study), the number of children identified as victims of serious interpersonal violence was shockingly high. Children under age 16 represented over one-quarter of those most exposed to serious trauma in the GSMS study. Sixty-four percent of children and youth in the NYC study had experienced at least 1 traumatic event by age 16, and at least 1 significant traumatic event prior to the attack on the World Trade Centers. In the National Institute of Justice study, 4 million American young people between the ages of 12 and 17 had experienced a serious physical assault during their lifetime and 9 million youth had witnessed serious violence during their lifetime.

Trauma is more common in the lives of American children and adolescents than is generally understood. Children and adolescents experience trauma in more forms. Millions endure the profound betrayal of physical and sexual abuse, often from trusted caregivers. Many children and adolescents are victims of and witnesses to violence in their families as well as community and school violence. A survey of American youth between the ages of 12 and 17 conducted by Dean Kilpatrick, Ph.D. (Crouch, J.L., Hanson, R.F., Saunders, B.E., Kilpatrick, D.G., & Resnick, H.S., 2000) estimated that 1.9 million adolescents had been victims of sexual assault, 3.9 million had been victims

of physical assault, and 8.8 million had witnessed violence. In addition, thousands of children and adolescents each year endure natural and manmade disasters, automobile and other accidents, animal attacks, near-drownings, life-threatening illnesses and invasive medical treatments. Many American youths' lives are marked by multiple and repeated traumas and the secondary adversities that may follow or accompany trauma.

The Department of Justice estimated that between one and one and one-half million children were assaulted, robbed, or raped in 1992 (Federal Bureau of Investigation, US Department of Justice, 1994). The Centers for Disease Control and Prevention (CDCP) reported that 8.7 million children under the age of 15 were seen in hospital emergency rooms for injuries in 1992 (Burt, 1995). Pandiani and Ghosh (2003) reported that 15,012 Vermont children (defined as Vermont residents under age 18) received emergency room treatment for injuries during January through December 2001. Injuries were categorized into four broad groups: unintentional injuries, injuries that were the result of assault, self-injuries, and other injuries. The total number of children within each category and utilization of community mental health services were as follows: Unintentional Injury – 12,141 - 10%; Assault Victims – 203 - 15%; Self Injury – 57 - 56%; Other Injury – 2,611 - 16%.

In addition, the U.S. Department of Health and Human Services, Administration for Children and Families reported that 896,000 children in the United States were confirmed victims of child abuse and neglect in 2002. Many of these children/youth suffered multiple forms of severe abuse and neglect but were only reported under one category. Therefore, these data do not fully represent the extent of abuse suffered by these children. In fact, reports from the Children's Bureau indicate that only *one-third* of the actual abuse and neglect of children and youth comes to the attention of child protection agencies in the United States. This means that the actual number of childhood victims of trauma due to abuse and neglect in the United States may be as high as 2,688,000. In fact, current estimates of the number of children abused, neglected or exposed to domestic violence exceed 3 million cases annually (National Child Traumatic Stress Network, 2004). There is a significant overlap between families where child abuse and domestic violence occurs; many children who experience direct trauma from abuse are also traumatized by witnessing the abuse of others in their families. In addition, many children are traumatized by exposure to violence at home but do not come to the attention of child protection authorities.

Research has shown that about one in four girls in the United States experiences sexual abuse by the time she is 18, and over 300,000 American children are sexually abused each year. Sexual abuse is among the most commonly treated forms of trauma seen by National Child Traumatic Stress Network (NCTSN) sites. Research has also shown that childhood sexual abuse is linked to numerous negative consequences in childhood, adolescence, and adulthood (NCTSN Children and Trauma in America, 2004, p. 38).

While all children have strengths and vulnerabilities, protective factors in a child's life are undermined by child abuse or neglect. There is evidence that trauma significantly

reduces IQ, which may be one of the single most protective factors in a child's life. In addition, childhood trauma is a significant risk factor for a number of major public health problems, including depression, substance abuse, sexually transmitted disease, and increased health risks due to cigarette smoking and obesity. Depression is three times more likely in adults who were abused as children than in the general public. Depression is a top health problem in the world with an estimated cost of \$44 billion dollars in the United States in 2003 due to lost occupational productivity. Childhood abuse victims experience multiple and multigenerational health concerns, including increased rates of heart disease, cancer and liver disease. In addition, the children of child abuse and neglect victims are at significantly increased risk of being victimized themselves.

Emerging evidence has implicated traumatic events in major public health problems such as violence and criminality, substance abuse, academic and vocational dysfunction, and mental and physical illness (Pynoos, 1994; Cicchetti & Rogosche, 1997; Pelcovitz, Kaplan, DeRosa, Mandel & Salzinger, 2000). A recent study of 16,000 participants conducted by the Center for Disease Control and Prevention (CDCP) implicated experiences of childhood trauma with outcomes such as rate of imprisonment, substance abuse, HIV status, unemployment status, and use of psychiatric services (Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards, Koss & Marks, 1998).

Stress Overload from Trauma and Accumulated Effects on the Immune System

In addition to the relatively immediate consequences of childhood trauma, including the development of post traumatic stress disorder, severe trauma in childhood may produce a state of sensitization, vulnerability or diminished reserve capacity to stress that results in an overwhelming physiological stress response that is not recognized until a much later stressor triggers an acute or prolonged (and seemingly unrelated) stress response. Scaer (2001) asserts that the determining factor for traumatization must be based on the response of the individual victim to a traumatically stressful event or to the individual's habitual and cumulative response to stress over an extended period of time.

McEwen (2002) refers to the human tendency toward stress overload, or the neurophysiologic state of being stressed out, as a compromise of the body/mind's natural ability to establish and re-establish allostasis or allostatic load. Thus, stress overload early in a child's life and frequent over-activation of the stress response afterward can overwhelm the body's ability to manage stress effectively. Children traumatized by early abuse suffer an increased risk of depression, suicide, substance abuse, and earlier illness and death from a wide range of diseases (McEwen, 2002, p. 59).

Traumatic stress in the early years can influence the development of the brain, including the reactivity of the stress response itself. In the late 1980s, Michael Meaney of McGill University and Robert Sapolsky of Stanford University showed that newborn rats were

able to adapt successfully to the stress of being “handled” or separated from their mothers for about 10 minutes a day (over a two-week experimental period). In fact, these rats had less reactive stress hormones and slower rates of brain aging when they grew up than rats who were handled or separated more or not at all from their mothers (McEwen, 2002). On the other hand, overwhelming stress in early life, even in the period before birth, for rats as well as human infants, seems to make the hypothalamic-pituitary-adrenal (HPA) axis more reactive and to speed up brain aging.

The consequences of the severe trauma, such as child abuse and domestic violence, appear to go far beyond serotonin pathways and dysregulation of the HPA axis. In one of the largest investigations on childhood trauma, the 1998 Adverse Childhood Experiences Study (ACES), researchers mailed questionnaires to over 13,000 people who had recently had medical work-ups at the Southern California Permanente Group in San Diego. These patients were asked about their experiences with any of seven categories of childhood trauma: psychological, physical, or sexual abuse; violence against the mother; or living with household members who had problems with substance abuse, mental illness, were ever imprisoned or committed suicide. Over 9,000 patients responded. Among those who reported even one such exposure, there were substantial increases in a startling array of disorders, including substance abuse, depression, suicide, and sexual promiscuity, as well as increased incidences of heart disease, cancer, chronic lung disease, extreme obesity, skeletal fractures and liver disease.

In summary, exposure to extreme traumatic stress affects people at many levels of functioning: somatic, emotional, cognitive, behavioral, and characterological (e.g., van der Kolk, 1988; Kroll, Habenicht, & McKenzie, 1989; Cole & Putnam, 1992; Herman, 1992b, van der Kolk et al., 1993). Childhood trauma sets the stage for a variety of psychiatric disorders, such as borderline personality disorder (Herman, Perry, & van der Kolk, 1989; Ogata, Silk, Goodrick, Lohr, Westen & Hill, 1989) somatization disorder (Saxe, Chinman, Berkowitz, Hall, Lieberg, Schwartz & van der Kolk 1994), dissociative disorders (Ross, Heber, Norton & Andreason, 1990; Saxe, van der Kolk, Hall, Schwartz, Chinman, Hall, Lieberg & Berkowitz, 1993; Kluft, 1991; Putnam, 1989), self-mutilation (van der Kolk, Perry, & Herman, 1991), eating disorders (Herzog, Staley, Carmody, Robbins, & van der Kolk, 1993), and substance abuse (Abueg & Fairbank, 1992).

Trauma leads to a variety of problems with the regulation of affective states, such as anger, anxiety, and sexuality. Affect dysregulation makes people vulnerable to engage in a variety of pathological attempts at self-regulation, such as self-mutilation, eating disorders, and substance abuse. Extreme arousal is accompanied by dissociation and the loss of capacity to put feelings into words (alexithymia and somatization). Failure to establish a sense of safety and security leads to characterological adaptations that include problems with self-efficacy, shame and self-hatred, as well as problems in working through interpersonal conflicts. Such problems are expressed either in excessive dependence or its counterpart – social isolation, lack of trust, and a failure to establish mutually satisfying relationships (van der Kolk, et al., 1996).

Naïve one-to-one notions about the causal relationship between trauma and various mental health disorders oversimplify the very complex interrelationships among specific traumas, secondary adversities, environmental chaos and neglect, the nature of preexisting and subsequent attachment patterns, temperament, special competencies, and other contributions to the creation of these problems. However, if clinicians fail to look through a trauma lens and to conceptualize client problems as related possibly to current or past trauma, they may fail to see that trauma victims, young and old, organize much of their lives around repetitive patterns of reliving and warding off traumatic memories, reminders, and affects (van der Kolk, et al., 1996).

The effects of early trauma are becoming increasingly ominous and clear. At the same time, we know that human brains are resilient – especially the brains of children – and that many later social and emotional difficulties and even health problems can be headed off by recognition and rather simple interventions early on in a child’s life.

How Many Children Are Affected by Trauma in Vermont?

It is difficult to get an accurate estimate of the number of children affected by trauma in Vermont. Various data sources provide the following information (July 1, 2003 to June 30, 2004):

Number of children in Vermont (Birth to age 18 – July 1, 2003) ¹	148,135
Number of children in DCF protective custody ²	2,148
male	1,029 (+/-7)
female	1,119 (+/-8)
Number of DCF intakes in which domestic violence was identified as a contributing family factor ³	1,533 (of 12,397)
Number of children linked to 1533 intakes ⁴	2,861
Number of children/youth identified as having been exposed to domestic violence in their homes (by mothers who sought help from a Network Against Domestic Violence program) ⁵	6,922

¹ Vermont Government website – www.vermont.gov/statistics

² Pandiani, J. & Ghosh, K. (February 6, 2004). Vermont Mental Health Performance Indicator Project. Young Trauma Victims served in Mental Health Programs.

³ Personal communication, Ellie Breitmaier, MSW, Coordinator, DCF Domestic Violence Unit. This number does not include cases that may have identified domestic violence further along in the assessment process.

⁴ Personal communication, Ellie Breitmaier, MSW, Coordinator, DCF Domestic Violence Unit. The 119 additional cases (over and above the 1533 intakes) represents non-DCF case referrals or cases the DCF-DV unit became involved in post-intake.

⁵ Vermont Network Against Domestic Violence Annual Report (2003).

Number of children who received CMHC services ⁶	8,713 (+/-40)
male	[5,026] (+/-32)
female	[3,697] (+/-24)
Trauma victims served in CMHC Children's Services Programs ⁷	1,516
Emergency Room Injury Child Victims ⁸	15,012
Emergency Room Injury Child Victims Served by CMH programs (estimated from utilization percentages) ⁹	1,349
Children in DCF custody by CMH programs ¹⁰	515 of 2,148 (+/-1.1) served
Percentage of total number in DCF custody served by CMH programs	24%

It is difficult to determine how many children in Vermont are affected each year by serious psychological trauma. We know that children taken into protective custody due to parental abuse and neglect are most vulnerable. We also know that of the 2,148 children under age 18 taken into Department for Children and Families (DCF) custody in 2003/2004, only 24% received services from Community Mental Health Center (CMHC) programs. While it is likely that a portion of the remaining 76% of children received mental health services through private practitioners (either paid for through Crime Victims Services, private pay, insurance or Medicaid), this information is not readily available. This percentage represents 1633 children who did not receive treatment through the CMH centers and whom we may conservatively estimate have experienced severe trauma, including trauma due to domestic violence.

In addition, of the 15,012 child injury victims served in Emergency Rooms, only 1,349 received services from community mental health programs. It also should be noted that

⁶ Pandiani, J. & Ghosh, K. (February 3, 2004). Vermont Mental Health Performance Indicator Project. Trauma Victims served in Children's Services Programs.

⁷ Pandiani, J. & Ghosh, K. (February 3, 2004). Vermont Mental Health Performance Indicator Project. Trauma Victims served in Children's Services Programs.

⁸ Pandiani, J. & Ghosh, K. (February 3, 2004). Vermont Mental Health Performance Indicator Project. Trauma Victims served in Children's Services Programs.

⁹ Pandiani, J. & Ghosh, K. (November 21, 2003). Vermont Mental Health Performance Indicator Project. Emergency Room Injury Victims served by Community Mental Health Programs

¹⁰ Pandiani, J. & Ghosh, K. (February 6, 2004). Vermont Mental Health Performance Indicator Project. Young Trauma Victims served in Mental Health Programs.

services from community mental health programs include case management and respite services but not necessarily specific trauma-informed or trauma-specific treatment.

Exposure to domestic violence constitutes another source of trauma, and the number of Vermont children who experience domestic violence may be as high as 7,000 children a year. There is certainly some overlap between the children who experience domestic violence and those who are identified as abused or neglected by the child protection system. It is likely that there is also overlap between both groups and child injury victims seen in Emergency Rooms. However, existing data collection systems do not allow us to accurately count the number of children who experience psychological trauma across these and other systems, nor is any trauma screening conducted, so we do not know the symptoms these children present with, nor do we know the extent of their trauma. For the small percentage of these children who do receive mental health services, we do not know the specific services they received and if these services included mental health therapy aimed at reducing or ameliorating their symptoms of trauma. We do not know how many of them recover fully or partially as a result of mental health services or on their own, and we know even less about how many continue to experience post-traumatic stress symptoms or suffer long-term adverse effects of trauma not only on their psychological development but on their cognitive, social/emotional and physical development as well.

According to Pandiani, Banks and Schacht (2004) children under seven years of age in Vermont are substantially *less* likely to receive community mental health services than young people in the 7-12 or 13-17 age groups (14% vs. 19% and 28%). Girls were less likely to be served than boys in every age group. Regardless of country, race or culture, girls are consistently more vulnerable to PTSD than boys. A greater percentage of girls will develop post-traumatic stress over their lifetimes – roughly 10-12 percent of them, as compared with 5 percent of boys. Another universal finding is that children are more vulnerable to PTSD than adults (Naparstek, 2004). The younger the child, the greater the likelihood of post-traumatic stress occurring, and the more severe the symptoms. Even with young children, the male-to-female differences hold up, compounding vulnerability for young girls and leaving two strikes against them: one for being a child and once again for being female (Naparstek, 2004). Children who witness or experience violence are at increased risk for significant trauma and post-traumatic stress syndrome.

Protective and Risk Factors

Protective factors are those associated with resistance to stress. Protective factors can occur in individuals or environments and they are correlated with, or predictive of, positive outcomes for children. In contrast, risk factors are associated with the increased probability of negative outcomes either in terms of debilitating symptoms or failures to achieve potential. Risk factors may be attributed to the individual, including

genetic vulnerabilities, as well as to the environment. Both protective and risk factors interact in complex ways in any given child (Harris, et al., 2004).

Protective factors found to ameliorate or reduce the effects of childhood trauma include the following:

- Intelligence
- The capacity for emotional regulation
- Social support from “good enough” (competent, caring) parents
- Positive beliefs about self
- Positive beliefs about the world as safe, predictable, fair
- Self-efficacy and motivation to take positive action on one’s own behalf.

Risk factors associated with greater negative consequences of childhood trauma include the following:

- Genetic vulnerabilities or exposure to injury, illness or deprivation that may adversely affect fetal development and/or birth
- Developmental disabilities
- Neglect and resulting stimulus deprivation (institutional or parental)
- Insecure attachment
- Care-giving by an adult who has unresolved, untreated trauma and who may have difficulty with affect regulation, depression, anxiety, hostility, aggression and/or substance abuse
- Exposure to extreme stress due to abuse, violence, neglect, loss, illness, poverty and lack of resources including health care, housing, nutrition.

Various factors in a child’s life may mediate the effects of early trauma, including the following:

- Early detection of trauma and intervention to increase support and reduce the child’s trauma-related symptoms
- Early intervention to strengthen the parents’ capacity to provide the child with a secure base and a secure attachment relationship
- Early intervention to resolve untreated post-traumatic stress disorder in parents so that trauma is not transmitted from one generation to the other
- Effective treatment for youth who have been traumatized, prior to their parenting.

The Costs of Trauma

Psychological trauma is often followed by many negative sequelae. Scaer (2001) and others have reported that childhood trauma is responsible for great losses in human potential and enormous costs to society. These adverse effects are seen in health care (serious adverse effects to the immune system, cardiovascular system, chronic pain, somatization leading to increased use of multiple health care providers, treatments, medications, surgeries, etc.) and mental health costs associated with chronic mental

health difficulties over the individual's lifetime. In addition, childhood trauma contributes to lost productivity and dependence as well as to the huge and growing costs of antisocial behaviors, violence, victimization, legal and court involvement, incarceration, supervision and rehabilitation.

Childhood trauma is a major public health concern worldwide. Trauma not only harms individual children themselves, it has an adverse effect on the lives of those around them and on the lives of their unborn children (Harris, et al., 2004). The costs of childhood trauma, unrecognized and untreated, are actually much greater than the costs of prevention and early intervention to eliminate or reduce the adverse effects of childhood trauma.

The Importance of Early Identification and Early Intervention

“It is ...well-established that significant trauma disrupts normal development in ways that are detrimental to many areas of adult functioning and often leads to costly emotional and physical problems that could be avoided or minimized by much earlier intervention” (Harris, et al., p. 7). Fundamental to primary prevention efforts is the provision of safe, nurturing relationships for all children. Secondary prevention requires early identification of young children and youth who are exposed to traumatic events and timely potent intervention to create or reestablish safety and self-regulation and to promote optimal development for each individual.

While early identification of children/youth who have experienced severe psychological trauma would presumably allow for early treatment and recovery, there are pros and cons to screening. Screening has played a critical role in public health administration and has become a routine standard part of health care in this and other countries. The cost of screening is justified when the incidence of a health problem is high, when the costs of its occurrence are great and when prevention or remediation is possible. However, many would argue that screening is not helpful, if immediate, high quality, potent-enough treatment is not readily accessible to children and families identified through screening.

Basic screening for trauma in the general population could be accomplished as part of routine pediatric check-ups, although the addition of screening for trauma would require extensive training of healthcare professionals and considerable cost. More cost effective would be screening for vulnerable groups of children who are known to have high rates of trauma. These groups would include: 1) children who have been abused and neglected – a group in which “little or no interventions for trauma take place” (Harris, et al., p. 13), 2) children in foster care – a group of children/youth who have experienced maltreatment often including neglect, abuse and exposure to violence, 3) children who witness domestic violence and/or the violent death of a parent, sibling or friend, 4) child victims of catastrophic accidents, natural disasters and casualty events, including school violence, 5) youth in the juvenile justice system, 6) children in refugee

families, especially from countries where extreme deprivation or armed conflict has taken place, and 7) children who require psychiatric hospitalization. Priorities include the early detection of exposure to trauma and early intervention to alleviate symptoms and eliminate or reduce causal factors. Early detection may be accomplished by screening for symptoms of trauma in children and families as a part of regular, routine pediatric care, Early Prevention, Screening, Diagnosis and Treatment (EPSDT), IDEA Part C screening, Early Head Start/Head Start, emergency medical care, child protection and juvenile corrections intake. As a rule, screening of trauma in infants and young children is based on adult observation while adolescent screening is based on self-report. A number of trauma-screening instruments for children and youth have been developed by NCTSN and other trauma specialists (reviewed in Strand, Sarmiento & Pasquale, 2005).

Improving the Standard of Care

Clinical experience and research have revealed that many children and adolescents suffering from traumatic stress fall through the cracks, never being identified as trauma victims and never receiving treatment or only receiving care years after first experiencing traumatic events. To address this problem, National Child Traumatic Stress Network programs have developed easy-to-use screening tools that can be implemented by non-mental health professionals in the places where children and youth are found. NCTSN screening tools have been designed for use in schools and pediatrician's offices and by the institutions that come into contact with children in crisis, such as child protective services, the juvenile justice system, and residential treatment programs (National Child Traumatic Stress Network, Children and Trauma in America, 2004).

Instruments and interventions disseminated by NCTSN reflect a developmental understanding of trauma and the direct toll it takes on a child's life, including the immediate dysregulating symptoms of trauma as well as subsequent and longer term impairment of functioning and disruption of normal development. Effective intervention must not only address the trauma, it must also help a child/youth get back on track developmentally.

For some children traumatic stress derives from a single life-threatening or horrifying event, such as an act of domestic violence, an accident or the traumatic loss of a parent. Early intervention is very effective for these patients, and yet research shows that most children and adolescents who suffer a single extreme event never receive trauma-focused care. We need to make sure they receive the care they need as soon after the event as possible. For many others, trauma occurs in repeated exposures to community violence and/or violence at home. Repairing these children's and adolescents' lives requires repairing the environments in which they live. By making these children's lives safer, we will not only improve the standard of care for child traumatic stress, we will begin to prevent its occurrence.

NCTSN initiated a core data collection project, which is now providing a picture of the nationwide characteristics of childhood trauma, its assessment, treatment and outcomes. The need for this knowledge was described in a federal government report (“Effectiveness of Insurance Coverage and Federal Programs for Children Who Have Experienced Trauma Largely Unknown,” GAO-02-813, August 22, 2002), which concluded that the effectiveness of federally funded programs for traumatized children was largely unknown because of the lack of systematic documentation. The final report of the President’s New Freedom Commission also identified trauma as an area where more knowledge is urgently needed.

All NCTSN programs complete a Core Clinical Characteristics Form for every child entering treatment. In addition, clinicians in NCTSN programs employ three standardized measures: 1) the Child Behavior Checklist, a general measure of a child’s problems and functioning across a wide range of areas, 2) the Trauma Symptom Checklist, and 3) the UCLA PTSD Reaction Index for DSM-IV. Collecting data on child characteristics and employing these standardized measures of symptoms allows for comparison across sites, populations, trauma types and outcome measures. National Child Traumatic Stress Network programs are validating existing and newly-developed trauma screening measures across a wide range of children and examining age, gender, culture, service sector and type of trauma, including mass casualty events in 54 programs in 32 states.

Promising and Evidence-Based Treatment Approaches

The NCTSN mission has focused on building a network to serve traumatized children, adolescents and their families, increasing availability and access to services, improving the standard of care for identifying and treating young victims of trauma, training and educating those who help children/youth, sharing knowledge about child trauma, and enhancing the national capacity to respond to terrorism and disaster. This mission dovetails with a number of other national priorities, such as the mandate to improve overall academic performance and the call of the President’s New Freedom Commission on Mental Health which called for the transformation of mental health care and singled out trauma in children as an understudied and critical area in this transformation process.

NCTSN efforts have increased public awareness of the scope and impact of child traumatic stress and created improvements in access to and quality of treatment for traumatized children and their families in NCTSN programs. To date, Vermont does not have an NCTSN program; it is hoped that additional federal funding for new programs, including funding for a program in Vermont, will be available in the near future.

Effective, evidence-based assessment tools and treatments for childhood traumatic stress have been developed. Early intervention with systematic, trauma-focused treatment can foster natural resiliency and coping skills, enabling most young people to recover significantly.

Reaching Children Who Need Mental Health Care

Very young children, adolescents, children and youth in refugee families and those with developmental disabilities are especially at risk for trauma and likely to be unidentified as trauma victims and underserved.

Early assessment and intervention are crucial to prevent the long-term developmental consequences of traumatic stress. Multiple and complex factors limit access to services and call for innovative and holistic solutions. To overcome service barriers, many NCTSN programs have provided services in settings outside practitioners' offices and community mental health centers. Such programs are located in hospital emergency rooms, pediatric intensive care units, at the scene of crimes, in natural disaster shelters, on Indian reservations, and in families' homes.

The Need for a Developmental, Mind-Body-Spirit Approach to Assessment and Treatment

A developmental, mind-body-spirit approach to the clinical assessment and treatment of trauma in children is needed. This approach must be based on an understanding of

- the critical role of early relationship experiences, attachment and the development of affect regulation/dysregulation,
- the effects of trauma, including abuse, neglect and disruption of the attachment process, on the child's developing brain and central nervous system, both sympathetic and parasympathetic nervous systems,
- the transmission of trauma across generations and the need for trauma-specific treatment for parents and children,
- the immediate and long-term effects of stress overload on immune system functioning and the need for treatment that reduces neurophysiological arousal and increases the individual's ability to self-soothe and self-regulate,
- the effects of early trauma on character development,
- the relationship between childhood victimization and perpetration of violence and/or re-victimization,
- the effects of early trauma on the individual's capacity to process sensory input, store memories, regulate emotions and organize thoughts, including the ability to use language to make sense of or integrate traumatic experiences,
- the storage of traumatic experiences in the body-mind-spirit of the individual and the need for treatment that restores wholeness of the body-mind-spirit, and
- the historical and collective impact of stored trauma on individuals, families and society as a whole, including the self-perpetuating relationship between trauma, aggression and violence.

The Need for a Stage-Based Approach to Treatment

Many have written about the need for specific stages or phases of treatment for adult trauma survivors. The stage-based approach developed by Judith Herman and described in her groundbreaking book *Trauma and Recovery* (1992), provides a useful template for the treatment of adults as well as children and youth exposed to trauma. As Herman emphasized, a therapeutic and healing relationship with a safe and competent clinician is the foundation for the treatment of trauma. Recovery then unfolds in three stages which, based on Herman's and more recent research and practice in the mind-body unity, trauma and attachment, include 1) the establishment of safety for the child/youth, 2) remembrance, mourning and the establishment or reestablishment of an intact sense of self as safe, capable and lovable, and 3) a reconnection to people, and life experiences that support development, safety, creativity and joyfulness.

It should be remembered that the actual treatment process must be individualized and may not adhere precisely to an abstract conceptualization of how treatment should proceed. In addition, the extraordinary recent and continuing expansion of our understanding of the brain and the integration of once separate fields of study including attachment, trauma, stress and mind-body medicine offer much promise in our understanding of the effects of trauma and how to help people of all ages to recover from it.

Stage 1:

The first stage of treatment for every victim of trauma is establishing or restoring safety. In order to know what must be done to restore or create a sense of safety for a child/youth, a thorough assessment of their current situation must be conducted. Children and youth who are living in chaotic, hostile or violent situations cannot heal from trauma because the trauma is ongoing. Children being cared for by parents whose trauma is unrecognized and untreated are vicariously exposed to their parents' terror, rage and despair. These children also experience their parents' attempts to deal with their own trauma which often includes bouts of emotional dysregulation (anger and aggression, depression and withdrawal, poor impulse control and acting out), dissociation and the use of alcohol and/or prescription or illegal drugs. Children cannot experience safety until and unless their parents experience safety, or until they are separated from their parents and placed with other safe, nurturing caregivers.

For child victims of chronic trauma – children and youth whose earliest relationship experiences have been characterized by hostility, insensitivity, neglect, physical, emotional and/or sexual abuse, abandonment or rejection – the assurance of a safe care-giving relationship is fundamental and essential to treatment. Hopefully, the emotional and physical availability of a safe, sensitive and nurturing caregiver will allow a child to develop a secure attachment relationship, but those who have strived to rebuild or create security and trust in a child or young person who has been hurt know how difficult and slow this process can be.

Re-establishing safety or creating it for the first time involves setting up an external structure that provides a predictable, consistent routine for a child/youth and making sure their basic physical, emotional and social needs are met. Establishing safety also includes helping the individual to establish an internal structure that allows them to feel safe in their own body and able to recognize and cope with emotions and sensory experiences that may overwhelm their ability to think clearly or control their responses.

Stage 2:

The second stage of treatment – remembrance and mourning – is usually understood to include the telling of the story of the frightening and hurtful events that have derailed the individual and the experiencing of sensitive, empathetic and attuned responses from a person who can offer the child a sense of safety, nurturing and security. Through the process of telling their story, and particularly for children this telling may actually occur through play, drama or artwork, the individual releases the traumatic memories along with the trauma-related emotions, thoughts and sensory experiences. Concurrently, the child/youth is helped not just to tell or in other ways express their story but to have a transformative experience that enables them to experience themselves differently. This transformation of the traumatic experience and sense of self as shattered by the experience is replaced with a new or restored sense of self (body, mind and spirit) that is intact, lovable, able to be safe and happy, to manage the challenges of daily living and to experience a sense of connection to others and optimism about life.

With the transformation of memory comes relief of many of the major symptoms of post-traumatic stress disorder, and it appears that the physiological changes induced by trauma can actually be reversed through the use of words or other expressions of the traumatic memories. This stage of treatment involves a neurophysiological resetting of the child's sympathetic and parasympathetic nervous system, which is made possible by interventions that involve the body as much as the mind and which may require borrowing neurochemically from medications (at least temporarily) that reduce arousal and increase the individual's sense of relaxation and well-being.

Stage 3:

The third stage of treatment involves successful entry or re-entry of the child/youth into age-appropriate social, learning and creative experiences. Through these experiences, the reinforcement of the child's (or youth's) new or restored sense of self as lovable and capable and the world as safe and supportive is established. Depending upon the age of onset, duration and extent of the trauma, the recovering child or adolescent is often challenged by delays and gaps in their own development and the need to catch up with peers whose lives were not derailed by trauma. In addition to treatment of the trauma symptoms, these children and youth often need extra help with cognitive, language, large and small motor as well as social and emotional development. They need scaffolding from adults who can patiently support their uneven maturation, especially social and emotional development that may lag several years behind chronological development.

Treatment proceeds in a recursive rather than a linear fashion and earlier stages of treatment will typically need to be revisited and treatment accomplishments reinforced. Treatment that skips one stage or another is incomplete and not likely to create lasting change and recovery for the individual.

Innovative NCTSN Treatment Approaches

Infants and Toddlers

Many still believe that infants and toddlers are impervious to trauma, or if not impervious, readily able to recover fully from traumatic events. Research and clinical experience have demonstrated, however, that this is not the case, and we now know that infants and very young children are profoundly affected by trauma.

NCTSN's Early Trauma Treatment Network (ETTN) includes four centers and is headed by Alicia Lieberman, Ph.D., and Patricia Van Horn, Ph.D., at the University of California at San Francisco, Child Trauma Research Project. The ETTN also includes the Child Violence Exposure Program at Louisiana State University, the Child Witness to Violence Program at Boston Medical Center, and the Tulane University Jefferson Parish Human Services Authority Infant Team.

The treatment protocol developed by Dr. Lieberman and colleagues is manualized and focuses on parent-child psychotherapy. Although the notion of transgenerational trauma may seem abstract, the process by which trauma is communicated between parent and child is not. Parents with unresolved trauma from their own childhoods are fearful, and they communicate their fright and view of the world as frightening to their children. Some who were abused themselves as children re-enact their abuse against their own offspring. Parent-child psychotherapy with its ability to intervene very early in parent-child interactions can break this cycle of transgenerational trauma. Early intervention is critically important. Trauma has a measurable impact on brain development and global cognitive functioning that is reversible with early intervention. Preschoolers who received parent-child psychotherapy following exposure to domestic violence had significant increases in IQ (performance scale, verbal scale and full scale) scores compared to their scores before receiving treatment (p.29).

School-based

Cognitive-Behavioral Intervention for Trauma in Schools (CBITS) is a manualized trauma treatment program with broad applicability for school-based trauma treatment programs. Created by the Los Angeles Unified School District, it is based on a 10-week program with 10 group and 1-3 individual sessions. The program is designed for use by existing school personnel and includes a maintenance component to sustain children once the formal intervention ends.

Another school-based program, the University of California at Los Angeles Trauma Psychiatry Service's Trauma/Grief Focused Group Psychotherapy Program, has also been disseminated by NCTSN. This is also a manualized treatment program designed specifically for adolescents that can be delivered as either an individual or group treatment. The program addresses both trauma and grief and has been extensively tested and shown to reduce symptoms of distress and improve academic performance among students suffering from post-traumatic stress traumatic bereavement. After an extensive review of available evidence-based programs, the New York Office of Mental Health selected this approach for use with adolescents in New York City after the 9/11 terrorist attacks. Comprehensive assessment and demographic data on the New York City youth revealed that most had extensive histories of past trauma and lived in environments that continued to be unsafe. Even so, preliminary data indicate that both PTSD and depression were reduced significantly among those who completed the program. The program is flexible; it contains the following four modules: 1) psycho-education and coping skills, 2) creation of the trauma narrative, 3) traumatic bereavement and issues related to grief and loss, and 4) the developmental progression of, and pro-social, constructive responses to, trauma and loss.

The Miller Children's Abuse and Violence Intervention Center (MCAVIC) in Long Beach, California has developed a storefront program for adolescents who have been expelled from school for disruptive or violent behavior. Not surprisingly, these young people have been found to be the most severely traumatized adolescents in the school district, and most have never received mental health treatment before.

Trauma Systems Therapy

This program was designed to meet the needs of Boston's inner city youth aged 6-18 years of age. The program is based on the principle that traumatic stress results from two factors: 1) a traumatized child or adolescent is having difficulty regulating emotional states, and 2) the child's social environment either does not help or undermines the child's abilities to manage emotions. Trauma Systems Therapy was developed with NCTSN funding by the Boston Medical Center's Center for Medical and Refugee Trauma. The program is manualized and designed both to help children and adolescents regulate emotions and make environments more supportive and less stressful. Children in this program may receive home-based services, legal advocacy, office-based psychotherapy, and/or psychotropic medications.

Medical Trauma

The Medical Trauma Working Group of the NCTSN has developed innovative assessment and intervention approaches for children and families that can be used in settings where painful, invasive and sometimes life-saving medical treatment is delivered – clinics, emergency rooms, pediatric intensive care units and physician's offices. Previous studies at the Pediatric Intensive Care Unit (PICU) Project of the Children's Hospital in Philadelphia's Center for Pediatric Traumatic Stress revealed that one-third of parents whose children were admitted to the PICU for at least two days

developed acute stress disorder. Parent symptoms included hyperarousal, increased startle responses, anxiety and intrusive mental images of their child in pain or undergoing painful procedures. While most parents and children recovered fairly quickly, one of five parents went on to develop PTSD that lingered long afterward and adversely affected parent-child interactions. Research at the PICU has also shown that the parents' sense of the child's situation as life threatening (even when this degree of threat is not corroborated by the attending physician) and the accompanying feelings of fear and helplessness are critical factors in the risk of PTSD. PICU research is showing that when families feel more in control of a child's medical care, even when the child's medical condition may be grave, they are less likely to experience the panic and helplessness that contribute to PTSD.

Evidence-Based Treatment for Sexual Abuse

Trauma-Focused Cognitive Behavior Therapy is a manualized, evidence-based treatment approach developed in Pennsylvania at the Allegheny General Hospital's Center for Traumatic Stress in Children and Adolescents. The treatment synthesizes trauma-sensitive interventions with cognitive behavioral principles to target the emotional and behavioral problems that children develop in the wake of traumatic events. The development of a trauma narrative is central to this NCTSN model of treatment. According to Judith A. Cohen, MD, one of the developers of this treatment approach, children may participate in therapy where they talk and play for months or even years, but if they do not get to the heart of the matter – the trauma itself – they do not get better.

Constructing a coherent narrative of what happened and what it means counters the fragmenting and disorganizing pull of traumatic memory. By creating a trauma narrative with the therapist, the child makes sense of what happened and corrects cognitive distortions such as believing all men are bad because their abuser was a man and he was bad. Through the trauma narrative, the child integrates the event into the larger narrative of his or her life. The abuse no longer defines the child as victim; the child develops a larger identity in which being the victim of abuse is only a small part. This model offers a step-by-step framework for creating the trauma narrative and concurrently teaching the child self-regulation tools. These tools, such as relaxation techniques, increase the child's sense of control over the disturbing emotions and physiological responses that come up when they talk (or express themselves in other ways, such as artwork, puppets or sand play). Through this kind of treatment, the child often finds a constructive way to respond to what happened to them.

A Neurons to Neighborhoods Model Treatment Program

The Neurons to Neighborhoods approach to child traumatic stress is adapted from the seminal report from the National Research Council/Institute of Medicine entitled *Neurons to Neighborhoods: The Science of Early Child Development* (Shonkoff & Phillips, 2000). Developed at Boston University, School of Medicine, this NCTSN program integrates our most recent understandings about “1) the dynamic relationship

between brain and environment, 2) the critical role of social context (and culture) for child development, 3) the primacy of relationships for the developing child, and 4) the ongoing dynamic interplay between sources of risk and sources of resilience across all levels of the social environment (i.e., individual, family, school, peer group, neighborhood, and culture)” (p. 169-170). Five phases of intervention are outlined in this model with the main goal of therapy being for the child to achieve emotional and behavioral regulation and stability. The clinician determines which of six possible intervention modules should be used at which particular time, depending on the needs of a given child/social environment. The six treatment modules are as follows:

- 1) Beyond Trauma – Engagement of the child, family, community in attempts to perform activities/rituals which will create lasting meaning out of the traumatic experience,
- 2) Preventative Education – Engagement of child, family, school, and community in anticipating “trouble-spots” for the child to minimize the risk of relapse,
- 3) Cognitive Reprocessing – Engagement of the child and family in communication about the traumatic event with attempt to add perspectives which challenge debilitating trauma-related cognitions,
- 4) Emotional Regulation – Engagement of the child and family in skill-based exercises to recognize, label, and control feelings,
- 5) Stabilization On-Site (SOS) – Community-based interventions designed to assess and remediate intractable problems in the child’s social environment (home, school, peer group, neighborhood, etc.) that perpetuate trauma-related symptoms, and
- 6) Psychopharmacology – Administration of psychoactive agents designed to help the child regulate emotion so that cognitive processing can occur.

Developing A Public System of Care of Child/Youth Victims of Trauma

The development of a responsive and effective trauma-informed public system of care for child and adolescent trauma victims must incorporate the following elements:

- awareness that trauma is a major contributing factor to mental health difficulties in childhood and adulthood and that trauma is an underlying cause of dysregulated emotions and behaviors in children and adolescents
- recognition of the symptoms of trauma when they are present
- availability of immediate trauma-specific treatment for victims of both acute and chronic trauma and their families

The development of a trauma-informed statewide, public system of care that offers trauma-specific, effective intervention for adult, child and adolescent victims of trauma should be a top priority for the Vermont Agency of Human Services. The development of this system of care will require an investment in the following:

- Increasing awareness on the part of the general public, legislators and fiscal gatekeepers of the urgent need for trauma-specific mental health treatment for victims of trauma in Vermont, especially young children whose neurophysiology and brain development may be undermined by early traumatic experiences.
- Training of providers in childcare, education, health care, child protection, juvenile justice, domestic and sexual violence and mental health agencies (including substance abuse clinicians) on how to recognize and understand the effects of trauma on children, youth and families and how to connect trauma victims to effective treatment.
- Training of Vermont's public mental health professionals statewide to insure that all are trauma-informed and competent in using agreed-upon trauma-specific assessment and treatment approaches to identify and treat child/youth trauma victims.
- Making treatment of Vermont's most vulnerable children/youth a priority (young victims whose brain development may be altered by trauma, victims of physical/sexual abuse or witnesses to violence at home or in the community).
- The maintenance of this cadre of trained mental health professionals through ongoing and continued training and supervision.
- The development of a data base (or the enhancement and integration of existing data bases) that would make it possible to identify child and adolescent trauma victims, record the use of trauma-specific treatment methods and measure the effectiveness of treatment.
- The development of a feed forward/feed back loop that would enable Agency of Human Services programs to examine and analyze demographic data as well as assessment and treatment data to improve treatment outcomes for trauma victims in Vermont.
- Filling the Trauma Coordinator position within the Agency of Human Services.
- Making it a priority to seek federal NCTSN or other funding to develop/enhance a statewide system of care for child/youth trauma victims in Vermont.

The Need for Ongoing Training and Supervision

Early childhood caregivers and educators, mental health professionals and health providers need a comprehensive trauma-focused perspective that integrates their knowledge, clinical thinking and interventions. Not only is training needed on evidence-based treatment approaches and proven practices with children and youth who have been traumatized but ongoing support and follow-up is critical to the full implementation of any training/treatment model. Research has shown that a brief one- or two-day training for clinicians is not enough to ensure their use of a new treatment approach. If the system of care as a whole does not support their new perception, knowledge and use of trauma-informed and trauma-specific intake, assessment, and intervention, and if ongoing support and supervision are not available, clinicians will either not use an unfamiliar approach at all or quickly revert to old practices.

Findings from Recent Surveys and Training Needs Assessments in Vermont

Two recent surveys/training needs assessments conducted in Vermont related specifically to the mental health needs of children/youth exposed to domestic violence (i.e., the Survey of Community Mental Health Center Children's Directors [February, 2005] and the Vermont Network Against Domestic Violence Survey of Child/Youth Advocates [July, 2004]), provide information on screening of trauma, provision of treatment for trauma victims, especially children and youth exposed to domestic violence, and barriers and gaps in services and training needs.

Two additional recent surveys of trainings needs in Vermont, one conducted by the Child Welfare Interagency Training Committee (CWITC Training Needs Survey, Fall, 2004) and another conducted by the CUPS Training Team (2004) identified training related to trauma as a training priority for mental health providers in Vermont.

Eleven CMHC directors completed the Survey of CMHC Children's Directors (February, 2005) and reported that their CMHC programs routinely screen for the presence of psychological trauma history in children/youth referred for services. However, the validity of these responses might have been stronger if the term *screen* had been clearly defined. An examination of the actual CMHC forms used statewide and required at intake do not direct the intake interviewer to seek information about trauma or explore the possibility of various trauma-related symptoms or to view presenting problems as a reflection of trauma. The Intake form, a Narrative Diagnosis and Evaluation form and a Treatment Planning form are all required forms for Medicaid reimbursement, but only data from the Intake form is entered into the statewide data base. The category closest to 'trauma' on the Intake form is 'abuse/assault/rape victim' but this category is not uniformly checked off for children or adults who have experienced psychological trauma and is therefore not a particularly valid indication of whether or not trauma is part of the diagnostic picture.

Use of Specific Screening Tool or Instrument

Only two CMHC centers reported using a specific tool or instrument to screen for trauma in children/youth; specifically identified were 1) a developmental and family assessment/family matrix chart, and 2) the Child & Adolescent Functional Assessment Scale (CAFAS) and the Achenbach Child Behavior Checklist in addition to the center's own initial assessment package.

The Achenbach Child Behavior Checklist (CBC) is a well-known and well-researched instrument designed to gather information about children's behaviors and competencies. There are two versions of the instrument, one for children ages 1½-5 years, the other for children ages 6-18. The instrument can be filled out by parents, teachers or staff, and there is a self-report form for use by children 6-18. The Achenbach CBC can be used to measure changes in behavior over time or in response to treatment. This checklist measures aggression, hyperactivity, bullying, conduct problems, defiance and violence.

The CAFAS is designed to measure aggression and conduct problems with subtests that measure school, home, community (delinquent-like behavior), behavior toward others, mood/emotions, self-harmful behavior, substance use, thinking problems, material needs and family/social support.

Neither the Achenbach nor the CAFAS is a screening instrument for trauma per se, although both instruments call for the observation and rating of a child/youth's behaviors and competencies that may have been affected by traumatic experiences.

The use of a specific screening tool within all the community mental health centers would provide a more accurate count of the numbers of children/youth affected by trauma. In addition, the use of a specific tool statewide would provide information about how children and youth have been affected by traumatic experiences and point more directly toward the specific interventions that would increase safety, alleviate trauma symptoms and promote emotional regulation and improvements in functioning across home, childcare, school and community domains.

Specialized Training Needs

The CMHC Children's Directors Survey conducted in February, 2004 focused on training needs related to domestic violence. Most Community Mental Health Center children's directors indicated the need for additional training for CMHC staff related to understanding the social and interpersonal context of domestic violence, screening for domestic violence in children/youth, assessing the effects of domestic violence on children/youth, ensuring the safety of children and battered women during screening, assessment and treatment, understanding the effects of domestic violence on parent functioning (batterer and victim), and accessing local and statewide domestic violence resources. In addition, most CMHC children's directors indicated the need for additional training related to the treatment of children/youth affected by domestic violence

including effective intervention approaches for infants/young children, school-aged children and youth as well as training on complex treatment issues such as intergenerational trauma, substance abuse, child abuse, mental health and developmental disabilities.

Summary and Recommendations

Trauma in infancy and early childhood alters brain development. Children whose parent(s) have unresolved trauma are at extreme risk for traumatization through the transmission of insecure and often chaotic/disorganized attachment relationships. Children exposed to physical/emotional or sexual abuse, separations and losses of caregivers, exposure to adult drug/alcohol addiction or domestic violence are at greatest risk of trauma. Within this vulnerable group, children with developmental difficulties due to genetic, environmental or relationship-based trauma are doubly at risk.

Unresolved childhood trauma affects every aspect of development and contributes to behavioral, social, emotional, cognitive and health difficulties. Untreated and unresolved trauma contributes to mental health difficulties in adolescence – which in turn is related to victimization and perpetration of violence among youth. If not too severe and if adequate protective factors are present, most individuals recover fully from a single incident of trauma. However, many children lack the protection of a secure attachment relationship or adequate parental protection, nurturing and appropriate stimulation of brain development, and when exposed to trauma (sometimes repeated, even chronic exposure), they do not recover. The dysregulation of trauma may alter neurochemistry of the central nervous system, which in turn can alter the structural and functional development and integration of the brain, including sensory processing, focusing and regulation of activity, arousal and emotion.

To combat these effects a multilayered, coordinated and holistic approach is needed. The debilitating effects of trauma and the overall costs to society constitute a true, serious public health emergency, warranting immediate action on many levels:

- 1) improving data collection methods to facilitate the collection of uniform data within and across agencies, at the very least altering existing data bases so that data can be aggregated to provide better identification of trauma victims and better recording and specification of treatment approaches utilized and outcomes achieved. At present, separate management information systems are used in different branches of the Agency of Human Services (e.g., the Division of Mental Health, the Division of Family Services, the Department of Health, etc.) as well as the Department of Education. At this point, it is impossible to ascertain the number of Vermont children, youth or families whose health, including mental health, and ability to function productively in society is affected by trauma. Nor do we know what services these individuals receive, if any, or if the immediate or long-term effects of trauma are reduced, alleviated or exacerbated by existing systems of care and/or by other causal or mediating factors in their lives.

- 2) developing and strengthening relationships and partnerships between and among various providers who come in contact with children/youth who have experienced trauma and their families.
- 3) increased identification and treatment of traumatized children and youth *where they are*, in the child protection and juvenile justice systems, in schools, in emergency rooms, pediatrician's offices, community mental health centers and residential treatment programs.
- 4) screening and identification of children affected by trauma. Efforts are underway in Vermont to comply with Federal Child Abuse Prevention and Treatment Act (CAPTA) requirements that all children under age 3 substantiated by the state child protection agency for abuse or neglect must be screened for developmental difficulties.
- 5) full investment in the creation and maintenance of a community mental health system in Vermont that can provide immediate access to effective trauma-specific services to all children and youth who are victims of trauma and their families.
- 6) reducing or eliminating gaps in services so that trauma victims are identified and treated early.
- 7) incorporating a holistic and developmental, body-mind-spirit approach to the treatment of trauma in children/youth and their families.
- 8) using innovative strategies to reach children and families. For example, partnerships between police services and treatment programs have resulted in greater identification of trauma victims (children and youth who witness violence at home or in their communities) and increased referrals to trauma assistance programs.
- 6) making small changes, at no or low costs, to increase public and interagency awareness of the effects of trauma, assessing children and youth through a trauma lens, increasing interagency communication, collaboration and partnership to increase safety for children and youth and to provide them with immediate and effective intervention when traumatic events have occurred.
- 7) mobilizing efforts in Vermont to procure NCTSN or other forms of federal or private funding to develop a full range of trauma-informed and trauma-specific services for Vermont children, youth and families.
- 8) investing in prevention and early intervention programs – these programs reduce the costs of trauma not only in terms of the quality of individual lives but in community safety, productivity and well-being.
- 9) increasing public awareness of the epidemic nature of trauma and the enormous related costs to individuals, families and society as a whole.

10) developing and implementing training programs, including trauma-informed training for a broad range of health, education and human service professionals (health, education, child care, mental health, child protection and corrections) as well as trauma-specific training for mental health practitioners in public and private agencies.

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Websites

www.NCTSNet.org Web resource of The National Child Traumatic Stress Network (NCTSN)

www.sanctuaryweb.com Website of the Sanctuary Program, a whole system approach to healing trauma) developed by Sandra Bloom, MD in Philadelphia, PA

www.ChildTrauma.org	Website of Bruce Perry, MD, Ph.D. – articles, presentations, other resources
www.Childtrauma.com	The Child Trauma Institute provides training, consultation, information and resources – developed by Ricky Greenwald, Psy.D., EMDR therapist and trainer
www.aacap.org	American Academy of Child & Adolescent Psychiatry (AACAP)
www.cwla.org	Child Welfare League of America. AACAP and CWLA are working together on a special initiative to improve mental health and substance abuse services provided to children/youth in foster care.
http://gucdc.georgetown.edu	Georgetown University Center for Child and Human Development
http://gucdc.georgetown.edu/foster.html/	Georgetown University Center for Child and Human Development – special reports related to meeting the needs of children/youth
www.ncmhjj.com	National Center for Mental Health and Juvenile Justice
www.nccp.com	National Center for Children in Poverty (NCCP)
	Reports:
	#1 Building Services and Systems to Support the Healthy Emotional Development of Young Children
	#2 Improving the Odds for the Healthy Development of Young Children in Foster Care
	#3 Ready to Enter: What Research Tells Policymakers About Strategies to Promote Social and Emotional School Readiness Among Three- and Four-Year Old Children
http://www.zerotothree.org	Zero to Three: National Center for Infants, Toddlers and Families, a non-profit organization whose mission is to promote the healthy development of infants and toddlers by supporting and strengthening families, communities, and those who work on their behalf. Books, videos, journal related to early childhood development and mental health.

- <http://www.trauma-pages.com/> David Baldwin's Trauma Information Pages, a website that provides information for clinicians and researchers in the traumatic-stress field.
- <http://www.futureofchildren.org> The Future of Children is a publication of the Woodrow Wilson School of Public & International Affairs at Princeton University and the Brookings Institute
- <http://www.sidran.org> Website of the Sidran Foundation Press, a nonprofit organization devoted to education and advocacy regarding traumatic stress, and the Sidran Press and Resource Center.
- <http://www.tlcinst.org> The National Institute for Trauma and Loss in Children.
- <http://www.ncptsd.org> National Center for PTSD, Department of Veteran's Affairs, has section on trauma and children.
- http://www.practicenotes.org/vol10_no3.htm The June issue of "Children's Services Practice Notes" explores ways child welfare practitioners can recognize PTSD and respond in an appropriate, timely way when they encounter it. Practice Notes is sponsored by the N.C. Division of Social Services and produced by the Family and Children's Resource Program, part of the Jordan Institute for Families at the UNC-Chapel Hill School of Social Work.
- <http://www.trainingmatters-nc.org> The newsletter "Training Matters" at this website offers resources for child welfare agencies wishing to learn more about trauma and PTSD. Training Matters is sponsored by the N.C. Division of Social Services and produced by the Family and Children's Resource Program, part of the Jordan Institute for Families at the UNC-Chapel Hill School of Social Work.