Trauma, Meth and The Brain

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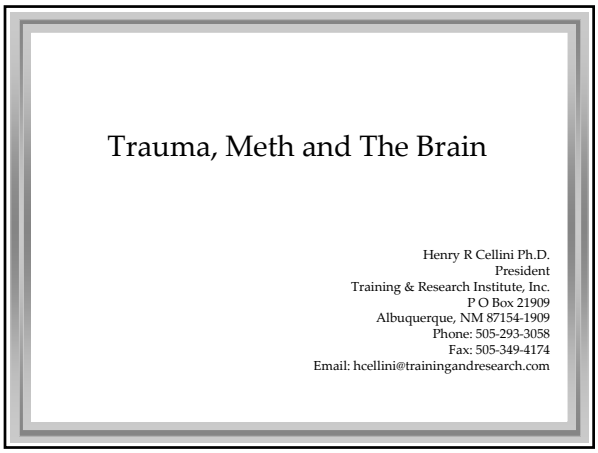

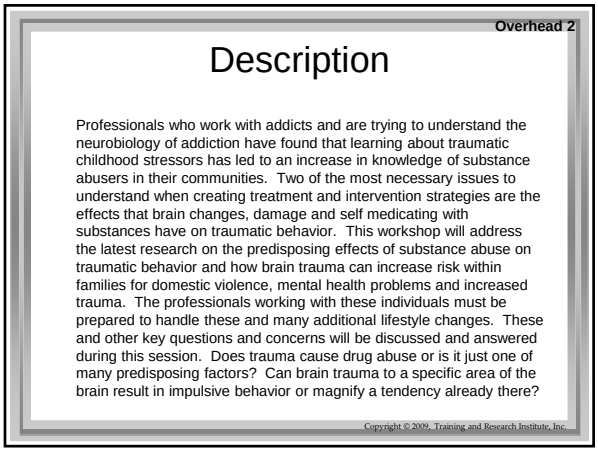

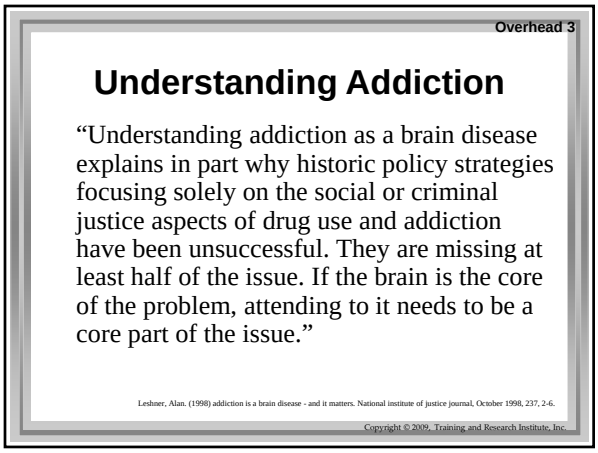

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Trauma, Meth and The Brain

Overhead 4

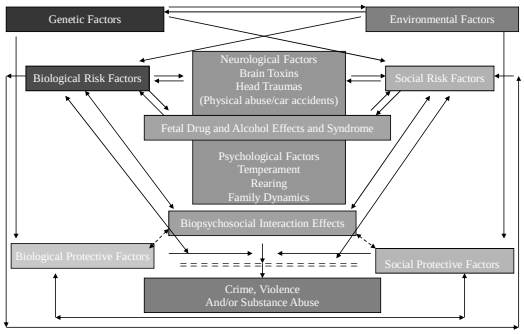
Understanding Addiction

"If we understand addiction as a prototypical psychobiological illness, with critical biological, behavioral, and social context components, our treatment strategies must include biological, behavioral, and social context elements. Not only must the underlying brain disease be treated, but the behavioral and social cue components must also be addressed, just as they are with many other brain diseases, including stroke, schizophrenia, and Alzheimer's disease."

Leshner, Alan. (1998) Addiction is a brain disease - and it matters. National Institute of Justice Journal, October 1998, 237, 2-6.

Overhead 5

Biopsychosocial Factors of Crime, Violence and Substance Abuse



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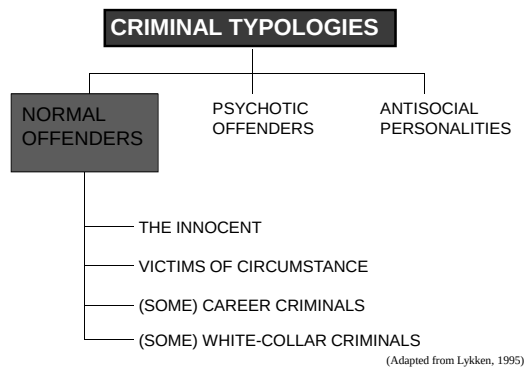

(Adapted from Lykken, 1995)

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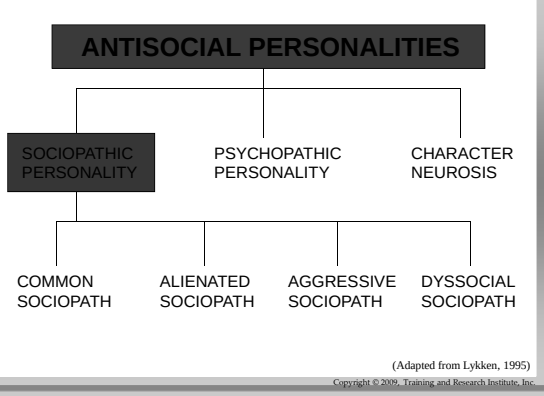
Overhead 7



(Adapted from Lykken, 1995)

Overhead 8

Thirteen Principles of Drug Abuse Treatment for Criminal Justice Populations

1) Drug Addiction is a brain disease that affects behavior
2) Recovery from drug addiction requires effective treatment, followed by management of the problem over time
3) Treatment must last long enough to produce stable behavioral changes
4) Assessment is the first step in treatment
5) Tailoring services to fit the needs of the individual is an important part of effective drug abuse treatment for criminal justice populations
6) Drug use during treatment should be carefully monitored

Overhead 9

Thirteen Principles of Drug Abuse Treatment for Criminal Justice Populations

7) Treatment should target factors that are associated with criminal behavior
8) Criminal justice supervision should incorporate treatment planning for drug abusing offenders with treatment providers aware of correctional supervision requirements
9) Continuity of care is essential for drug abusers re-entering the community
10) A balance of rewards and sanctions encourages prosocial behavior and treatment participation
11) Offenders with co-occurring drug abuse and mental health problems often require an integrated treatment approach
12) Medications are an important part of treatment for many drug abusing offenders
13) Treatment planning for drug abusing offenders who are living in or re-entering the community should include strategies to prevent and treat serious, chronic medical conditions, such as HIV/AIDS, hepatitis B and C and tuberculosis.

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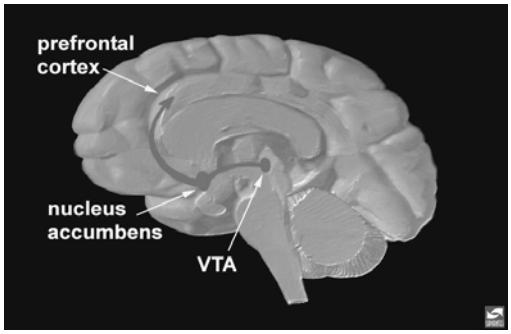
Trauma, Meth and The Brain

Overhead 10

The reward pathway



Overhead 11

New Trauma Based Neurological Findings

Neurologically the effects of trauma seem to be due at least in part to an increase in adrenaline levels experienced by many victims of trauma. The resulting over excitation of the limbic system during childhood development can result in abnormal growth patterns certain structures of the brain.

Whitten, L. (2007). *Uneven Regional Brain Development Contributes to Adolescent Risk-Taking.* NIDA Notes. Vol. 21, No. 3

Overhead 12

New Trauma Based Neurological Findings

From extreme sports to substance abuse and sexual offending, adolescents often act with little obvious regard for the consequences. Researchers have linked this impulsiveness and risk-taking to immaturity of the brain region called the prefrontal or the orbitofrontal cortex (OFC). This region helps us control impulses to seek gratification whenever they are out of line with our overall basic goal of survival. National Institute of Drug Abuse (NIDA) funded research suggests that, as well as having an underdeveloped restraint system, the adolescent brain produces more intense impulses than the brain of a child or an adults.

Whitten, L. (2007). *Uneven Regional Brain Development Contributes to Adolescent Risk-Taking.* NIDA Notes. Vol. 21, No. 3

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Trauma, Meth and The Brain

Overhead 13

New Trauma Based Neurological Findings

"Children and adolescents both have an immature prefrontal area, but only adolescents make risky decisions," says Dr. Galvan. "We speculated that the adolescent brain must be unique in some way that promotes risk-taking."

Whitten, L. (2007). *Uneven Regional Brain Development Contributes to Adolescent Risk-Taking.* NIDA Notes. Vol. 21, No. 3

Overhead 14

New Trauma Based Neurological Findings

The researchers hypothesized that the nucleus accumbens (NAC) might play a complementary role to the OFC's in adolescent risk-taking. The NAC—whose roles include alerting and motivating us when we have a chance to gain something desirable—generates the very impulses to act that the OFC moderates for safety and longer-term goals.

Whitten, L. (2007). *Uneven Regional Brain Development Contributes to Adolescent Risk-Taking.* NIDA Notes. Vol. 21, No. 3

Overhead 15

New Trauma Based Neurological Findings

As a result, if the NAC activity were highly sensitized at the same time the OFC response was weak, the drive to act could more markedly overbalance the inclination to caution—and youths would take more chances. Drs. Casey and Galvan's experiment confirmed their hypothesis, and produced insights into the interplay between the NAC and OFC during reward learning.

Whitten, L. (2007). *Uneven Regional Brain Development Contributes to Adolescent Risk-Taking.* NIDA Notes. Vol. 21, No. 3

Presentation Guide:
Trauma, Meth and The Brain

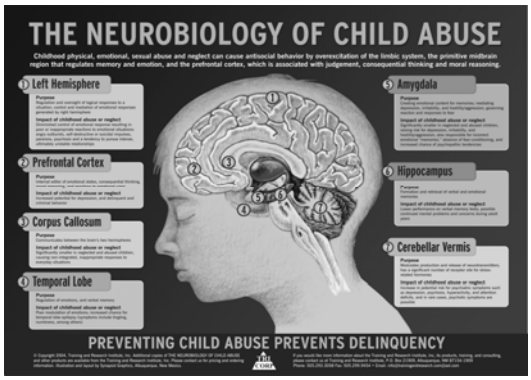
Overhead 16

New Trauma Based Neurological Findings

Consistent with the researchers' hypothesis, the adolescent study participants displayed twice as much NAC activity when they saw the large payoff, compared with the adults and children. "Our findings suggest that a normally developing adolescent's NAC and associated subcortical brain circuits dopaminerich areas that generate emotion, motivation, and reward—mature earlier than the prefrontal brain region," Dr. Galvan explains. As a result, until OFC development catches up in a person's early twenties, NAC -generated motivational drive overbalances OFC -instituted caution and forethought.

Whitten, L. (2007). *Uneven Regional Brain Development Contributes to Adolescent Risk-Taking.* NIDA Notes. Vol. 21, No. 3

Overhead 20



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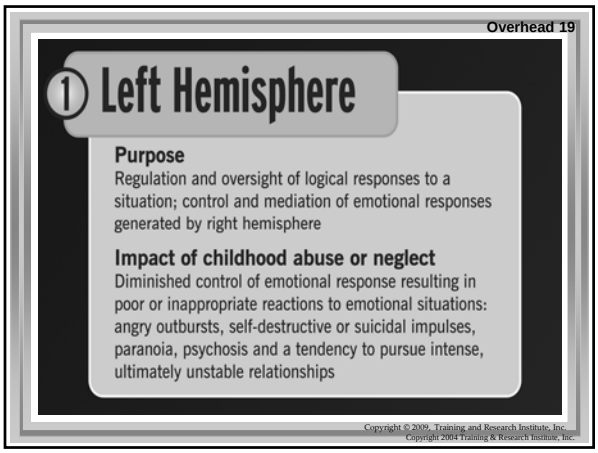
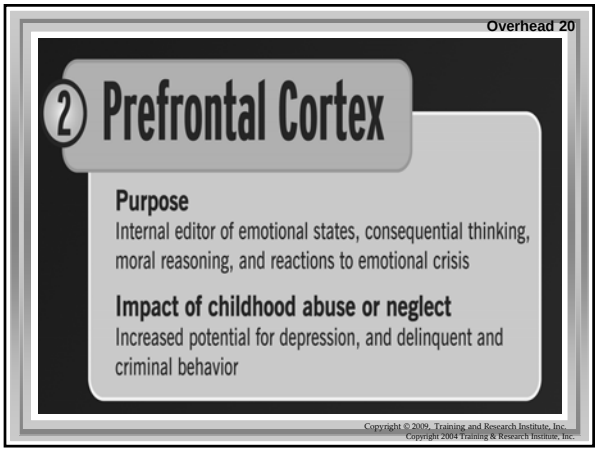
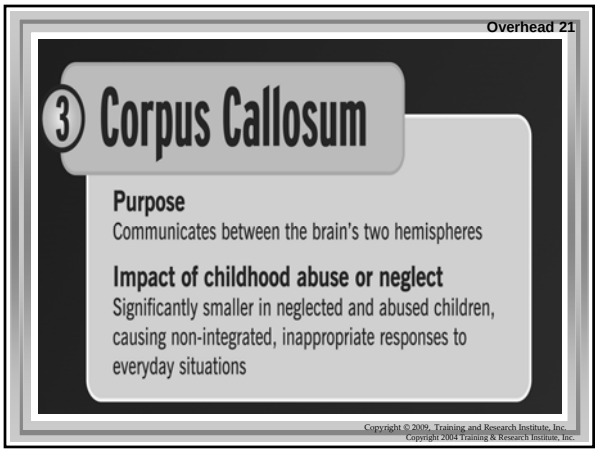
Trauma, Meth and The Brain







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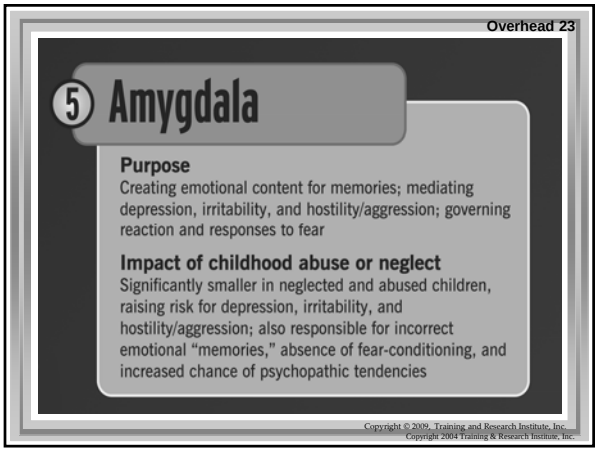
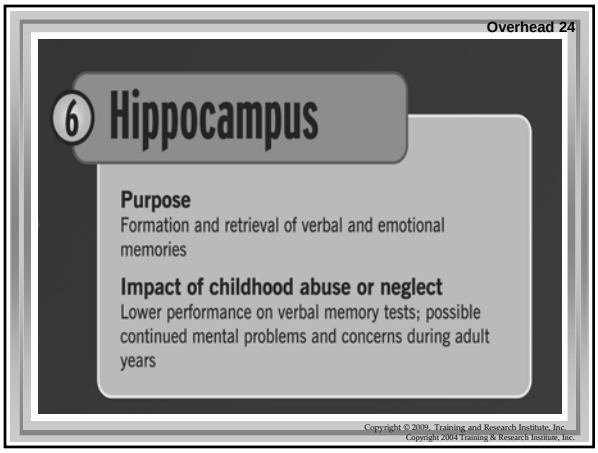
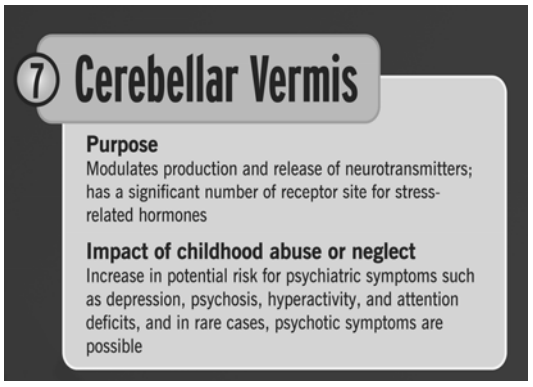
Trauma, Meth and The Brain





Presentation Guide:
Trauma, Meth and The Brain

Overhead 25



Overhead 26

Neuroanatomy – Region, Name, Function

Region	Latin/Greek	Function/Location
Cortex	Bark	Gray matter on brain surface
Neocortex	New bark	Newer (more highly evolved cortical areas)
Paleocortex	Old bark	Older, more primitive cortical areas
Subcortical	Below the bark	Any gray matter region below the cortex
Corpus callosum	Firm body	Axon tracts connecting the two hemispheres

Overhead 27

Neuroanatomy – Region, Name, Function

Hippocampus	Seahorse	Memory
Amygdala	Almond	Emotional memory
Limbic system	Border system	Appetites, emotions, and memory
Caudate	Tail	Motor/emotional modulation
Putamen	Stone	Motor/emotional modulation
Globus pallidus	Pale globe	Motor/emotional modulation

Overhead 28

Neuroanatomy – Region, Name, Function

Nucleus accumbens	Nucleus lying beside	Emotional modulation
Basal ganglia	Lower nerve knots	Combination of the caudate, putamen, globus pallidus, and nucleus accumbens
Lentiform nucleus	Lenslike nucleus	Combination of putamen and globus pallidus
Thalamus	Marriage bed	Filter or central switchboard
Hypothalamus	Under the bed	Modulation of appetites and drives
Diencephalon	Between brain	Combination of the thalamus and hypothalamus

Overhead 29

Neuroanatomy – Region, Name, Function

Cerebellum	Little brain	Coordination of movement, thinking, and emotion
Tentorium	Tent	Separation of cerebellum and cereberum
Substantia nigra	Black substance	High concentration of dopamine cells
Locus ceruleus	Skyblue place	Center for norepinephrine cells

Overhead 30

Resources

- The NIDA Neurobiology of Addiction slides can be found at: http://www.drugabuse.gov/pubs/teaching/Teaching2/Teaching.html
- The SAMHSA models programs can be found at: www.modelprograms.samhsa.gov

Child Abuse, Neglect, and Delinquency: The Neurological Link

BY HENRY R. CELLINI

ABSTRACT

Recent research has demonstrated a clear connection between physical, emotional, and sexual abuse and neglect during childhood, and negative changes in a child's neurological development. Abnormal growth and developmental patterns in a child's brain as a result of abuse and neglect can lead to life-long problems with self-control, memory, emotion, judgment, consequential thinking, and moral reasoning, resulting in an increased likelihood of substance abuse, juvenile delinquency, and adult criminal behaviors. This article provides information on the abused child, neurological implications, and recommendations.

Recent advances in our ability to measure normal and abnormal neurological development with brain scanning technology have shown us that physical, emotional, and sexual abuse and neglect during childhood has effects on a child's neurological development that can lead to substance abuse and juvenile delinquency (Cellini, 2004b). Professionals who work with juveniles with a history of childhood abuse and neglect have known for years that these youths are difficult to manage and resistant to behavioral change. Common sense tells us that the time to intervene is sooner rather than later, and research concurs: The longer an abused or neglected child goes without help, the greater the eventual burden on our judicial, medical, educational, and welfare systems.

On a neurological level, the effects of trauma seem due to the increase in adrenaline levels experienced by many trauma victims: The resulting over-excitation of the limbic system (which governs appetite, emotions, and memory) during childhood development can result in abnormal growth patterns in the brain (Cellini, 2004c). The psychological pain and social upheavals related to abuse and neglect within families are also devastating (National Clearinghouse on Child Abuse and Neglect Information [NCCANI], 2001).

These abnormal growth and developmental patterns in the brain, especially in the limbic system and the prefrontal cortex, can in turn lead to problems with self-control, memory, emotion, judgment, consequential thinking, and moral reasoning—all necessary components of mature, adult thinking. Without these components functioning properly, victims of childhood abuse and neglect can spend their adult lives as burdens on their families and society.

Incidence and Prevalence Data: Methodological Issues and Caveats

Children are not only victims of crimes that victimize adults, but also victims of crimes specific to childhood: child abuse and neglect. Data released by the United States Department of Health and Human Services' Administration for Children and Families state that an estimated 903,000 children nationwide—approximately 12.4 out of every 1,000 children—were abuse or neglect victims in 2001, a number comparable to 2000. These 903,000 were the cases substantiated out of 2,672,000 reports of possible maltreatment. Of these substantiated cases, most of which involved neglect,

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approximately 1,300 children died. The rate of child abuse and neglect in 2001 was about 19% lower than 1993, when maltreatment peaked at an estimated 15.3 out of every 1,000 children (Neff, 2003; Freeman-Longo & Blanchard, 1998).

Child abuse is often regarded as a child welfare problem, but it is also a crime. Unfortunately, the "child welfare problem" mindset results in a significant lack of law enforcement data that researchers can analyze and utilize for program design and modification. Policy makers need a clearer understanding of the law enforcement aspects of child abuse to better comprehend the harm child abuse inflicts on children. Responding to this need, the Office of Juvenile Justice and Delinquency Prevention has begun reviewing data from the National Incident-Based Reporting System, which collects detailed data about crime and its victims, to help fill this gap (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2001).

Role of Law Enforcement and the Courts

Child abuse is brought to the attention of law enforcement agencies and the courts in several ways: by victims and their families, by community members, by professionals such as teachers and doctors, and by child welfare agencies and other authority groups. Designated professionals in all states are mandated to report suspicions of child abuse, and in some states, other persons are similarly mandated. Many states have statutes requiring that child welfare agencies pass on all child maltreatment reports to the police, and several states mandate the police as primarily responsible for these reports.

As with reporting, the investigation duties are split as well: Some states have joint investigations involving both police and child welfare agencies; in others, the responsibility is solely that of the police. Child welfare investigations on the whole substantiate about one-third of all maltreatment reports. Law enforcement is becoming increasingly involved in child abuse and neglect cases, but their role continues to vary from one jurisdiction to the next.

The National Incident-Based Reporting System can be used to describe police experience with child abuse. The May 2001 OJJDP Bulletin introducing the system analyzes the 1997 data from 12 states and compares it to child welfare data from the same time and areas, resulting in the following discoveries:

- One-fifth of violent crimes against juveniles (ages 0-17) reported to police are committed by parents and other caretakers; these make up 4% of the violent crimes against persons of all ages.
- Seventy-three percent of caretaker crimes are physical; 23% are sexual.
- Of the crimes against children age 2 or younger reported to the police, more than half are child abuse.
- Seventy-five percent of child abuse incidents reported to the police are perpetrated by men: Men are responsible for 98% of sexual assaults and 68% of physical assaults.
- Thirteen percent of child abuse incidents reported to the police that involve parents are associated with domestic abuse (assaults) against a spouse or former spouse.
- Evidence indicates that the police data cover only a fraction of the physical and sexual child abuse cases investigated and substantiated by child welfare agencies, despite statutes in certain states requiring that the allegations be reported to the police. Interpretation of this research suggests that there are far more victims than previously thought (OJJDP, 2001).

When more states support this set of reporting requirements, our knowledge highlighting the incidence, prevalence, and ultimate cost to society associated with this child abuse will grow exponentially.

Harm and Endangerment Standards

One major concern that must be considered when attempting to calculate the true extent to which victims of child abuse and neglect have been harmed and endangered is the different definitions that have been applied when conducting this type of research and identifying victims. A national incident study conducted by the Department of Health and Human Services (Sedlak & Broadhurst, 1996) shows that many of the older studies from 1980-1986 used a more restrictive term called the "harm standard" in identifying abused children. This definition refers to children who the researchers con-

TYPE OF ABUSE	INCREASE UNDER HARM STANDARD	INCREASE UNDER ENDANGERMENT STANDARD
Physical Abuse	42%	97%
Physical Neglect	102%	163%
Sexual Abuse	83%	125%
Emotional Neglect	333%	188%

(Sedlak & Broadhurst, 1996)

sidered to be maltreated at such a level that they had already experienced some measurable harm from the abuse or neglect. The harm related to the abuse or neglect may include development of major psychological and psychiatric problems, physical damage due to the abuse itself, or direct impact on the family's stability and functioning. By 1993, a second definition—the endangerment standard—was being employed, and was later used in the 1996 study to compensate for the stringent definition used in the harm standard (Travis, 1997).

When researchers restricted their identification criteria to children who experienced abuse and neglect that put them at risk of harm throughout their lives (the harm standard), more than 1.5 million children were estimated to have been abused or neglected in the United States in 1993. But when the researchers applied the endangerment standard, which looked at quality of life issues and the impact of long-term consequences of physical and sexual abuse and physical neglect on children, the estimate rose to nearly 3 million abused and neglected children in the United States. There were significant increases across all categories of abuse except emotional neglect. The estimated percentages identified under the two standards are as shown in the table above.

Frequently, emotional abuse, or neglect as it is sometimes labeled, is not pursued through either civil or criminal legal proceedings, due to the difficulty in proving the allegations (Libby, Sills, Thurston, & Orton, 2003).

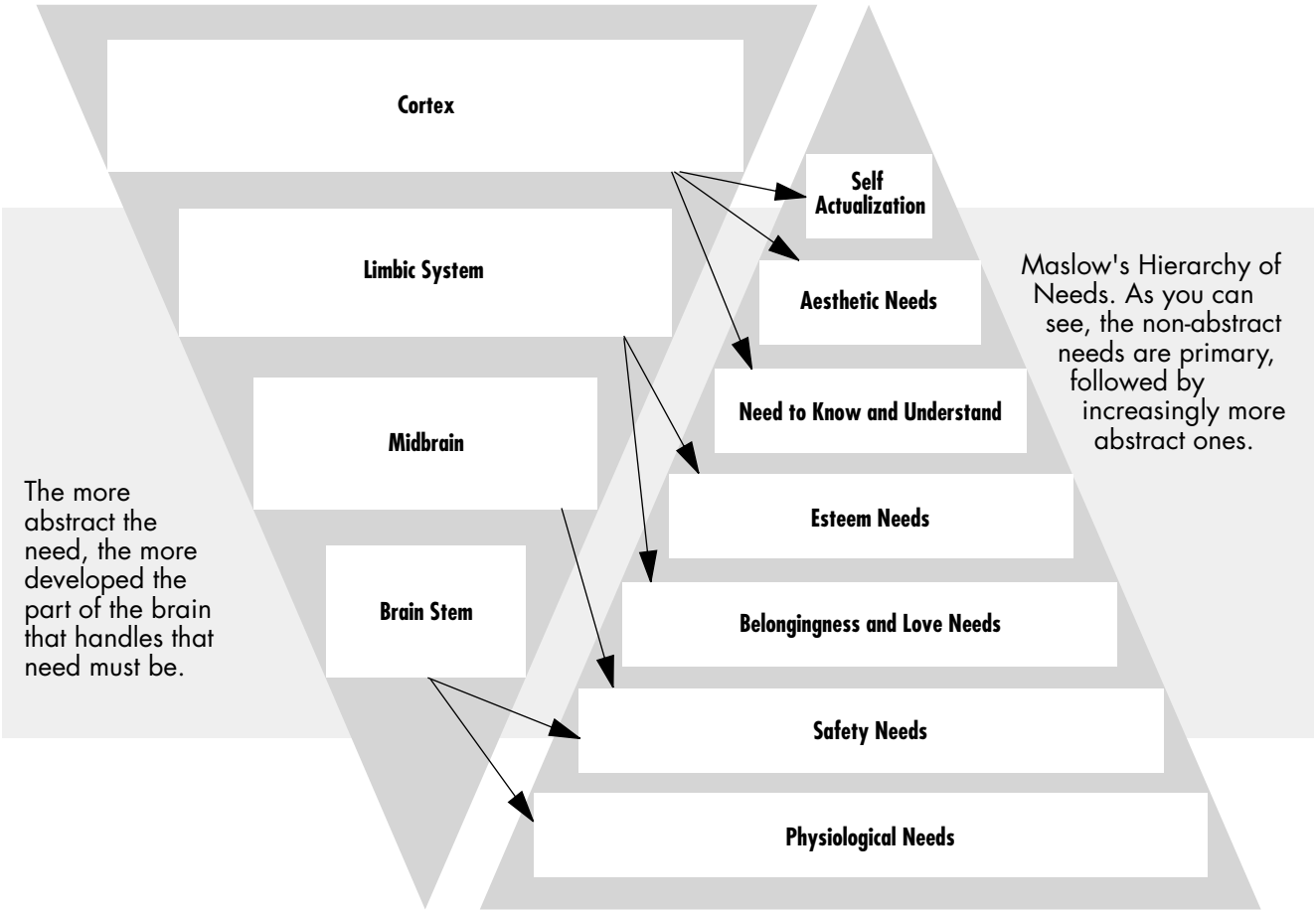
Neurobiology of Child Abuse

In the past 25 years, the fields of neurology, biology, and genetics have made significant advances in enhancing our understanding of the brain, gene, environment, and behavior relationship. The advent of more common use of various brain scanning technologies in the past five years coupled with sophisticated computer modeling capabilities have produced major advances in our understanding of the links between the brain and violence, substance abuse, and child abuse. Years ago, it was assumed that the effects of abuse on a young child would "vanish" with age; now we know that the neurological impact can be permanent. Genetics may predispose our personalities to develop in certain ways, but the environment has a significant impact on how predisposed character and personality traits are expressed (Teicher, 2002).

And when that environment is negative, the brain's development can be negatively impacted in varying ways ranging from increased suspiciousness to violence. This occurs as a natural biological reaction to early threats on a person's system. The brain's primary responsibility is survival and procreation, and threats or abuse directed against a child can result in that individual's overreaction to threatening situations in later years. What we call delinquent behavior in many cases may be the brain defending itself with tactics suited to unusual situations.

Abused and neglected children are at risk: Their brains can be locked into perceiving the world as a cold, dangerous, scary place, and they may have difficulty responding to the care and concern of others. If damage occurs, the child will focus on survival and meeting his or her own needs, while the physical, cognitive, social, and emotional capabilities for interacting pro-socially with the world, deprived of the developmental resources re-directed to survival, may not fully develop (Pimlott-Kubiak & Cortina, 2003).

FIGURE 1
Neurological, Physical, and Psychosocial Development



Adapted from Maslow (1970) and Perry (2000).

Figure 1, initially developed as an illustration for staff training, shows a possible interaction effect, or relationship, between neurological development (Perry, 2000) and Maslow's hierarchy of needs (Maslow, 1970). The arrows are supplied by the author to better delineate a possible relationship.

We know that stable, nurturing, knowledgeable, and supportive caregivers can have a significant impact on a child's development. We can use this knowledge to reduce the number of children who might otherwise require long treatment episodes as children or adults. By bringing together biological and psychological researchers through funding collaborative research projects that explore the effects of environment—deprived, sufficient, and enriched—on brain development, we can advance our commitment to provide children with the environments they need. By understanding more about how genetics contributes to neurological development, susceptibility to risk, and capacity for resilience, and how biology and the environment interact to affect behavior, we can improve our support of treatment providers and caregivers. And by using program-based research and evaluation to document, identify, and test effective versus ineffective interventions, we can strengthen our prevention and intervention strategies. All of this together will help us

provide children with the necessary skills for healthy, happy lives.

Forming the Neurological Structure

Our brains are made up of nerve cells called neurons—more than 100 billion of them. Infants are born with almost all these neurons, and though we believe that some neurons are developed after birth and well into adulthood, the baby at birth is equipped with the majority of what he or she will use through childhood, adolescence, and adulthood. Because almost all the neurons are present at birth, early trauma or alcohol and/or drug consumption by the mother can have a significant impact on the final formation of the brain: development of the cortex, the actual number of neurons available, and the development of the chemical message systems.

Even though the basic structure is in place at birth, much of the brain's actual growth and development takes place during the first few years of life as the neurons shift to form the various parts that will ultimately make up the mature adult brain. The first regions of the brain to fully develop are the brain stem and midbrain. These regions of the brain govern the bodily functions necessary for life, commonly referred to as the autonomic functions. After that, the regulatory systems (the limbic and cortex) that handle more abstract functions—emotion, cognition, memory—develop, along with the complex chemical and hormonal message systems that link all the systems together. All of this growth depends on stimulation that triggers related neural activities in the various systems.

Brain development, growth, and learning are all part of the development of the synapses that link neurons and regions together: Although almost all the neurons exist at birth, the only synapses found are the ones governing the autonomic functions—heart rate, breathing, eating, and sleeping. The other synapses develop after birth, approximately 1,000 trillion by age 3, more than we ever use, which allows unused ones to be discarded. As the learning process continues, strengthening the synapses that are used and discarding the ones that aren't, the number of synapses diminishes to about 500 trillion by adolescence. This synaptic development is particularly affected by our environment, and in part is why we are so flexible at adapting to environmental demands. But without stimulation and nurturance—if the child's caretakers are indifferent or hostile—the brain's development can be impaired (NCCANI, 2001).

Researchers have hypothesized that brain development and maturation is an on-going process, affected and directed by both internal and external developments that allow the maturing individual to best adapt to his or her environment. Recently released longitudinal research by Gogtay et al. demonstrates the accuracy of this model. By conducting anatomic MRI scans on a cohort of healthy children every two years for eight to ten years, Gogtay's team statistically extrapolated the brain's development between the scan dates and produced a time-lapse "movie" demonstrating how the brain was developing. As anticipated, the brain's development of gray matter—a complex architecture of glia, vasculature, and neurons with synaptic and dendritic processes—followed the functional maturation sequence: sensorimotor function first, and the rest of the cortex in a back-to-front pattern, beginning with the least complex functions and progressing to the most complex, handled by the temporal cortex, the last area to mature (Gogtay et al., 2004).

Gogtay et al.'s findings are important to the juvenile-oriented professions as a whole, particularly as they demonstrate that the seat of moral development and judgment is the pre-frontal cortex—one of the areas that matures later, during adolescence.

Sensitive Periods

Because the brain is so busy developing during the first three years—building its systems and synapses—this is a sensitive period for developing certain capabilities. Because the synaptic system starts being pruned after age three, learning is easier during the years when more synapses are available. And there are some forms of stimulation which, when neglected, with the concomitant loss of synaptic potential, can have a serious impact on a person's later potential. According to Perry, Pollard, Blakely, Baker, & Vigilante (1995), "experience literally provides the organizing framework for an infant and a child" (p. 272).

A child's organizing framework is based on memories. Indelible impressions of the world, memories are

FIGURE 2
Biopsychosocial Factors of Child Physical, Sexual, and Emotional Abuse and Neglect

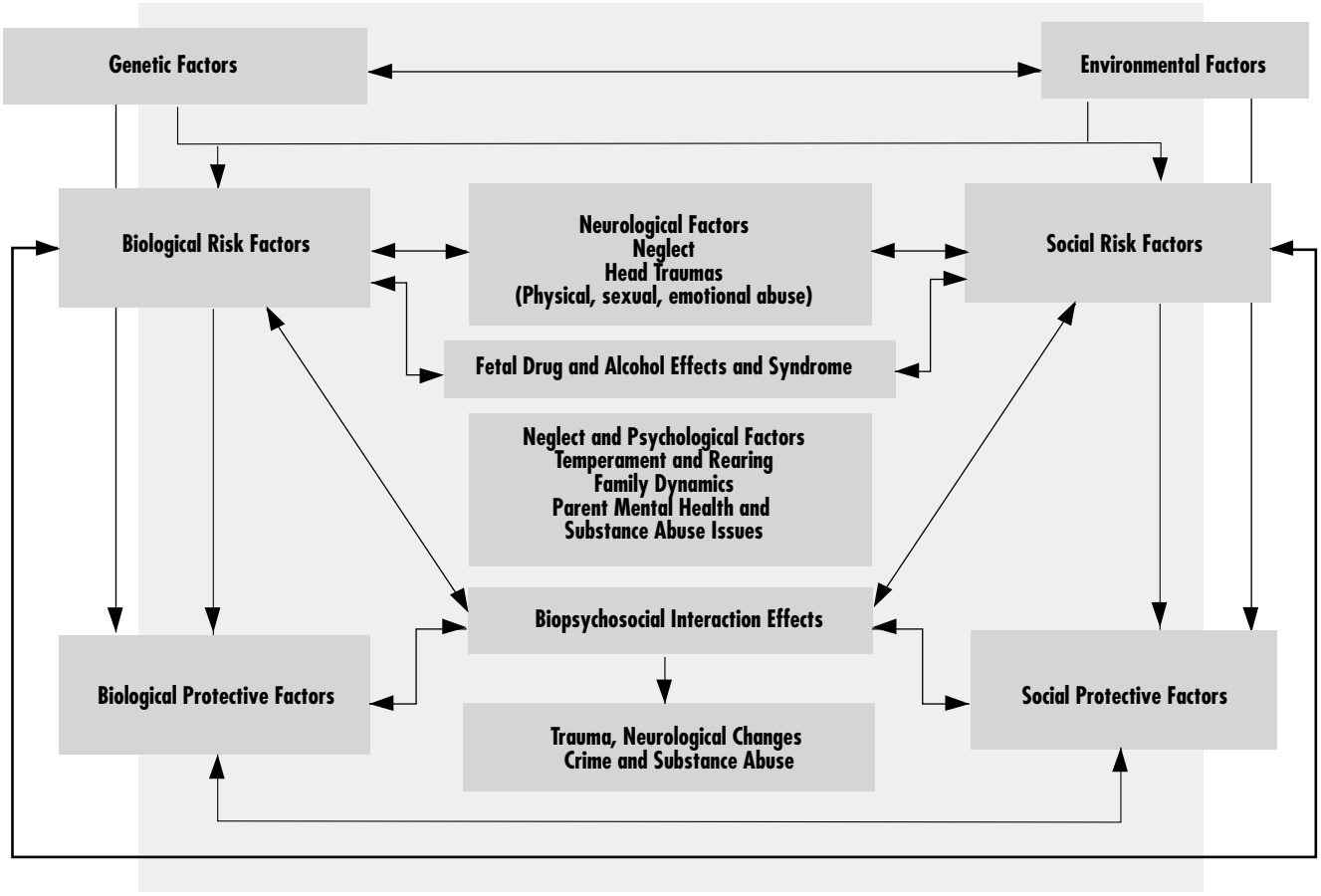


Chart adapted from Cellini (2002)

how the brain stores information for easy retrieval. The different kinds of memory, such as motor, cognitive, and emotional, help us navigate our world without having to think about it. Walking, speaking, and non-verbal interaction are all examples of memories that can operate without our active intervention (Donders & Woodward, 2003).

Effects of Maltreatment on Brain Development

As mentioned earlier, the brain's development is impacted by interaction with the environment and by stimulation. Consequently, children whose basic needs are met with abuse and neglect learn different lessons than children whose basic needs are met with appropriate nurture and care. The neural pathways strengthened in an abusive or neglectful environment are those that will prepare the child to cope in that negative environment, which necessarily curtails their ability to function in a positive environment. Brief periods of stress don't have a lasting negative impact (since the body's survival depends on how it responds to stress), but prolonged, severe, or unpredictable stress does, resulting in a negative impact on the brain as it focuses only on dealing with chronic stress. By sensitizing certain neural pathways and over-developing certain regions to respond effectively to fear and anxiety, the brain neglects other, equally necessary neural pathways and regions. This abnormal adaptive pattern can result in a child who cannot function in a kind, nurturing, enriched world: He or she simply doesn't have the memories or neural pathways to understand or adapt to it (NCCANI, 2001).

One specific impact of early maltreatment concerns

the body's production of the hormone cortisol. Maltreated infants have abnormal secretion levels of cortisol, an indication that their ability to deal with stress is impaired. Other impacts of disrupted cortisol production include hyperactivity, anxiety, impulsivity, and sleep problems: The brain is in a state of hyper-arousal, constantly on the alert for the cues that signal unpredictable, dangerous, and threatening events this individual believes are simply waiting to happen (NCCANI, 2001).

Figure 2 attempts to capture the complex interaction effects and outcomes of genetic predisposition and environmental factors coupled with childhood abuse and neglect. The key to understanding the chart is the "Biopsychosocial Interaction Effects" box. Each of us is different in some ways from other members of even our own family raised in the same homes and neighborhoods by the same parents. Even though several people are raised in a similar fashion, each person's behavioral manifestations of underlying neurological trauma and genetic predisposition may be very different. One child might develop and mature normally, while another may begin abusing drugs, and another become physically and sexually abusive of others as a result of the interaction.

Hindering early identification of childhood problems that can have long-term negative effects is the fact that, as Ann Doucette (2002) discusses, the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000) provides guidelines for the identification process but does not provide enough information about how symptoms of specific disorders can express themselves differently in children as compared to adults. In addition, current practice places insufficient emphasis on the environmental factors actively engaged in directing a child's development. Doucette recommends that environmental factors be more extensively used in diagnosis. The obvious goal of this approach is to improve diagnosis with the hope of ultimately providing more effective treatment for children and adolescents. Alternatively, the development of a new diagnostic system to address the different manifestations of symptoms in children, if done using rigorous qualitative techniques, could result in providing the foundation for the development of a better understanding of, and more accurate assessment and diagnostic tools for, the significant differences between not only age groups, but also gender and ethnic groups (Beutler & Malik, 2002; Doucette, 2002).

Persistent and Inappropriate Responses to Fear

Fear is necessary to our basic survival, and the brain is therefore uniquely designed to register, process, store, and react to threatening information by mobilizing the entire brain and body. Chronic stress and repeated traumas, however, can result in over-use of this instinctual survival response. Attention, impulse control, sleep, and fine motor control can all be impacted by chronic activation of the centers of the brain that deal with the fear response, such as the hippocampus. Trauma experienced early in life can also interfere with subcortical and limbic system development, leading to anxiety, depression, and reaction attachment disorders (National Clearinghouse on Child Abuse and Neglect Information [NCCANI], 2003; NCCANI, 2001).

Not only can hyper-aroused children react anxiously or aggressively to non-verbal cues that their memory says are threats, they may actually provoke threatening behavior from others so that they have some control over what happens next: A bully in middle school or high school fits this profile (Teicher, 2002).

Dissociation

Hyper-arousal is more common in older children, but dissociation is more common in younger children, who feel, or actually are, immobile or powerless. The "surrender" response is reached by a series of steps—first, trying to get help from caretakers; second, becoming motionless and compliant; finally, by dissociating entirely, failing to respond physically or cognitively to a situation in a normal manner (NCCANI, 2001, 2003).

Disrupted Attachment Process

Attachment—the emotional relationship we have with other people—is a critical component of the social structure, and the attachment an infant forms with his primary caregiver serves as the foundation for future emotional relationships and for learning: Children learn best when they feel safe, calm, protected, and nurtured. If disrupted, the child's brain, and consequently neural

FIGURE 3
The Multi-Generational Transmission of Child Abuse

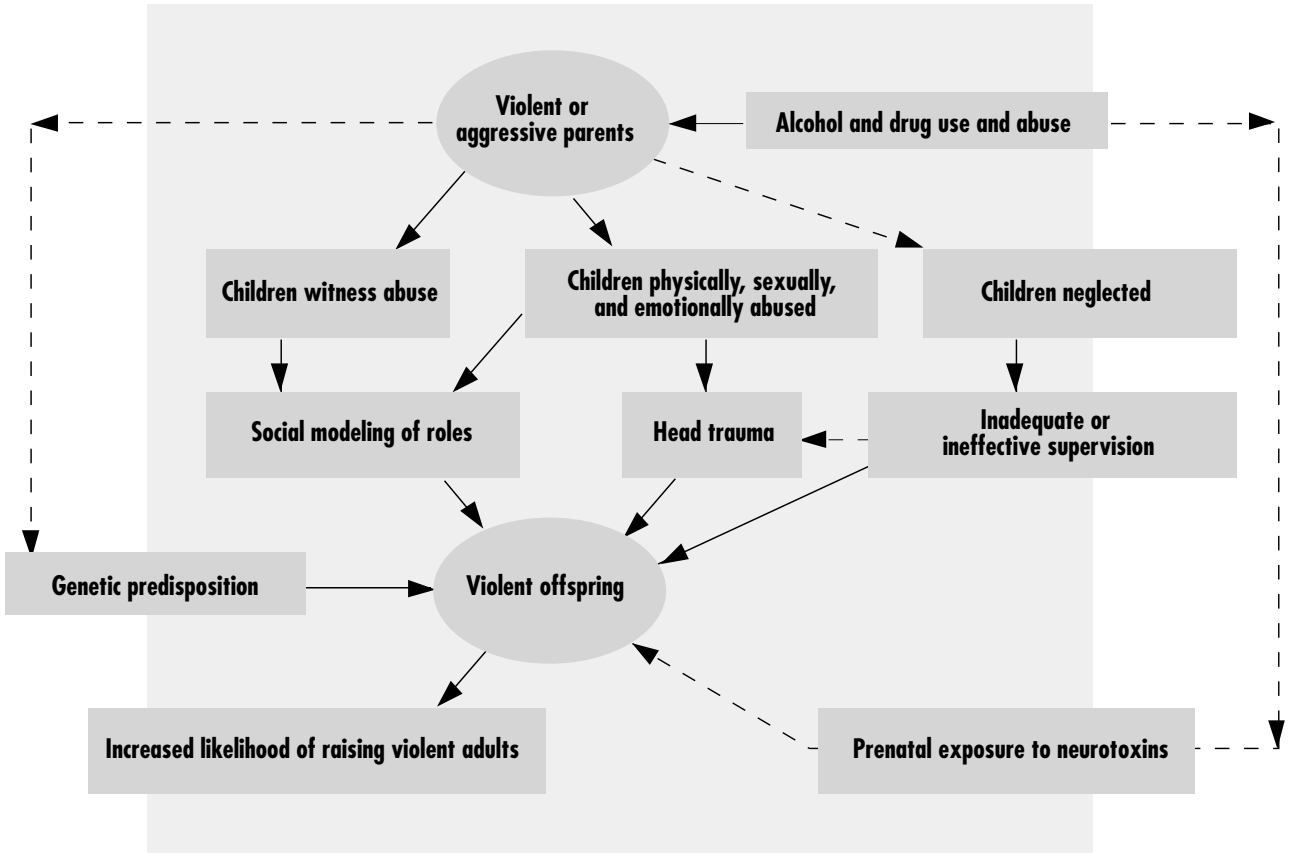


Chart adapted from Volavka (1995).

development, will focus more on immediate needs and day-to-day survival rather than on the abstracts of future growth.

Relationships are where much of the environment's effect on a person's predisposed genetic tendencies comes into play. A child genetically prone to aggression, submission, or frustration behaviors can, in a positive relationship with caregivers, learn to regulate and manage these emotions and behaviors. A negative caregiver relationship, however, means that the cognitive regulator structures don't get the stimulation they need to develop: All the development is taking place in the lower brain in an effort to keep the child safe. With poorly developed social cognition skills, strange or unfamiliar situations are stressful for the child and empathizing with others can be difficult, if not impossible.

The term "reactive attachment disorder" refers to the negative consequences—such as low self esteem, poor social relations, heightened vulnerability to stress, and a difficulty forming meaningful relationships—that stem from infancy and childhood problems bonding with parental or authority figures (American Psychiatric Association, 2000).

Emotional Abuse

Part of the problem of dealing with emotional abuse isn't necessarily its prevalence, but rather difficulty in defining the term, explaining how to recognize it, and proving it legally. When these issues are further complicated by questions of intervention and therapy, the result is delays in recognition and in protective intervention (Glaser, 2002). Unfortunately, all these problems combined with the prevalence of emotional abuse can overwhelm child protective services to the point where the cases that

can be easily recognized, defined, and prosecuted are the cases that get the time, attention, and money, rather than the more difficult cases of emotional abuse.

Defined broadly as a relationship between a caregiver and a child characterized by harmful interactions, emotional abuse does not require either physical contact or intent to harm the child to occur. Emotional abuse affects a child's developmental functioning at all levels and has been associated with problems in female adults such as anxiety, depression, posttraumatic stress, physical symptoms, and lifetime trauma exposure. The long-term behavioral consequences that can result from childhood emotional abuse include poor emotional and physical functioning, as well as heightened vulnerability to further trauma exposure (Glaser, 2002; Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003).

Because of the recognition and treatment problems concerning emotional abuse and the extensive impact of this form of abuse on an individual's life, a professional concerned about the possibility of emotional abuse in a child's life should act without delay. At the very least, an assessment of the situation should be conducted, ideally identifying the nature of the negative interactions and identifying interventions for use (Glaser, 2002).

Neglect: Lack of Stimulation

Neglect can be as much a failure to meet a child's emotional, cognitive, or social needs as it is a failure to meet a child's food, shelter, and safety needs. If the stimulation that helps guide and encourage the development of the areas of the brain that govern abstract concepts is absent, the synapses that would otherwise develop are pruned, resulting in children who may not achieve the usual developmental milestones. Without that stimulation, the memories that allow us to conduct day-to-day activities without a great deal of conscious thought may never form.

Global neglect occurs when a child has been deprived on more than one level: language, touch, social interaction, and so on. This extreme lack of stimulation can result in fewer neural pathways and depressed synaptic development, resulting in fewer resources available for learning: An otherwise normal child could be left at a permanent intellectual disadvantage. But time also plays a factor. Neglected children adopted into nurturing environments as infants show more recovery than children adopted as toddlers (NCCANI, 2001, 2003).

Clinical Issues and Strategies

The impact of abuse and neglect on a developing brain is long term. A child may initially seem normal, but as social interactions increase, deficiencies begin to emerge. The presence, severity, and frequency of the following clinical concerns is ultimately determined through an interaction of genetic predisposition, trauma, and appropriate and timely intervention:

- learning disabilities;
- limited capacity for empathy and remorse;
- heightened risk for depression because of diminished growth in the left hemisphere;
- heightened potential for panic and post-traumatic stress disorders because of irritability in the limbic system;
- heightened risk for dissociative disorder and memory impairments because of diminished growth in the hippocampus and abnormalities in the limbic system;
- development of ADHD symptoms because the development of the connection between the two brain hemispheres has been impaired;
- heightened risk of Sensory Integration Disorder because of sensory stimulation deprivation; and
- heightened risk of Reactive Attachment Disorder because of an environment that neglected the need for comfort, stimulation, and affection (NCCANI, 2001, 2003).

In reviewing research conducted to address the lifetime impact of childhood abuse and trauma by combining research from the fields of child maltreatment and health psychology/behavioral medicine, Dr. Kathleen Kendall-Tacket identified five pathways, or influence sets, that impact the abuse survivor.

1. Physiological influences or trauma's impact on the body. The sympathetic nervous system becomes more reactive, appropriate regulation of the level of stress hormones in the body is lost, and pain thresholds drop.

2. Behavioral influences, or the tendency of adult survivors to actively engage in more destructive activities—drug abuse, high-risk sexual behavior—and to avoid, whether passively or actively, more healthy activities.
3. Cognitive influences, or the tendency of adult survivors to be more accepting of negative beliefs about themselves and others. This negativity can undermine health and relationships and encourage harmful activity. This is a very real problem.
4. Social influences, or the tendency of adult survivors to have difficulty in forming positive, supportive relationships. At the most extreme, the relationships can cause renewed victimization; more subtle are the tendencies toward divorce, marital disruptions, social isolation, lower earning potential, and a tendency toward homelessness. Whether alone or combined, all of these problems have a negative impact on health.
5. Emotional influences, such as the negative effect of depression on health. Post-traumatic stress disorder and depression are common outcomes of past abuse, each having its own impact: compromising the immune system, raising the risk of heart attacks, and so on (Kendall-Tacket, 2003).

Effects of sexual abuse on victims include a loss of innocence, a period of self-blame, a loss of faith in authority figures, a recognition of the imbalance of power, and a reliance on external help to eventually heal. Restorative justice has been demonstrated to assist in the healing process (van Wormer & Berns, 2004).

The research that examines the effects of maltreatment on the brain's development is helpful. We can better understand what has happened to abused and neglected children, and consequently, we can better respond to it, strengthening our system of care and improving our prevention efforts. This information helps caregivers develop realistic expectations for the children in their care and understand that these children may be lacking in emotional control and self-control, may have difficulties getting along with siblings or classmates, may have difficulties learning in school, may have unusual eating or sleeping behaviors, may act socially or emotionally inappropriate for their age, may be quiet, submissive, and unresponsive to affection, and may attempt to provoke fights or solicit sexual interactions. Caregivers could further benefit from directed training that discusses the neurological impacts of abuse and neglect on their charges and how they will affect the child and the child's interactions with others.

Once removed from an abusive or neglectful environment, children who have suffered abuse and neglect require nurturance, stability, understanding, predictability, and support. Caregivers must be able to provide these consistently in order to develop the neglected neural pathways dealing with these concepts.

New surveys and studies have demonstrated that child abuse and maltreatment—which includes physical, emotional, or sexual abuse, and neglect—and especially incidents that occur at an early age, can cause permanent, life-long neurological damage and have a significant negative impact on the developing brain. A 1994 study revealed that brain-wave abnormalities of the type associated with interrupted neurological development occurred in 54% of the population studied who had a history of early trauma, while a 1978 EEG study of adults with a history of incest victimization conducted by Robert W. Davies of the Yale University School of Medicine showed that 77% had neurological abnormalities (Teicher, 2002). In many cases, this damage is irreversible, reaches full manifestation during the adult years (Teicher, 2002), and cannot be addressed through normal treatment methodologies, requiring that significant research efforts be mounted to identify and define effective treatment methods. Physical problems related to these neurological changes, including increased risks for obesity, type II diabetes, and hypertension, can result in a number of psychiatric and psychological problems, including a greater risk for suicide, and can impact the victim's ability to properly empathize and create stable emotional bonds in later years.

Resources that could be used in responding to these biopsychosocial problems are being drained by, in many cases, preventable medical problems, substance abuse, and other criminal acts and their aftermath (Teicher, 2002).

Prefrontal cortex issues often result in a tremendous sense of underachievement, repetitive failure, and low self-esteem. People thus affected may use internal problems for self-stimulation and be chronically upset.

Specific Neurological Impacts of Abuse

REGION	FUNCTION	IMPACT OF ABUSE
Left Hemisphere	Regulation and oversight of logical responses to a situation; control and mediation of emotional responses generated by the right hemisphere.	Diminished control of emotional response resulting in poor or inappropriate reactions to emotional situations: angry outbursts, self-destructive or suicidal impulses, paranoia, psychosis, and a tendency to pursue intense and ultimately unstable relationships.
Prefrontal Cortex	Internal editor of emotional states, consequential thinking, moral reasoning, and reactions to emotional crisis.	Increased potential for depression, and delinquent and criminal behavior.
Corpus Callosum	Communicates between the brain's two hemispheres.	Significantly smaller in neglected and abused children, causing non-integrated, inappropriate responses to everyday situations.
Temporal Lobe	Regulation of emotions and verbal memory.	Poor modulation of emotions, increased chance for temporal lobe epilepsy (symptoms include tingling, numbness).
Amygdala	Creating emotional content for memories; mediating depression, irritability, and hostility/aggression; governing reactions and responses to fear.	Significantly smaller in neglected and abused children, raising risk for depression, irritability, and hostility/aggression; also responsible for incorrect emotional "memories," absence of fear-conditioning, and increased chance of psychopathic tendencies.
Hippocampus	Formation and retrieval of verbal and emotional memories.	Lower performance on verbal memory tests; possible continued mental problems and concerns during adult years.
Cerebellar Vermis	Modulates production and release of neurotransmitters; has a significant number of receptor sites for stress-related hormones.	Increase in potential risk for psychiatric symptoms such as depression, psychosis, hyperactivity, and attention deficits. In rare cases, psychotic symptoms are possible.

(Cellini, 2004a)

The stress associated with these problems is often accompanied by increased illness (Amen, 1998).

Temporal lobe problems may be associated with frequent attacks of rage, angry outbursts, mood swings, hearing things wrong, and low frustration tolerance. At work, these problems manifest themselves in mood swings and unpredictable behavior, a low frustration tolerance, misperceptions, auditory processing problems, and memory problems. The anger, misperceptions, and mild paranoia can wreak havoc in a work group (Amen, 1998).

Depression can cause a person to feel distant, uninterested in sex, irritable, unfocused, tired, and negative. Unless the partners understand this disorder, they often have severe relational problems. People who suffer from depression have a divorce rate six times higher than those who are not depressed. Depression can cause people at work to be negative and unmotivated, and to take things too personally or the wrong way. Such employees may negatively affect others' morale and unknowingly skew co-workers' perceptions so they see positive things in a bad light. Depressed people take more sick days than other people (NCCANI, 2001).

Associated with the limbic system, which includes the amygdala and hippocampus, depression clouds a sense of accomplishment and causes intense sadness and internal pain. Depression is not the absence of feeling, but rather the presence of painful feelings. Depression is one of the most common precursors to drug abuse and suicide, and often compromises immune system functioning, leaving people more prone to illness (Amen, 1998).

Intervention

Intensive early interventions are vital to minimizing the long-term effects of early trauma. The University of Alabama at Birmingham's Craig Ramey reported that vulnerable children who received services at ages 4 and 5 months showed better cognitive development than those who received services at 5 to 8 years; the difference became even more pronounced when the 5 to 8 year cohort was compared to those intervened with at age 12 (Shore, 1997).

In Romania, Rutter et al. discovered that children adopted from orphanages assessed at age 6 displayed different levels of functionality related to the age they were adopted: 69% of the children adopted at younger than 6 months were functioning normally; 43% of those adopted between 7 months and 2 years were functioning normally; and only 22% of the children adopted between ages 2 and 3 years were functioning normally (Rutter et al., 2000).

For early intervention to be truly effective, the intervention must be designed to stimulate the portions of the brain impacted as a result of the abuse and neglect. But these interventions cannot be limited to weekly therapy sessions. For the brain to truly develop, the interventions to help a child's brain adapt to a safe, predictable, nurturing environment must be lifelong. The older the child when intervention starts, the longer the recovery takes, but recovery is still possible.

Ideally, the problems would be addressed before they start. The cost in suffering, loss of potential and fiscal outlay to repair damage is significantly greater than the costs of preventing the problems in the first place. Prevention efforts can target the general population through public education and policy efforts and can target at-risk children and families before problems develop. At-home visitation programs to at-risk families before and after a child's birth have proven effective in preventing problems before they start (Cellini, 2004b, 2004c).

Conclusion

Brain imaging research has demonstrated a clear connection between physical, emotional, and sexual abuse and neglect during childhood and changes in a child's neurological development that can lead to substance abuse, juvenile delinquency, and adult criminal behaviors. This research supports what professionals have known for years that these individuals are difficult to manage and resist sustainable behavioral change.

From the legal and research perspective, available findings must be viewed as preliminary at best, and caution must be exercised so the information is not inappropriately applied from general findings to a specific case. At this time, attempting to utilize existing neurological research to predict an abused person's future behavioral problems is too great a leap of logic, though our instincts may lead us to believe it possible.

Treatment research needs to keep abreast of neurological studies and findings to provide the most up-to-date

support for professionals working with this population. Remaining current is essential, especially when we consider the growing numbers of abuse and neglect victims and the resulting impact on our society. More timely interventions, better diagnostic approaches, and further development of evidence-based treatment are needed.

Common sense tells us the time to intervene is sooner rather than later. The longer an abused or neglected child goes without help, the greater the resulting burden on our judicial, treatment, medical, educational, and welfare systems.

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Fact Sheet

Lesbian, Gay, Bisexual, Transgender, and Questioning Youth in the Juvenile Justice System

by Jody Marksamer and Courtney Joslin

According to the Office of Juvenile Justice and Delinquency Prevention, there are more than 134,000 youth detained in the juvenile justice system. While it is impossible to precisely determine the number of lesbian, gay, bisexual, transgender, or questioning (LGBTQ) youth in this system at any one moment, recent studies suggest that these youth make up between 4 and 10% of the total detained youth population. The actual percentage may be higher since LGBTQ youth are overrepresented in populations that are more likely to be involved with the juvenile justice system.

Many of these youth have entered the system as a direct result of the discrimination and lack of support they have encountered because of their sexual orientation or gender identity. Once in the system, LGBTQ youth are too often subject to further discrimination or harassment at the hands of juvenile justice staff.

How LGBTQ Youth Enter the Juvenile Justice System

In general, because of homophobia and transphobia in their homes, schools,

See GAY YOUTH, page 45

Policy

Child Abuse, Neglect, and Delinquency: Fiscal Impacts

by Henry R. Cellini

In recent years, it has become more urgent to focus on the need for early intervention and prevention programs that are curtailing child abuse and neglect incidents. We know now that abuse and neglect have long-term psychological, neurological, and sociological impact on individuals. We also know that these long-term consequences affect not just individuals, but also friends, families, and society. The impact also includes heightened fiscal outlays at a time when treatment program money is tight and need for such services is high. Although connecting cold, hard cash to the emotionally-charged topic of child abuse and neglect may seem inappropriate, the adage that an ounce of prevention is worth a pound of cure is entirely accurate. By intervening in abuse and neglect situations early, or by preventing them entirely, we save our society not only the heartache of violated youth, but also the extensive costs that would otherwise go to incarcerating or treating the victims throughout their life.

Incidence and Prevalence Data: Methodological Issues and Caveats

While child abuse is often regarded as a child welfare problem, the fact remains that it is a crime. Unfortunately, the "child welfare problem" mindset results in a significant lack of law enforcement data that researchers can analyze and work with. Policymakers need a clearer understanding of the law enforcement aspects of child abuse in order to better comprehend the harm that child abuse inflicts on children. Responding to this need, the Office of Juvenile Justice and Delinquency Prevention (the "OJJDP") has begun reviewing data from the National Incident-Based Reporting System, which collects detailed data about crime and its victims, to help fill this gap (OJJDP, 2001).

One gruesome example of the methodological problems with addressing child abuse incidence and prevalence issues is the recent research on Roman Catholic clergy abuse. Four percent of priests ministering in the United States between 1950 and 2002 have been accused of abusing 10,667 children, with related lawsuit costs totaling a minimum of $573 million ($219 million covered by insurance companies). Since then, lay review boards of the churches have investigated the crisis, discovering at least two key points that allowed the situation to get as bad as it was. First, according to a recent report, bishops have unrealistic treatment expectations that often result in treatment centers recommending that accused priests be returned to unrestricted activities. Second, the lack of administrative support from the Vatican hindered efforts in the 1990s to remove abusers from ministry and the priesthood (America, 2004). This report

See IMPACTS, next page

ALSO IN THIS ISSUE

IMPACTS, from page 33

also offered recommendations for future prevention:

- Study and analysis of past causes and contexts of the crisis, and regular review of policy efficacy to prevent future crises;
- Enhanced screening and closer monitoring of priests and candidates for the priesthood;
- Increased sensitivity to allegations, and increased response, including a review of current legal strategies;
- Greater accountability of the church leaders for the actions of their subordinates, and greater use by those leaders of advisory councils;
- Closer interaction between church leaders and civil authorities when abuse allegations arise, and a clear delineation of boundaries between internal church authority and external civil authority rights and obligations; and
- More openness and less secrecy (America, 2004).

As with all statistics on child abuse and neglect, the reported numbers are always lower than the actual numbers, due to fear and other avoidance behaviors.

Harm and Endangerment Standards

One major concern that must be considered when calculating the true extent to which victims of child abuse and neglect have been harmed and endangered is the different definitions that have been applied when conducting this type of research and identification of victims. A national incident study conducted by the Department of Health and Human Services (Sedlak & Broadhurst, 1996) shows that many of the older studies from 1980-1986 used a more restrictive term called the "harm standard" in identifying abused children. This definition refers to those children that were considered by the researchers to be maltreated at such a level that they had already experienced some measurable harm from the abuse or neglect. The harm related to the abuse or neglect may include the development of major psychological and psychiatric problems, physical damage due to the abuse itself or a direct impact on the family's stability and functioning. In a later study (1993), a second definition called the "endangerment standard" was employed and was later used in the 1996 study to compensate for the stringency of the definition utilized in the harm standard.

When the researchers restricted their identification criteria to those children who experienced abuse and neglect that put them at risk of harm throughout their lifetime (the harm standard), more than 1.5 million children were estimated to have been abused or neglected in the United States in 1993. But when the researchers applied the endangerment standard, which looked at quality of life issues and the impact of long-term consequences of child physical and sexual abuse and physical neglect on children, the estimate rose to nearly three million abused and neglected children in the United States. There were significant increases across all categories of abuse except emotional neglect. The estimated numbers identified under the two standards are shown on Table One above.

Table One

Type of Abuse	Increase Under Harm Standard	Increase Under Endangerment Standard
Physical Abuse	42%	97%
Physical Neglect	102%	163%
Sexual Abuse	83%	125%
Emotional Neglect	333%	188%

Cost of Victimization

Many professionals contend that child abuse prevention and early intervention initiatives make sense from a client, family, and cost perspective. Therefore, identifying and improving the development of both the best prevention and intervention strategies and the more accurate methods to assess the fiscal impact of childhood physical, sexu-

See IMPACTS, page 46

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IMPACTS, from page 34

al, and emotional abuse and neglect becomes important. Most states are so overwhelmed with cases that emotional abuse claims often fall by the wayside.

We all know that crime exacts a heavy toll on society, victims, and governments. In attempting to determine the cost of crime, there are two basic dimensions. The first is the tangible impact, an easily quantifiable dollar amount calculated by adding productivity and property losses and medical bills. The second is a less easily quantified amount because it includes psychological and physical pain, emotional trauma and the risk of death from criminal victimization. Previous studies have been able to estimate many of the short-term (tangible) costs, but accurate long-term (intangible) cost estimates have been lacking. In this research summary, the authors have attempted to include the long-term costs, including the intangible quality of life issues related to pain, suffering and risk of death (Travis, 1997).

The researchers have found the cost of victimization is about $105 billion annually when one only considers lost productivity and property and medical costs. This figure results in an annual cost of crime of about $425 for every man, woman, and child within our country. More alarming, when a dollar value is placed on the resulting long-term emotional trauma, pain, disability and risk of death, the fiscal impact of crime increases to about $450 billion or $1800 for every man, woman and child within the United States. In attempting to determine the long-term costs and consequences of crime, the researchers attempted to delineate both tangible and intangible cost factors. Their basic logic model was relatively straightforward:

- Count the number of crimes and various types;
- Estimate from as many sources as possible the average cost of each type; and
- Multiply cost by the incident of those specific crimes to attain total dollar figures.

Not all related costs were included within this study because this study focused on the cost related to victim services, medical, psychological treatment, loss of work, and so forth. The study did not include the costs inherent in operating the social science, law enforcement, and criminal justice systems. The crimes of specific concern for this report are those related to child sexual abuse and rape. The findings indicate that a conservative estimate of the number of children sexually, emotionally, or physically abused in 1990 was 794,000. A sexually abused child is frequently considered to have been physically and emotionally abused during the course of the sexual abuse. Regarding rape, they indicated that the number of rape and sexual assault victims in 1992 was approximately 1.1 million. The definition of rape and sexual assault that is used in this study is slightly broader regarding the age range than in previous published studies.

Table Two: Cost Per Victimization

Crime	Tangible Costs	Intangible Costs	Total Costs
Murder	$1,030,000	$1,910,000	$2,940,000
Rape/Sexual Assault	5,100	81,400	86,500
Robbery/Attempt with Injury	5,200	13,800	19,000
Assault or Attempt	1,550	7,800	9,350
Burglary or Attempt	1,100	300	1,400

Table Two above provides examples of costs identified by these researchers as the cost per victimization from 1987 to 1990. Obviously, the quality of life losses generally exceed all tangible losses combined.

Overall, the aggregate tangible losses amounted to $105 billion annually, while the intangibles added up to $345 billion. Rape is the most costly crime to our nation due to the large number of incidents resulting in an annual victim cost of $127 billion. It ultimately exacts a much higher price on our society than murder.

The calculations also shed light on domestic violence against adults revealing the aggregate cost of crimes in this category to be $67 billion a year. Losses due to violence against children, some 40% of which are domestic violence, exceed $164 billion.

Cost Analysis and Policy Issues of Abuse and Neglect

In calculating the impact of child abuse and neglect on a community, one must understand the financial costs related to each victim as well as the cost to the local and state criminal justice, law enforcement and protective service systems, and the intangible impact on both the victim's life and the community's sense of safety. Though the tangible cost data can be assembled and interpreted in many different ways, the following is collated from some of the best sources, including child abuse and sex offender experts, and the Department of Justice. As with any research, and especially with a cost benefit analysis, authors can spin the results in many ways. This author's bias is that intervention will save lives, prevent trauma, save money, and lower the number of delinquency and mental health clients.

Costs and Policy Issues Associated With Physical Abuse

Finding articles that focus on the costs of physical abuse is difficult. Libby et al. (2003) looked into cost estimates of early childhood abuse, and in specific, the cost of inflicted (intentional or nonaccidental) head trauma and traumatic brain injuries. By reviewing the abstracts of patient records from Colorado's state-mandated hospital discharge database from 1993 to 2000, the researchers identified 1,097 head trauma patients under three years of age. They discovered that patients with inflicted injuries–283 of the total–were younger, showed a higher average severity level and mortality rate, stayed in the hospital two days (52%) longer, and had a hospital bill that was on average $4,232 (89%) higher. This study demonstrates that deliberate injury to a child has a significant economic impact on a health care system already overstretched.

Other important findings from the Libby study include:

- The additional severity and mortality rate associated with deliberately induced head trauma, which can be connected to the theory that a neglectful or abusive caregiver can negatively impact the recovery of a trauma survivor, and linked to studies confirming that abused children are more likely to have a history of medical problems (Peclet, 1990; Jenny, 1999).
- The greater medical resource and human cost in treating inflicted head trauma—resource expenditures that could be put to better use elsewhere. Studies have

See IMPACTS, next page

IMPACTS, from page 46

demonstrated that preventive programs help reduce child abuse, which in turn reduce the cost in medical and human resources currently spent on treating the results of child abuse. Still, the ounce of prevention that could outweigh the pound of cure has not been forthcoming at either the state or federal budget levels (Libby et al., 2003; Prevent Child Abuse America, 2001; Olds et al., 1986; Olds et al., 1995; Olds et al., 1997; Finkelhor, 1998; Theodore, 1999).

Costs and Policy Issues Associated With Sexual Abuse

Current national legislation is focused on the long-term treatment of sexual offenders and the fact that such preventative steps as chemical castration, public notification, sex offender registration, increased prison space for violent offenders, prosecution of violent offenders to the maximum extent allowed under the law, and treatment for both perpetrators and victims of sexual abuse are extremely costly. With an approximate number of abused children (victims of physical, sexual, and emotional abuse and neglect) who are the target of prevention and intervention services in the United States calculated at two million, and more than three million allegations of abuse and neglect reported in 2001 alone according to the National Clearinghouse on Child Abuse and Neglect, this is an extremely important issue to consider.

Even though it is difficult to determine the exact costs related to sex crime investigation, incarceration and supervision, Freeman-Longo and Blanchard (1998) report that since 1987 there have been three significant studies conducted that look at the per-case costs to society of child sexual abuse. Table Three above outlines the three research studies, with an additional study recently published by the John Jay College of Criminal Justice in New York, reporting on the national costs of child abuse committed by priests of the Roman Catholic Church.

The costs for child sexual assault cases are quite high (and increasing), but they do not include the long-term impact that this type of crime has on the victim, the victim's family, and the public's perception of community safety.

Conclusion

For abuse victims and their families, any discussion attaching financial projections to their own or their loved ones' victimizations must be an agonizing and heartbreaking proposition, much as it is for many in policy making positions. Policy makers, however, must determine if it is possible to fund early prevention and intervention programs based on evidence-based models, while continuing to fund and support, when necessary, juvenile detention, incarceration, and probation programs.

Table Three: Cost of Child Abuse

Study	Cost Factors Included	Costs
Vermont (1987)	Related investigation, court costs, five years of incarceration without treatment for the abuser, two years of parole supervision, and two years of treatment for victim	$138,000 to $152,000
Massachusetts (1989)	Related investigation and court costs, seven years of incarceration for the abuser, five years of parole supervision, one year of treatment for the victim	$183,000
Canada (1992)	Investigation, prosecution, incarceration	$200,000
United States (2004)	Child abuse by Roman Catholic priests, 1950- 2002	$573 million minimum ($219 million covered by insurance), not including $85 million Archdiocese of Boston settlement

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