Maggie Bennington-Davis MD

Neurobiology of Exposure to Trauma and Violence
Traumatization occurs when both internal and external resources are inadequate to cope with external threat.

Van der Kolk, 1989
What have we used the brain for?

100,000 years:
Homo Sapiens
Hunter/Gatherer

5,000 years:
Recorded history
Building civilization

250 years:
“Modern” civilization
Psychology: Development

The brain grows more once outside the mother’s body. This means, the infant needs more protection, and early childhood development has more future impact on the person.

(National Geographic)
Here’s How the Brain Develops

- The brain needs safe experiences to live.
- It grows, is “pruned” and learns
Life and coping can affect genes

Genetic vulnerability factors for depression
NATURE OF THE STRESSOR

Sudden

Severity

Unpredictable

Duration

Life threat

Intentional

Repetition

Damage to self

Shame

Damage to community
Care that is grounded in and directed by a thorough understanding of the neurological, biological, psychological and social effects of trauma and violence on humans and is informed by knowledge of the prevalence of these experiences in persons who receive mental health services.

(NASMHPD, 2004)
“What's wrong with you?”

TO

“What happened to you?”
ATTACHMENT TRAUMA

When the attachment figure is the source of the trauma

- Child Physical Abuse
- Child Sexual Abuse
- Neglect
- Domestic Violence
- Abandonment
Expecting a protective environment and finding only more trauma.

Those we seek to serve

Trauma victimizations studies show prevalence up to 98% among persons with serious mental illness in the public sector.

(Goodman et al., 1997; Muesar et al., 1998)
The Relationship of Adverse Childhood Experiences to Adult Health Status

A collaborative effort of Kaiser Permanente and The Centers for Disease Control

Vincent J. Felitti, M.D.
Robert F. Anda, M.D.
The Adverse Childhood Experiences Study (ACES)

- Largest study ever done examining effects of adverse childhood experiences over one’s lifespan (>17,000 people)
- Majority were >50 yo, white, and attended college
- Original study done in California
- www.acestudy.org
ACES Categories

- Recurrent physical abuse
- Recurrent emotional abuse
- Contact sexual abuse
- An alcohol and/or drug abuser in the household
- An incarcerated household member
- Someone who is chronically depressed, mentally ill, institutionalized, or suicidal
- Mother is treated violently
- One or no parents
- Emotional or physical neglect
ACES Results

Abuse:
- Emotional 10%
- Physical 26%
- Sexual 21%

Neglect:
- Emotional 15%
- Physical 10%

- Two-thirds had at least one ACE
- ACEs tend to occur in clumps

Household Dysfunction
- Mother treated violently 13%
- Mental illness 20%
- Substance abuse 28%
- Parental separation or divorce 24%
- Household member imprisoned 6%

Two-thirds had at least one ACE
ACEs tend to occur in clumps
ACEs In Adults – Five States, 2009

Arkansas, Louisiana, New Mexico, Tennessee, Washington
59% ACEs score 1 or more
22% 1 ACE
9% 5 or more ACEs

Sample = 26,229

29% household substance abuse
26% verbal abuse
15% physical abuse
12% sexual abuse
19% household mental illness
16% witnessed domestic violence
7% household incarceration
Sexual abuse, family mental illness, family substance abuse more common in women.

ACEs common among all racial/ethnic groups.

Aged 55 or older lower prevalence of all ACE categories than younger age groups.
Positive, linear correlation between ACEs and health problems

- Smoking
- COPD
- Hepatitis
- Cardiac disease
- Diabetes
- Fractures
- Obesity
- Alcoholism
- Other substance abuse

- Depression
- Attempted suicide
- Teen pregnancy and teen paternity
- Sexually transmitted diseases
- Occupational health
- Poor job performance
ACES Deadly Outcomes

• ACEs influence the likelihood of the 10 most common causes of death in the U.S.

• With an ACE score of “0”, the majority of adults have few, often none, of the risk factors for these diseases

• With an ACE score of 4 or more, the majority of adults have multiple risk factors for these diseases or the diseases themselves
Positive, linear correlation between ACEs and Alcoholism

- High ACE score predicts alcohol abuse
- Higher yet in people whose parents abused alcohol
- Self-perpetuating cycle over generations
- 20% of ACE respondents lived in families with alcoholism
- The presence of alcohol abuse in the family increases the likelihood of sexual and physical abuse
Presence of alcohol abuse in the family most often correlated with ACE score of 5 or more

- Living with someone in household who abuses alcohol
- Witnessing violence
- Verbal and psychological abuse
- Physical abuse
- Household member incarcerated
Positive, linear correlation between ACEs and suicide

- Depression affects 19 million Americans
- <25% have access to treatment
- Depression is the leading cause of disability in the US
- Depression is the 4th leading contributor to “global burden of disease”; by 2020, it will be the 2nd leading contributor
- ACE score of 7 correlated with 51 fold increase in suicide attempts in children and adolescents
- ACE score of 7 correlated with 30 fold increase in suicide attempts in adults
- Presence of emotional abuse in the home is the strongest correlate with later depression
Positive, linear correlation between ACEs and tobacco use

- ACEs apparently maintain smoking behavior
- ACE score of 4 or more results in 260% more likely to have COPD
Paying the piper

- Each generation is paying the price of the prior generation
What society does to its children, its children will do to society.

Cicero, 106-43 B.C.E.
Felitti and Anda, 2003
Many providers assume that abuse experiences are additional problems for the person, rather than THE central problem...

Dr. Gordon Hodas, 2004

“Responding to Childhood Trauma: The Promise and Practice of Trauma Informed Care by Dr. Gordon Hodas. Pennsylvania Office of Mental Health and Substance Abuse Services
Epinephrine (adrenalin)

Cortisol

Beta-endorphins

Hypervigilance
Action, not thought
Cognitive diminishment
Increased aggression
Loss of impulse control
Speechless terror

THE HUMAN STRESS RESPONSE
Stress Response to Threat

- Threat alarm
  - increased heart rate, blood pressure, respiration; release of stored sugar; increase in muscle tone; hypervigilance; tuning out of all non-critical information

- Activation of hypothalamic system
  - Release of cortisol and adrenocorticotropic hormone
  - Increase in locus ceruleus (LC) and ventral tegmental nucleus (VTN) activity

Bruce Perry, 1995
Stress Response to RECURRENT THREAT

- Reset CNS
- Traumatic re-enactment
- Aggression become chronic
- Dissociation is common
- Chronic hyperarousal interferes with cognitive clarity
- Loss of (or failure to develop) affect modulation

Bloom, 2001
Lateral Ventricles Measures in an 11 Year Old Maltreated Male with Chronic PTSD, Compared with a Healthy, Non-Maltreated Matched Control

(De Bellis et al., 1999)
Emotional Brain

(cingulate gyrus)

(prefrontal region)

(septum (septal nuclei))

(nucleus accumbens)

(hypothalamus)

(hippocampus)
Between Stimulus and Response

Sensory Thalamus

(LeDoux, 1996)
Between Stimulus and Response

Stimulus

Sensory Thalamus

Very Fast

Amygdala

(LeDoux, 1996)
Between Stimulus and Response

Stimulus → Sensory Thalamus → Cortex → Hippocampus → Amygdala → Response

Very Fast

Slower

(LeDoux, 1996)
Between Stimulus and Response

(LeDoux, 1996)
Between Stimulus and Response

Sensory Thalamus → Hippocampus → Cortex

Very Fast

Hippocampus → Amygdala → Response

Slower

(LeDoux, 1996)
Between Stimulus and Response

Sensory Thalamus \arrow{very fast} \rightarrow \text{Amygdala} \arrow{slower} \rightarrow \text{Cortex} \arrow{slower} \rightarrow \text{Hippocampus} \arrow{very fast} \rightarrow \text{Amygdala} \arrow{slower} \rightarrow \text{Response}

(LeDoux, 1996)
Play and Fear

Between Stimulus and Response

Sensory Thalamus

Cortex

Hippocampus

Amygdala

Very Fast

Slower

Response

Social Environmental Intervention

Cognitive engagement

Neuroregulatory Intervention

Psychopharmacology

Stimulus

(LeDoux, 1996)
Perception trumps reality
WHAT WE SEE?

Mood instability – depression, anxiety

Extremist thinking and behavior

Hostility and violence projected outward

Multiple addictions & compulsive behaviors

Psycho-somatic illness
Poor communication skills

Feelings come out via behavior

Vulnerable to emotional contagion

Use communication skills destructively

WHAT WILL WE SEE?
WHAT WILL WE SEE?

- Poor decision making
- Difficulty managing complex thought processes
- Growing belief that nothing I do is right
- Inability to successfully resolve conflict without violence
Violence against self, against others
Being bullied, bullying others, authoritarian leanings
Identification with authoritarian groups
Failure to recognize danger before it is too late
WHAT WILL WE SEE?

- Reenactment
  - “stuck”, stagnation
- Depression, hopelessness
- Lack of vision
- Nihilism

Humans love repetition.
unrelenting substance abuse

violence and other criminal behavior

self-mutilation

risk taking

impaired parenting
Client

Problems with cognition

Communication problems

Problems with authority

Confused sense of justice

Inability to grieve and anticipate future

Loss of emotional management

Lack of basic safety/trust
Changing gears a little...

- Physiologic changes during F/F/F...
  - Increased heart rate
  - Increased BP
  - Increased respiration
- Do you run because you are afraid or are you afraid because you run... (Kohut)
Stress Research from Jerusalem

- Ariah Shalev at Hadassah Medical School
  - Survivors of suicide bombers
- Following ER treatment
  - Those that do not develop stress symptoms are able to decrease heart rate, calm, quiet their bodies
  - Those that do develop stress symptoms still have hyperarousal, high heart rates, high blood pressure
- Regulated states appear to be correlated with decreased likelihood to develop stress syndromes
How do you “center” yourself?

- Deep breath
- Concentrate
- Think positive thoughts
- Channel positive energy
Healthy Provider Response to upset behavior

- Reinterpret through the lens of trauma exposure
- Avoid over-reacting
- Avoid power struggles
- Lean into service
- Find the distress
- Open up communication

*This sometimes feels counter-intuitive...*
Goals of Treatment

• Maintain Regulating State
• Prevent Re-experiencing States
• Build Cognitive Structures that allow choices

Saxe, 2001
Developing a safe environment and atmosphere... How?

• What signals SAFETY?
  • Social
  • Physical
  • Moral
  • Cultural

• What signals DANGER?
  • Social
  • Physical
  • Moral
  • Cultural

• What are “universal triggers”?
• What are universal signs of welcome and respect?
SAFE!

- Control
- Respect
- Influence
- Information
- Reassurance
- Hopefulness
“Being listened to and understood is a transformational experience, and that on its own can create a shift in a person’s well-being. The commitment to a person, to listen and understand their experience, I think holds the potential to completely transform people’s experiences of acute psychiatric services, themselves, and the mental health system.”

-Julie Johnstone, 1999
Lived Experience – Been There, Done That

- Learning from those who have been through the system
- System navigators
- Role models
- Glimpse of what could be
- Hope!
Safety Planning

Triggers

Strategies

Practice
Secrets and Privacy

- Remember Hypervigilance
- Information is power
- “Nothing about us without us”
Feng Shui

What signals safety?

What signals danger?

Take a mental walk through your workplace
Mental health recovery is a journey of healing and transformation for a person with a mental health disability to be able to live a meaningful life in communities of his or her choice while striving to achieve full human potential for “personhood.”
Language and Vocabulary

- refuses
- denies
- claims
- alleges
- failed
- noncompliant
Labels: Type 1

- Don’t like some aspect of people and want to complain
  - Manipulative (not good at asking for things)
  - Attention seeking (not good at being funny or charming or persuasive)
- Treatment resistant
- Help-rejecting
- Acting out
- Entitled

Basically, these folks annoy us in how they go about trying to get what they need
Labels: Type 2

- Technical, in a bad way (communicates negative emotion)
  - Borderline
  - Axis II
  - Antisocial
  - Non-compliant
  - Unmotivated
  - Splitting
  - Malingering
  - Passive aggressive
Labels: Type 3

- Complicated! Labels that are used one way by some and another way by others
  - Case Manager
  - Client
  - Consumer
  - Patient
  - Survivor
  - Beds
Labels: Type 4

- Commonly used words without much attention paid to their real meanings
  - Denies
  - Refuses
  - Alleges
  - Claims
Our Selves – the place to begin
If Disney Ran Your Hospital  Fred Lee, 2004

Merci pour l’ajout...

ON STAGE

Emiokoe Indepennante et Illustrante
sur les
Musiques Actuelles

En ligne le 15 Janvier sur
myspace.com/ontagertv
## AN INFORMAL SURVEY:
Out of 350 people working in social services

<table>
<thead>
<tr>
<th>Abuse Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological abuse (Parents)</td>
<td>37%</td>
</tr>
<tr>
<td>Physical abuse (parents)</td>
<td>29%</td>
</tr>
<tr>
<td>Sexually abused</td>
<td>25%</td>
</tr>
<tr>
<td>Emotional neglect</td>
<td>35%</td>
</tr>
<tr>
<td>Physical neglect</td>
<td>12%</td>
</tr>
<tr>
<td>Substance abuser in household</td>
<td>40%</td>
</tr>
<tr>
<td>Separated from one/both parents</td>
<td>41%</td>
</tr>
<tr>
<td>Witnessed DV</td>
<td>21%</td>
</tr>
<tr>
<td>Imprisoned household member</td>
<td>10%</td>
</tr>
</tbody>
</table>
Staff Lack of basic safety/trust

Problems with cognition

Communication problems

Problems with authority

Loss of emotional management

Confused sense of justice

Inability to grieve and anticipate future
emergence

Just as neurons interconnect in networks that create structured thoughts beyond the ken of any individual neuron, so people spontaneously organize themselves into groups to create emergent organizations that no individual may intend, comprehend, or even perceive.

Emergent Processes in Group Behavior
Organizations, like individuals, are living, complex, adaptive systems and that being alive, they are vulnerable to stress, particularly chronic and repetitive stress.

Organizations, like individuals, can be traumatized and the result of traumatic experience can be as devastating for organizations as it is for individuals.
ORGANIZATIONAL STRESS

- Changes in funding
- Decreases in training, more paperwork, more surveillance
- Fewer staff, rapid turnover
- Less professionally developed staff
- Aggressive children & adults adapted to violent norms
- Organizational trauma
ORGANIZATIONAL TRAUMA

- Suicides
- Homicides
- Other patient or staff deaths
- Lawsuits
- Loss of funding
- Patient or staff injuries
- Sexual abuse
- Media attacks
Current Stressors
(these may sound familiar)

- Combination of economic scarcity, recession, widening gap between demand and resources, massive tech changes, increasing compliance/regulatory requirements
- Leads to deeply uncertain organizations, affecting individuals at all levels of the organization
- Combo of uncertainty with likelihood of change is one of the biggest stressors of all
PARALLEL PROCESS

When two or more systems – whether these consist of individuals, groups, or organizations – have significant relationships with one another, they tend to develop similar:

Feelings
Behaviors
Thoughts

Social service programs today experience significant and **CHRONIC STRESS**

Many exist within a context of constant or **CHRONIC CRISIS**

This results in **CHRONIC HYPERAROUSAL**

Results in **LACK OF SAFETY** and **BASIC TRUST**
Heading Downhill

- Emotional intelligence decreases
- Methods of control become pathological
  - Punitive measures that get reflected “downhill”
- Communication breaks down
- Decision processes are overly simplified
- Feeling of helplessness leads to desperation to take control
- Employees react to control measures by various forms of aggressive and passive-aggressive acting out
Staff increasingly powerless

SILENCING OF DISSENT

Conflicts increase and are not resolved

IMPOVERISHED RELATIONSHIPS

Leaders use formal authority to respond

INCREASED AUTHORITARIANISM

“Dumbing down” of staff

LOSS OF CRITICAL THINKING SKILLS
Communication Under Stress

- Perceptions narrow
- Contextual information is lost
- Increase in vertical communication structures
- Excessive use of one-way communication, top-down
- Feedback loops erode as a result
- Regression to previous learned behaviors
- Grapevine becomes poisoned
- Complex team behaviors decrease
Silencing Dissent

- Dissent rarely welcomed in the workplace
- Organizational silence (Morrison & Milliken, 2000)
- Interviews - employees 22 organizations, 70% afraid to speak up about issues or problems at work
- “Undiscussables” - Key topics become the “elephants in the room
- Under stress dissent seen as threat to unified action and will be suppressed.
Lack of basic safety/trust

Loss of emotional management

Problems with cognition

Communication problems

Problems with authority

Confused sense of justice

Inability to grieve and anticipate future

Organization
Trauma-organized

- Participatory processes break down
- Decisions become oversimplified
  - May create more problems than they solve
- Interpersonal conflicts erupt and aren’t dealt with
- Mission is lost
- Loss of sense of future
- Strategy makes way for urgency
- Crisis mode
- Us/them mentality
- Loss of communication
So what happens?

- Major (unconscious) motivation is containment of anxiety
- More important, even, than solving the problem
- Organization is therefore vulnerable to engage in activities that contain anxiety but are ultimately destructive to organizational purpose
Five Squirrels

Dire Straits

- The very things that help us are those most affected by this chronic stress
  - Relationships
  - Hope
  - Therapeutic healing rituals
  - Humor
WHY EMOTIONAL INTELLIGENCE?
the ability to perceive accurately, appraise, and express emotions; to access and/or generate feelings when they facilitate thought; the ability to understand emotions and emotional knowledge; and the ability to regulate emotions so as to promote emotional and intellectual growth.

Mayer, J.D. and P. Salovey, 1997
OK... so what do we do?

- Get educated about what is going on
  - At the individual level
  - At the group level
  - At the organizational level

  *Information is a way to settle down!*

- Use cognitive tricks to engage the thinking part of the brain

- Decrease the effects of the primitive part of the brain

- Become healthy as a group
Establishing a compelling goal that draws organizations out of their comfort zone

Literally standing in the new future and undertaking a series of steps, not in order to there some day, but as if you are there already (or almost there now).

Whets an organization’s appetite for disequilibrium and provides compelling goal drawing organizations toward edge of chaos.
MANAGING FROM THE FUTURE

Managing from the future can shift how people see the world. They come to believe that they are playing in a larger context that has revolutionary potential (p.245).
Recovery

- Group pulls together in unified action
  - Find a common goal related to mission
- Social support is best antidote to anxiety
  - Spend time with each other; seek information
- Commitment to SAFETY
  - Physical, psychological, social, moral
  - Be kind
- Concrete steps to build a sense of community
  - Humor, rituals, include everyone
Recovery, continued

• Give everyone a voice: this also builds complexity
• Learn together how to manage intense emotion
• Avoid secrets
• Develop a learning organization (increases emotional intelligence)
• Recover lost knowledge
• Honor history and mission
• Assume the best – of yourself and others
Communicate

- Focus less on new rules for every new situation and more on complex thinking
- Commit to engaging in processes that assess, examine, and produce new organizational responses to complex individual and group situations
- Remain open to new information
Be With One Another

• Laugh
• Play
• Commiserate
• Hope
• Work
• Produce
Trauma-Informed

• Communication and transparency
• Deep democracy
  • Having a voice is not the same as having a vote, but it crucially important
  • Feeling heard
• Flexible, creative, future-oriented
• HOPE
You never know when you’re making a memory...

--Rickie Lee Jones
QUESTIONS?
Suggestions for further reading

- [www.sanctuaryweb.com](http://www.sanctuaryweb.com) (Sandra Bloom’s website)
- “Restraint and Seclusion: the Model for Elimination of their Use in Healthcare”
  - Murphy and Bennington-Davis
- “The boy who was raised as a dog”
  - Bruce Perry
- “Trauma systems theory”
  - Glenn Saxe
- Anything by Bessel Van der Kolk
- SAMHSA website “trauma informed care”
- “Creating Sanctuary”
  - Sandra Bloom