Broken Places

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1. Toxic Stress and the impact of early adversity

1. What are the most important discoveries in recent years in the field of neurobiology and genetics that enable us to better understand how early adversity affects the brains of young children?
2. How does early adversity become biologically embedded and influence mental and physical health outcomes down the road.
3. How does "the body remember" stress?
4. Define toxic stress and the difference between the kind of stress that we overcome as part of healthy development and toxic stress.
5. What does serve and return mean, and why is it important to healthy development?
6. What is mal-adaptive behavior and why is it a normal response to toxic stress?

2. ACEs

1. What are ACEs?
2. What are the 10 questions on the ACEs questionnaire, and how are ACE scores correlated with various downstream outcomes.
3. When the ACE study was released, what was your reaction to the findings? Even though you understood the correlations, were you surprised by the data?
4. What did the ACE study have to say about the correlations between adversity and substance abuse, crime, teen pregnancy, welfare dependency, obesity, heart disease, cancer, and premature death?

3. Resilience

1. Briefly define resilience.
2. How is resilience different than grit?
3. Hemmingway said "The world breaks everyone, but afterwards many are strong at the broken places." What does that observations mean to you?
4. How can we use behavioral measurements in young children to assess their vulnerability to excessive stress activation or toxic stress?
5. What is executive function, and how can it be measured?

6. Explain how early adversity impacts executive function.

7. Why is executive function so critical to healthy development and later success in school and life?

8. Can executive function be taught and learned? How?

9. Some people think resilience is innate. Explain how our environment in early childhood as well as our genetic make-up determine how we respond to adversity.

10. Explain the most important factors that foster resilience, starting with a nurturing parent-child relationship.

11. How can we foster resilience in the absence of a consistent, caring adult?

12. Explain the importance of early intervention from the standpoint of brain development.

4. Genetics

1. What is the difference between our genes and our epigenome?

2. How does toxic stress turn on or off certain genes, triggering various mental and physical health outcomes?

3. Does nurturing from a caring adult alter the epigenome?

4. What is the significance of "critical periods" when certain genes can be turned on or off?

5. Explain how our epigenome is altered by a harsh environment or nurturing environment and how those alterations can be passed down to the next generation, as in the case of Yvonne to Bobby, and to Bobby's son, Jeremiah.

6. Do our genes or does our environment determine our destiny? Or is the interaction between the two all-important is shaping life outcomes?

7. Are some children more susceptible than others to toxic stress? In other words, are some children more like orchids and need a great deal of nurturing while others are like dandelions and can thrive in harsh environments)

8. How can we determine which children have high sensitivity or reactivity versus children with low reactivity or sensitivity?

9. If we determine that a child has high sensitivity or reactivity to stress, does that mean that we should target our interventions to these children?

10. Describe the characteristics of the highly sensitive or reactive child - the orchid - and his or her response to both a nurturing as well as a stressful environment.

11. Describe the characteristics of the child with low sensitivity or reactivity to stress – the dandelion child – and his or her response to both a nurturing as well as a stressful environment.

5. Biomarkers for Toxic Stress and Resilience

1. What are the most promising ways to measure children experiencing heightened stress activation or toxic stress: measuring cortisol levels in hair or saliva: measuring inflammation or isoprotein

levels in urine; taking buchal swabs to map key sections of a child's genome; using saliva to measure telomere length; using EEG studies to measure brain responses to stimuli; or conducting executive function testing?

2. Do you foresee a day when reliable biomarkers will permit doctors to screen for toxic stress during routine pediatric visits?

3. What are telomeres and alleles, and how can they be measured to determine if a child is suffering from excessive stress activation?

4. What are the implications for public policy of having a reliable biomarker that can identify children with excessive stress activation ? Will these biomarkers enable caregivers to target interventions to those children most at-risk?

5. What is the overall significance of these latest breakthroughs in neurobiology?

6. Models for Early Intervention

1. There are countless models for early childhood interventions to promote healthy child development, but what are the characteristics that most successful approaches share?

2. What does it mean to have trauma-informed professionals interacting with children (doctors, teachers, police, judges, child welfare workers, etc)

3. Describe the achievement gap in poor neighborhoods around the country, and

4. Are we throwing away the potential of millions of children?

5. Can early childhood intervention reduce that gap?

6. Describe the role that structural racism plays in trapping families in poverty.

7. How do early intervention programs actually saving public dollars (fewer kids in special ed, held back a grade, fewer behavioral problems, higher graduation rates, college attendance, etc.).

8. Is there any significant data on the success of early intervention programs?

9. Explain why you get "more bang for the buck" by intervening early.

7. Social and Economic Cost of childhood adversity

1. Can we quantify the social and economic cost of toxic stress?

2. Can we characterize the savings our society could reap if we are able to intervene early with children at risk to mitigate the damage caused by toxic stress?

3. Is poverty hazardous to your health?

4. There is no easy fix for poverty – no poverty pill – so how can we hope to eliminate the risks that children growing up in poverty face?

5. If having a consistent caring adult is the key to healthy development, what can be done in the absence of that kind of love and support?

6. What are the most significant studies that demonstrate substantial savings from early childhood education and intervention. (Ypsilanti, Michigan Perry Pre-school, Chapel Hill, Chicago, and Elmira))

7. If people are not persuaded that investing in early childhood development and education is the morally right thing to do, do you think a hard-nosed economic argument will be more persuasive?

8. Why is early childhood development low or non-existent on most lists of how to improve economic development? And, how can we change that?

9. How can we take what we know about early childhood intervention and education to scale?

10. How do our early child development policies and practices compare with other countries?

11. Is early adversity something that impacts children in all socio-economic classes and not just children growing up in poverty?

12. In the face of overwhelming evidence that early childhood interventions work, why do we seem to be moving away from public investment in children? (Why are we willing to pay for incarceration but not prevention?)

8. Danny and Raymond Jacobs

1. The story of Danny and Raymond is a good example of siblings having very different outcomes from growing up in a stressful household. They each had different fathers that neither of them knew, and their mother became addicted to crack and abandoned them to fend for themselves when they were at different stages of their development. Can you explain what might account for their different experiences as young adults?

2. Is it possible that Danny had more protective factors going for him, making him less susceptible to the damage in his stressful environment?

3. Is it possible that Raymond's response to stress may have affected his epigenome in a way that triggered a psychotic break later in life?

9. Bobby and Yvonne Gross

1. 27 years ago we filmed Dr. Brazelton's interaction with Bobby Gross, a 5-year old showing aggressive, anti-social behavior and being left behind in school. Dr. Brazelton predicted a bleak future for Bobby based on his clinical experience. How has neurobiology and genetics advanced in 3 decades in ways that now enable us to understand scientifically what Dr. Brazelton understood from clinical experience?

2. What cost has society had to bear for Bobby's multiple problems?

3. Bobby grew up in a chaotic environment of violence, extreme poverty, and neglect. Explain how that environment impacted his brain, his epigenome, his development, and subsequent problems in life.

4. Given your understanding of the profound impact of the mother-child relationship's impact on our epigenome, what could be done on a policy level to ensure healthier development for susceptible children at risk like Bobby?

5. What is the cost to society of our failure?

6. Yvonne, Bobby's mother, suffered profound neglect, physical abuse, and sexual molestation starting at age 6. As a child, Yvonne had no models for how to nurture her own children. Given her depression (she tried to kill herself) as well as her other chronic conditions (hypertension, 2 strokes, cervical cancer, chronic pain – fibromyalgia etc.), what can we say about the correlation between her traumatic childhood and her later diseases and disabilities?

7. What do we now understand about the likelihood that Bobby inherited some of his mother's characteristics including his sensitivity to stress.

8. Bobby has a son is foster care with multiple disabilities stemming from cerebral palsy. (The mother was using a lot of street drugs) What does this 3rd generation of impairment and disability say about how the effects of adversity get passed down from one generation to another?

10. Daniella Rin Hover

1. Daniella is our poster child of resilience. What does the science and the field of epigenetics tell us about why she keeps bouncing back from adversity?

2. Can we speculate that Daniella is not highly reactive or sensitive to stress in her environment. Is her resilience partially a function of low reactivity or low sensitivity to stress?

3. What's the difference between resilience and grit?

4. Can this difference in biological sensitivity to stress or epigenetic make-up can help explain why one child in a family is able to thrive while another child in the same family is struggling.

5. Daniella says she hates the word resilience, because it distracts from the effort and choices she makes to overcome the obstacles she encounters. Do you agree with her?

6. Daniella talked about self-medicating with food and Veasna self-medicating with alcohol. Is this so-called mal-adaptive behavior an understandable response to stress?