

## ***The Foundation of Infant Mental Health***

Connecting the Science, Policy and  
Practice

(with some TLC added in for good measure)



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### ***Full Disclosure***

1. You will hear things today that may cause you to reflect on some of your own experiences as a parent or as a child. Remember, science and our understanding of early mental health has come a long way so don't be hard on yourself. Talk to someone if any of this is overwhelming.
2. I have biases – but most are based on the evidence.
3. This is a sales pitch. I have the following products that I will do my best to sell you:
 

- ✓ The knowledge that infant mental health exists
  - ✓ An understanding and acceptance that you are an influencer on many levels
  - ✓ Knowledge about infant mental health is empowering



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## ***Setting the Context***

Why Infant Mental Health  
Needs to Be Infused into Every  
Discussion on Mental Health



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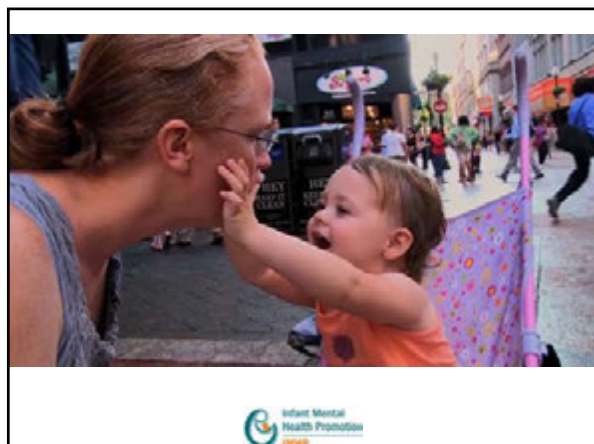
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**Poll time!**

How familiar are you with the concept of infant mental health?

Very  
Pretty familiar  
Sort of familiar  
Not so much  
Not at all

Infant Mental Health Promotion

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**What Is Infant Mental Health**

All of these emotions are part of an infant's mental health

Infant Mental Health Promotion

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### *Defined*

**Infant and early childhood mental health**, sometimes referred to as social and emotional development, is the developing capacity of the child from birth to five years of age to:

Form close and secure adult and peer relationships

Experience, manage and express a full range of emotions

Explore the environment and learn – all in the context of family, community, and culture

(Cohen, Oser & Quigley, 2012, pg. 1)

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### *What Is Infant Mental Health Promotion?*

Refers to the promotion of optimal development and wellbeing in infants (0-3 years) and their families, the prevention of difficulties and intervention when infants are at risk or have identified problems.

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### *Outcomes of Positive Early Mental Health*

Secure Attachment

➔

Capacity for Self-Regulation

➔

Resilience

➔

Optimal Brain Development

Positive early mental health increases the likelihood of:

- Positive physical and mental health outcomes
- Overall success

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<i><b>Behavioural Areas</b></i>	
BEHAVIOURAL AREAS	DEFINITION
Self-Regulation	Ability/ willingness to calm, settle, or adjust to physiological or environmental conditions
Compliance	Ability/ willingness to conform to the direction of others and follow rules
Communication	Verbal/ nonverbal signals that indicate feelings, affect, internal states
Adaptive	Ability/ success in coping with physiological needs
Autonomy	Ability/ willingness to establish independence
Affect	Ability/ willingness to demonstrate feelings and empathy for others
Interaction with People	Ability/ willingness to respond or initiate social responses with caregivers, adults, peers

ASQ-3™ and ASQ:SE Training Materials by Jane Squires, Jane Farrist, Jordana Clifford, Suzanne Yockelson, and Elizabeth Twombly  
Copyright © 2010 Paul H. Brookes Publishing Co. All rights reserved. www.sigstart.org/eng.com




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<i><b>The Challenge</b></i>
<ul style="list-style-type: none"> <li>• In Canada, there are no certifications for infant mental health</li> <li>• Services vary tremendously within provinces and across the country</li> <li>• We know for services that do exist, most communities experience significant waiting lists</li> <li>• We have no formal system for recognizing when development is derailed</li> </ul>




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<i><b>Your Context....</b></i>
<ul style="list-style-type: none"> <li>• <b>Many of you deal with the most vulnerable people</b> within Canada – those most vulnerable to poor mental health</li> <li>• <b>They have no voice</b></li> <li>• <b>They are dependent</b> on those around them to protect them from harm and meet their basic needs</li> <li>• <b>They are at HIGH risk</b> for a lifetime of poor outcomes physically, emotionally and cognitively</li> </ul>




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***Today (regardless of your role),  
I hope you will***

- See yourself as a leader in the promotion of infant mental health
- Create knowledge and seek knowledge
- Inspire and be inspired by the opportunities science is showing us exist
- Truly believe that you will make a difference




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***The Interdisciplinary  
Nature of IMH***

Practitioners in the field of infant mental health (IMH) come from diverse educational backgrounds




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***Poll Time!***

What discipline are you from?

- Psychology/ Psychiatry/ Counselling
- Medicine/ Nursing
- Social Work
- Early Childhood Education
- Speech & Language
- Occupational Therapy
- Physiotherapy
- Early Intervention
- Public Health




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### There Is Room for Improvement!

Country Performance across Nine Child-Related Goals - Canada (out of 41 countries)

Goal	Target	Canada	World Average
Zero Hunger	10%	10%	10%
Good Health & Well-being	10%	10%	10%
Quality Education	10%	10%	10%
Gender Equality	10%	10%	10%
Decent Work & Economic Growth	10%	10%	10%
Reduced Inequalities	10%	10%	10%
Responsible Consumption & Production	10%	10%	10%
Peace, Justice & Strong Institutions	10%	10%	10%

UNICEF Office of Research (2017). 'Building the Future: Children and the Sustainable Development Goals in Rich Countries', Innocenti Report Card 14, UNICEF Office of Research – Innocenti, Florence.




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### It's Not Just What's on the Outside that Counts





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### WHAT ARE THE FACTS OF INFANT MENTAL HEALTH?




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### Fact 1: Mom's Preconception Experiences Influence Baby

**Studies suggest that:**

- The accumulation of Preconception stressful life experiences (PSLEs) was associated with very low infant birth rate (Cheng, Park, Wiak, Mandell, Wakeel, Litzelman, Chatterjee and Witt, 2014)
- Women exposed to PSLE are 38% more likely to have a very low birth weight baby compared to those who are not exposed (Cheng, Park, Wiak, Mandell Wakeel, Litzelman, Chatterjee and Witt, 2014)
- PSLEs can lead to an increased risk for very low birth weight as well as poor health at 9 and 24 months of age (Cheng, Park, Wiak, Mandell Wakeel, Litzelman, Chatterjee and Witt, 2016)

**What does this mean for policies and programs?**





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### Fact 2: Throughout Pregnancy, Mom's Emotional and Physical State Influences Baby

From the moment of conception, an infant's physical development and mental health are influenced

Mom's maternal emotional state can impact the in-utero physiology and the baby across his/her lifespan (Kinsella, Monk, 2009)	Environmental factors such as maternal stress during pregnancy can effect later emotional, behavioural and cognitive outcomes (Glover, 2011)	In a systematic review by Gavin (2005) it was found that 13% of women experience depression during pregnancy	Such studies are concluding that the prenatal environment including exposure to maternal stress can have an effect that is sustained across the lifespan (Kinsella, Monk, 2009)
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### Fact 3: Attachment Is an Influencer

- Attachment, regulation and resilience are very connected to each other in the early years
- Sometimes, when we worry about a child's ability to manage behaviour, we need to look more closely at her attachment relationships

Center on the Developing Child (2013). Early Childhood Mental Health (InBrief). Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu).




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### ***Sustaining the Caregiving Relationship Can be Hard***

<p>Infants are completely dependent on their parents</p>	<p>Parents are vulnerable to their own past adverse experiences and traumas</p>
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### ***Poll Time!***

#### **How is attachment formed?**

- When a parent shows affection for their child
- When a parent plays with baby
- When a parent responds to baby's distress
- When a caregiver meets a baby's basic needs

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### ***Fact 4: Caregiving Builds Attachment***

**Infants will form an attachment to any caregivers, good or bad – not just those who are consistently responsive and loving.**



Bruce D. Perry (2004). *Maltreated Children: Experience, Brain Development, and the Next Generation*. New York: W.W. Norton.



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### What Is Attachment?

- The earliest relationship between an infant and their primary caregiver
- Develops early in infancy, but is most clearly evident at 7-9 months through **proximity seeking** and **stranger anxiety** (Bowlby, 1969)
- External regulation system akin to a **thermostat**
  - Proximity seeking behaviour triggered by infant's distress
  - Caregiver responsiveness and sensitivity brings about feelings of comfort and safety
  - Secure base for exploration (Bowlby, 1969)


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### Supporting Secure Attachment

Secure attachment is formed when the caregiver responds consistently and appropriately to the child's distress.




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### Strategies Involve...

Up-playing distress	Resistant	"I need you always."
Downplaying distress	Avoidant	"I don't need you."
Confusion to dilemma	Disorganized	"I'm scared to need you."




Rella, 2017

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Attachment and bonding are terms that are **often used interchangeably**, but there are distinct differences (Hughes, 2010)

Attachment	Bonding
<ul style="list-style-type: none"> <li>✓ Scientific term to describe infant's relationship with the parent or primary caregiver (felt-sense of safety)</li> <li>✓ Degree of security "determined" through parents' responsiveness and sensitivity</li> <li>✓ Developmental process over the first two years of life</li> <li>✓ Child's point of view</li> </ul>	<ul style="list-style-type: none"> <li>✓ Parents' &amp; primary caregivers' surge of love and tenderness felt towards the infant</li> <li>✓ Ongoing relationship that is emotionally meaningful and creates desire to maintain mutual contact</li> <li>✓ Can develop well before birth of infant (i.e., at conception)</li> <li>✓ From the parents' perspective</li> </ul>




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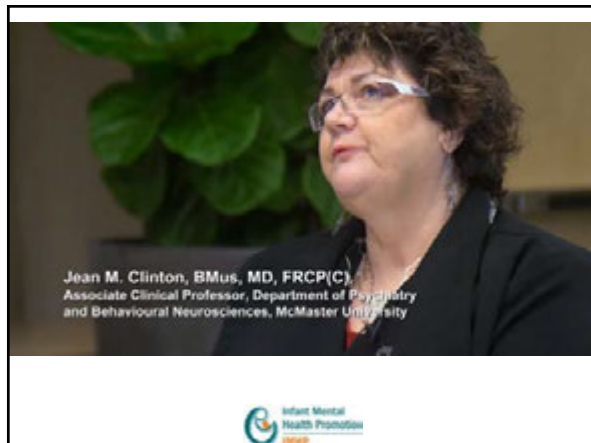
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## Emotional Development Consequences

- Meta-analyses → consistent associations between PPD and insecure attachment  
*(Martins and Gaffan, 2000; Atkinson et al., 2000; Campbell et al., 2004)*
- For infants, insensitive or unresponsive parenting has been found to be among the strongest predictor of insecure attachment *(e.g., Egeland & Farber 1984)* and infants' difficulty in establishing effective self-regulation skills *(e.g., Tronick & Gianio 1986)*




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**Poll Time!**

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Do you think babies remember their early experiences?

Yes  
No  
Not sure...



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**Fact 5: Early Experiences Are Life-Altering**

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**An infant's early experiences, including emotional ones, will be wired into the architecture of her brain. This includes good and bad experiences.**



National Scientific Council on the Developing Child (2004). *Children's Emotional Development Is Built into the Architecture of Their Brains*. Working Paper No. 2. Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu).



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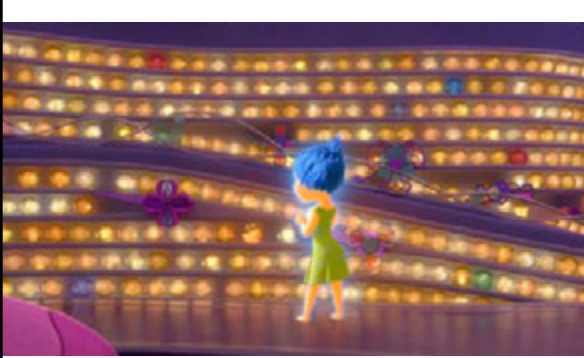
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**Fact 6: Every Baby Is Born with the Capacity to Be Resilient but They Are Not Born Resilient**

Resilience develops over time. Infants are born with the capacity to develop resilience. When they experience early adversity, it can be difficult for them to recover without a secure attachment.



National Scientific Council on the Developing Child (2012). Supportive Relationships and Active Skill-Building Strengthens the Foundations of Resilience: Working Paper No. 12. Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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Center on the Developing Child  HARVARD UNIVERSITY  
NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

**INBRIEF**

**What is Resilience?**




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**Fact 7: Life before School Matters a Great Deal**

Early experiences matter. The experiences a child has before starting school will influence their development and success once in school.



Center on the Developing Child (2013). Early Childhood Mental Health (InBrief). Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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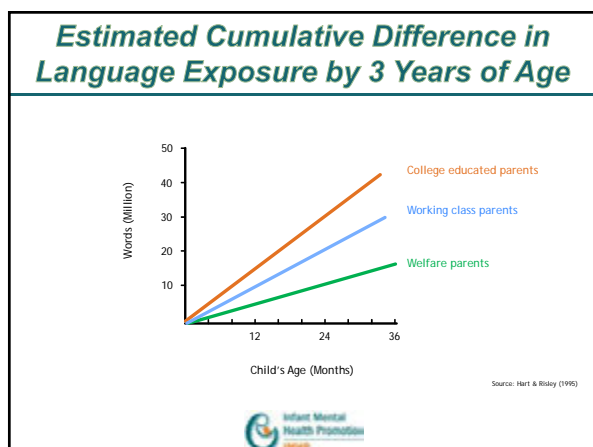
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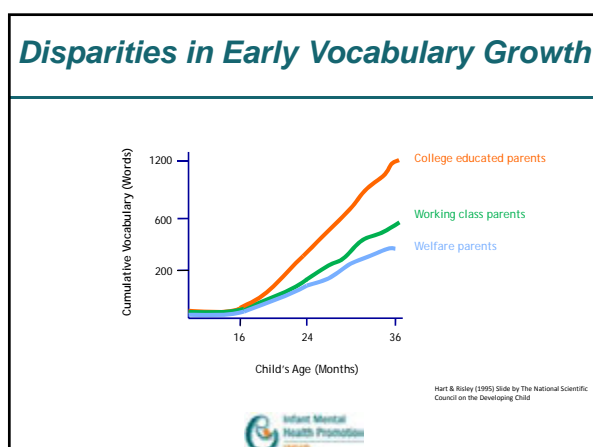
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### ***Fact 8: We Can Recognize Risk Early***

**We can recognize poor mental health during infancy. And in a perfect world, we would actually respond immediately.**



National Scientific Council on the Developing Child (2012). Establishing a Level Foundation for Life: Mental Health Begins in Early Childhood: Working Paper No. 6. Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu).




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### ***Fact 9: Paying Attention Can Change a Child's Life***

"Early signs of greater risk for mental health problems are usually not called mental problems by people. They are usually called behaviour problems, or a child who has difficulty controlling their emotion. Some of these may be early signs of what might be a mental health problem and some of which may be differences among perfectly healthy children."

**Jack Shonkoff**

Centre on the Developing Child (2015). Early Childhood Mental Health (InfBrief). Retrieved from <https://www.youtube.com/watch?v=1d415cp-YR0s>.




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**Fact 10: There Is No System of Infant Mental Health** (perhaps exceptions but generally not)

**Many infants and toddlers who experience neglect and/or abuse are not getting the help they need to address their mental health needs.**

Bruce D. Perry (2004). Maltreated Children: Experience, Brain Development, and the Next Generation. New York: W.W. Norton.




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**Community Mapping of IMH Services**



To **document** based on the multi-sectoral agencies and practitioners working with young children at the community level:

- Current infant mental **programs**, services and initiatives
- **State of knowledge** and expertise
- **Organizational policies** that reflect the science of infant mental health and those that do not
- **Opportunities** to strengthen programs, services and initiatives




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### Identifying Key Themes across All Communities

1. The current system of supports for families is fractured - **increased communication and transparency** between sectors is imperative
2. **There is a need for increased awareness** surrounding IMH across a wide range of disciplines and professional bodies (e.g., post-secondary education sector, medical professionals, early interventionists, etc.)




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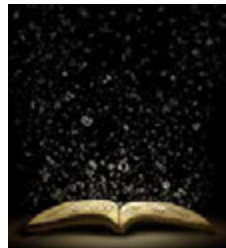
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### Identifying Key Themes across All Communities

3. **Knowledge is limited and varied** - Those working with infants and families come from various backgrounds with various levels of training and no common body of knowledge of infant mental health and early development




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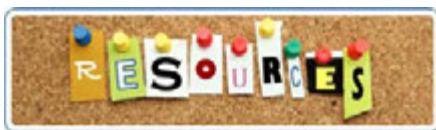
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### Identifying Key Themes across All Communities

4. Generate a pool of relevant **resources** for agencies




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### Identifying Key Themes across All Communities

**5. Ensure screening with a strong social emotional component** - Screening initiatives, protocols and tools for developmental screening are **not consistently available or used**

**6.** Waiting lists are a significant concern and often derail development further while leaving those referring feeling they have done something




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### Identifying Key Themes across All Communities

**7. Transparency** is key to collaboration and effective referral

**8.** Agencies are often **unaware** of existing programs and services within their own or how to help families engage with services; Pathway documents that help practitioners and parents would be helpful




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### Identifying Key Themes across All Communities

**9.** Need for a shared standard of practice regarding **organizational policies and practices** that support infant mental health in order to identify gaps and opportunities

**10.** Must reach out to higher level stakeholders (e.g., government, ministry, LHIN) to instill **widespread policy changes**




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### Identifying Key Themes across All Communities

11. Creating and circulating not just culturally sensitive but **culturally meaningful** services and resources

12. Communities are taking interest in establishing an **evidence base** on screening and developmental support planning





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### Identifying Key Themes across All Communities

13. Need for **reflective practice and supervision** to support staff wellbeing and prevent burnout

14. Create **awareness** surrounding IMH across a wide range of disciplines and professional bodies





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### A Greater Emphasis on Two Key Themes in Indigenous Populations

1. Limited **knowledge on FASD and intergenerational transmission** - significant risk factors among indigenous populations

- ✓ Screening
- ✓ Informed developmental planning

2. Need for **culturally sensitive and meaningful resources and services** that integrate knowledge from elders, world views, beliefs, values, and spiritual traditions




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### Fact 11: We Can't Afford to Ignore Potential Risk for Poor Mental Health Early in Life

- Young children are unlikely to simply outgrow early mental health problems without support and interventions (Breslau et al., 2014)
- When we don't recognize and respond to early vulnerability to poor mental health, there are long-term social and economic impacts

Clinton, J., Kays-Burden, A., Carter, C., Bhasin, K., Cairney, J., Carrey, N., Janus, M., Kulkarni, C., & Williams, R. (2014). Supporting Ontario's youngest minds: Investing in the mental health of children under 6. Ontario Centre of Excellence for Child and Youth Mental Health. Retrieved from [http://www.excellenceforchildand youth.ca/sites/default/files/policy\\_early\\_years.pdf](http://www.excellenceforchildand youth.ca/sites/default/files/policy_early_years.pdf)




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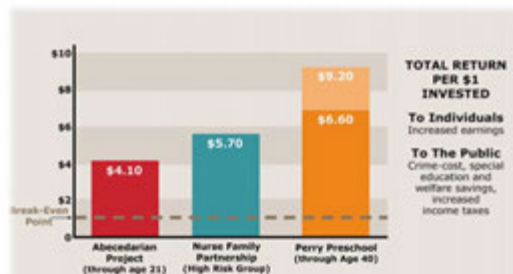
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### Investing in the Early Years...Is an Investment!

Early identification, intervention and prevention are more effective than fixing things later in life...



(Centre on the Developing Child, 2017)

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### Fact 12: Regulation Begins Early – Support It

Infants and toddlers begin to learn to regulate emotion and behaviour as soon as they are born.



Center on the Developing Child (2007). The Science of Early Childhood Development (InfBrief). Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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**Fact 13: Responding Early Is the Right Thing to Do** *(waiting/ wait lists derail development)*

When we recognize and respond early to mental health concerns with the appropriate supports and services, it is easier and more likely to positively influence development.



Center on the Developing Child (2007). The Impact of Early Adversity on Child Development (Infbrief). Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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**Poll Time!**

How early can you identify signs of risk for mental health issues?

- Prenatally
- Birth
- One Month
- 2 - 3 Years
- School Entry




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**Fact 14: Poor Mental Health Can Be Detected before Children Enter the Formal School System**



Center on the Developing Child (2013). Early Childhood Mental Health (Infbrief). Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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### ***Fact 15: Early Adversity Matters***

- Early adversity can have a damaging effect on short- and long-term outcomes
- When we don't understand a child's context, their journey, their lived experiences, our ability to respond to their needs in a meaningful way is significantly compromised




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### ***WHAT INFLUENCES INFANT – EARLY MENTAL HEALTH OUTCOMES?***




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### ***Your Perspective***

Your attitudes, beliefs and knowledge influence what you see and how you see it.




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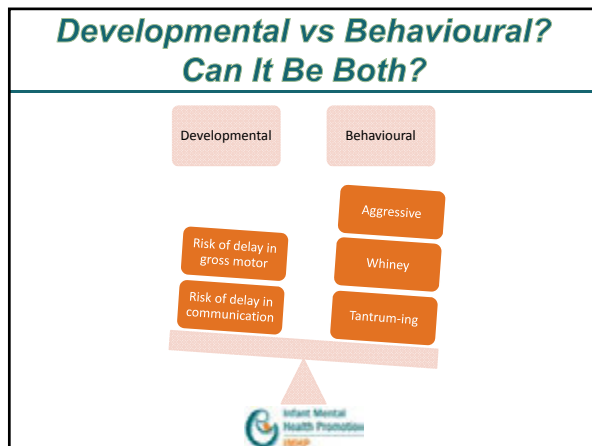
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### For Infants & Young Children with Ruptured Relationships...

Difficult behaviours such as aggression, whining, and tantrums are examples of strategies that:

- Are wired into the brain
- The child uses to help regulate herself
- The child uses to maintain autonomy from her caregiver



Adapted from Mary Rella, 2017 IMHP presentation




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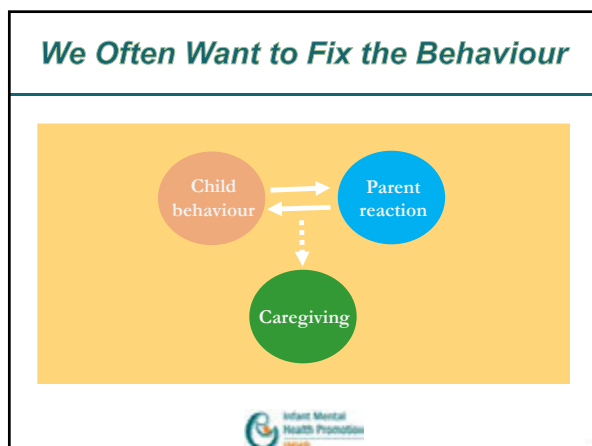
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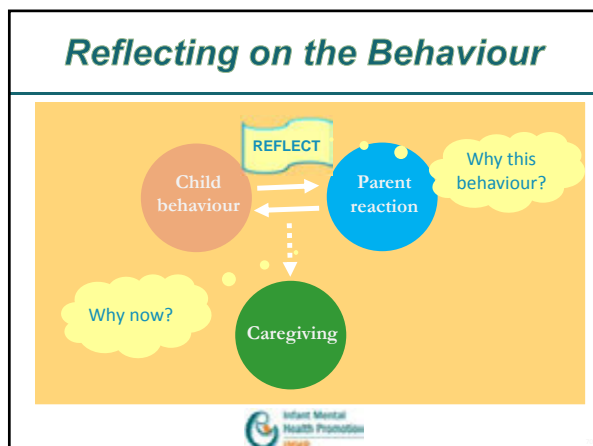
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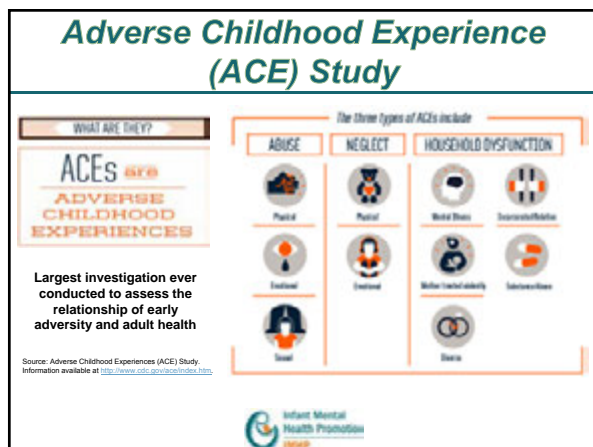
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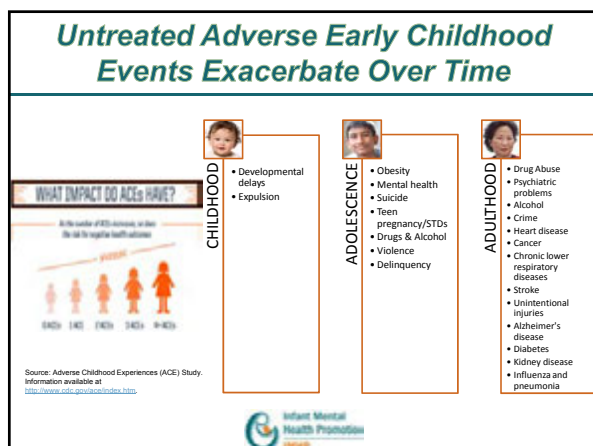
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**Poll Time!**

What is the best protective factor?

- Wealth
- Education
- A buffering relationship
- Discipline
- 2 Parent Household



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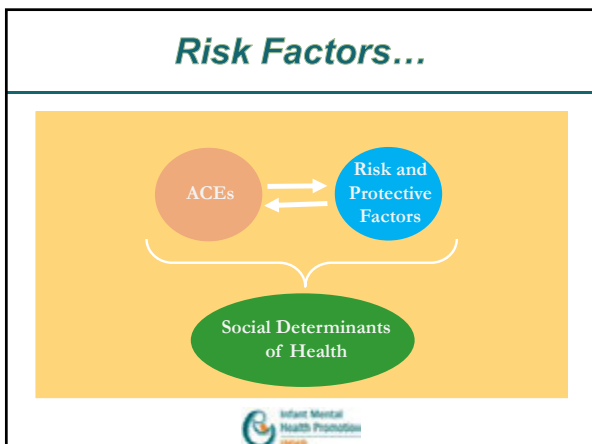
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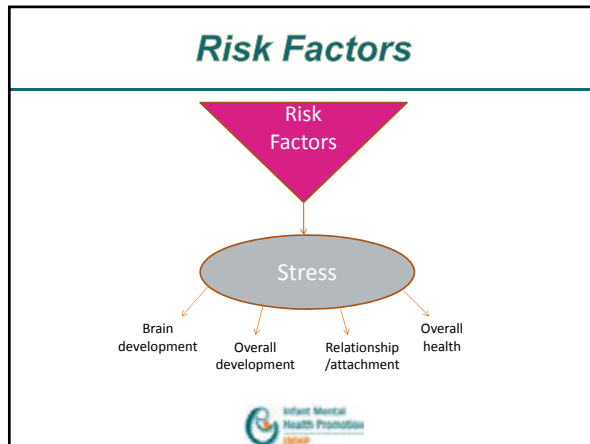
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### For Example, Consider Trauma as a Risk Factor

**Isolation, indifference and neglect can each be traumatic for an infant. In each, there is an absence of an emotional buffer.**

Infant Mental Health Promotion  
IMHP

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### Does Early Trauma Really Have an Impact?

Sometimes adults say, "They're too young to understand." However, young children **are** affected by traumatic events, even though they may not understand what happened.

Age does not protect a child from trauma and the impact it can have on developmental outcomes.

The National Child Traumatic Stress Network (2010). Early Childhood Trauma. Retrieved from [http://nctsn.org/nctsn/hav.do?cid=tpc\\_early1](http://nctsn.org/nctsn/hav.do?cid=tpc_early1).

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### Neurobiological Effects of Early Childhood Trauma

<b>Structural Effects:</b> Larger lateral ventricles; smaller intracranial volume <small>(De Bellis, Keshavan, et al., 1999)</small>	<b>Chemical Effects:</b> Dysregulation of stress hormones <small>(De Bellis, Chrousos, et al., 1994; Hart, Gunnar,                      &amp; Cicchetti, 1996; Kroupina et al., 1997; Tarullo                      &amp; Gunnar, 2006)</small>
<b>Neuropsychological                      Effects:</b> Higher neurological sensitivity to angry visual and auditory stimuli <small>(Pollak, Cicchetti, Korman, &amp; Brumaghim, 1997;                      Shackman, Shackman, &amp; Pollak, 2007)</small>	<b>Chromosomal Effects:</b> Telomere erosion; shorter telomere length <small>(O'Donovan et al., 2011; Shalev et al., 2012)</small>

(Lieberman, 2014)

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## ***Trauma and Protective Factors***

- When a child is vulnerable to continued exposure to any of these experiences, they are more likely to be traumatized
- At the time of the trauma, the protective factors surrounding a child may help a child overcome and recover from the event
- But for too many infants and toddlers those factors are not consistently present in their lives




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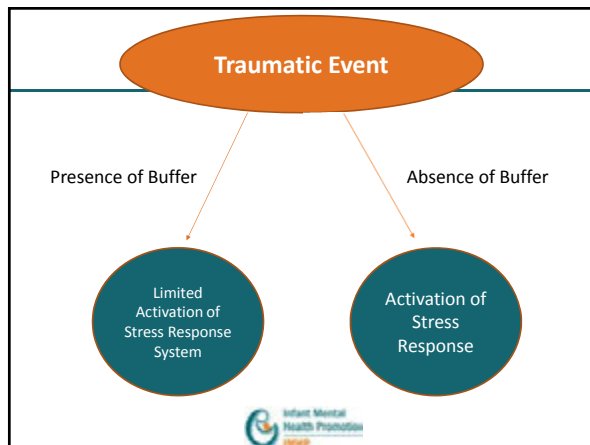
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## ***RESEARCH OVERVIEW: THE SCIENTIFIC FOUNDATION OF INFANT MENTAL HEALTH***




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### Poll Time!

What type of abuse is a greater threat to young children?

- Physical/ Sexual Abuse
- Domestic Violence
- Neglect
- Poverty
- Loss/ Tragedy




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### Concept 1

- **Neglect** can be a greater threat to development than abuse
- The impact of neglect will be different depending on the child's age
- For infants and toddlers, we see delays in their ability to understand and manage emotions, cognitive delays, impairments in executive functioning and stress response
- Just removing a child from an environment of severe neglect is not a guarantee of positive outcomes

National Scientific Council on the Developing Child (2012). The Science of neglect: The Persistent Absence of Responsive Care Disrupts the Developing Brain. Working Paper 12. Retrieved from <http://www.developingchild.harvard.edu>.




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## Neglect...

When children are experiencing neglect, their brains are focused on getting their needs met with no attention to other areas of development.




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## This Is Amy – 12 Months Old




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## What Should We Be Asking?

- What could the conversation be?
- What is preventing the staff from being responsive?
- Are babies really so clever and manipulative?
- What do we know about Amy's caregiving at home to help us learn how to comfort her?
- How can staff plan ahead for the arrival of a child into a program




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***Apply the Science: Recognize Responsive Care as a Basic Necessity for Infants and Toddlers***

What we know	What we do with what we know
<p>Built into our biology is the need to have responsive interactions with adults.</p> <p>For infants, neglect is when they don't get what the brain is expecting to get, what the child is expecting to get, what we are biologically prepared and waiting for which is input from those around us.</p>	<p>Understand and embed in our practice the importance of responding to a baby.</p> <p>Have a plan for a new child – in foster care, child care, resource program, or kindergarten.</p> <p>Model responsive care for your colleagues, caregivers, parents.</p>




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***What Else Can Be Done to Strengthen IMH Practice?***

- Actively encourage greater empathy for children experiencing difficulty
- Print off the brief from the Centre
- Leave the slides from today in the staff room
- Speak to the supervisor about adding this to the next staff meeting
- Attend/view IMHP rounds – accessible through the archive
- Identify conferences, etc. that you and other staff can attend to strengthen your knowledge




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***Concept 2***

**Brains and Skills Are Built Over Time Right from Conception**

The experiences of the early years will influence both the brain and the genes – often referred to as the architecture or the foundation for all learning to come




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### Critical Periods

- Critical periods of brain development are times of significant opportunity
- Experiences that occur during critical periods have an extraordinary power to shape brain development
- These periods tend to occur early in life, making early experiences important to understand
- Based on the instructions received from the system, the brain may adapt to optimize the expectation of a similar experience in the future

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### Poll Time!

How many synapses are formed each second in a baby's brain?

500  
 2,500  
 75,000  
 500,000  
 1,000,000 +

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## Brain Development

Over 1 million new neural connections are made every second in the first three years of life – but environment and experience can change that for a baby.

This period of brain growth devours more calories than any other phase of development.

**Human Brain Development**  
Synapse Formation Dependent on Early Experiences  
(700 per second in the early years)

Data source: C. Nelson (2000). Graph courtesy of the Center on the Developing Child at Harvard University.

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## Brain Growth in the Early Months

newborn    1 month    3 months    6 months

www.developingchild.harvard.edu    Center on the Developing Child | HARVARD UNIVERSITY

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## Synapse Formation and Pruning

BIRTH    6 YEARS OLD    14 YEARS OLD

Photo: AP Images, David White, 2012. Reducing the Brain

© Copyright © 2014 Center on the Developing Child. All rights reserved. Research is growing the concept of pruning of brain development will be done to help children and to help families of children to see to their own learning. For more information, visit www.developingchild.harvard.edu.

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### ***This Is Joey – 2 Years Old***




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### ***What Should We Be Asking?***

- What has Joey learned up to this point about managing different emotions?
- Do we know if Joey has ever had the chance to learn ways of managing his emotions and behaviour?
- How much of Joey's past is influencing his behaviour?
- How can we move from managing the behaviour to understanding the behaviour?

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### Apply the Science: Brains Are Built Over Time

What we know	What we do with what we know
<p>A child's experiences early in life have a lasting impact on the developing brain. These experiences promote or impede the wiring in the brain.</p> <p>Early in life, connections are being made between brain cells at a very rapid pace – never seen again.</p> <p>Not all connections last. Those that get used the most will be strong. Those that don't get used will be pruned away.</p> <p>The neuroscience tells us that supporting early connections through experiences and relationships is critical in the first three years.</p> <p>Negative experiences are wired into the brain and can guide a child's behaviour in the same way that positive ones can.</p>	<p>We talk about being trauma-informed – have we shared Joey's trauma with foster mom?</p> <p>Have we discussed with others Joey's caregiving history – he is in care for a reason and that may help us understand the aggression.</p> <p>The connections that govern getting his needs met through aggression have been used a great deal – they are strong. Other connections for other strategies – not so much.</p> <p>Perhaps we need a plan to help create new connections for new strategies that Joey can begin to develop to get his needs met.</p> <p>Maybe understanding Joey's history will help us understand the behaviour and, ultimately, help us guide it.</p>




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### What Else Can Be Done to Strengthen IMH Practice?

- Review a child's social history
- Think about what care-getting strategies may be wired into the child's brain
- Share the child's history with the child's caregivers (i.e. foster parents, teachers, etc.)
- Identify how the child can learn other strategies




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### Concept 3

#### Brain Architecture and Skills Are Built in a « Bottom Up » Sequence

- The circuits that process basic information are wired before those that process more complex information
- Those circuits that will process more complex information will be built on the earlier circuits
- The architecture of those higher skilled circuits will be compromised if the lower level circuits are not properly wired



National Scientific Council on the Developing Child (2004). *Children's Emotional Development is Built into the Architecture of Their Brains*. Working Paper No. 2. Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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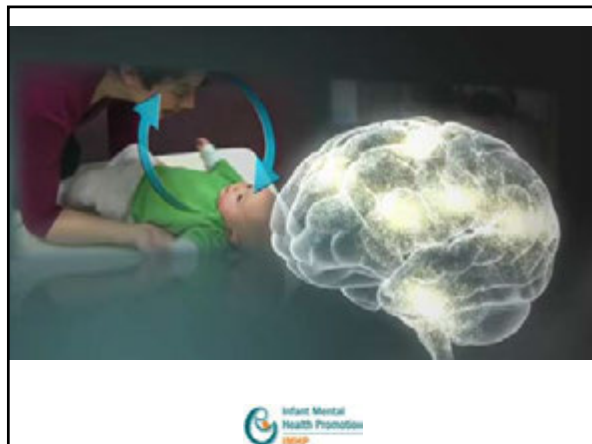
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***Development Counts but Who Is Watching?***

“Developmental structures are incorporated into later developmental structures, so that early competence tends to foster later competence, and early incompetence tends to promote later incompetence.”

(Cicchetti & Cohen, 1995; Waters & Sroufe, 1983)




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***Use It or Lose It!***

The more a system or set of brain cells is activated, the more that system changes in response. The stronger the repetitions, the stronger the memory.


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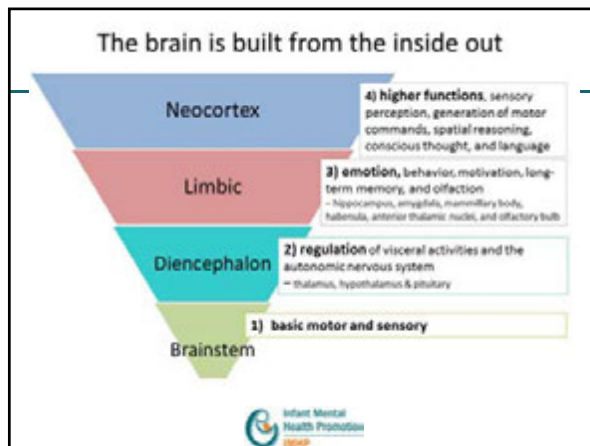
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***Poll Time!***

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A child can only learn one language at a time.

True  
False  
Don't know...

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### What Should We Be Asking?

- How is mom feeling about Yan going to school?
- What language is spoken at home?
- How much time has Yan spent with other children?
- Has Yan spent any time away from mom?
- How do children from Yan's community typically prepare for school?
- How does mom think Yan is feeling about starting school?
- Has Yan socialized with English speaking children?
- Does Yan speak at home?
- Is this about language or something else?




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### Apply the Science: Brain Architecture & Skills Are Built in a Bottom-Up Sequence

#### What we know

Brain circuitry is complex – dependent on and driven by relationships.  
The earliest circuits assume the simplest of tasks.  
Every subsequent layer assumes a task more complex than the preceding layer.  
Complex functions take the longest to be wired but depend on a solid foundation of circuitry.

#### What we do with what we know

Encourage mom and Yan's teacher to give Yan the opportunity to use words to express herself.  
Offer mom strategies to encourage Yan to talk. For instance, reading a story together and asking Yan questions.  
Find a Hanen language program accessible to mom.  
Schedule one home visit at the library so mom and Yan can get a card and meet the librarian.




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### What Else Can Be Done to Strengthen IMH Practice?

- Gather some insight into a child's culture
- Find local programs
- Explore with caregiver their feelings about their child's development
- Find ways to engage caregivers in your program




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### Poll Time!

The brain stops growing after age 25.

True  
False  
Not sure...




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### Concept 4

#### Brain Plasticity – The Ability to Change Decreases Over Time

- Plasticity is the brain's ability to change in response to stimulation
- But as we get older brain circuits stabilize – harder to change
- The opportunity to change exists even after the early years – the cost of remediation grows with age

National Scientific Council on the Developing Child (2004). Children's Emotional Development is Built into the Architecture of Their Brains: Working Paper No. 2. Retrieved from [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)




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### What's Easier to Build?



"It is easier to build strong children than repair broken men."

(Frederick Douglas)




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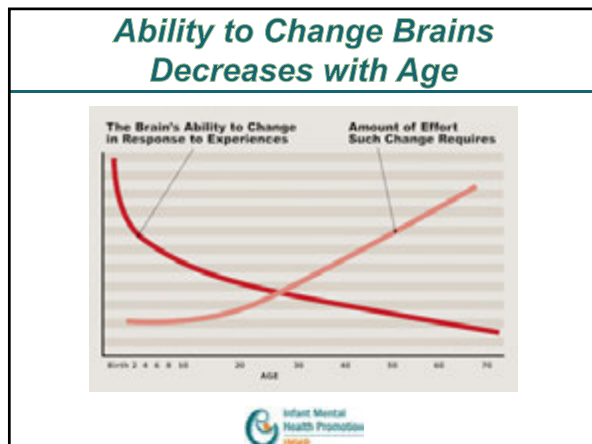
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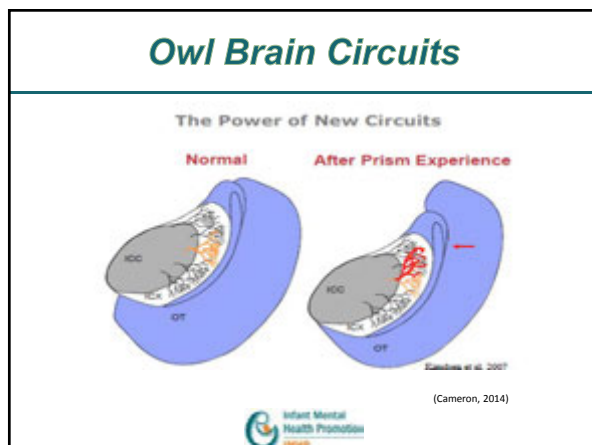
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### What Should We Be Asking?

- What was mom's parenting like?
- What does mom think Sierra is learning in terms of managing her distress and having her needs met?
- How is mom's lack of response influencing the attachment relationship?
- How are these inconsistent responses impacting Sierra's overall development?
- How can a conversation with mom begin....where would you start?




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### Apply the Science: Ability to Change Decreases

#### What we know

Experiences influence the creation of connections in the brain.  
The ability of the brain to change is greatest in the first few years.  
It's easier for babies to make new connections in their brain as infants.  
Replacing poor connections is hard work for a child and those around her.  
All interactions – good and bad – will influence brain development and gene expression.

#### What we do with what we know

We need to model appropriate ways caregivers can support early development.  
We need to talk with parents about how plastic their baby's brain is now and how important it is to surround their baby with good experiences.  
We need to understand the concept of plasticity by reading and talking with colleagues.  
We need to understand and talk about what our actions teach a baby and how difficult it can be to unlearn behaviours later in life.




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### What Else Can Be Done to Strengthen IMH Practice?

- Think about the experiences a child brings and the wiring that has likely happened to understand behaviour and development
- Remind yourself and others that repetition strengthens connections
- Start to share reading materials about plasticity with colleagues




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**IN BRIEF | THE SCIENCE OF EARLY CHILDHOOD DEVELOPMENT**

The science of early brain development can inform investments in early childhood. These basic concepts, established over decades of neuroscience and behavioral research, help illustrate why child development—particularly from birth to five years—is a foundation for a prosperous and sustainable society.

**1 Brains are built over time, from the bottom up.**  
The basic architecture of the brain is constructed through an ongoing process that begins before birth and continues into adulthood. Early experiences affect the quality of that architecture by either strengthening or weakening it. In the first few years of life, the brain's neural connections are formed every second. After this period of rapid proliferation, connections are reduced through a process called pruning, so that brain circuits become more efficient. Sensory pathways that drive language and hearing are the first to develop, followed by skills for language skills and higher cognitive functions. Connections proliferate and grow in a prioritized order, with later, more complex brain circuits built upon earlier, simpler circuits.

**2 The interactive influences of genes and experience shape the developing brain.** Scientists now know a major component in this developmental process is the "nature and nurture" relationship between children and their parents and other caregivers.

**Human Brain Development**  
Neural Connections for Different Functions Develop Sequentially

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**Concept 5**

**Serve and Return is essential to early learning, health and wellbeing.**

Serve and Return. (n.d.). Retrieved January 26, 2016 from <http://developingchild.harvard.edu/science/key-concepts/serve-and-return/>.

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**Babies are born relationship-ready – their growth is dependent on the relationships they have in their daily life**

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## Serve and Return

Infants naturally reach out for interaction through babbling, facial expressions and gestures.

Adults respond – this is essential for the development of healthy brain circuits.



Serve and Return. (n.d.). Retrieved January 26, 2016 from <http://developingchild.harvard.edu/science/key-concepts/serve-and-return/>.




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## What Kind of Relationships Do Babies and Toddlers Need to Support Their Mental Health?

- **Responsive**
  - I am here to meet your needs, comfort you and protect you
- **Engaged**
  - I want to be with you, play with you, watch you grow and be a big part of your world as you are a big part of my world
- **Present**
  - I am here in body, mind and soul, you have my full attention and my love





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Growing Together Every Day

### Be engaged & engaging

0-3 months	4-6 months	7-12 months	13-18 months	19-24 months	25-36 months
<p>Bring, smile, read, message, touch and play.</p> <p>Every baby is born ready for love and to interact with their caregivers with these activities.</p> <p>At this stage, you are the "best" friend!</p>	<p>Talk, sing, imitate your baby's voice and actions. He will look at you and use and combine words.</p> <p>Bring actively engaged in baby's life and join you to learn the language and social rules from context.</p> <p>But watch for cues that baby needs a break, e.g., looks away or needs some quiet time.</p> <p>This is just the way of ensuring that he is understanding. He will get into it when he is ready.</p>	<p>Pick up on her cues when she wants something and introduce her to new things, new places and new toys.</p> <p>Follow her lead when she expresses her interest. You will come to learn what she enjoys doing and will be able to foster that interest and expand on it.</p>	<p>Start down to baby's level and follow the lead and engage his actions.</p> <p>Learn the interests and what he enjoys doing.</p> <p>Become his play partner and expand on his interests.</p>	<p>Join in her play and help foster her social play skills. Watch her sharing and turn taking.</p> <p>Learn the interests and what she can take care when she plays with her peers.</p> <p>Baby is beginning to engage in pretend play and is exploring your actions.</p> <p>Give space you are her role model.</p>	<p>Continue to help him with turn taking and sharing.</p> <p>These early toddler years are critical for independent exploration of the world, communicating thoughts and ideas, and becoming more easily understood.</p> <p>Become a play partner and help him increase his imagination by introducing different scenarios.</p>




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### Apply the Science: Serve & Return

What we know	What we do with what we know
Experiences drive brain development and influence the connections in the brain.	With caregivers, talk about their baby's feelings – "What do you think she feels when you smile at her? Or when you don't respond to her cries?"
Babies need positive interactions throughout their day – as important as good nutrition.	Coach and model positive <i>serve and return</i> during access visits.
How we respond to a baby – including their distress – will influence how they manage such feelings as an older child and into their adult years.	Connect a child and family to services where positive <i>serve and return</i> will happen frequently (OEYC). Share a video at your next staff meeting. Discuss the strategies that are typically used and how they might positively or negatively influence connections in the brain.




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### What Else Can Be Done to Strengthen IMH Practice?

- Learn about a child's caregiving experiences
- Ask about a child's temperament
- Inquire about the strategies a child currently uses to get his/her needs met
- Observe a child within the primary caregiving relationship




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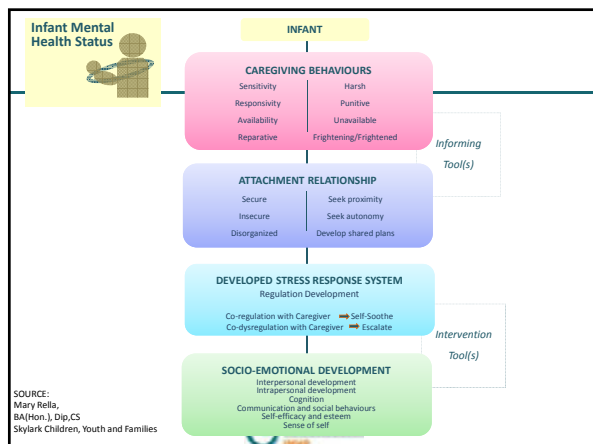
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**Poll Time!**

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Our genes determine our outcomes.

True  
False  
Not sure...



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**Concept 6**

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**We Influence Gene Expression**

- Epigenetics
  - Experiences influence gene expression
  - The expression of genes will influence brain development

McGowan, P. O., & Szyf, M. (2010). The epigenetics of social adversity in early life: Implications for mental health outcomes. *Neurobiology of Disease*, 39(1), 66-72.



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**Early Experiences Alter Gene Expression & Shape Development**

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**Epigenetics:**




Modern advances in our understanding of factors that control gene activity




A molecular approach to studying the influence of early life experiences.



Changes in gene expression caused by mechanisms other than the underlying DNA



McGowan, P. O., & Szyf, M. (2010). The epigenetics of social adversity in early life: Implications for mental health outcomes. *Neurobiology of Disease*, 39(1), 66-72.



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## Epigenetics

When a baby interacts with her environment, that experience can leave a chemical signature on a baby's genes.

This can potentially mute some genes and amplify the expression of others.

McGowan, P. O., & Szyf, M. (2010). The epigenetics of social adversity in early life: Implications for mental health outcomes. *Neurobiology of Disease*, 39(1), 66-72.




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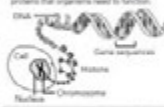
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### Cells and genes


1. The human body has trillions of cells, each one with a nucleus, its command center. The nucleus of each cell contains chromosomes. Within the chromosomes, long, double-helix strands of DNA are made up of specific segments of genetic code, known as genes. Genes are tightly coiled around histones that work as support structures for genes. Genes contain the order for cells to produce the various proteins that organisms need to function.




2. Experiences leave a chemical "signature," or epigenetic mark, that can alter the genes, which determine whether and how the genes are expressed—or switched on or off. Collectively, these signatures are called epigenomes.




3. All cell types—muscle cells, nerve cells, liver cells, etc.—contain the exact same DNA. Epigenetics marks release certain gene sequences and activate others so that parent cells can differentiate.



4. Stressors like abuse or poor nutrition can activate epigenetic marks, modifying histones or adding methyl groups to DNA strands. These changes can turn genes on or off and may affect what gets passed down to the next generation.



Adapted from: Chorney, E., Beards, A., & Fergusson, M. (2015). *Neuroscience: Concepts in the Developing Child* (2015). Hoboken, NJ: Wiley.




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## Genes and the Social Environment

Map of human genome in 2001 was heralded as a triumph of biological science.

“...Evidence suggests that the social environment has a profound impact upon the function of one's genes, providing the context and stimulus for the variable expression of an inherited code.”

Denenberg, A.E., Denenberg, D., Pasca's, Wager: From science to policy on early childhood development. Can J Public Health 2010;101(3):235-36.




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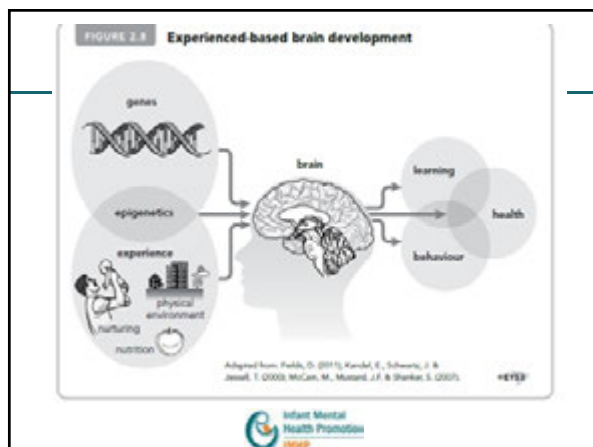
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## Experience & Heredity

Research now shows that many capacities thought to be fixed at birth are actually dependent on a sequence of experiences combined with heredity. Both factors are essential for optimum development of the human brain.

Shonkoff, J. P., Phillips, D. A., & National Research Council (U.S.). (2000). From neurons to neighborhoods: The science of early child development. Washington, D.C: National Academy Press.




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## Maternal Style



Mothering has a lifelong influence on health of offspring passed on from generation to generation via epigenetics.




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## Familial Transmission

- Epigenetics is helping us understand how maternal care is transmitted across generations
- Through epigenetics, we are gaining an understanding of how parents shape the future parental behaviour of their children
- Epigenetics helps us to understand the pathways environmental experiences take to become embedded internally within genes and, ultimately, brain architecture




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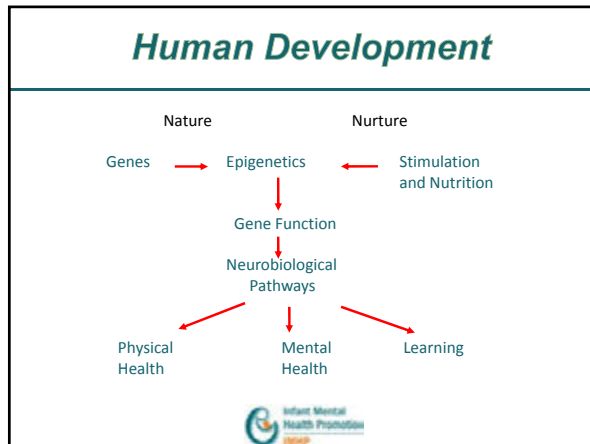
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- ### What Should We Be Asking?
- What were the relationships like in previous placements?
  - When did anyone first feel Jonathon was a challenging child? What was done when this concern was raised?
  - Does Jonathon have a consistent caregiver/champion in his life?
  - Does Jonathon have any siblings and if so, what does that relationship look like?
  - What strategies are currently used when caregivers feel challenged by his behaviour? What works and what doesn't?
  - Has Jonathon been screened for his development? If so, what was learned and what was the response?

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### Apply the Science: We Influence Gene Expression

What we know	What we do with what we know
<p>What experiences is this child given that positively influence gene expression?</p> <p>What are the negative experiences a child is having that may negatively influence gene expression?</p> <p>Early trauma – such as disrupted attachment, lack of stable housing, lack of stable relationships – influences a child's gene expression and brain development.</p> <p>What looks like difficult behaviour may be the only way a child knows how to survive.</p> <p>Trauma takes a toll on development – especially on a child's ability to manage emotions. It could also be the wakeup call for a genetic predisposition.</p>	<p>Share the child's trauma with the foster parent – create a timeline – we all talk about trauma-informed care, let's actually practice it!</p> <p>Remind the caregiver that s/he can provide a stable relationship that could change this child in a positive way.</p> <p>Talk about the idea that a child is born relationship-ready and their development after birth is, in fact, dependent on relationships. This child has not had consistent or quality relationships.</p> <p>Talk about how positive experiences are more likely to support positive gene expression and negative experiences - more likely to support poor expression.</p>




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### What Else Can Be Done to Strengthen IMH Practice?

- Create a set of sensitive and respectful questions to learn about a family's history
- Understand a child's social history from birth
- Learn about stressors mom experienced before, during or after pregnancy
- Observe the child and learn about how he manages emotions
- Monitor a vulnerable child's development
- Share information at staff meetings




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### Concept 7

#### Toxic Stress Derails Development

- Can be experienced by infants, toddlers and preschoolers
- For infants, the existence of such stress occurs within the primary caregiving relationship
- The impact of toxic stress on the development of a young child can alter development profoundly

Toxic Stress Derails Healthy Development. (n.d.). Retrieved January 26, 2016, from <http://developingchild.harvard.edu/resources/toxic-stress-derails-healthy-development/>




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**Poll Time!**

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Some stress is good for babies.

True  
False  
Not sure...



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**Understanding Stress When Experienced by a Baby**

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- Takes place in the caregiver relationship
- Not a specific event but chronic stress that impairs development
- The repetitive & sustained failure to help the infant manage distress
- When caregivers are extraordinarily inconsistent, frightening, intrusive or neglectful

Toxic Stress Derails Healthy Development. (n.d.). Retrieved January 26, 2016, from <http://developmentalchild.harvard.edu/resources/toxic-stress-derails-healthy-development/>



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**Levels of Stress**

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**POSITIVE** Brief increases in heart rate, mild elevations in stress hormone levels.

**TOLERABLE** Serious, temporary stress responses, buffered by supportive relationships.

**TOXIC** Prolonged activation of stress response systems in the absence of protective relationships.



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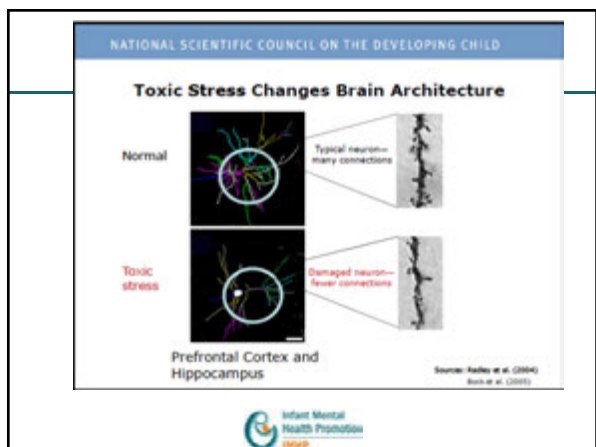
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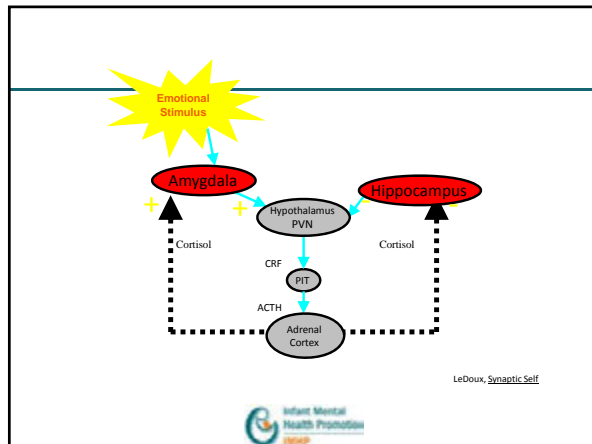
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### ***This Is Nzinga – 3 Years Old***




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### ***What Should We Be Asking?***

- When Nzinga lost her parents who cared for her before she arrived in Canada? Did she have a consistent caregiver?
  - Can anyone describe the caregiving Nzinga received – was it supportive and responsive, or something else?
  - In what way was Nzinga prepared for her move to Canada? What was she told? Were photos of her new family shared with her, for instance?
  - What does Nzinga's family look like – siblings, two parents etc.?
  - If parents are working, who cares for Nzinga? If not, who is her primary caregiver?
  - Has Nzinga's history been shared with her family and have they had a chance to understand how trauma as extreme as what Nzinga experienced can impact a young child?
  - What strategies have been used until now?
- Infant Mental Health Promotion  
IMHP

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### Apply the Science: Toxic Stress Derails Development

What do we know	What we do with what we know
<p>Toxic stress for young children has a profound impact on their development.</p> <p>Toxic stress by definition is the absence of a protective relationship when there is stress.</p> <p>The presence of a responsive and caring caregiver can reduce, even eliminate, toxic stress.</p>	<p>Learn about a child's trauma and how it likely led to the prolonged activation of the stress response system.</p> <p>In the absence of a consistent and responsive caregiver, building a secure attachment will be very important and likely the most urgent need (assuming there are no urgent medical issues).</p> <p>If you don't know how to support a family and build a secure relationship, consult an infant mental health expert.</p> <p>Ensure that if others are caring for this child, they too are involved in creating that attachment relationship.</p> <p>Start talking about toxic stress – it comes in many shapes and sizes.</p>



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### What Else Can Be Done to Strengthen IMH Practice?

- Take time to learn about the stress a child may have
- What was the primary response to the child's stress in the past?
- How might the stress the child has experienced impact the child's wellbeing now?
- How might the knowledge about the child's stress influence your interactions with the child today?



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## Concept 8

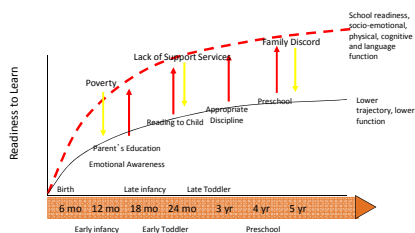
### Watch Development – Early Identification Can Be a Game Changer

- Tools are now available that enable early identification of delays even if there isn't an etiologic explanation
- If young children are not provided appropriate help, emotional difficulties that emerge early in life can become more serious disorders over time

Reading, R. (2014). Children's health and development: Approaches to early identification and intervention. *Child: Care, Health and Development Child Care Health Dev*, 40(2), 299-300.



### Strategies to Improve Healthy Development and School Readiness Trajectories



Adapted from Halton N, McLearn K. Families with children under 3. What we know and implications for Results and Policy. In Halton, McLearn and Shuster eds. *Child Rearing in America: Challenges Facing Parents and Young Children*. New York: Cambridge University Press 2002.



### Early Development Instrument



#### How has vulnerability changed from 2004 to 2015?



+3.2%



+1.4%



+2.0%



-2.0%



-1.9%

✗ Increased vulnerability in physical health and well-being, social competence, and emotional maturity

✓ Improved outcomes in language and cognition, and communication and general knowledge

Adapted from [https://edi.offordcentre.com/wp/wp-content/uploads/2017/09/EDI-in-Ontario\\_revised.pdf](https://edi.offordcentre.com/wp/wp-content/uploads/2017/09/EDI-in-Ontario_revised.pdf), 2017








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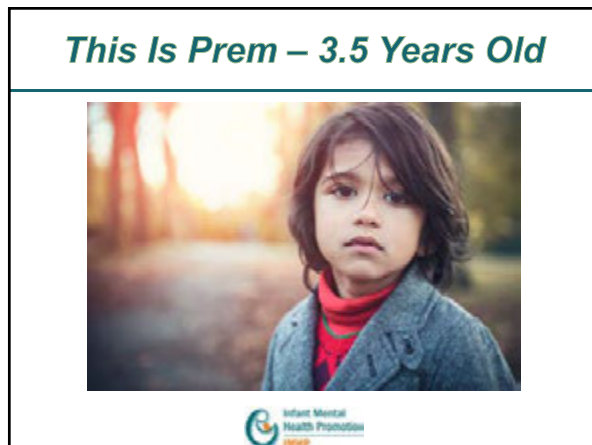
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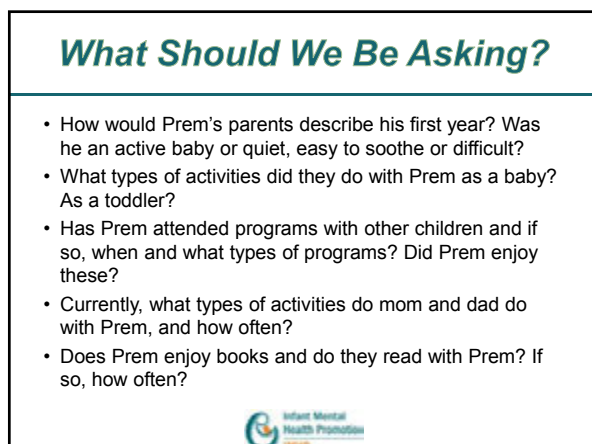
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## Apply the Science: Watch Development

### What do we know

For children facing adversity or multiple risk factors, there is a significant threat to development.

Screening children facing such factors can alert us to developmental vulnerability.

Screening requires the use of a validated tool and must have a strong emphasis on social and emotional development.

Time spent on a screen has no developmental benefit to a child.

### What we do with what we know

Screen children for all areas of development – including social-emotional. Make it part of your program.

Begin to use a developmental screening tool and combine this with observation and interviews to develop a developmentally informed response to a child's needs. Refer but have an immediate action plan.

Be a student of the child and family – learn about what experiences may have contributed.

Begin to include developmental screens in your documentation.




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## What Else Can Be Done to Strengthen IMH Practice?

- Talk to parents about development
- Identify and use a validated screening tool
- Share information about milestones
- When concerned about a child, be open and honest with parents about the concern




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## Concept 9

### Respond Early & Generously

Early identification is most valuable when there is an immediate and generous response:

***The early years present an unmatched opportunity to intervene effectively with children at risk for poor developmental delays.***

National Research Council of Medicine, From Neurons to Neighborhoods (2002)

*If appropriate intervention occurs very early, substantially improved functioning in cognition, attention, and memory can be achieved.*

*Children's recovery rates are influenced by the severity, duration, and timing of the deprivation as well as by the timing and type of intervention that is provided.*

National Scientific Council on the Developing Child (2012) p.9




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Building Adult Capabilities  
to Improve Child Outcomes  
**A THEORY OF CHANGE**




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***Apply the Science: Leverage!***

What do we know	What we do with what we know
<p>When preparing reports, am I integrating the science into my notes?</p> <p>When creating a plan of care, am I providing concrete actions that can happen immediately (while a child may wait for intensive services).</p> <p>Am I sharing the science with the larger team – lawyers, other disciplines, supervisors?</p>	<p>For every conclusion you make about the risks for a child, provide the research reference to strengthen your point.</p> <p>All access should be therapeutic – what do you do during access to support the parent – share the plan, review, prep for the visit, etc.</p> <p>Create a package of the “science” for the legal team and brainstorm how this can be integrated.</p> <p>Be creative – borrow creativity, beg if needed.</p>




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***Early Is Best – We Know This***

Early Is Essential & Can Make a BIG Difference

- There is a strong link between children’s trauma symptoms and the amount of exposure a child has had to traumatic events
- The longer and more often a child is exposed to violence, the worse off the child will be socially, emotionally, and psychologically in the long run
- Interventions and supports must address both immediate needs and long-term development and relationship issues
- The longer we wait to recognize and respond, the more likely the impact on a child’s development will be negative




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### *The Ultimate Understanding...*

If we shift the interaction between a young child and caregiver/parent, we shift that child's view of the world and his/her place in it.




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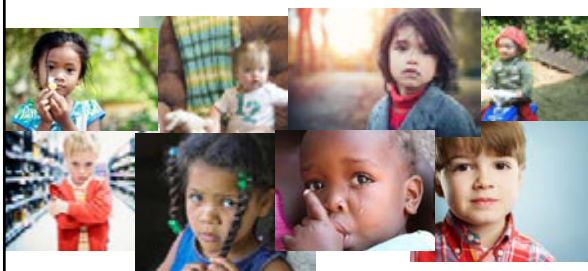
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### *Think of every child you work with*




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### *One LAST Poll...*

Did you learn something today that you will use in your practice?

- Yes! I'm inspired!
- I need to rethink some of my approaches!
- Some stuff was new.
- I already knew most of it...
- No way. This infant mental health thing is gobbledy-gook.




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We hope that you will use at least one thing you've learned today in your practice, and that you will continue seeking out knowledge on infant mental health to further enhance your work with young children and families.

**Thank you!**




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