



# From synapses to schools: *measuring and improving population outcomes for young children*

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Early Years Division  
Ministry of Education  
April 2014

support every child  
reach every student







*RADIO FLYER*





# Education in **Canada**





Early Learning and  
Development Framework



cmec

Council of Ministers of Education, Canada | Early Learning and Development Framework



Early learning  
in **Ontario**



# How child care works in Ontario



Child care  
on  
traditional  
**First  
Nations**  
territories





**Full-day kindergarten** for  
four and five year olds



**Kindergarten**  
**team**

# Children with **special needs** attend full-day kindergarten





Full-day kindergarten fully implemented by 2014



# Benefits of **play-based** **learning**











# Brain cell development from birth to age 2



**Newborn**



**1 Month**

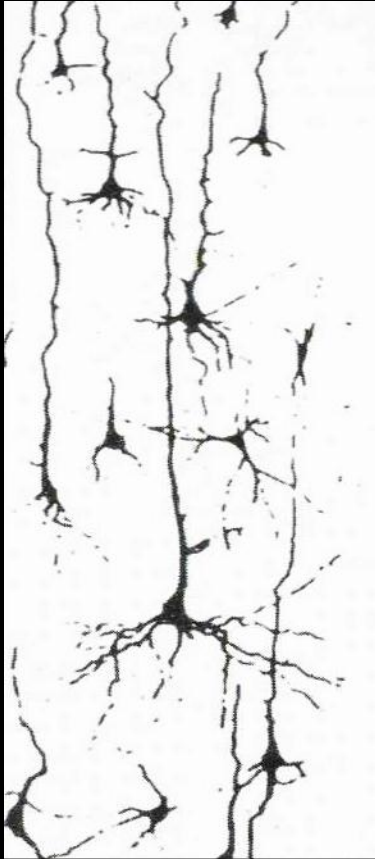


**9 Months**



**2 Years**

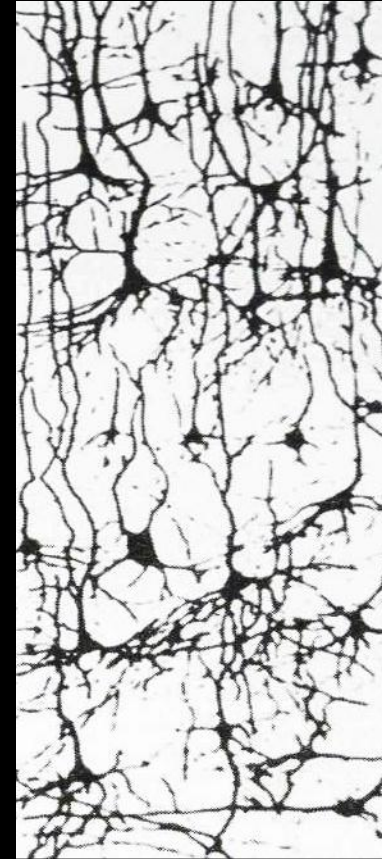
# Synaptic density



At Birth

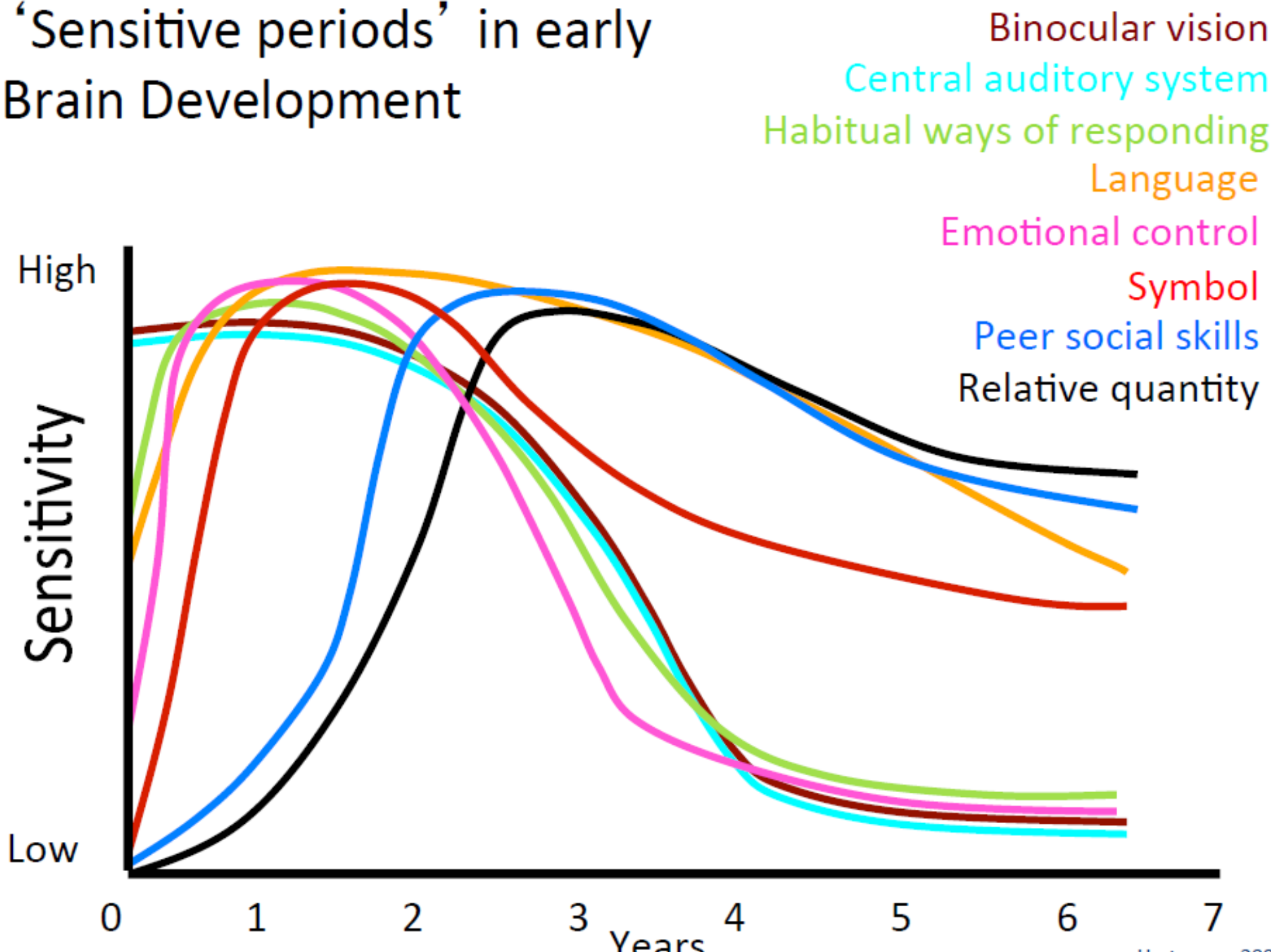


6 Years Old



14 Years Old

# 'Sensitive periods' in early Brain Development



# How the Early Development Instrument works

The EDI assesses children's readiness to learn when they enter school by looking at five key areas of child development



OCCS - February 2011



- ★ Երկրային խմբագրություն (առավել մեծ տարածքներ)
- ★ Քաղաքային կամ համայնքային խմբագրություն (փոքր տարածքներ, ինչպես քաղաքներ կամ համայնքներ)
- ★ Ընկերային-մոտ խմբագրություն

OCCS - Բեռլինի 2011



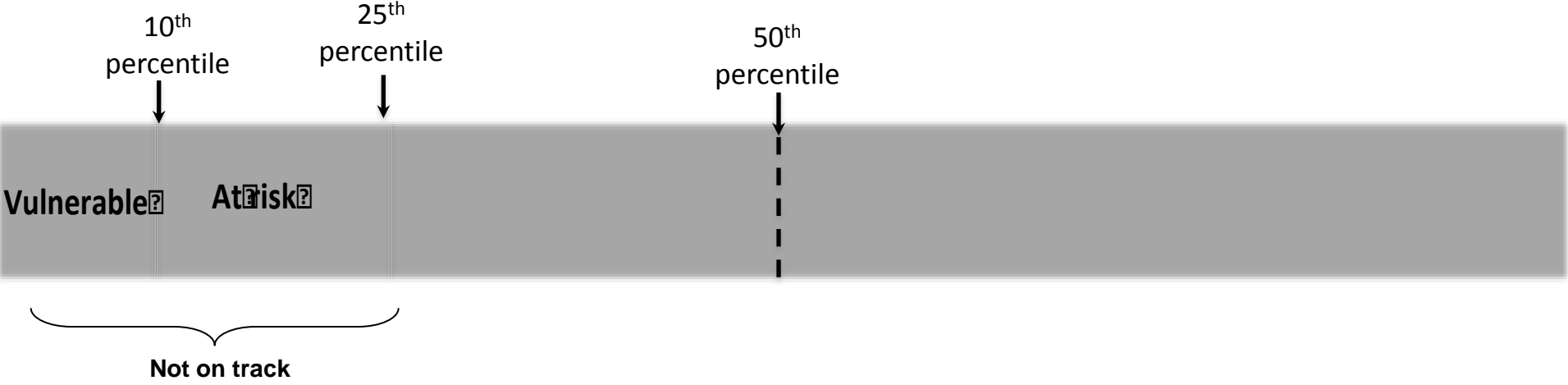
# Early Development Instrument

- physical health and well-being
- social competence
- emotional maturity
- language and cognitive development
- communication skills and general knowledge

# Vulnerability

- Vulnerability is calculated for each EDI domain
- Children in lowest quartile in one or more EDI domains are **at risk** of not being development ready to fully benefit from the grade 1 learning program

# EDI vulnerability and risk



# What are risks?

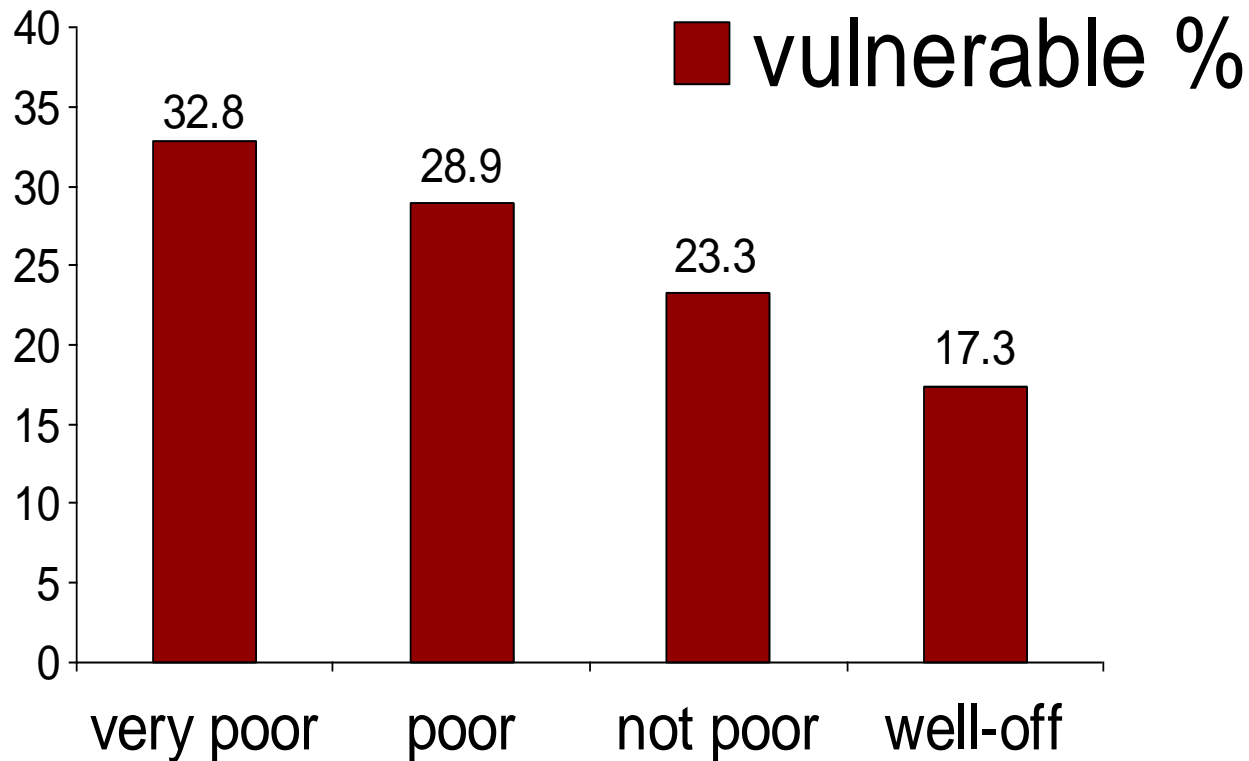
## Child

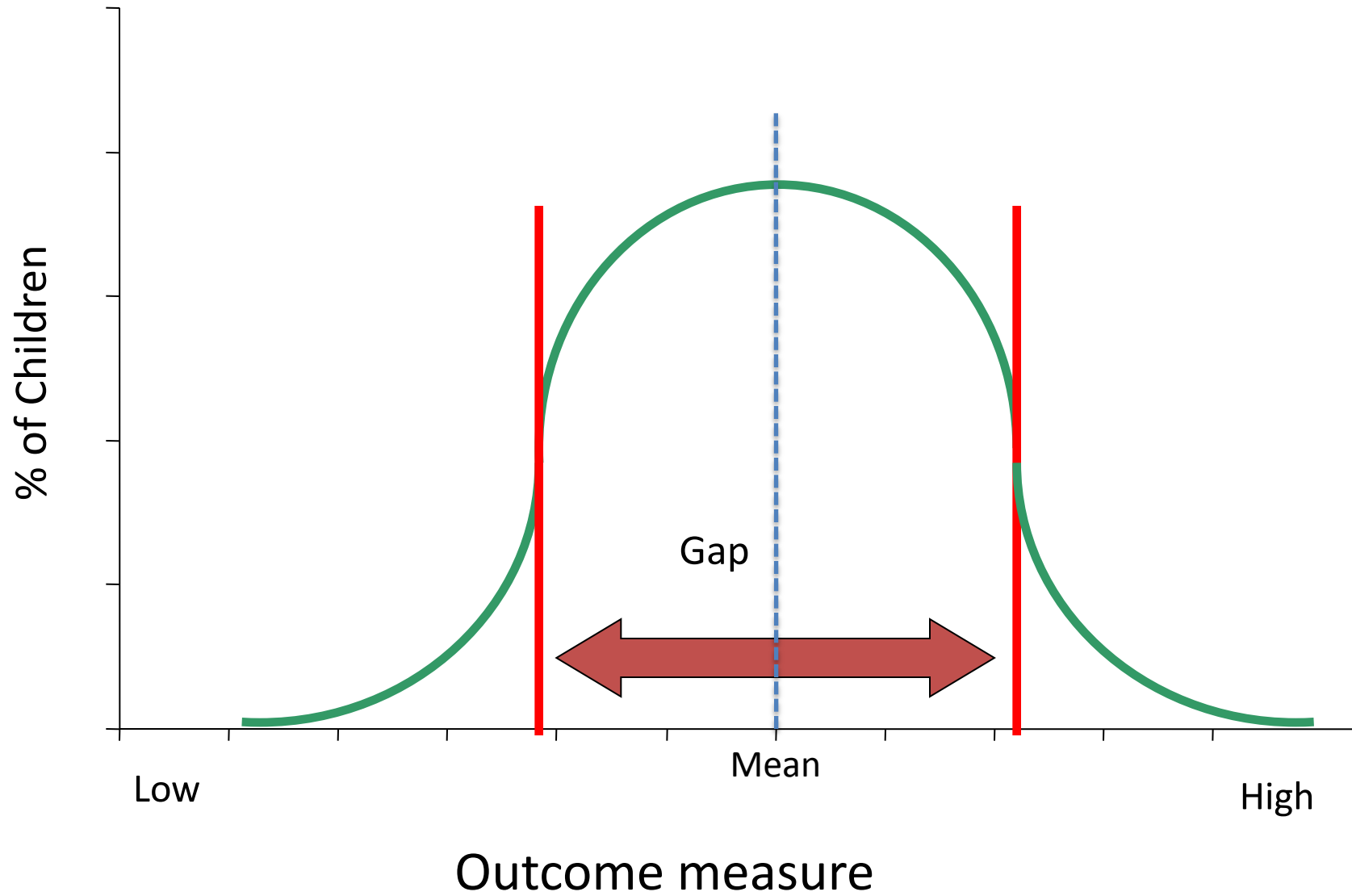
- Gender (boy)
- Age (younger)
- Low birth weight
- Language (not speaking fluently)

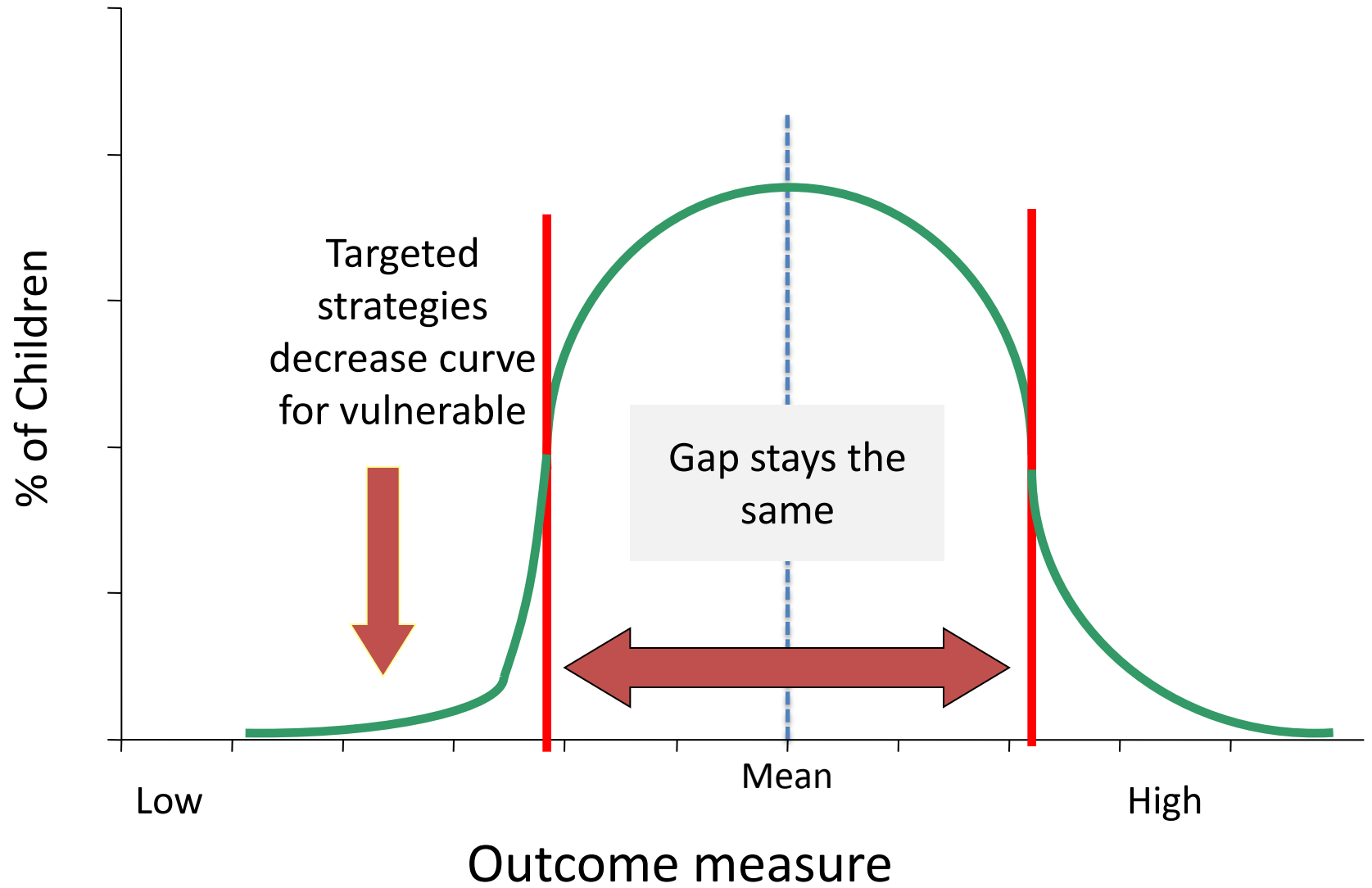
## Family

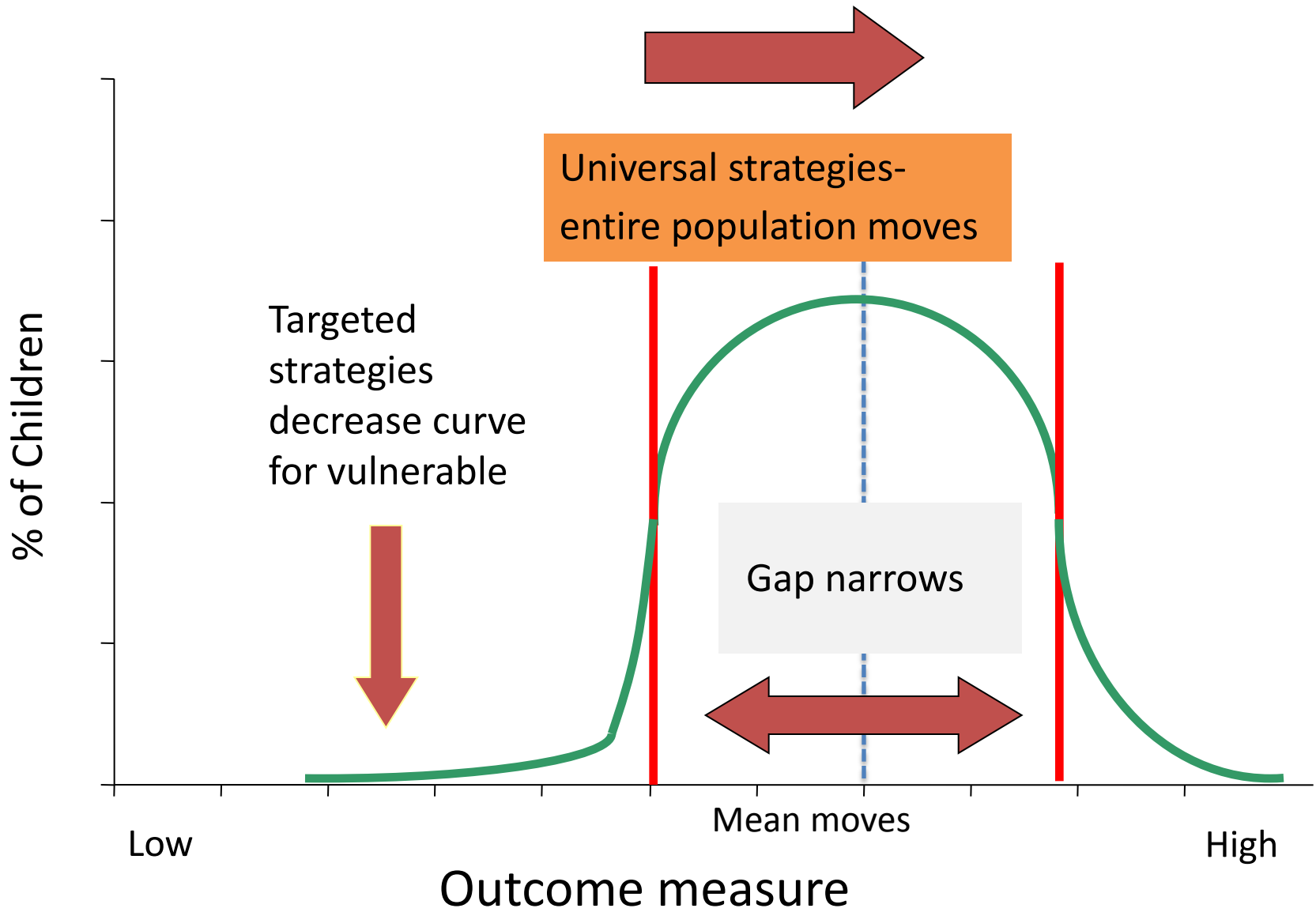
- Low income
- Not intact
- Education (low)
- Mother's age (teenage)

# Vulnerability by family income



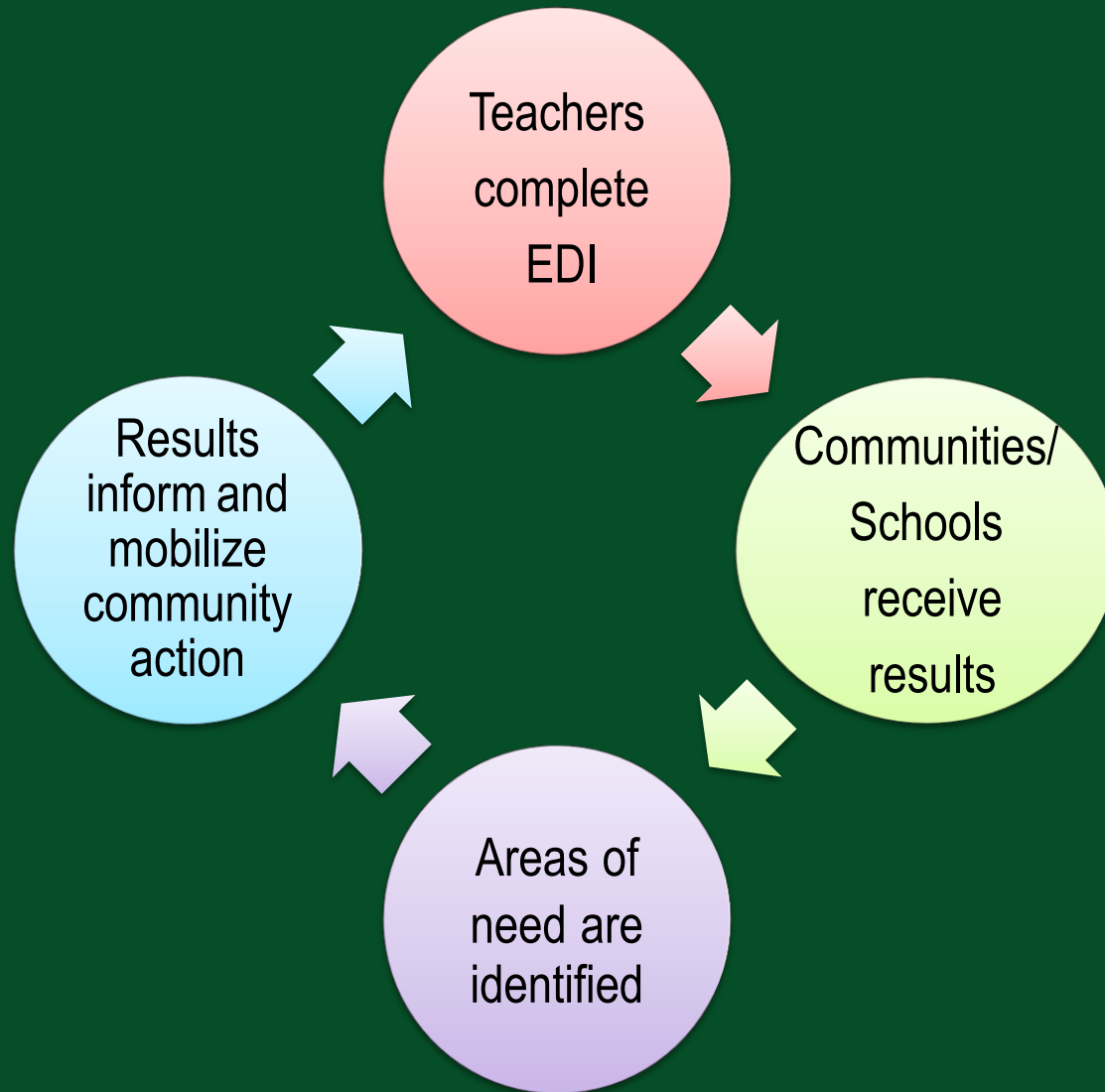








# Process



# Schools Like Us Social Risk Index Cluster Analysis



# Understanding the Early Years – Malton

Mississauga, Ontario, Canada



Understanding  
the Early Years  
Malton

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## ***Understanding the Early Years***

Children are natural learners. From the moment they are born, they are constantly learning about themselves and the world around them. The learning that takes place in these early years sets the foundation for their future success in school and in life.



## ***The first six years are important***



Research has shown that children's first six years of life have a significant effect on their development. In fact, children grow and learn faster from birth to age six than at any other time in their lives.

Research also shows that the neighbourhoods and communities where children live influence their learning, development and quality of life. Making sure that young children have a wide variety of positive experiences improves their chances of success later in life.

## ***What is Understanding the Early Years Malton?***

Malton is one of 16 communities across Canada participating in a research project called Understanding the Early Years (UEY). UEY Malton is a three-year project that will help our community understand how the children in Malton are developing and what they need to succeed. The main goal is to determine the best programs and services for children from birth to age six and their families.

# Knowledge Mobilization Plan



2007 to 2010



Understanding  
the Early Years  
**Malton**  
Mississauga, Ontario



Learning in our  
Neighbourhood



“Perhaps most important of all, [the EDI results] are a means of raising community awareness and mobilizing community resources in support of the early years development of all children.”

Unicef

Early learning  
affects children's  
**development**  
and future **well-being**





Early  
learning  
pays long-  
term  
dividends  
in better  
health



# Self regulation

Inhibition



1. Asleep

2. Drowsy

3. Hypoalert

4. Calmly focused and Alert

5. Hyperalert

6. Flooded



Activation

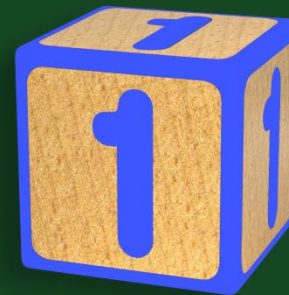


Google



# 7-to-1

return on early  
learning investment,  
research says



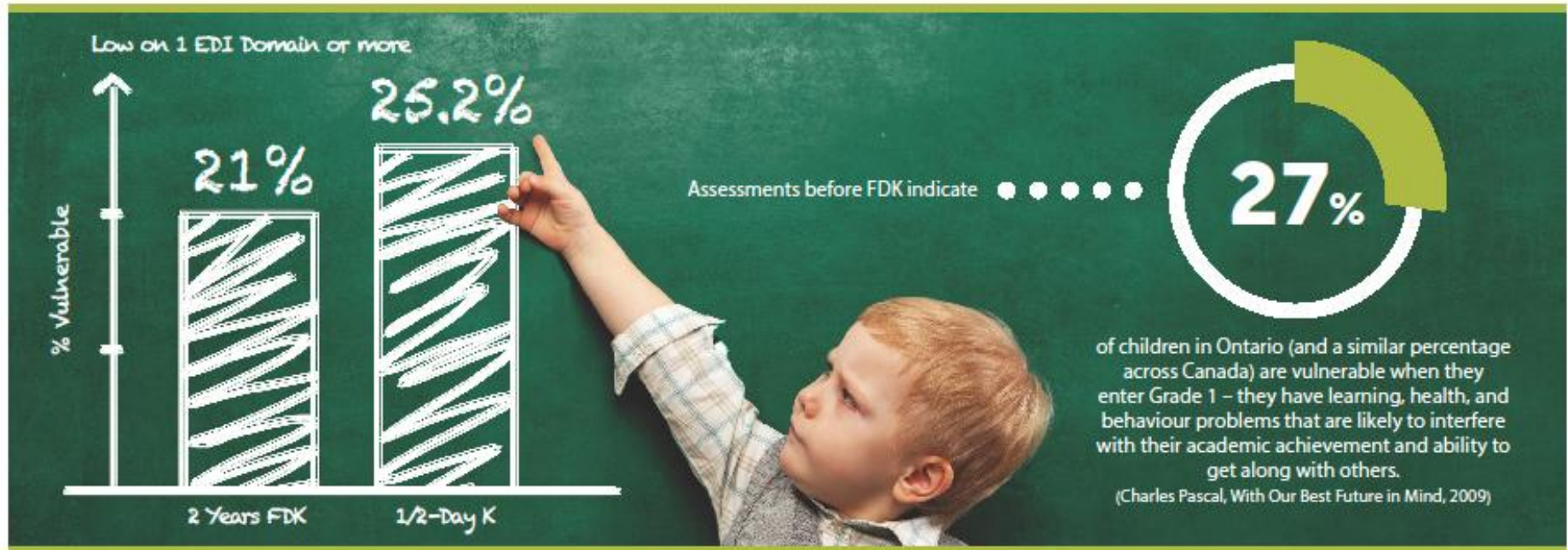
1,500

days

# The Science Behind Full-Day Kindergarten

**Children who have attended FDK are better prepared to enter Grade 1 and to be more successful in school.**

There is considerable evidence to suggest that FDK students are physically able to take on a full-day of play-based learning in a school setting. FDK provides students with increased opportunities “to reflect on activities, engage in conversation, cooperative play, and experiences supporting the development of self-regulation. These experiences are resulting in growth in children’s vocabulary and ability to articulate their thinking” (Vanderlee, Youmans, Peters, & Eastabrook).



**EDI vulnerability higher than 10% costs the Ontario economy \$1 trillion annually.**

– Paul Kershaw, *Human Early Learning Partnership, UBC*

# FDK Reduces Risks in Language & Cognitive Development

The Early Development Instrument measures children's ability to meet the challenges of school and predicts academic success.

½ Day K

**15.8** %  
risk

1 Year FDK

**15.7** %  
risk

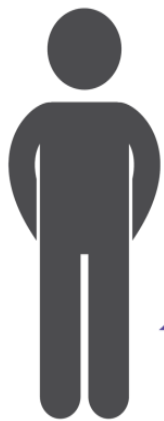
2 Years FDK

**4.3** %  
risk

support every child  
reach every student



# FDK Reduces Risks In Social Competence (SK)



**10.5** %  
risk

½ Day K



**6.7** %  
risk

1 Year FDK



**5.8** %  
risk

2 Years FDK



support every child  
reach every student

# FDK Reduces Risks In Communication Skills and General Knowledge (SK)



½ Day K

**10.5%**  
risk



1 Year FDK

**7.6%**  
risk



2 Years FDK

**5.8%**  
risk

support every child  
reach every student





