

## Early Childhood Development, School Readiness, and Healthy Schools



**Healthy Schools Conference: Taking Action:  
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February 8, 2011 – Winnipeg, Manitoba



## Presentation Overview

- **Part I:** Being Born in Manitoba:  
The Families First Screening (FFS)
- **Part II:** Starting School in Manitoba:  
The Early Development Instrument (EDI)
- **Part III:** Implications for Healthy Schools

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# SHHH!

## Brain Development in Progress:



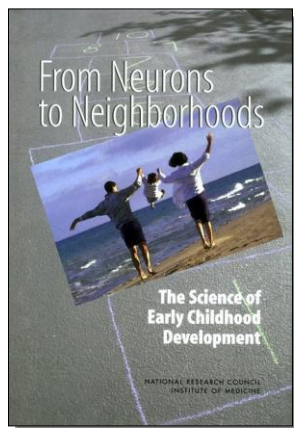
*By age 3 years, a young child's brain is apt to be more than **TWICE AS ACTIVE** as that of his or her **PEDIATRICIAN** (or any other adult)*

Sources:  
Gopnik, Meltzoff, & Kuhl, 1999; Shore, 1997

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## Key Message:



“What happens during the first months and years of life matters a lot, not because this period of development provides an indelible blueprint for adult well-being, but because it sets either a sturdy or fragile stage for what follows.”



National Research Council and Institute of Medicine. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development* (p. 5). Washington, DC: National Academy Press.

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## PART I:



### Being Born in Manitoba: The Families First Screening (FFS)

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### What is the Families First Screening?

- Healthy Child Manitoba Office (HCMO) partnership with Regional Health Authorities (RHAs) to screen all families with newborns for risk factors associated with poor child outcomes (est. 1999, revised 2003)
- Public Health Nurses (PHNs) collect information on 39 risk factors, including congenital anomalies, birth weight, multiple births, alcohol use and smoking during pregnancy, mother's age, education, marital status, mental health, and family social isolation
- Population-level data not available from other sources

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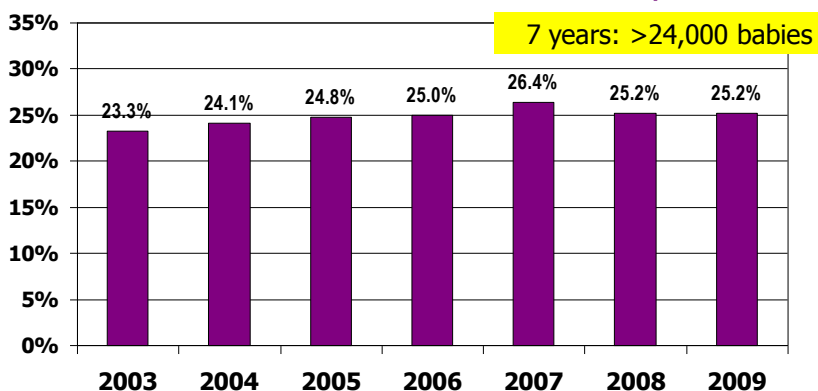
## What is the Families First Screening?

- Two-fold purpose: Public health intervention and population risk monitoring for policy development
- Recent evidence indicates good sensitivity (77%) and specificity (83%) in predicting later involvement with child welfare agencies (Brownell et al., 2007)
- On average, 12,174 Families First Screenings are completed each year (95% of all postpartum referrals and 83% of all births) in Manitoba
- The following slides use 2003-2009 FFS data (note: 2003 FFS results: these are our 2008 EDI children)

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## Children's Vulnerability at Birth in Manitoba: Prevalence of $\geq 3$ Risk Factors in Manitoba, 2003-2009



Source: 2003-2009 Families First Screening results

Note: Shorter bars are better

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# Shared Destiny: Our Aboriginal Children and the Future of Manitoba



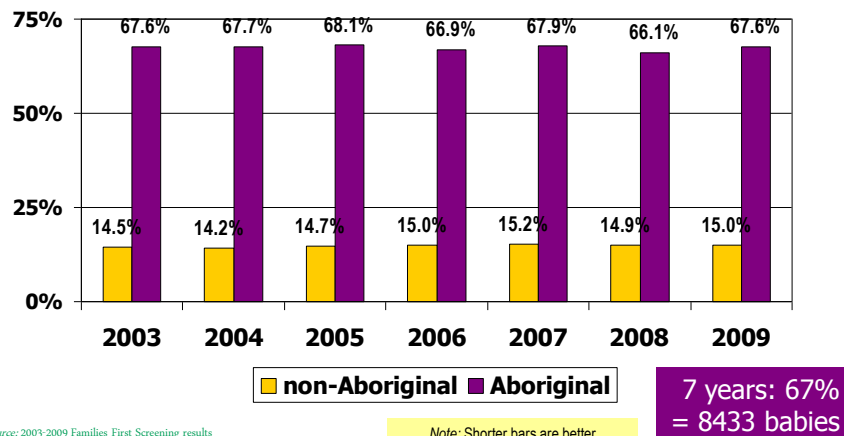
**"Manitoba cannot prosper if Aboriginal people do not prosper."**

*-Honourable Oscar Lathlin,  
Minister of Aboriginal and Northern Affairs  
(1947-2008)*

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## Prevalence of Vulnerable Children at Birth (≥ 3 Risk Factors) in Manitoba, 2003-2009



Source: 2003-2009 Families First Screening results

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## Top 10 FFS Risk Factors (2003-2009)

### Non-Aboriginal: (15%)

1. **Assisted birth (14%)** ↑
2. Mom < HS (14%) ↓
3. HBW birth (13%) ↓
4. Mom smoking preg (12%) ↓
5. **Mom depression (11%)** ↑
6. Mom alcohol preg (10%) --
7. Financial difficulties (8%) ↓
8. Premature birth (7%) ↓
9. Lone parent (6%) ↓
10. **Social isolation (5%)** ↑

### Aboriginal: (67%)

1. Financial difficulties (60%) ↓
2. Mom < HS (57%) ↓
3. Mom smoking preg (56%) ↓
4. Lone parent (40%) ↓
5. Mom alcohol preg (30%) --
6. **Mom teen 1st birth (27%)** ↑
7. Mom CA history (22%) --
8. **Mom depression (21%)** ↑
9. Existing CFS file (20%) --
10. HBW birth (19%) ↓

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## PART II:



## Starting School in Manitoba: The Early Development Instrument (EDI)

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## The Early Development Instrument (EDI)

- A population-based, community-level measure of early childhood development (ECD) and school readiness
- Kindergarten teachers from Manitoba's School Divisions complete the EDI on all Kindergarten-aged children (about 20 min per child)

### *What does the EDI measure?*

- Children's "readiness for school" across 5 different areas of child development:
  - Physical Health and Well-Being
  - Social Competence
  - Emotional Maturity
  - Language and Cognitive Development
  - Communication Skills and General Knowledge



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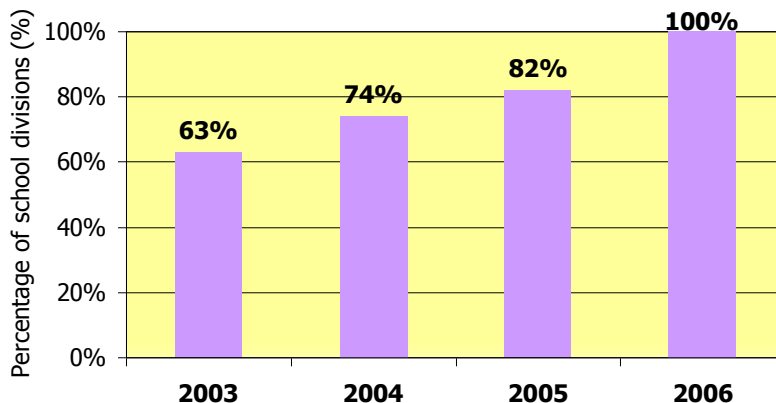
## History of the EDI in Manitoba (1998–present)

- **1998:** presentations by Dr. Fraser Mustard and Dr. Dan Offord
- **1999:** Understanding the Early Years (UEY) in Winnipeg School Division
- **2000:** UEY in South Eastman region
- **September 2001:** HCCC decision for province-wide, voluntary phase-in of EDI in Manitoba, funded and coordinated by the Healthy Child Manitoba Office (HCMO), Government of Manitoba
- **May 2002:** Dr. Dan Offord formally launches EDI in Manitoba
- **October 2002:** Dr. Magdalena Janus trains first school divisions in EDI
- **February 2003:** First school divisions implement the EDI in Manitoba

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## Implementation of the EDI in Manitoba: Percentage of School Divisions, 2003-2006



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## Using the EDI in Manitoba

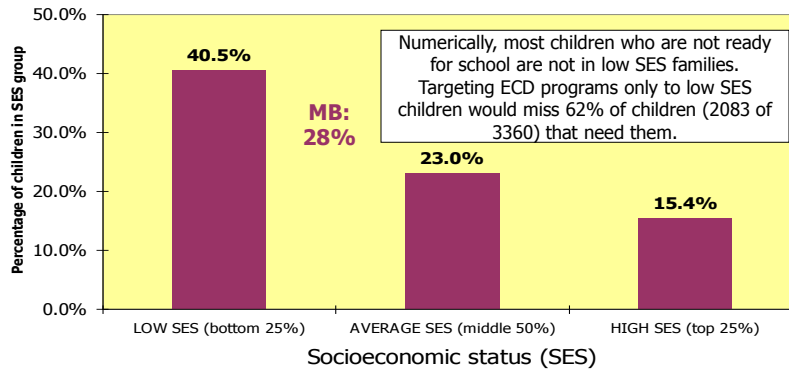
1. Measuring progress in ECD
2. Understanding progress and identifying priorities in ECD
3. Influencing communities
4. Influencing public policy
5. Evaluating population-level effects of ECD investments

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## Inequalities in Vulnerability: SES and Children Not Ready to Learn in School – (age 5 years), Manitoba, 2006



Source: EDI Parent Survey 2006 and 2006 EDI results

NOTE: SES is a composite of household income and parental education. Low SES generally represents household income less than \$20,000 per year and parental education less than high school.

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## How Many Manitoba Children Were Not Ready\* to Start School in 2009?

About 1 in 4 of all children (29%, up from 28%)

About 1 in 4 of non-Aboriginal children (25%, up from 24%)  
and nearly 2 in 4 Aboriginal children (45%)

About 1 in 5 girls (22%, up from 19%)  
and 1 in 3 boys (37%, up from 32%)

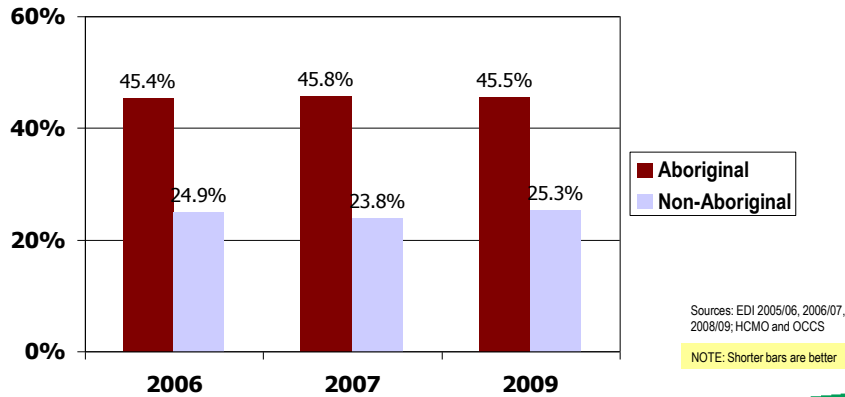
... language improving (11%: lowest ever),  
but emotional worsening (13%: highest ever)

\* bottom 10% in one or more EDI domains

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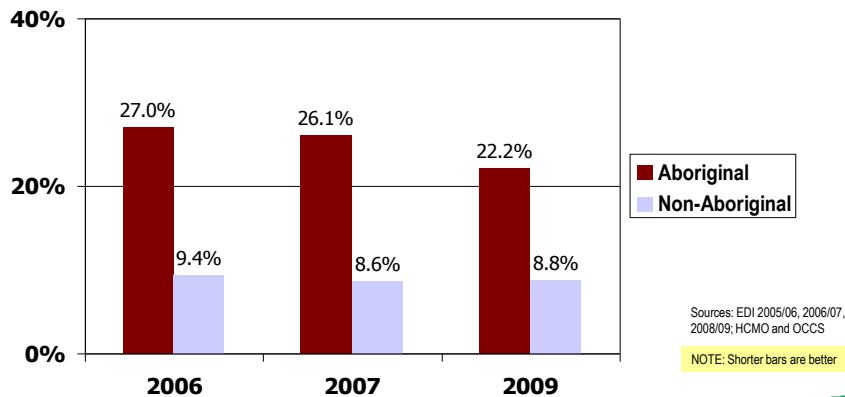
## Kindergarten Children’s Vulnerability Over Time: Not Ready for School in One or More Areas of Early Development, Manitoba, 2006-2009



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## Kindergarten Children’s Vulnerability Over Time: Not Ready for School in Language and Cognitive Development, Manitoba, 2006-2009



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# New Longitudinal Research

## Readiness at school entry and later achievement:

- Early math skills
- Early reading skills
- Early attention skills

(Duncan et al., 2007 – 6 longitudinal data sets; Grimm et al., 2010 – 3 data sets; Hooper et al., 2010 – 2 data sets; Pagani et al., 2010 – replication with QLSCD; Romano et al., 2010 – replication with NLSCY)

### New:

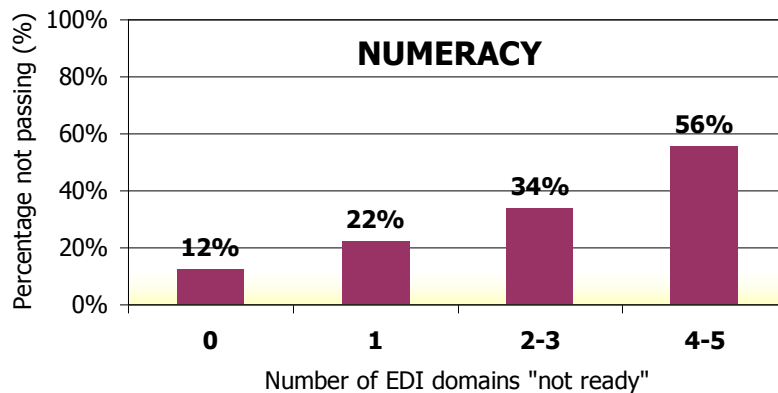
- Early fine motor skills (Grissmer et al., 2010 – 3 data sets; Pagani et al., 2010)
- Early social and emotional behaviours (Grimm et al., 2010; Pagani et al., 2010; Romano et al., 2010)
- Early general knowledge (Grissmer et al., 2010)

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## Predictive Validity of the EDI: “Not Ready” on the EDI (2000-2001) and Grade 4 Foundational Skills Assessments (FSAs) in British Columbia, 2004-2005

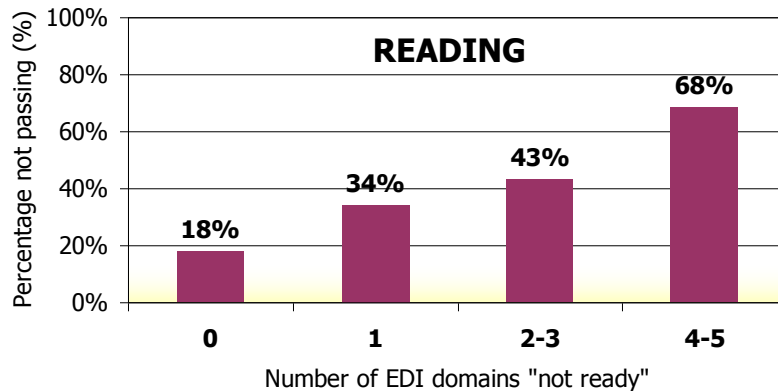


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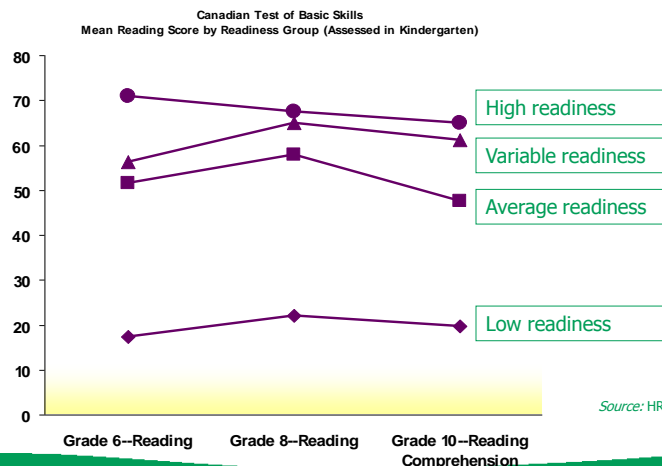
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## Early Differences in Readiness at School Entry Persist Through to Grade 10



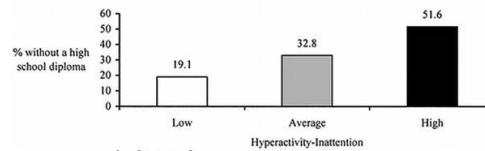
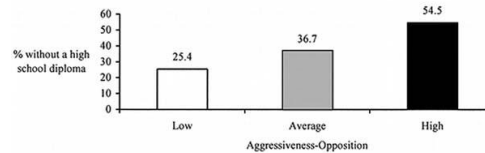
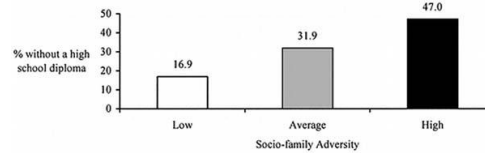
Source: HRDC-ARB (2003).

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## Predicting High School Graduation in Kindergarten

- Children’s aggression and attention/ hyperactivity problems in Kindergarten (using items similar to those in the EDI) are each associated with 2 to 2.5 times the risk of not completing high school
- This is similar to the magnitude of risk associated with family socioeconomic adversity

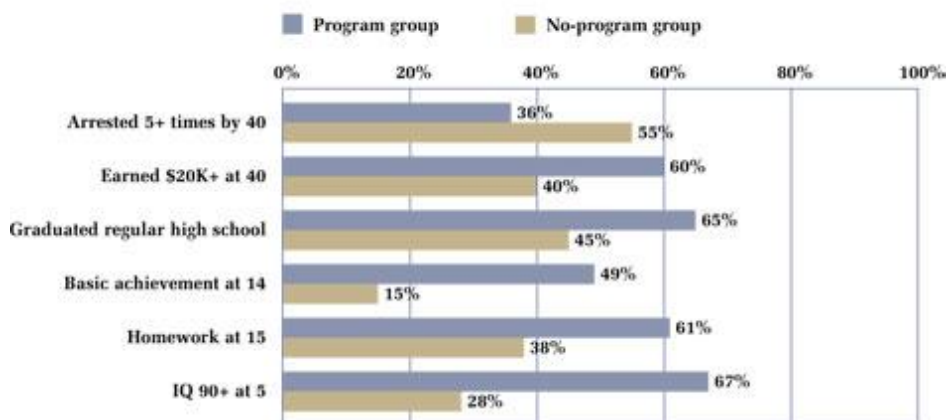


Vitaro et al. (2005)

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## Major Findings: High/Scope Perry Preschool Study at 40

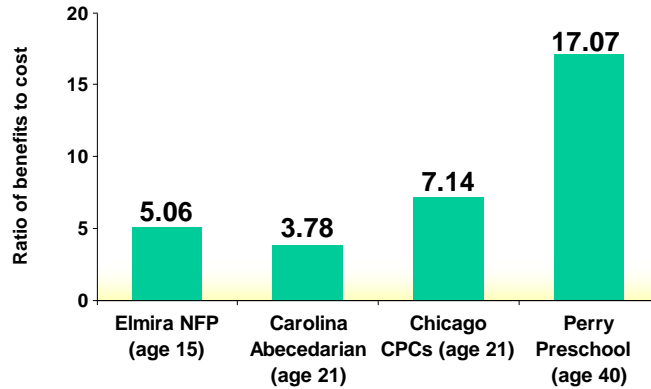


Source: Schweinhart et al. (2004)

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## Exceptional Returns on Investment: Long-Term Benefit-Cost Ratios for Four Exemplary ECD Programs



Up to 16% rate of return on investment in ECD, compared to the highly touted 6% rate of return of the U.S. stock market (1871-1998)

Sources: Lynch (2004), Rolnick & Grunewald (2003)

Sources: Karoly et al. (1998), Masse & Barnett (2002), Reynolds et al. (2002), Schweinhart et al. (2004)

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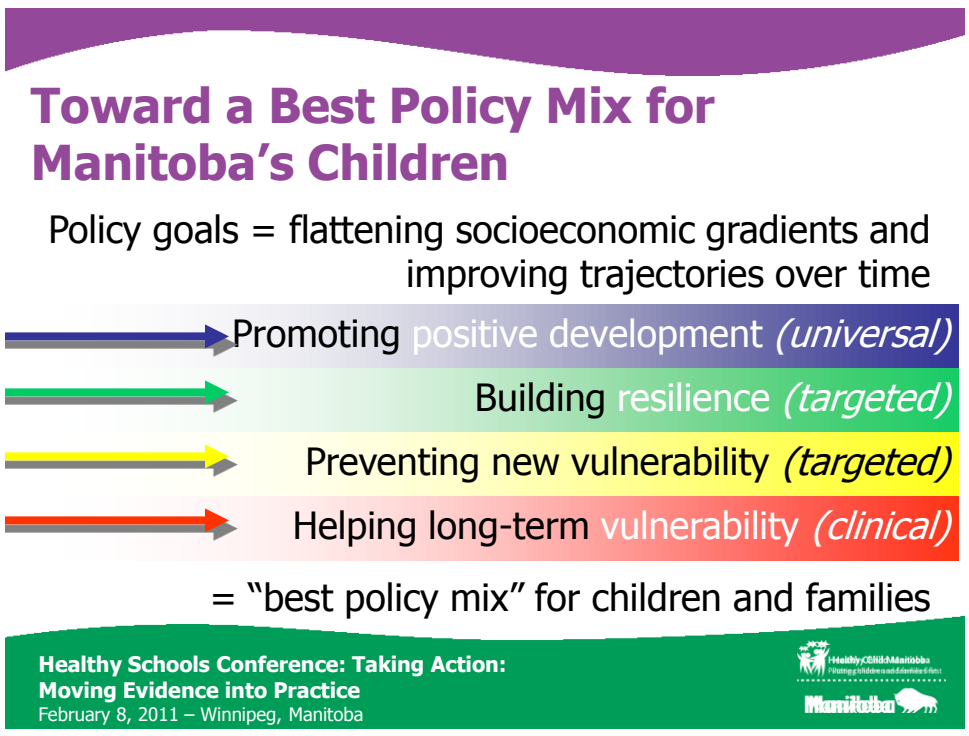
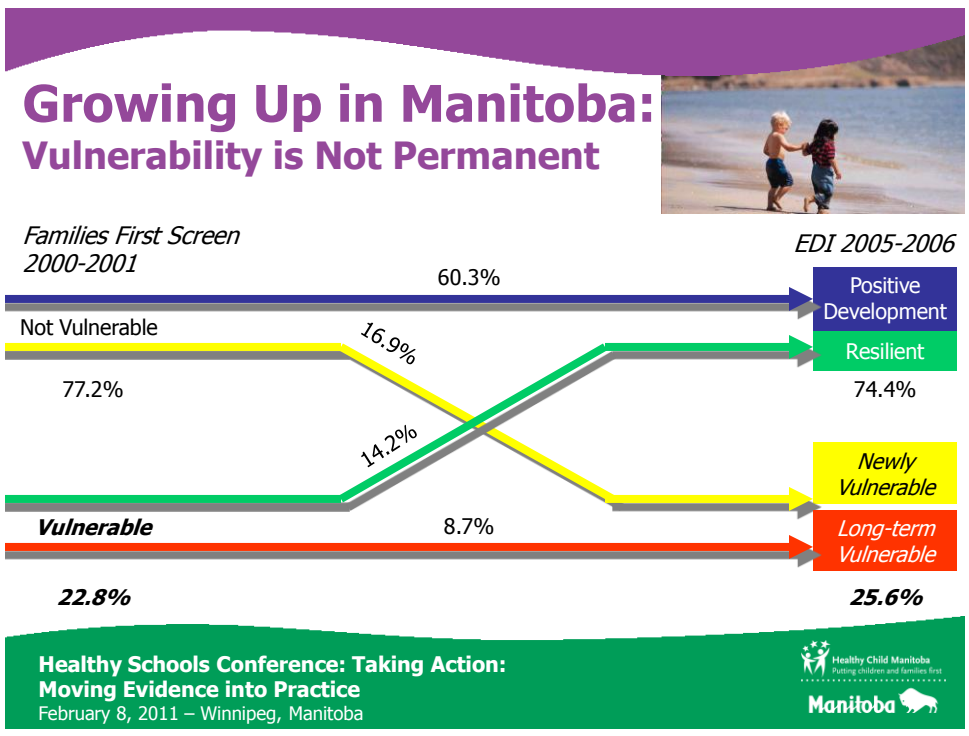
## PART III:



## Implications for Healthy Schools

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# Investing in Early Childhood Development: The Economic Imperative

- Leading economists have shown the importance of ECD to our province and country's economic future. Knowledge is the engine of the 21st century economy. Better brains and innovative ideas fuel economic growth, create jobs, increase wealth, and secure our financial future.

*"The real question is how to use the available funds wisely. The best evidence supports the policy prescription: Invest in the very young."*

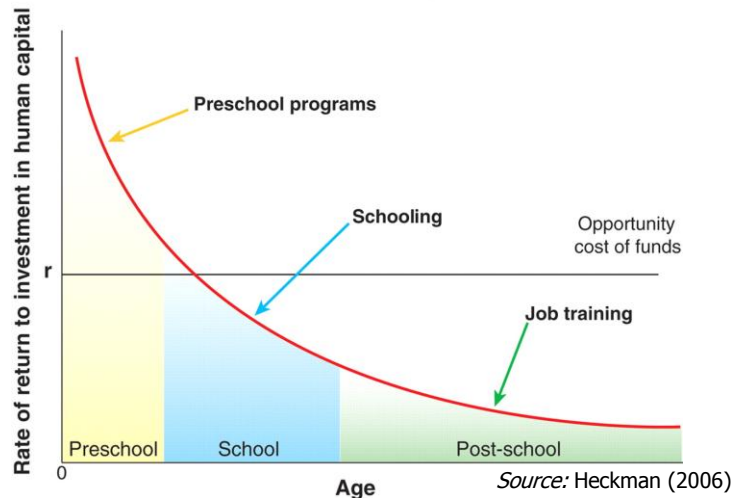
*James J. Heckman, PhD  
2000 Nobel Laureate in Economic Sciences*



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Rates of return to human capital investment



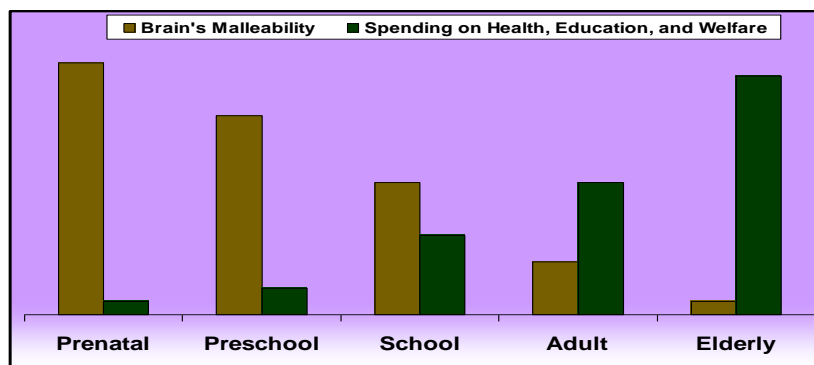
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## Opportunity Lost. . .

Addressing the Mismatch Between Opportunity & Investment



Adapted from: "How Nurture Becomes Nature: The Influence of Social Structures on Brain Development" Bruce Perry, Baylor College of Medicine, Houston, Texas.

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## Strategy Considerations and Policy Options:

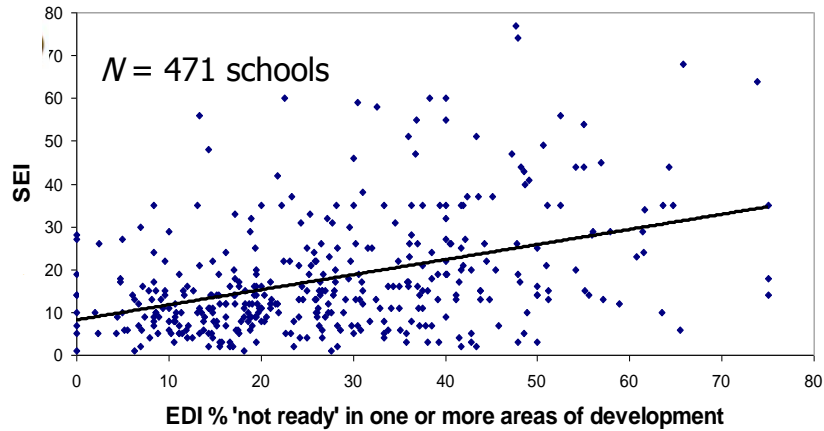
- **A fair share for Manitoba's youngest children**
  - Manitoba currently invests about 4% of the total provincial budget on children under age 6 years (ECD), but they represent about 8% of our total Manitoba population
- **A fair start for Manitoba's children**
  - policy and investment renewal for ECD and primary prevention
  - reduce children's inequalities at birth and at school entry
  - target both demographic and developmental vulnerability prior to birth and prior to school entry, using Families First Screening and EDI data for planning and evaluation

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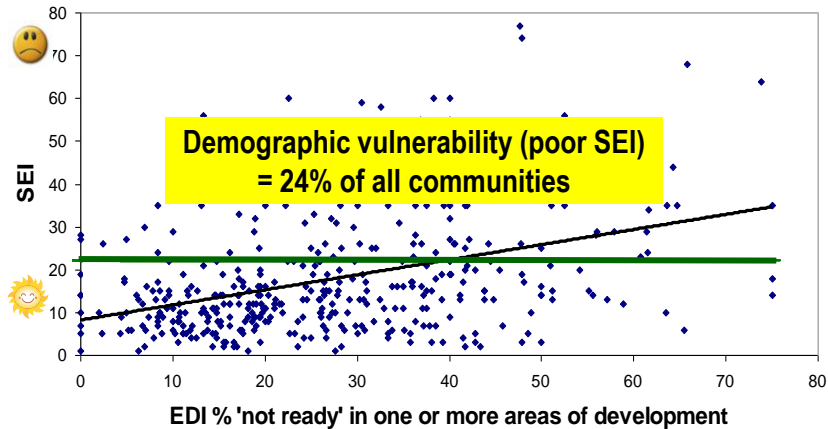
## Demographic vs. Developmental Vulnerability: School-Level Socio-Economic Index (SEI) and EDI, 2006



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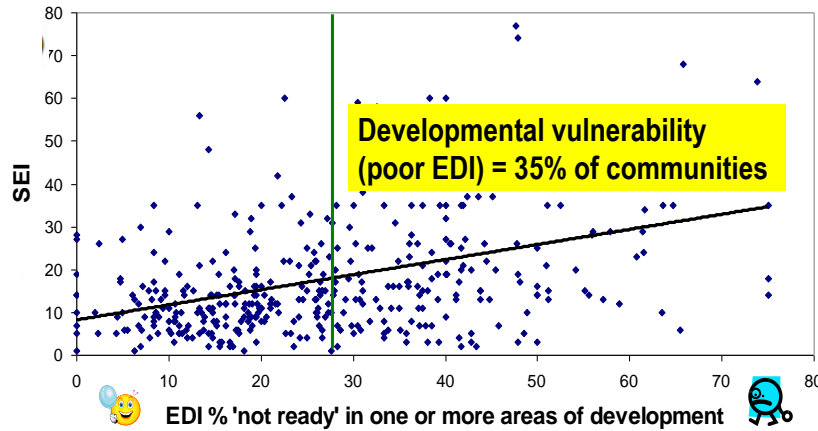
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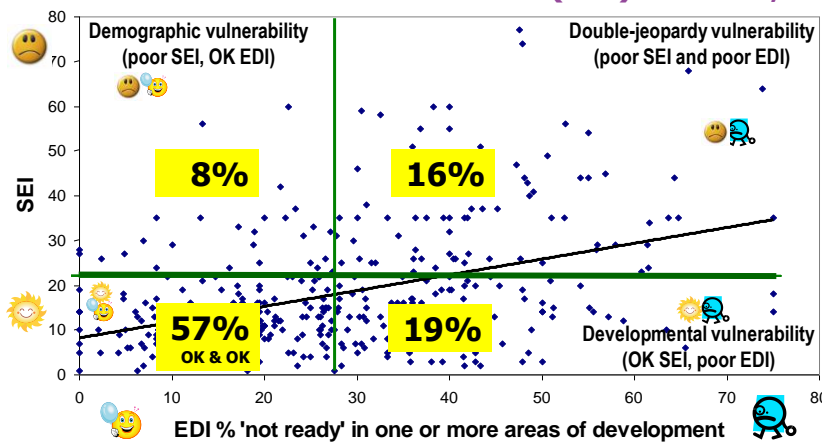
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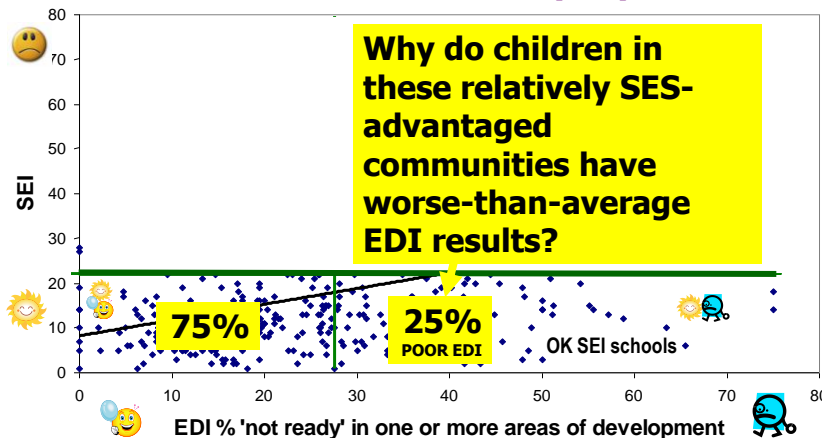
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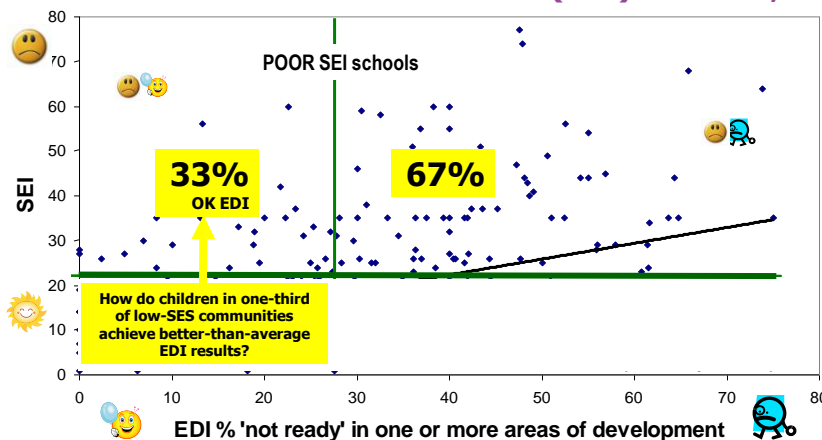
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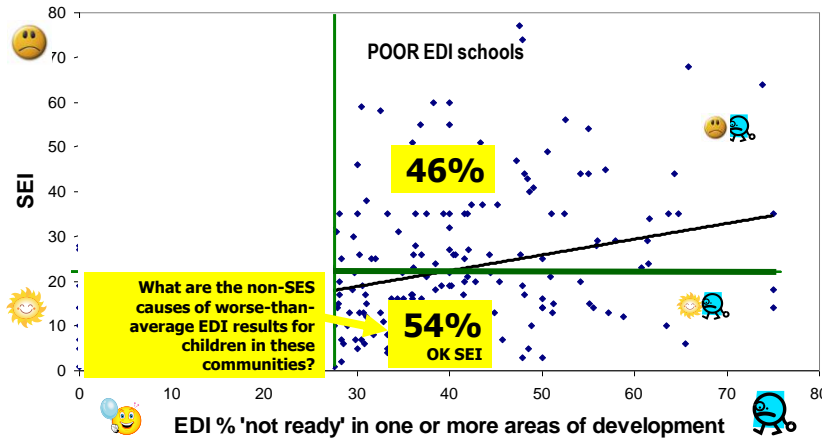
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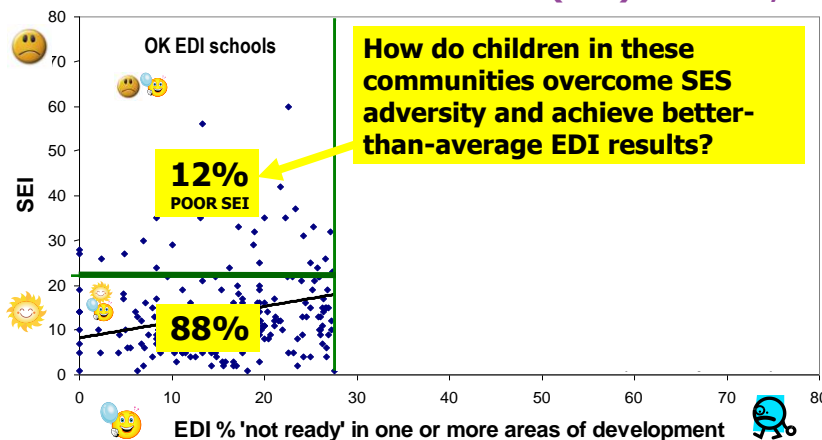
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## Demographic vs. Developmental Vulnerability: School-Level Socio-Economic Index (SEI) and EDI, 2006



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## Toward 2020

- Population growth in MB preschoolers and seniors by 2020 (Manitoba Bureau of Statistics population projections, March 2010): From 2009 to 2020, **our under age 5 population will rise 28%** (an increase of 21,000), second only in growth to age 65+ population (34% or 58,000)
- This preschool population growth is attributable, in part to high fertility rates (including First Nations and Metis) and high immigration

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## Doing Nothing is Very Costly

- Economic analyses (commissioned by the Business Council of British Columbia, and extended to MB) reveal this depletion of human capital (brain drain) will cause MB to forgo >15% in GDP growth over the next 60 years (= \$54.3 Billion)
- The economic value of this loss is equivalent to investing \$6.9 Billion today at a rate of 3.5% interest, even after paying for the social investment required to reduce vulnerability
- **Unnecessary ECD vulnerability in MB is thus costing the provincial economy a sum of money (\$54B) that is almost 4 times the total 2010 provincial debt load (\$14B)**
- The MB economy has 4 times as much reason to worry about the early childhood vulnerability debt as it does about the fiscal debt
- **Reducing early vulnerability is therefore necessary for MB to secure its long-term economic future**

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## The Cost of Second Chances

*"[We are] a second chance society. Our educational policy is based on a fundamental optimism about the possibility of human change. The dynamics of skill formation reveal that later compensation for deficient early family environments is very costly. If society waits too long to compensate, it is economically inefficient to invest in the skills of the disadvantaged. A serious trade-off exists between **equity and efficiency** for adolescent and young adult skill policies. **There is no such trade-off for policies targeted toward disadvantaged young children.**"*

*James J. Heckman, PhD  
2000 Nobel Laureate in Economic Sciences*

Source: Heckman (2006, p. 1901)

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## Conclusions and a Call to Action

- Our success in ECD is **an indicator of the success of our society and democracy**: equality of opportunity, fairness and justice, and social responsibility
- Our success in ECD is also **a forecast of our social and economic future** (including the relative success or failure of our later investments in the school years) and is **the best economic investment**
- Communities, governments, business leaders, researchers, and practitioners must **establish new partnerships**, building on the ECD accomplishments of the past decade to meet the most important ECD challenge of the next decade: **Bridging the gap between knowledge and action to build a comprehensive, effective ECD system for all children, supported by convincing evaluation evidence to help protect the system in the future**

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# Thank You

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