

Institute for Research on Public Policy Symposium
Vulnerable Children in Canada: Research and Policy
Options

Toronto, ON

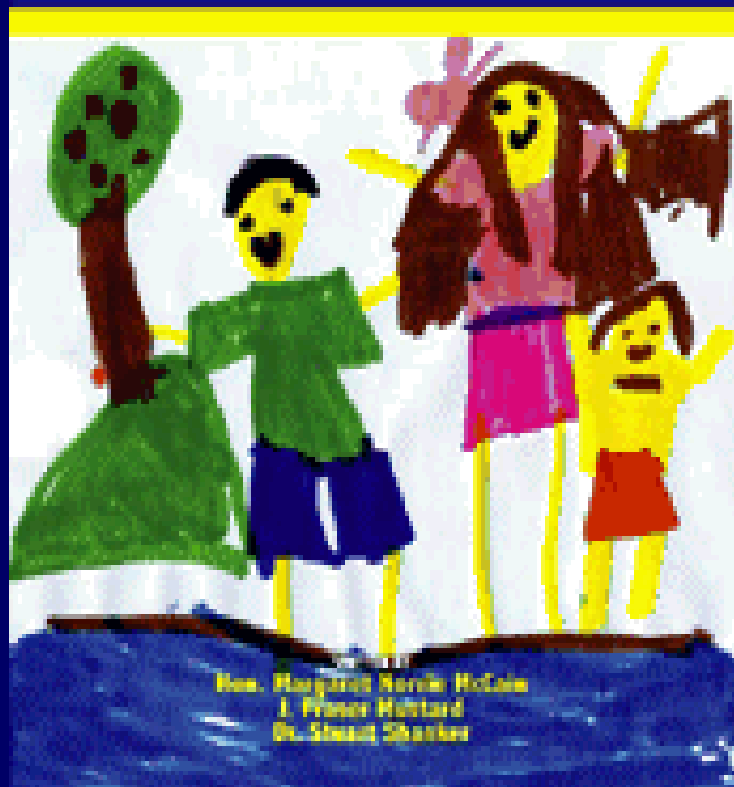
**Early Child Development and
Vulnerable Children**

By J. Fraser Mustard
Founding President, CIAR and
Founding Chairman
Council for Early Child Development

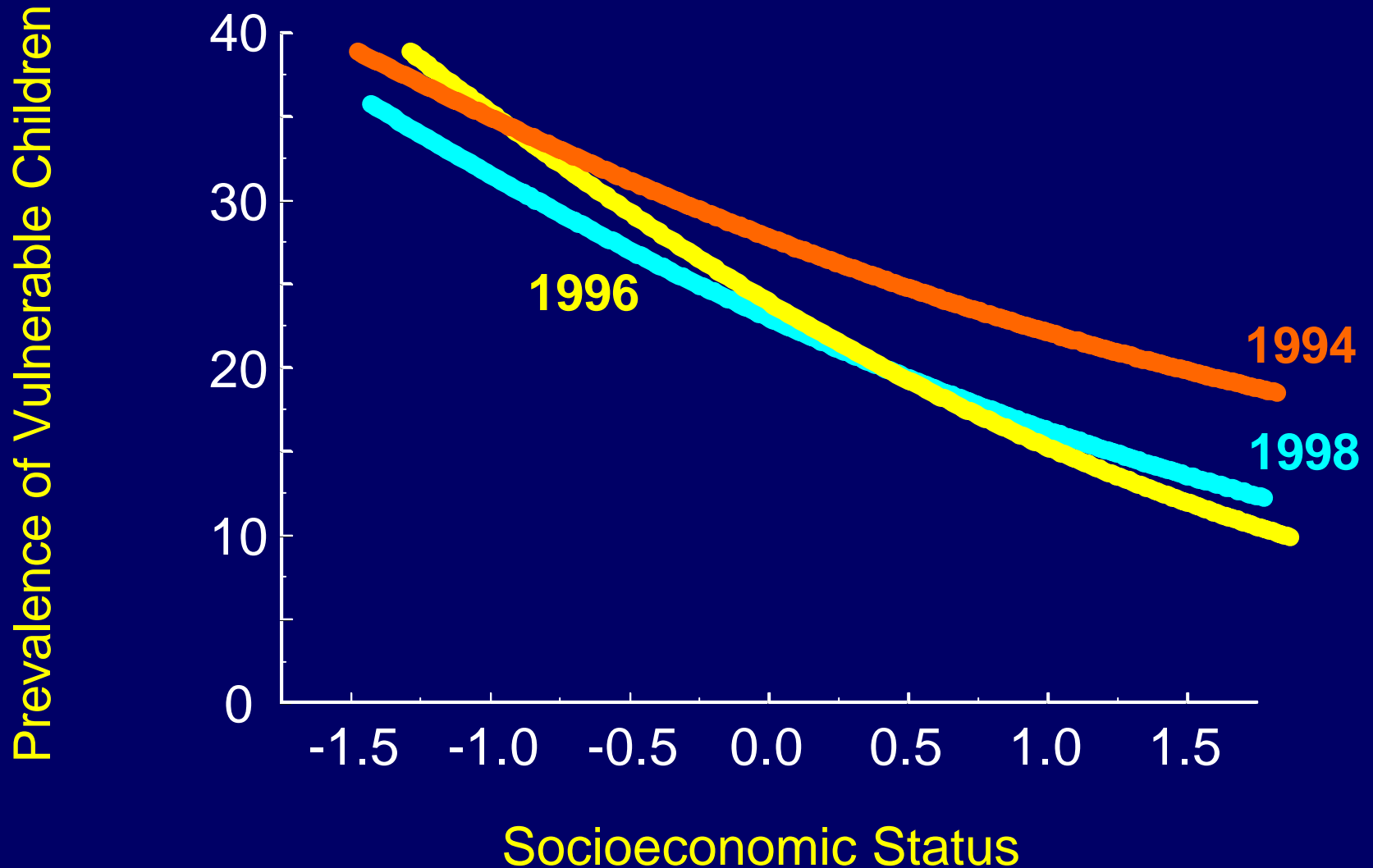
April 11, 2008

EARLY YEARS STUDY 2

Putting Science into Action



Vulnerable Children Aged 4 to 6 – Ontario - NLSCY 1994-1998



Vulnerable Children

Family Income	No. of Children %	Vulnerable %	Cases %
Low	7.5	37.0	15
Medium Low	28.0	17.5	26
Medium High	52.0	16.5	48
High	12.5	14.5	11

Experience-Based Brain development in the early years of life sets neurological and biological pathways that affect throughout life:

- Health
- Learning
- Behaviour

DEVELOPMENTAL NEUROBIOLOGY

Why do we care about brains?

You are your brain.

BUT

Your brain is not just produced by your genes.

Your brain is sculpted by a lifetime of experiences. The most important time in brain development is the first few years of life.

Does Experience have the Same Effects on Brain Development at Different Times in Life?

No !

There are qualitative differences at different stages of life.

There is something fundamentally different prenatally vs infancy vs juvenile vs adult.

One difference is gene expression.

What is experience?

Everything that you encounter both pre- and postnatally as well as in adulthood...

Examples: sounds, touch, light, smell, food, thoughts, drugs, injury, disease...

Early Experience and Brain Structure and Function

Early Experience and Brain Architecture and Function

- Affects gene expression and neural pathways
- Shapes emotion, regulates temperament and social development
- Shapes perceptual and cognitive ability
- Shapes physical and mental health and behaviour in adult life
- Shapes physical activity (e.g. skiing, swimming, etc.)
- Shapes language and literacy capability

Epigenetics

The process by which normal gene expression is altered by experience.

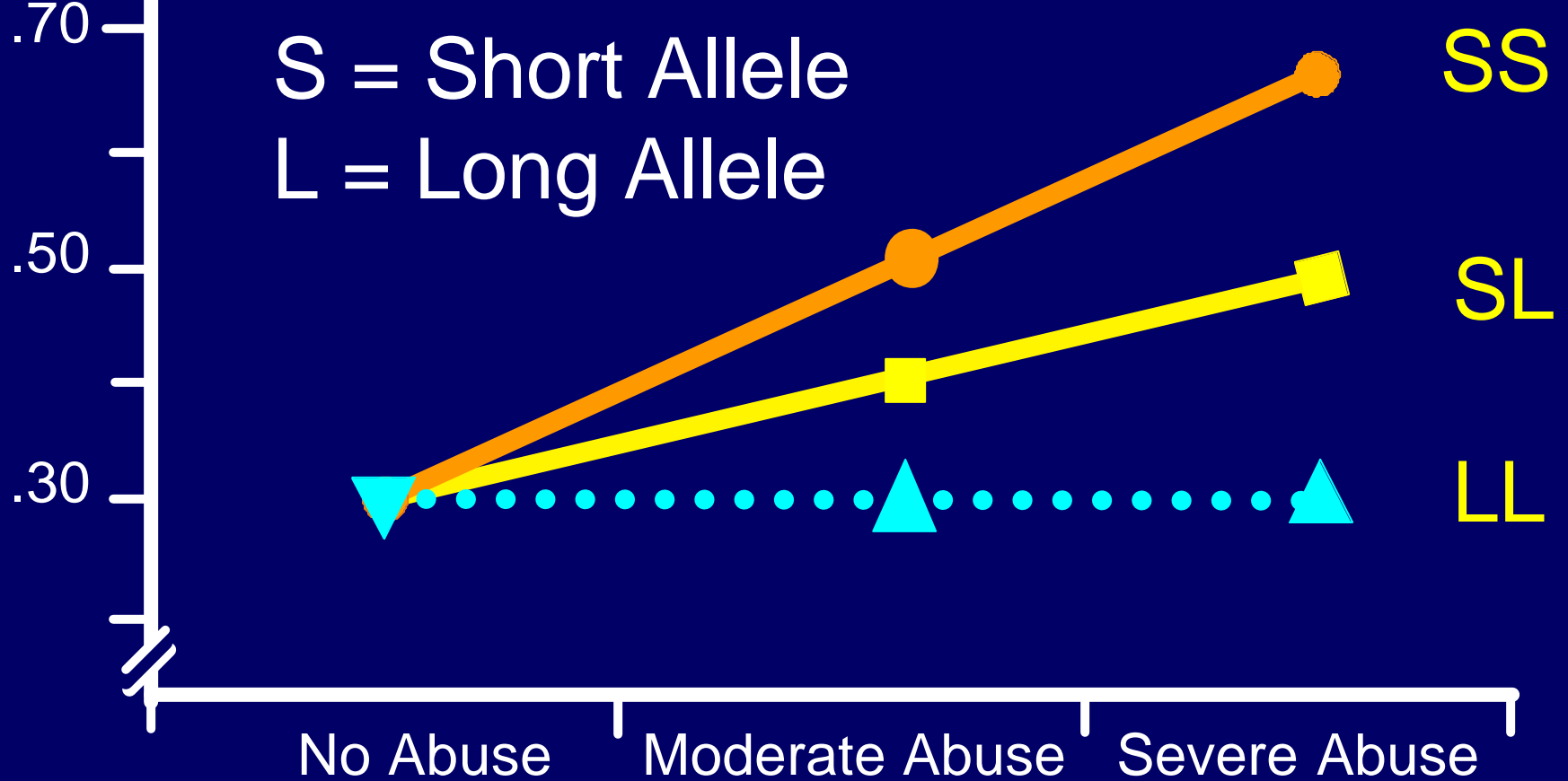
Genotype vs Phenotype
Nature vs Nurture

5-HTT Gene and Depression

Age 26

Depression

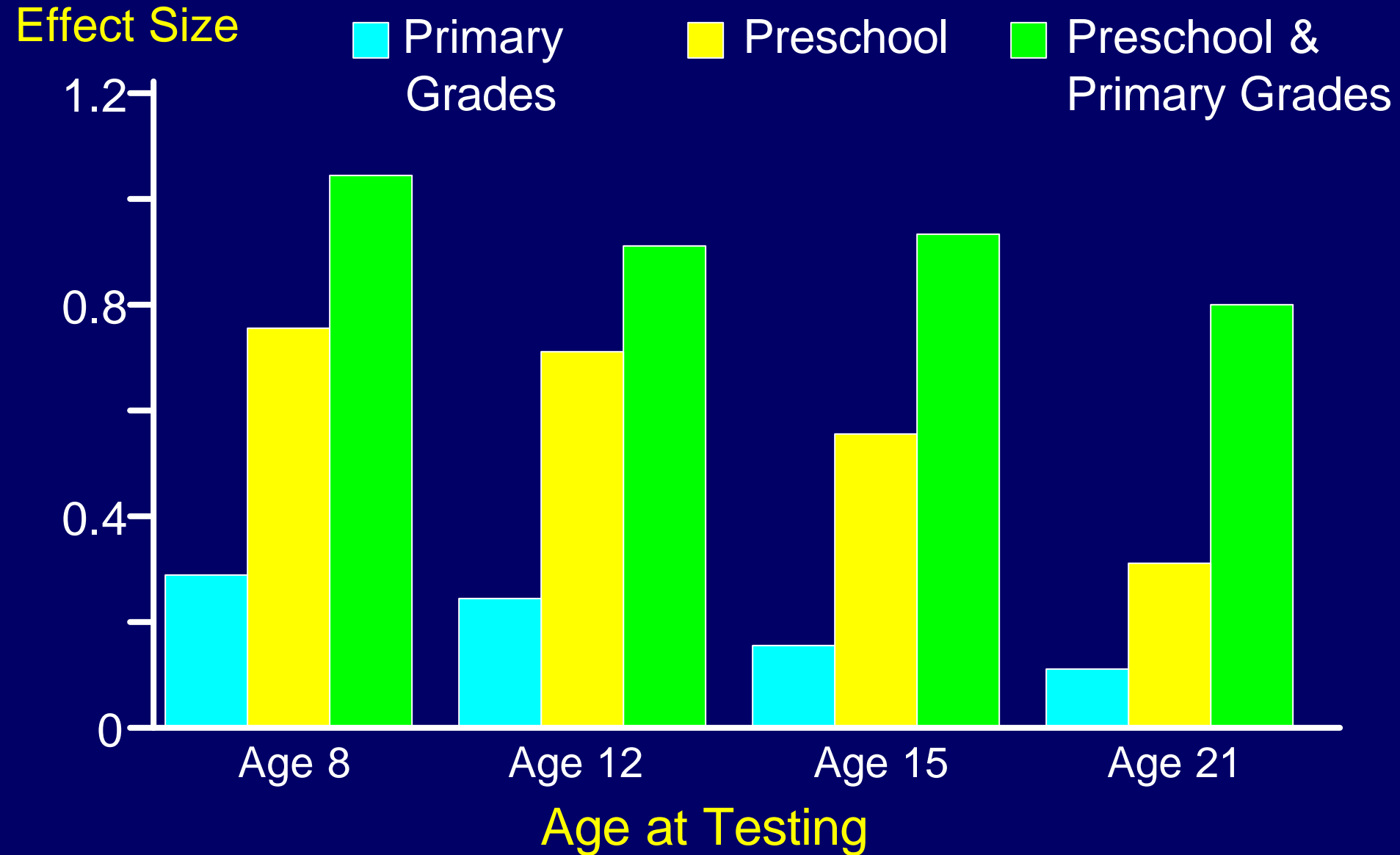
Risk



Early Childhood

A. Caspi, Science, 18 July 2003, Vol 301.

Abecedarian Study – Reading



**EARLY CHILD
DEVELOPMENT AND
PARENTING CENTRES**

Success by Ten

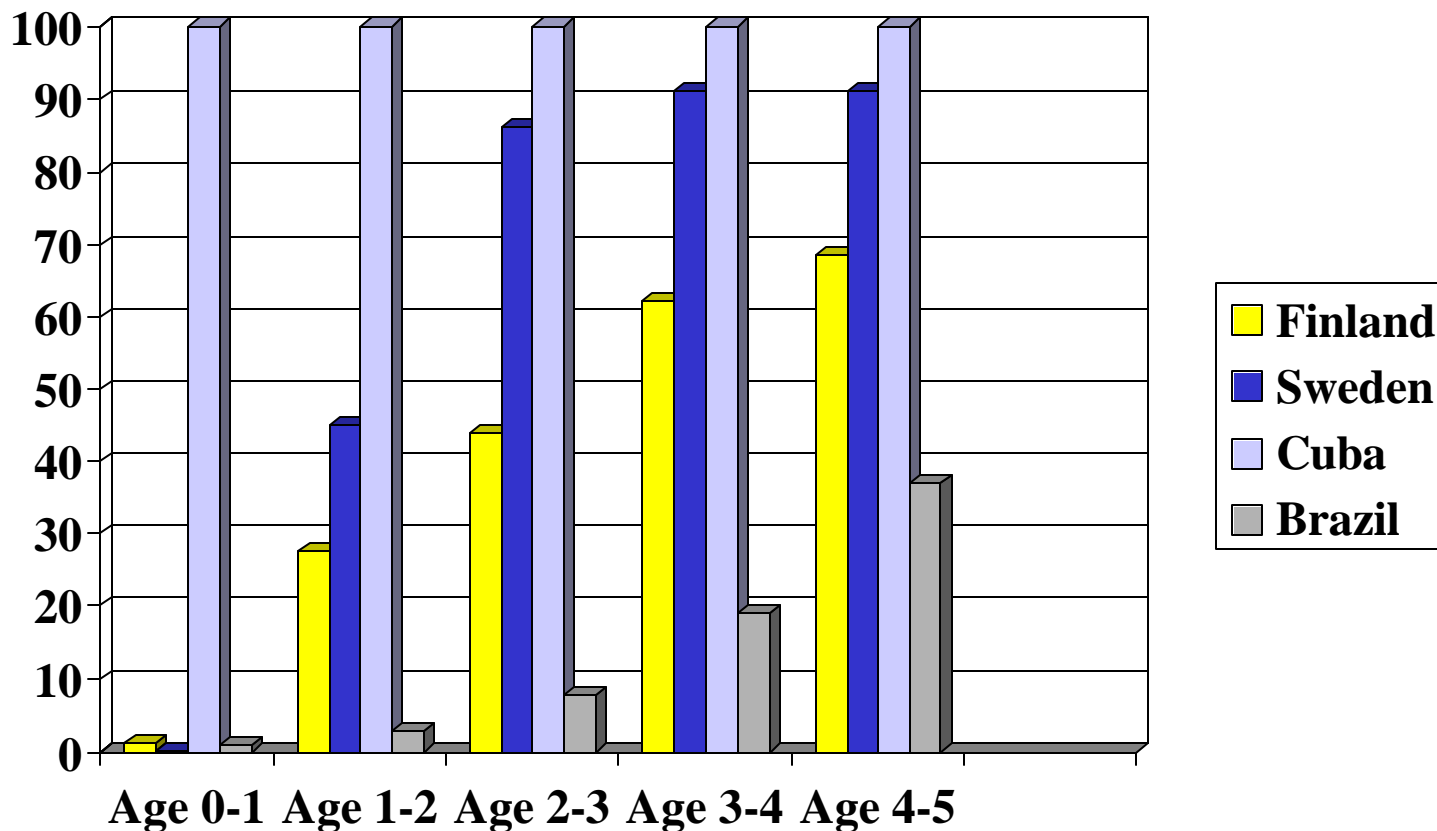
Early Child Development

- **START**
(Intervene) early
- Intervene often
- Intervene effectively

Creating Infrastructure for Early Child Development and Parenting Centres

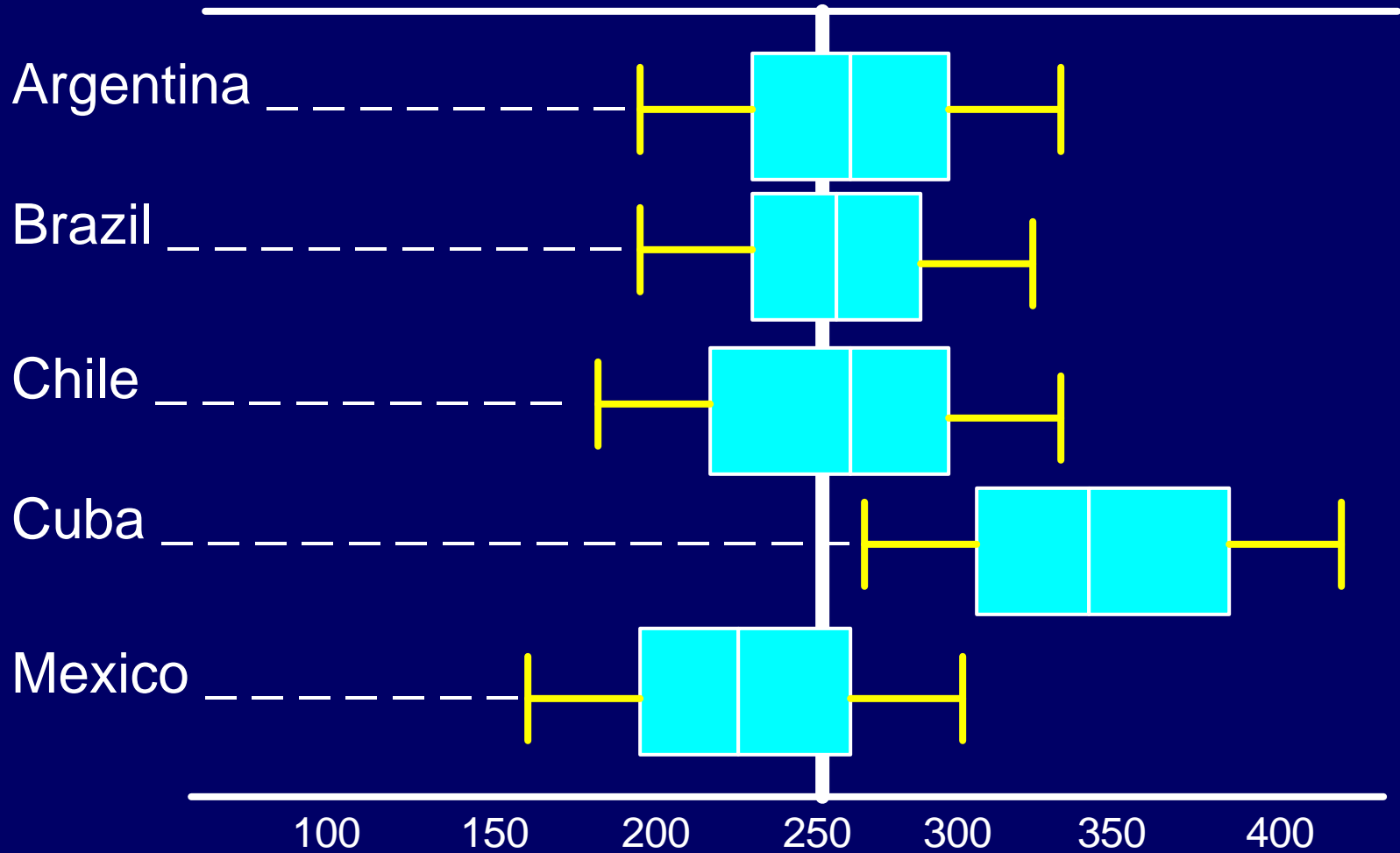
- Support and fund high quality early child development centres
- Provide relevant education and training for staff – adequate staffing for centres
- Establish outcome measures
- Establish integrated programs
- Centres linked to the primary schools
- Paid parental leave

ENROLMENT IN ECD PROGRAMS



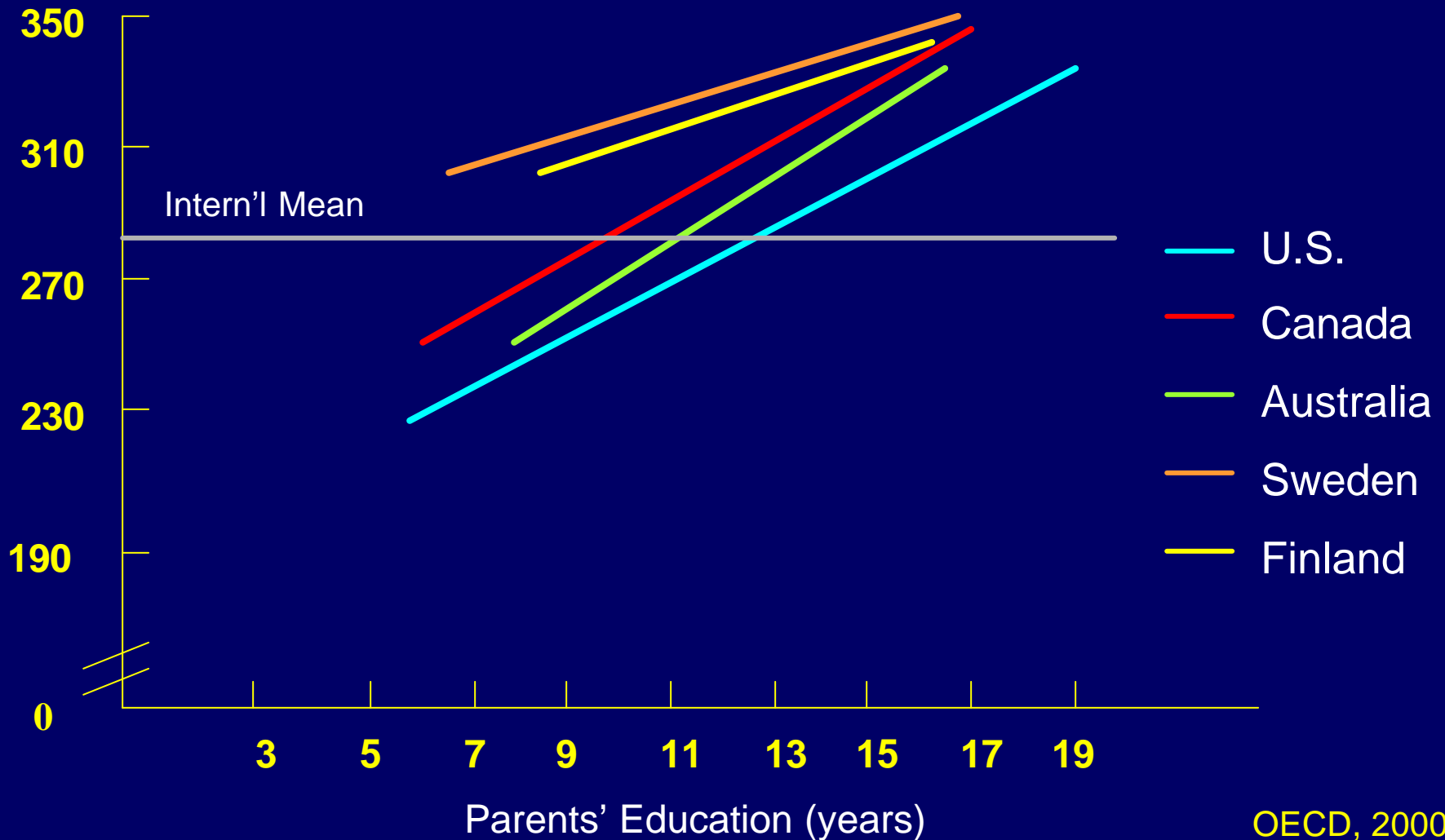
Sources: OMEP (2005), OECD (2006), UNESCO 2007, World Bank 2001

Grade 3 Language Scores



Socioeconomic Gradients for Document Literacy Scores

Mean Scores

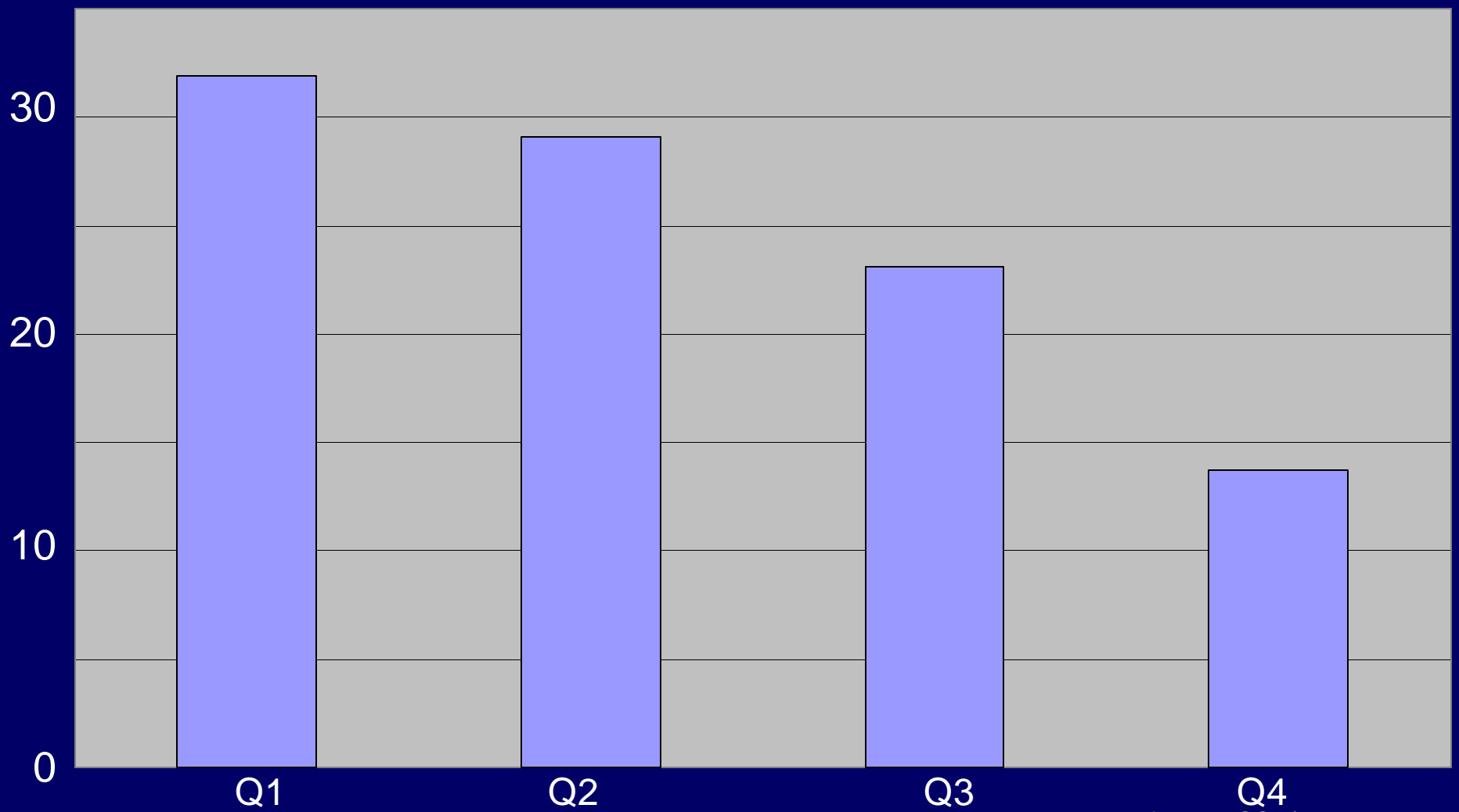


Early Development Instrument (EDI)

- Physical health and well-being
- Social knowledge and competence
- Emotional health/maturity
- Language and cognitive development
- Communication skills and general knowledge

Canada – EDI Children 5-6 yrs

% Vulnerable



SES - Income

Adapted from NLSCY/UEY 1999-2000;
EDI 1999-2000

Vancouver EDI Reading

# of Vulnerabilities	% Failing Grade 4	% Not Passing Grade 4
0	13.6	17.8
1	26.7	33.9
2-3	29.5	43.1
4-5	48.4	68.3

Decrease in the % of vulnerable children as a result of improved ECD in Western Australia

	Year	
	2003	2006
Floreat	47.22%	14.3%
Wembley	47.11%	11.8%

Integration of Child Development Programs with Education

- Sweden
- Cuba
- South Australia

SOCIOECONOMIC CONSIDERATIONS

Cost to Individuals and Canadian Society of Poor Early Child Development (estimates)

Crime and Violence \$120 Billion/year

Mental Health
Behaviour and
Drug Use \$100 Billion/year

Cost of Universal ECD-P Centres Canada (0 to Grade 1)

Age 0 to 6 Population

Universal (2,100,000 children)

Cost \$18.0 Billion (1.5% of GDP)

Present Expenditure 0.25% of GDP

Sweden ECD (Preschool) and Education Expenditure

	Cost/Child	Enrollment
Preschool* (age 1-6)	\$15,000	75 – 96% (not compulsory)
Compulsory School (age 7-16)	\$10,500	Compulsory

* Maternal and parental paid leave 480 days

Investing in Infants, Toddlers, and Young Children

"We cannot afford to postpone investing in children until they become adults nor can we wait until they reach school - a time when it may be too late to intervene."

Heckman, J., 2001
(Nobel Prize Economics, 2000)

ECD and parenting
programs reduce the
number of vulnerable
children in all social
classes

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