Early Child Development and Chronic Disease: From Understanding to Action

Best Start Resource Centre
2009 Annual Conference
Presenter: Diane Finkle Perazzo, M.A.
Welcome!

Please tell us a bit about yourself and why you have chosen to attend this session.
This presentation will:

• Examine the connection between ECD and chronic disease
• Focus on several key issues:
  - breastfeeding, childhood obesity and sun protection
• Take a look at several current best practices
• Put forward recommendations for practice, policy and knowledge exchange
ECD and Chronic Disease Report: Background

• Why was the report written?
• Who is the target group?
  – Early child development practitioners
  – Preschool and kindergarten teachers
  – Public health practitioners
  – Health promotion consultants
  – Parenting programs (organizations and providers)
  – Parents
Purpose of the report:

- To raise awareness about the connection between early childhood and risk factors for adult chronic disease
- To help move from knowledge to action by providing examples of best practices that can be implemented in the real world.
Key Informants and Expert Reviewers

Jane Bertrand, M.Ed.
Anne Biscaro  Michelle Cundari
Elizabeth Lee Ford-Jones, M.D.
Sam Gardner, MA
Howard Morrison, PhD
Barbara Pimento, ECE. B.A., M.H.Sc.
Simone Philips  Shawna Scale
Stuart Shanker, PhD
Robin Williams, MD
Ellen Wodchis

Diane Finkle, MA
Cathy Vine, M.S.W., R.S.W.

Project Lead
Nancy McGeachy, B.Sc.N., M.H.S.
What do you remember from your childhood that you believe may be having an effect on your health today?
It’s true, much of what we experience in childhood has an impact on our health as adults.
If we provide children with healthy foods and plenty of activity, promote good parenting and support quality learning experiences and positive relationships we can have a huge impact on their health in the future.
Practitioners, policy-makers and legislators recognize that early child development affects long term health.

Senator Wilbert Keon  The Honourable Margaret Norrie McCain  Dr. Fraser Mustard
The media and the general public also recognize the link

“Obese children may risk heart attack or stroke as early as age 30.”
The Globe and Mail 12.11.2008

“Early infections may increase arthritis risk.”
cbc.ca 28.10.2008

“Mother’s stress linked to her child becoming overweight.”
Science Daily 09.08.2008
Despite the growing understanding of the relationship between early child development and chronic disease, we lack consistent messages about this link.
What do we already know and what is happening?

1. Chronic disease prevention
2. Early child development
3. Life course epidemiology
4. Government policy activity
Chronic Disease Prevention

- What are chronic diseases?
  - Illnesses that have an uncertain outcome
  - Caused by multiple risk factors
  - Develop slowly
  - Last for a long period of time
  - Can cause premature disability, illness and death
  - Most common: cardiovascular, cancer, diabetes, arthritis, asthma and mental illness
  - Considered to be the most common and costly health problem affecting the Canadian health system
The relationship between risk factors, conditions and common disease end-points

<table>
<thead>
<tr>
<th>Common risk factors</th>
<th>Intermediate conditions</th>
<th>Disease Endpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-modifiable risk factors</td>
<td>Hypertension</td>
<td>Cardiovascular disease</td>
</tr>
<tr>
<td>- age, gender, genetics</td>
<td>Blood lipids</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Behavioural risk factors</td>
<td></td>
<td></td>
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<tr>
<td>- diet, physical activity, smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural and environmental conditions</td>
<td>Obesity / overweight</td>
<td>Several cancers</td>
</tr>
<tr>
<td>- ethnic background, geographical location</td>
<td>Glucose intolerance</td>
<td></td>
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</tbody>
</table>
We now know that our risk of chronic disease is actually being established much earlier than we previously thought.
Early Child Development

• Early child development:
  – The most important and rapid period of development
  – Starts at birth to age 6
  – Follows predictable stages growth
  – Affected by environmental, social and physical factors.
Neuroscience and child development

- Our experience during the early years affects the development of our brains and our future health and well being
Epigenetics: A new frontier

- Our genetic structure is not as hardwired as originally thought
- There is an interaction between our genes and their environment
- There is also a link between our behaviour and our genes
The mental health connection

- Our mental health during childhood can affect our risk of chronic disease
- Mind and body connection
- Our physical health can affect our mental health
Life course epidemiology

- The study of long-term biological, behavioral and psychosocial processes that link adult health and disease to physical or social exposures during gestation, childhood, adolescence and adult life.
Government policy activity

- Fourth Report of the Subcommittee on Population Health of the Standing Senate Committee on Social affairs, Science and Technology
- Early Years Studies
Questions and comments?
Making Connections

1. Examining the connection between specific diseases and risk factors
2. Addressing the social determinants of health
3. The importance of a comprehensive approach
Examining the connection between specific diseases and risk factors

• The fetal origins hypothesis (early 90s):
  – If a fetus lacks nutrition during the middle to late trimester of pregnancy, its growth may be affected and increase the future risk of coronary heart disease.
### Chronic diseases and their relative risks/protective factors and behaviours during childhood

<table>
<thead>
<tr>
<th>Chronic Disease</th>
<th>Relative risks and behaviours during early childhood</th>
</tr>
</thead>
</table>
| Heart disease   | ▪ Obesity  
▪ Lack of breastfeeding  
▪ Unhealthy eating  
▪ Poverty           |
| Asthma          | ▪ Exposure to second-hand smoke                           |
| Obesity         | ▪ Lack of breastfeeding  
▪ Unhealthy eating  
▪ Lack of physical activity  
▪ Poverty           |
| Diabetes        | ▪ Unhealthy eating  
▪ Lack of physical activity  
▪ Poverty  
▪ Lack of breastfeeding |
| Cancer          | ▪ Sun exposure  
▪ Lack of physical activity  
▪ Unhealthy eating  
▪ Exposure to second-hand smoke |
| Arthritis       | ▪ Obesity  
▪ Lack of physical activity |
| Mental illness  | ▪ Lack of attachment  
▪ Poverty |
# Early risk factors and their relative chronic diseases

<table>
<thead>
<tr>
<th>Early risk factors</th>
<th>Relative chronic diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to second-hand smoke</td>
<td>• Asthma</td>
</tr>
<tr>
<td></td>
<td>• Cancer</td>
</tr>
<tr>
<td>Unhealthy heating habits including lack of breastfeeding</td>
<td>• Asthma</td>
</tr>
<tr>
<td></td>
<td>• Cancer</td>
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<td></td>
<td>• Diabetes</td>
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<td></td>
<td>• Heart disease</td>
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<td>• Obesity</td>
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<tr>
<td>Lack of physical activity</td>
<td>• Arthritis</td>
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<td>• Cancer</td>
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<td>• Heart disease</td>
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<td>• Obesity</td>
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<tr>
<td>Sun exposure</td>
<td>• Skin cancer</td>
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<tr>
<td>Lack of attachment</td>
<td>• Mental health problems</td>
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<tr>
<td></td>
<td>• Obesity</td>
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<td>Poverty</td>
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<td>• Obesity</td>
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Addressing the social determinants of health

- income and social status
- social support networks
- education
- employment/working conditions
- social environments
- physical environments
- personal health practices and coping skills;
- healthy child development
- biology and genetic endowment
- health services
- gender
- culture
ECD and the social determinants

WHO Commission on the Social Determinants Of Health Report:

- the environments where children grow up, live and learn have an impact on their development
The relationship between chronic conditions and special health care needs in children and the determinants of health
The importance of a comprehensive approach

- Early child development is a complex, holistic and dynamic process that is influenced by a wide variety of factors.
- Children are not simply the product of their genes or how they were parented.
- They are also affective by social conditions and environmental influences.
Questions and comments?
Taking a Closer Look

1. Breastfeeding
2. Childhood Obesity
3. Sun protection
Breastfeeding: The evidence

- Babies who are breastfed have lower mean blood pressure and total cholesterol
- Perform better in intelligence tests
- Lower incidence of Type 2 Diabetes
- Link between obesity and breast feeding
Breastfeeding: The social determinants of health

- Natural safety net
- Reduces health inequities among population groups
- Low cost option
- Encourages social support networks
- among women
- Improves learning
Policy support for breastfeeding

- World Health Organization
- Health Canada
- Canadian Paediatric Society
- Registered Nurses Association of Ontario
- Ontario Public Health Association
Childhood obesity: The evidence

- Obesity rates in children have tripled during the last 25 years
- Rates of obesity in First Nations children are 2 – 3 times higher than average
- Prevalence in children 2 – 17 increased from 15% in 1978 to 26% in 2004
**Selected complications of childhood obesity** *(Ludwig, 2007)*.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Complication</th>
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<tbody>
<tr>
<td>Psychosocial</td>
<td>Poor self-esteem</td>
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<tr>
<td></td>
<td>Anxiety</td>
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<td></td>
<td>Depression</td>
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<td></td>
<td>Eating disorders</td>
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<td></td>
<td>Social isolation</td>
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<td>Lower marks in school</td>
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<tr>
<td>Endocrine System</td>
<td>Insulin resistance</td>
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<tr>
<td></td>
<td>Type 2 diabetes</td>
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<tr>
<td>Cardiovascular (Heart)</td>
<td>High blood pressure</td>
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<tr>
<td></td>
<td>Chronic inflammation</td>
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<tr>
<td>Pulmonary (Breathing)</td>
<td>Sleep apnea</td>
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<tr>
<td></td>
<td>Asthma</td>
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<td></td>
<td>Difficulty exercising</td>
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<tr>
<td>Digestive system</td>
<td>Indigestion</td>
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<tr>
<td></td>
<td>Gallstones</td>
</tr>
<tr>
<td></td>
<td>Constipation</td>
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<tr>
<td>Muscles and skeleton</td>
<td>Back pain</td>
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<td></td>
<td>Flat feet</td>
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</tbody>
</table>
Childhood obesity and the social determinants of health

- Affects a broad range of geographic locations, income, educational, racial, and cultural groups
- Rural and remote children have more difficulty accessing fresh foods and getting outdoor exercise
Obesity is possibly a greater problem in less affluent children

- Poverty affects the amount and type of food children eat
- Poverty creates unpredictability and stress which makes it difficult for parents to support healthy eating and an active lifestyle
Childhood obesity: policy support

- Federal, provincial and territorial governments are beginning to take action
- New and updated version of Canada’s food guide
- Ontario funding for program to improve access to fruits and vegetables in the north.
Sun protection during childhood: The evidence

• Sun exposure during childhood:
  – One of the strongest risk factors for skin cancer
  – An important indicator of who develops skin cancer later in life
  – Approximately 4,600 new cases of melanoma in Canada in 2008
  – Seeing more and more cases at younger ages
Sun protection and the determinants of health

• The sun’s rays do not discriminate against income level or culture
• More damaging to fair and freckled
• Children’s skin is thinner and more vulnerable
• Community level social determinants:
  – High density urban and low-income neighborhoods have less green space and shade
  – Sun protective clothing is costly
Policy support for sun protection

- Canadian Cancer Society recommendations:
  - Protect children of all ages, especially babies
  - Recommendations on shade in child care facilitates and schools
  - Public health standards for sun safety
Questions or comments?
Making it work in the real world

1. The Baby Friendly Initiative
2. NutriSTEP
3. Healthy Buddies
The Baby-Friendly Initiative™

- WHO/UNICEF program
- 15,000 facilities in 134 countries around the world
- Breastfeeding Committee for Canada guidelines
- 9 hospitals and birthing centres
- 10 community health services
NutriSTEP®

• Nutritional screening for children between 3 and 5 years old

• Managed by:
NutriSTEP®

- Parent answers 17 questions:
  - child’s physical growth
  - What they eat and drink
  - Physical activity and sedentary behaviour
  - Factors that affect food intake
- Provides educational materials for parents
- More than 1500 preschoolers and parents involved across Canada
The Healthy Buddies Program

- Adopted across Canada and being considered by WHO
- Peer led teaching
- Focus on active living, healthy eating and positive body image
Other Promising Programs

- Sun Safety in the School Community: A Tool Kit for Public Health Staff in Nova Scotia
- The Northern Fruits and Vegetables Pilot Project (NFVPP)
- *At My Best™* Children’s Wellness Program
What Can we Do?
General recommendations:

• Provide children with positive and healthy living and community conditions

• Ensure that programs for young children address the combined impact of a broad range of risk/protective factors

• Ensure that mental health issues are considered during childhood
General recommendations (2)

• Be a positive role model by adopting healthy behaviours
• Recognize and celebrate every step we take
• Understand the links with poverty and address these directly
Practice recommendations

• Identify and implement best practices that recognize and address the links between ECD and chronic disease
• Adopt a “whole child” approach
• Learn about and plan programs that consider the full range of adult chronic diseases
Practice Recommendations (2)

- Encourage parents to:
  - Breastfeed their babies
  - Provide children with healthy food choices
  - Avoid smoking around children
  - Protect children from the sun
  - Ensure plenty of physical activity
  - Help children develop lifelong behaviours now
  - Understand their role in preventing chronic disease in their children
Policy Recommendations

- Advocate for provincial and multi-sectoral policies
- Adopt routine measurement of height and weight during well-baby and child health visits
- Establish and promote policies in day care settings, schools, etc
Knowledge Development and Exchange

- Support the development of learning networks
- Build relationships and undertake joint activities
- Offer a variety of learning activities
- Develop clear messages
- Work with educators across multiple disciplines
- Encourage further research
The early years:

• A critical period in human development
• Childhood experiences have a profound impact on future well-being
• The time is right to get the word out and take future action
“Linking early child development and chronic disease is an important part of a long term strategy that can offer a dramatic return on our investment in the health of Canadians.”
Practitioners have a key role

- We’ve looked at the what and the so what
- Let’s talk about the now what
- What can you do in your work to promote healthy children and lower their risk of chronic disease as adults?