Environmental Exposures and Child Health

Workshop for Aboriginal Service Providers:
Membertou First Nation, Nova Scotia
March 16, 2012
Kathleen Cooper, Senior Researcher, Canadian Environmental Law Association (CELA)
Acknowledgements: This workshop curriculum has developed across several projects run during 2010-2012 by the Canadian Environmental Law Association as the lead partner within the Canadian Partnership for Children’s Health and Environment, and with financial support from Health Canada. To view additional elements of the curriculum package in order to develop individual workshops, visit:


Production of this workshop was made possible through a financial contribution from Health Canada. The views expressed herein do not necessarily represent the views of Health Canada.
CPCHE At a Glance

Who is CPCHE?

The Canadian Partnership for Children’s Health and Environment

…a multi-sectoral collaboration of medical, public health, environmental and child care groups that have been working together since 2001 to advance children’s environmental health protection in Canada.
CPCHE Partners

- Canadian Association of Physicians for the Environment (CAPE)
- Canadian Child Care Federation (CCCF)
- **Canadian Environmental Law Association (CELA)**
- Environmental Health Clinic – Women’s College Hospital
- Environmental Health Institute of Canada
- Learning Disabilities Association of Canada (LDAC)
- Ontario College of Family Physicians (OCFP)
- Ontario Public Health Association (OPHA)
- Pollution Probe
- South Riverdale Community Health Centre
- Toronto Public Health (TPH)
Presentation Overview

Objective is to explore:

Part 1 – Why focus on Children?
• Why children are at greater risk than adults
• Priorities: areas of reliable science and justifiable cause for concern

Part 2 – What is Needed?
• Responses at three levels in society (decision makers, service providers, public/parents)
• Strategies for service providers to convey this information to prospective parents and families
Why focus on preventing toxic exposures during childhood?

- Environmental exposures are among the multiple factors that determine health and well-being throughout life.
- Early exposures can have the greatest potential for harm.
- Environmental exposures are largely preventable.

Health Problems Associated with Environmental Exposures

Impacts on:
• The respiratory system
• The developing immune system
• The developing brain and nervous system
• Reproduction and child development
• Risk of cancer in children and young adults
• The endocrine system contributing to reproductive/developmental impacts or increased risk for obesity, type 2 diabetes, and later life cancers

Multiple causes for each and environmental evidence is often incomplete – but, high stakes risks

*The worst contaminants are often those that are associated with several of these effects*
Today’s Reality

• **Asthma**: 9.8% of children aged 2-7 yrs (Stats Canada, 2008-2009 data).

• **Learning and behavioural problems**: ~one quarter of children in Canada age 6 to 11. *Autism Spectrum Disorder* affects 1 in every 165 children in Canada.

• **Birth defects** of the male reproductive system appear to be on the rise worldwide in industrialized countries.

• **Cancer**: rare in children; leading cause of illness-related death after one year of age. Incidence of several cancers is rising among adolescents and young adults. Breast and prostate cancers epidemic.

• **Low Birth Weight** – rising incidence for last 20 years

• **Obesity and T2 Diabetes** – rising rapidly, epidemic (3 to 5X higher in FN than in general population)
What makes the fetus and child more vulnerable?

Higher levels of exposure:
- Children eat, drink and breathe more than adults per unit of body weight
- Behaviours (e.g., hand-to-mouth activity) increase exposures to contaminants, such as those in house dust.

Greater susceptibility to harm:
- Rapid, dynamic process of development creates “windows of vulnerability”
Some children are more vulnerable than others

- Genetic differences (e.g., asthma)
- Cultural differences
- Location
- Parental occupation
Low income children at highest risk

- Poverty – health risk unto itself
- Substandard housing, potential ↑:
  - Lead, Mould, (Radon), Pesticides
- Older/reused products, potential ↑:
  - phthalates, PBDEs, BPA, PFOs, SCCPs, etc.
First Nations children at higher risk than most children

- High levels of poverty
- Genetic differences (e.g., risk of obesity)
- Increases vulnerability to endocrine disrupting “obesogenic” substances (Bisphenol A, organotins, others?)
- Chemicals may increase obesity and diabetes risk alongside other risk factors
First Nations children at higher risk, cont’d

• Locations near industry

• E.g., Aamjiwnaang FN and suspected impact of chemical exposures

• Northern/arctic exposure to persistent organic pollutants of particular concern

• Continue to eat traditional foods/breastfeeding

• Need to follow fish advisories and for continued advocacy for prevention
Re-cap: Potential for Greatest Exposure

- **Air** (indoors and outdoors)
  → indoor dust
- **Food**
- **Consumer products** (largely indoors)
  → indoor air and **DUST**

+ Location-specific Issues
Focus on food – multiple exposures

- Breastmilk – multiple contaminants; multiple benefits
- Fish → ditto; Mercury and POPs
- Most foods (lower burden in fresh or minimally-processed foods)
  - POPs, e.g. PBDEs, PCBs, dioxins, etc. (higher in fatty foods)
  - Pesticide residues (agricultural practices, transport over long distances)
  - Metals (processing, env’l contamination)
  - Phthalates, Bisphenol A (packaging or storage containers)
- Organic food – lower pesticide burden; measurable in kids
Biomonitoring Results Confirm Widespread Exposure to Toxic Chemicals

- **Biomonitoring**: measures levels of contaminants in blood, urine, breastmilk, expelled air, etc.
- Results from population-wide testing:
  - Everyone carries many different chemicals, our “body burden” and levels are always higher in children.
  - Breast-fed babies often get the highest amount.
  - Very low levels, consequences uncertain.
  - Results should not deter breastfeeding (always the best food for babies).
  - Justify precautionary action to reduce and prevent exposures whenever we can.
Focus on Mould - Significant Issue for Many First Nation Communities

• Alongside chemicals in air and dust, mould is a very common indoor air quality concern
• Especially common and challenging to address in poor quality housing
• Known trigger for asthma
• Suspected cause for asthma
• Also causes eye, nose and throat irritation, coughing, phlegm, wheezing, shortness of breath, allergic reactions
• Response strategies useful for addressing “basket of issues”
  ⇒ will improve overall indoor air quality and reduce contaminants in dust
Common Causes/Sources of Indoor Mould Growth

- Rain/water leaks due to faulty/poorly maintained roof drainage or basement leaks
- Plumbing leaks
- Humidity and condensation due to:
  - Damp basements (with no dehumidifier)
  - Inadequate/missing bath or kitchen ventilation
  - Overcrowding of people
  - Inadequate insulation
  - Low indoor temperature in cold weather
- Grows on wood, drywall, paper, damp materials or furniture
Where to get help with mould problems

- Minor problems can be corrected by residents (see Health Canada resource: Mould and Your Health)
- Major problems need professional help
- Need to work with housing manager and Environmental Health Officer
- May require local organizing and advocacy for improving housing conditions, accessing grant programs, etc.
Context Matters

• The number of chemicals and pollutants is overwhelming, with an obvious conclusion: context matters.

• In the context of multiple exposures, potential for multiple effects, vast complexity, uncertainty and high stakes risks: we should exercise precaution and reduce exposures whenever possible.

Calls for a more precautionary approach in environmental policy come most frequently when findings point to environmental risks to prenatal or child health.
End of Part 1

• Discussion, questions
Part 2: What is needed?

- Awareness
- Advocacy
- Research
- Prevention
- Precautionary policies

Drawing by Seaña Brennan, age 6
Setting Priorities. Who Does What?

• Set priorities and focus on what matters the most
• Apply a tiered approach – being clear about who does what at what level
  1. Leaders/decision-makers
     • focus on policy
  2. Service providers
     • health promotion
  3. Public/Parents/Families
     • practical tips and strategies
• Will be linkages/overlap across tiers
Tiers 1 and 2: Leaders/Decision Makers and Service Providers/ Health Promotion

Tier 1: those who set or apply the rules/policy, at all levels
- E.g., federal Chemicals Mgmt Plan
  http://www.chemicalsubstanceschimiques.gc.ca/index-eng.php

Tier 2: Service providers – health care, public health, child care, prenatal educators, staff in Friendship Centres, etc.
- Crucial for knowledge translation to create awareness and risk reduction among parents
- Regular contact, trusted
- Educated/continuous education
- Know your clients and their needs
- Policy advocacy role
Challenges for Service Providers – Managing Complex and Scary Information

• Strong reactions (overwhelming, despair, fear, anger)
• When this information is new – reaction is often personal. Often need time to internalize before use professionally.
• Everyone is already busy – need strategies for building in new info’n
• Need “translation” of high literacy and/or technical terms
• Can’t become an instant expert
• Need bite-size pieces and strategies that are relevant and sensitive to clients needs (SP expertise)
Tier 3: Parents/Families; Focus on Practical Tips and Strategies

- Prospective parents and families – build into existing activities
- Include grandparents, elders in audience reach
- Limit the scary details and avoid lectures. Augment mini-talks with take-away brochures.
- Keep the number of topics manageable – e.g., a top 5 list
- Focus on practical tips and hands-on activities to raise awareness
Challenges for Parents/Families

- Reactions of fear and guilt – “what have I done to my kids?”
- Some “solutions” cost more
- Some issues are embarrassing to talk about (e.g., bed bugs, other pests).
- If children are present can be a distracting time to learn
- If not supported by others at home – change can be difficult to implement
CPCHE Resources

Review of the evidence

Raising public awareness, empowering personal action

Building capacity among service providers. Strategies, checklists, and related fact sheets. Add to well-known concept of “childproofing.”

Fostering dialogue

Advocating for research and policy improvements
Educational Resources for Service Providers with Focus on First Nations

Through the Eyes of a Child: First Nation Children’s Environmental Health

Your health at home: What you can do!

Also from Health Canada: Mould and Your Health: What you need to know for a healthier home
Information for First Nation Community Members
Medicine Wheel

NORTH

WATER
- Drinking Water
- Breastfeeding
- Fishing

EAST

AIR
- Tobacco Use
- Pesticides Use
- Household Chemicals

SOUTH

EARTH
- Food Sources
- Soil Contamination
- Waste Management
- Housing

WEST

FIRE
- Heating Sources
- Air Emissions
Child Care Checklist

- **Basic Concepts**: Health Concerns; Exposures in Child Care Settings
- **Checklist for Creating Healthier, Greener Child Care Settings**: 10 sections addressing indoor and outdoor settings.
- **Supporting Information and Resources**: Overview of issues/concerns; explanatory information and practical tips for each checklist item; websites and other resources
Potential Exposures in Child Care Settings

- Outdoor air pollution
- Indoor and outdoor pesticide use
- Inadequate ventilation
- Dust
- Mould
- Lead
- Mercury
- Radon

- Fragrances
- Disinfecting/cleaning products
- Art and craft supplies
- Chemicals from plastics
- Physical location of building
# The Checklist

## A. Outdoor Air Quality

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>In Progress</th>
<th>N/A</th>
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<tbody>
<tr>
<td><strong>A1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. We check the Air Quality Health Index (AQHI), Air Quality Index (AQI), smog, forest fire and extreme heat and cold alerts daily.</td>
<td></td>
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<tr>
<td></td>
<td>b. We schedule and tailor children’s activities according to the Air Quality Health Index (AQHI), Air Quality Index (AQI), smog, forest fire and extreme heat and cold alerts.</td>
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<tr>
<td><strong>A2</strong></td>
<td></td>
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<tr>
<td></td>
<td>We locate children’s activities away from parking areas during drop-off and pick-up times.</td>
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<tr>
<td><strong>A3</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>a. Our centre has an idling control policy.</td>
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<tr>
<td></td>
<td>b. Our centre has posted signs about idling control.</td>
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<tr>
<td></td>
<td>c. We provide outreach and educational resources on idling control.</td>
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<tr>
<td><strong>A4</strong></td>
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<tr>
<td></td>
<td>We have taken measures to reduce the amount of vehicle exhaust that enters the centre through air intake vents, the entrance door and/or windows.</td>
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</tbody>
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### Notes and Comments

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[www.healthyenvironmentforkids.ca](http://www.healthyenvironmentforkids.ca)
The Checklist: Supporting Information and Resources - example

☑️ A2. We locate children’s activities away from parking areas during drop-off and pick-up times.
  - If drop-off and parking areas are located near the outdoor play areas, move outdoor play to other areas of the centre during the busy pick-up and drop-off times.
  - If doors and windows open onto the parking areas, close these windows during the pick-up and drop-off times.
  - In the longer term, if possible, consider relocating drop-off/pick-up and parking areas away from outdoor play areas.

☑️ A3a. Our centre has an idling control policy.

An idling control policy typically
  - includes outreach/education for staff and parents through such things as newsletters, e-mail, posters and decals for vehicles
  - encourages parents to make a full stop and switch off their engines
  - is consistent with local bylaws, if applicable
  - may apply to delivery vehicles
  - has clear procedures or penalties in case of complaints.

A number of communities now have idling bylaws in place. Many limit idling time to three minutes or less. Some communities allow for some exceptions including those for diesel vehicles or in very cold weather, for which the idling time limits may be longer (up to five minutes).
Top 10/Top 5 Lists

Primer, chapter 6
- Healthy Living and Healthy Eating
- Handwashing and Dustbusting
- Healthy Indoor Air
- Outdoor Air Pollution Reduction
- Toxic Use Reduction
- Safe at Play
- Safe Renovations
- Rural and Northerly Settings
- Be an Informed Consumer
- Get Involved

GREAT LISTS BUT TOO MUCH INFORMATION!

Playing it Safe Brochure:
Focus on Timing and Settings/Activity:
- Pre-conception/Prenatal
- While: Cleaning/Feeding/Playing/Renovating

STILL A LOT OF INFORMATION AND FAIRLY HIGH LITERACY LEVEL
CPCHE’s Top 5 tips for families

Creating Healthy Environments for KIDS

Toxic substances are common in our environment, both indoors and out. Harmful chemicals that stick to dust, fumes from cleaning and renovation products, chemicals in plastics, mercury in fish—all of these can have serious impacts on the health of children. The good news is that parents can take some simple steps—beyond what they already do—to reduce risks in the home.

Children are at greater risk than adults because their natural defences are not fully developed. Babies and toddlers also explore the world with their hands and mouths, which exposes them more to harmful substances. This guide will help parents protect their kids by offering tips for “environmental childproofing.”

Focus on:
• Dust
• Cleaning Products
• Plastics
• Renovations
• Fish Consumption

Most recent CPCHE brochure and rack cards
Content captured in video (released this month) for use with parents
Safe at home – Top 5 tips for families

- **Bust that dust**
- **Go green when you clean**
- **Renovate right**
- **Get drastic with plastic**
- **Dish safer fish**

www.healthyenvironmentforkids.ca
Examples of Strategies

• With prenatal classes, breastfeeding programs, in child care centres, and with parents:
  – Video, grab bag, mercury in fish, Medicine Wheel, quiz, clean and green workshops

• With children:
  – cinnamon and vaseline

• With service providers:
  – Testing/role-playing above activities to then use with parents
  – Advancing Environmental Health in Child Care Settings (check list)
Bust that dust

• Dust is a major route of exposure to toxic substances; most come from consumer products
• Clean with a damp cloth or mop; vacuum or wet-mop once a week, twice a week if you have a crawling child
• Shoes off at the door; washable entrance mats, washed separately
• Reduce clutter; store toys in closed containers
• If possible, get rid of old carpets, especially in children’s play areas

www.bustthath dust.ca
Examples for grab bag or display: empty vacuum cleaner bag or dryer lint (“labelled”), dustpan, reusable grocery bag, furniture foam

Examples of supporting materials:
• What’s on the menu today? flyer
• Bust that Dust rack card
• Creating Healthy Environment’s for Kids brochure
• Buying Products for the Child Care Centre

www.bustthatdust.ca
• Wash hands often, regular soap and warm water (doctors recommend against using antibacterial soaps)
• Non-toxic cleaning products (avoid multiple hazard symbols). Bleach not needed for most tasks.
• Avoid “air fresheners” fragranced laundry detergents or dryer sheets.
• Dry cleaners use toxic chemicals – find those using non-toxic methods

www.gogreenwhenyouclean.ca
Examples for grab bag or display: baking soda, vinegar, product with multiple hazard symbols, product with strong fragrance

Ranking exercise:
Use range of products and rank with green, yellow and red cards according to hazard symbols and label information

Examples of supporting materials:
• What’s on the menu today? flyer
• Creating Healthy Environment’s for Kids brochure and Go Green When You Clean rack card
• Non-toxic cleaner recipes
• Buying Products for the CCC

www.gogreenwhenyouclean.ca
• Pregnant women and children should not be involved in renovations
• Careful dust control – seal off with plastic and tape, close heating and cooling vents, insist on extreme care with dust by any contractors
• Choose low toxicity paints, finishes and glues
• Separate work clothes and shoes and wash separately from other laundry
Examples for grab bag or display: paint brush, duct tape, fine particle vacuum bags for shop vacuums

Examples of supporting materials:

- What’s on the menu today? flyer
- Creating Healthy Environment’s for Kids brochure and Renovate Right rack card
- Renovate Right brochure
- CPCHE Safe Reno’s fact sheets
- Father’s Day report

www.renovate-right.ca
• Store food in glass, ceramic or stainless steel
• Don’t microwave in any plastics or with plastic wrap (even if packaging says “microwave safe)
• Heat milk in a non-plastic container, cool to lukewarm before serving to infant/child
• Eat fresh or frozen foods to reduce exposures to BPA, a chemical used in the lining of most food and drink cans
• Avoid teething toys, bibs, bath toys, shower curtains and other items made from PVC (vinyl) to reduce exposure to phthalates

www.getdrasticwithplastic.ca
Examples for grab bag or display: examples of #1 - #7, toys, plastic bags, stainless steel alternatives for drinking bottles, sippy cups, vinyl and cloth shower curtains, tin cans and dry beans

Examples of supporting materials:
- *Playing it Safe* brochure
- *Creating Healthy Environment’s for Kids* brochure and *Get Drastic With Plastic* rack card
- *Playing it Safe: Plastics* (fact sheet)
- *Buying Products for the Child Care Centre*

[www.getdrasticwithplastic.ca](http://www.getdrasticwithplastic.ca)
Dish safer fish

- Choose fish varieties that are low in mercury which is harmful to the developing brain
- Healthy choices include: Atlantic mackerel, arctic char, herring, rainbow trout, wild or canned salmon, tilapia
- Choose “light” canned tuna which is lower in mercury than “white” or Albabore varieties
- Sport fish in local lakes and rivers – check the provincial fish guide

www.dishsaferfish.ca
Examples for grab bag or display: tins of fish (high and low mercury content)

Mercury in Fish activity – selection of tinned fish and sorting exercise

Examples of supporting materials:

- Playing it Safe brochure
- Creating Healthy Environment’s for Kids brochure and Dish Safer Fish rack card
- Provincial Fish Advisory
- Eat Fish for Health
- How Mercury in Your Home Can Affect You

www.dishsaferfish.ca
Head Start:
Tips for a healthy pregnancy

• Avoid exposure to paint fumes, renovation dust, certain building materials
• Eat a healthy diet (e.g., getting enough calcium reduces lead absorption)
• Avoid changing vacuum cleaner bags/bin
• Choose low-mercury fish, avoid raw fish
• Avoid using harsh, strong-smelling cleaning products, especially those with hazard symbols
• Breast is best! (recommend diet low in animal fats)
Strategies That Work; Experiences from Service Providers and Parents

- For fear/guilt, provide reassurance: parents already apply precaution.
- Use quiz format to provide details (when answer is “all of the above” learn by seeing range of answers
- Manageable steps: one per month means 12 per year
- Personalize it – examples of changes you have made yourself, tell stories.
- Allow time for lots of discussion and interaction
- Emphasize low cost/no cost options and provide concrete examples (e.g., cost of cleaning products)
Strategies That Work; Experiences from Service Providers and Parents

• Describe low-risk, medium-risk, high-risk framework (e.g., glass containers - safer plastics - microwaving in plastic/nasty plastics)

• *Simple messages*: shoes off at the door; don’t microwave in plastics; dust with a damp cloth.

• Balancing act: risks in perspective and provide context e.g., don’t stop eating fish; canned vegetables better than no vegetables; breastfeeding is always the best choice for babies

• Family-focused education: “don’t just tell me; engage my kids and make it fun”

• Acknowledge/recognize where situation cannot be changed and engage in necessary policy advocacy
Closing

Find out more…
Talk with others…
Take simple actions today…
Plan others for tomorrow…
Make your voice heard.

www.healthyenvironmentforkids.ca
Acknowledgements & Thanks to

• CELA and CPCHE Colleagues
• Erica Phipps, CPCHE Partnership Director
• Cathy Durdle, Mary Anne Wentzell, Linda Jessop, Health Canada
• Membertou, Unama’ki, Mi’kmaw Nation
• Photos and images credits: Health Canada, Mark Surman, Lyne Soramaki, Loren Vanderlinden, Doug Brown, Union of Ontario Indians Anishinabek Health Secretariat and Best Start, Chris McKinnon

Kathleen Cooper, Senior Researcher
Canadian Environmental Law Association
kcooper@cela.ca

www.healthyenvironmentforkids.ca
• Note 2: Small children are between the ages of one and four years of age and weigh 16.5 kg (approximately 35 lbs). If your child is smaller, then reduce the serving size. Children aged five to 15 can follow the consumption advice for small children but they can eat a larger serving size.
Avoid products labelled as antibacterial.

For more information:
www.ecosuperior.org/triclosan
Avoid products labelled as antibacterial.

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www.ecosuperior.org/triclosan

ecosuperior
Health Unit