

# An Introduction to Children's Environmental Health (CEH)

Children have the right to a  
healthy environment.

Susanne Burkhardt,  
Tara Zupancic,  
February 2005

OPHA representative to CPCHE  
CAPE Board member



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# Why environmental health?

We are a part of our environment.

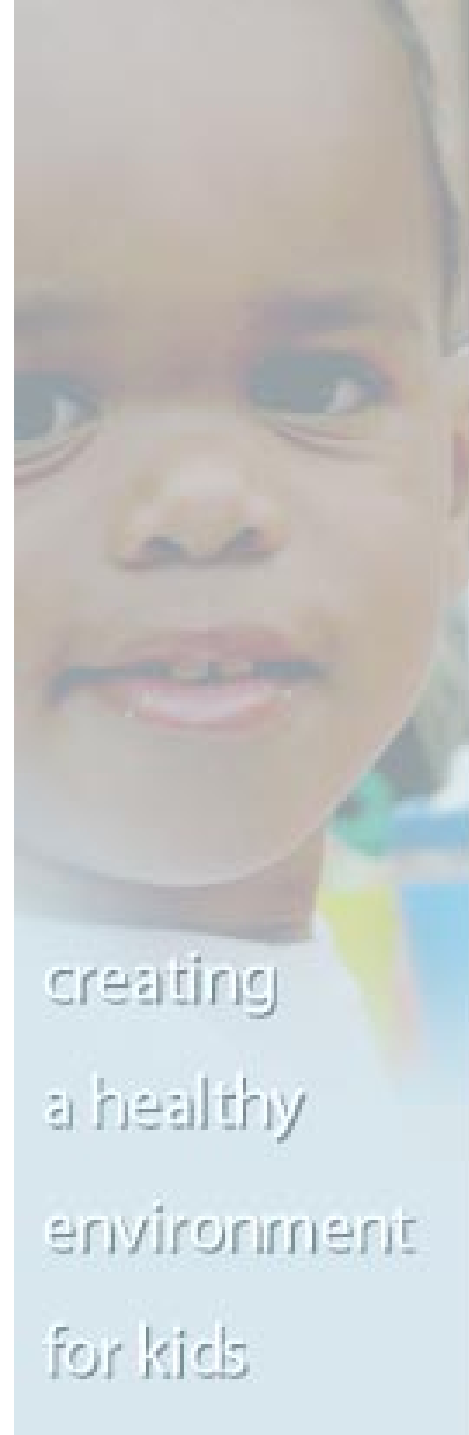
Air, water, food, soil and products can contain toxic substances and may impact our health.

These exposures can lead to preconception, gestational and postnatal health impacts.

Over 23,000 chemicals are in use in Canada and very few have been evaluated for their potential health impact.

Full evaluations have been done for only 69 chemicals in Canada.

For the over 500 active ingredients in pesticides used in Canada, 73% need to be re-evaluated for their effects in children.

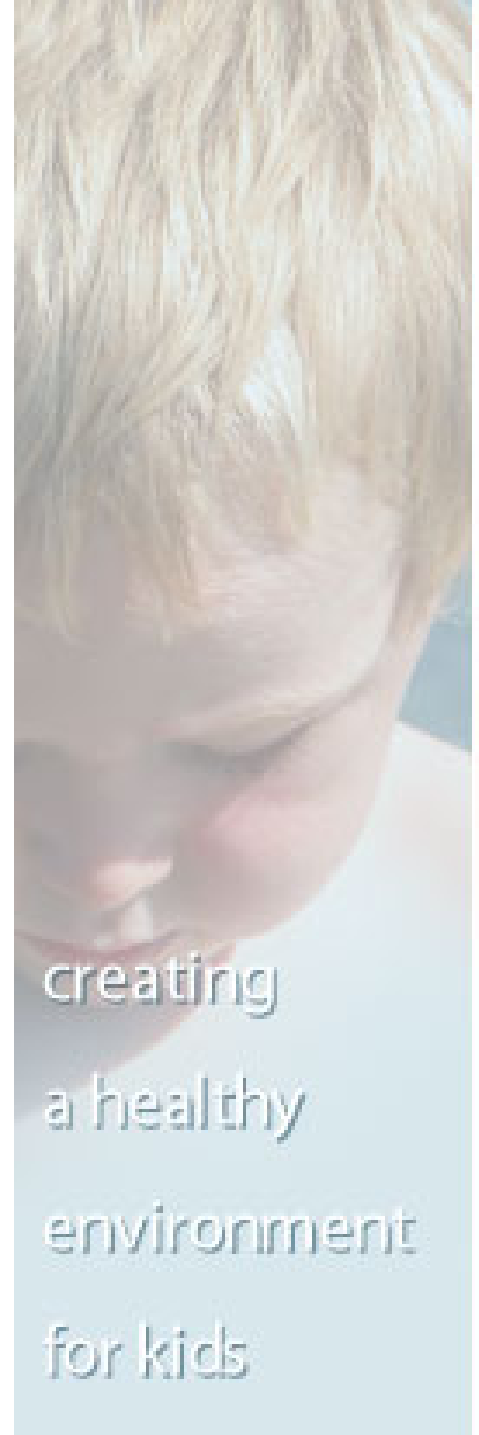


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# Experimenting on children

**“ Children today live in a very different environment from years ago. There are new patterns of illness emerging, and many more chemicals to which children are exposed. More than 10 million products contain chemicals. Toxicity testing has not even begun to keep pace with disease. We are conducting a vast toxicological experiment on our children which will affect generations to come.”**

(Landrigan, P, MD, Chair of the Department of Community and Preventive Medicine at Mt. Sinai Medical Centre, quoting Dr. Herbert Needleman, Toxics Release Inventory and Right-to Know Conference, Washington, D.C., 1997)



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# Why focus on children?

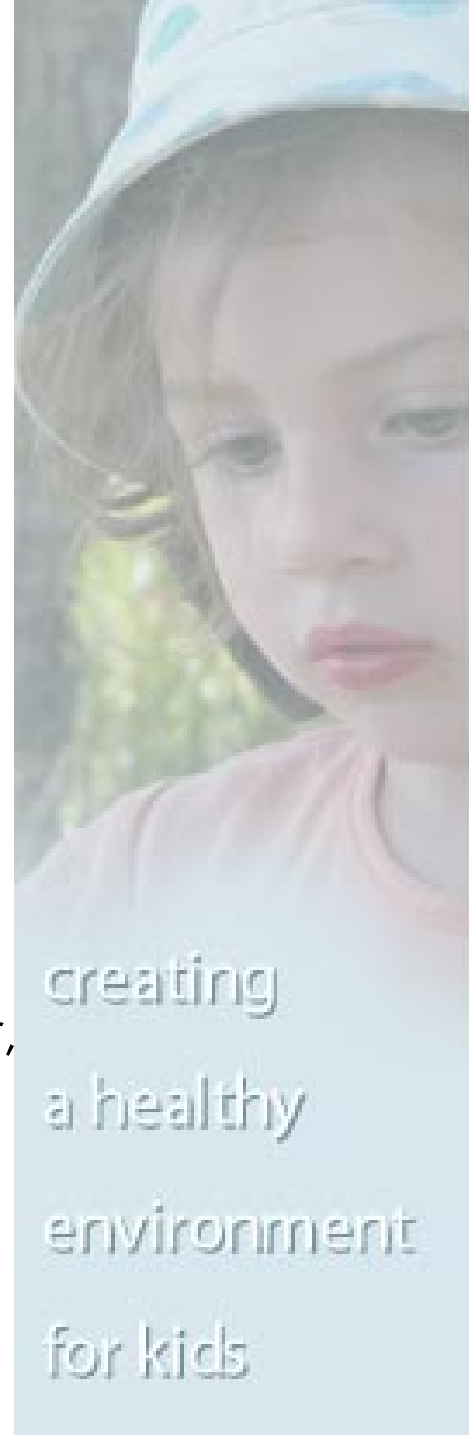
Young children are more vulnerable due to:

**Physiology** – they have developing bodies, immature organs, faster metabolism and greater intake of food, water and air per kilo body weight

**Developmental windows of vulnerability** that may make children more susceptible

**Unique pathways of exposure** such as maternal/fetal transmission and breast milk

**Child behaviors** such as hand-to-mouth behaviour, mouthing objects, crawling & lying on floor, exploratory behaviour, and 80% of time spent indoors



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# Other risk factors

- Poverty
- Poor Nutrition
- Genetic Differences
- Cultural Differences
- Parental occupation
- Lack of parental awareness and/or knowledge
- Complacency

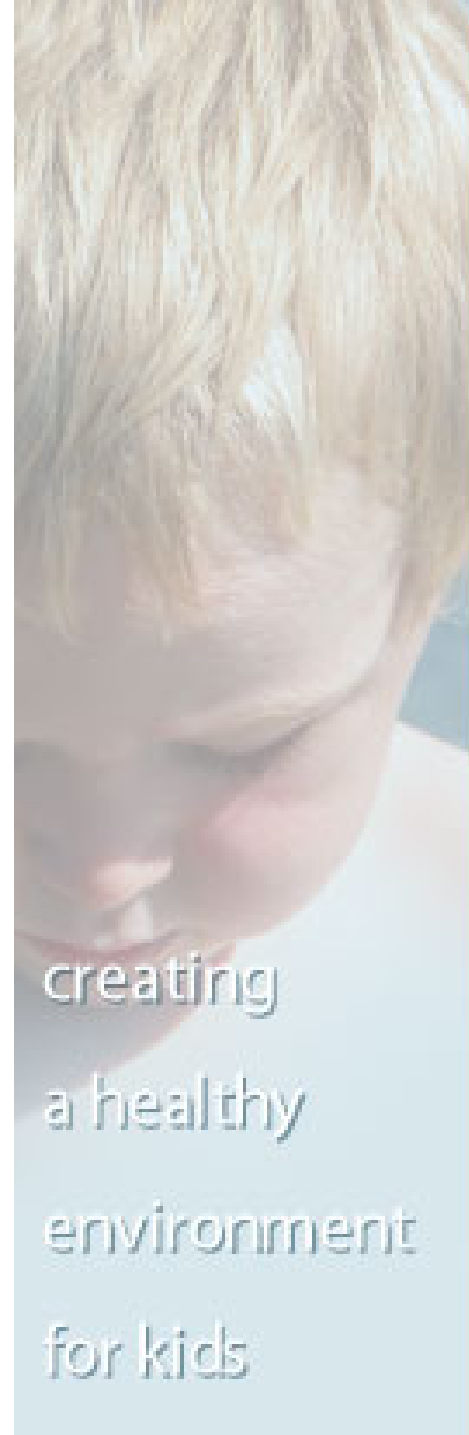


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# How are children exposed to toxic substances?

By eating, drinking, touching, or breathing in toxic substances found in or on :

- **Air**
- **Water**
- **Soil / Dust**
- **Food**
- **Manufactured materials and products**



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# Issues of Concern

- Metals
- Pesticides
- Persistent organic pollutants (POPs)
- Outdoor air quality
- Indoor air quality
- Environmental tobacco smoke
- Water quality
- Radiation

Emerging issues: PBDEs, phthalates



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# Important Stages of Concern

- Preconception
- Pregnancy
- Infancy and Early Childhood

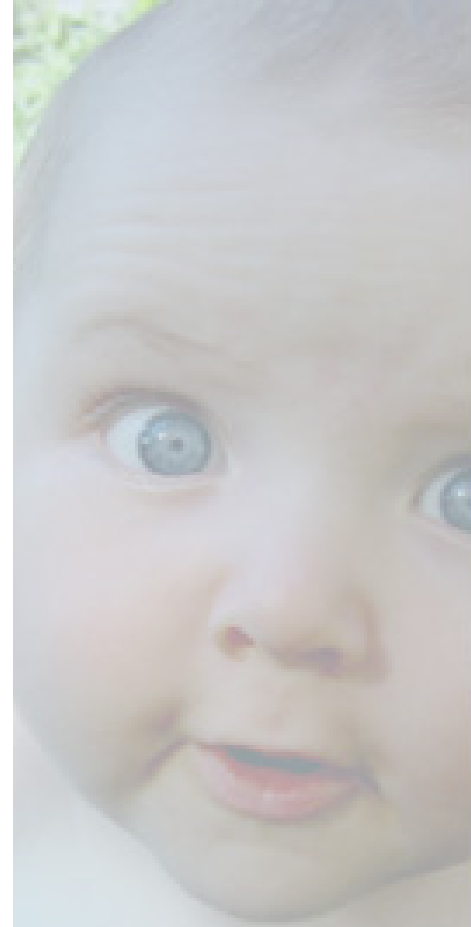


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# Preconception

**Exposures prior to pregnancy may impact on ability to conceive, the health of a pregnancy and the long-term health of a child.**

Example: A mother's exposure to lead over her lifetime results in accumulation of lead stored in her bone. The fetus can be exposed to lead during pregnancy when 30% of the maternal skeleton becomes available for the fetus' calcium supply.



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# Pregnancy

**Some environmental substances can pass through the placenta, resulting in exposure to the fetus during critical periods of development.**

Examples are substances:

- of low molecular weight, such as CO
- with active transport systems, such as lead
- that are fat soluble, such as dioxin, some pesticides, PBDE's



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# Infancy and early childhood

**Infants and young children typically experience higher levels of exposure to environmental substances and are uniquely vulnerable.**

Example: An adult will only absorb 10% of Ingested lead whereas an infant or young child will absorb 50%.

(Bearer CF. "Environmental Health Hazards: How Children Are Different From Adults."  
Future of Children Summer/Fall 1995;5(2):11-26)



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# Potential health concerns for children

- Impaired brain development
- Impacts on learning and behaviour
- Asthma & respiratory impacts
- Birth defects
- Effects on physical growth and development
- Endocrine system impacts
- Immune system impacts
- Reproductive system impacts
- Cancers (children & young adults)



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# Health impact categories

## Large numbers affected

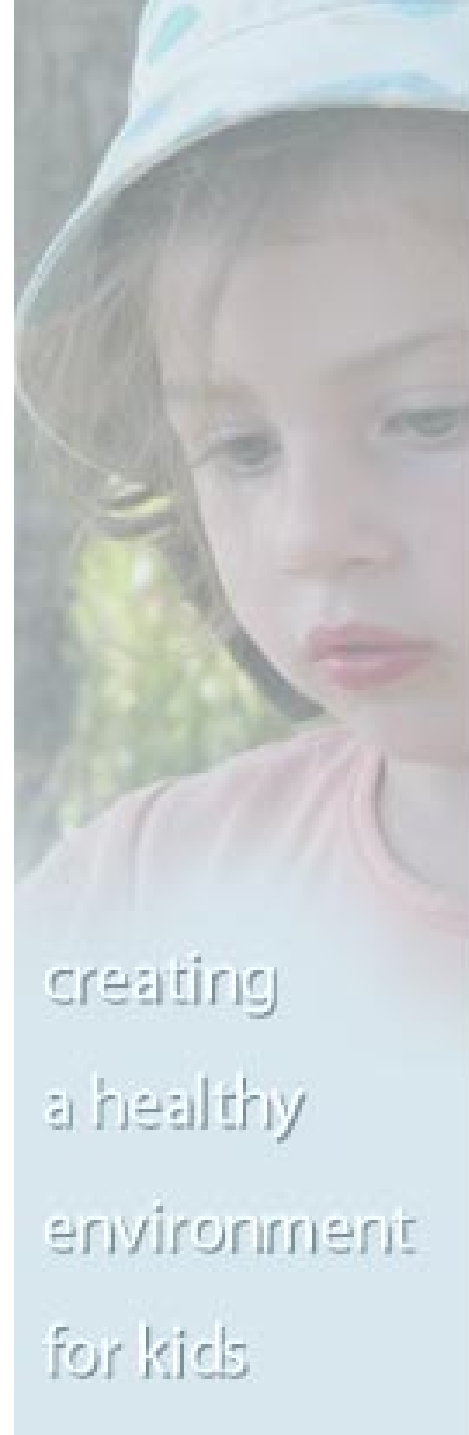
- Respiratory effects (e.g. asthma)
- Neurobehavioural effects (e.g. learning disabilities)

## Rare but severe outcomes

- Cancer
- Birth Defects

## Emerging

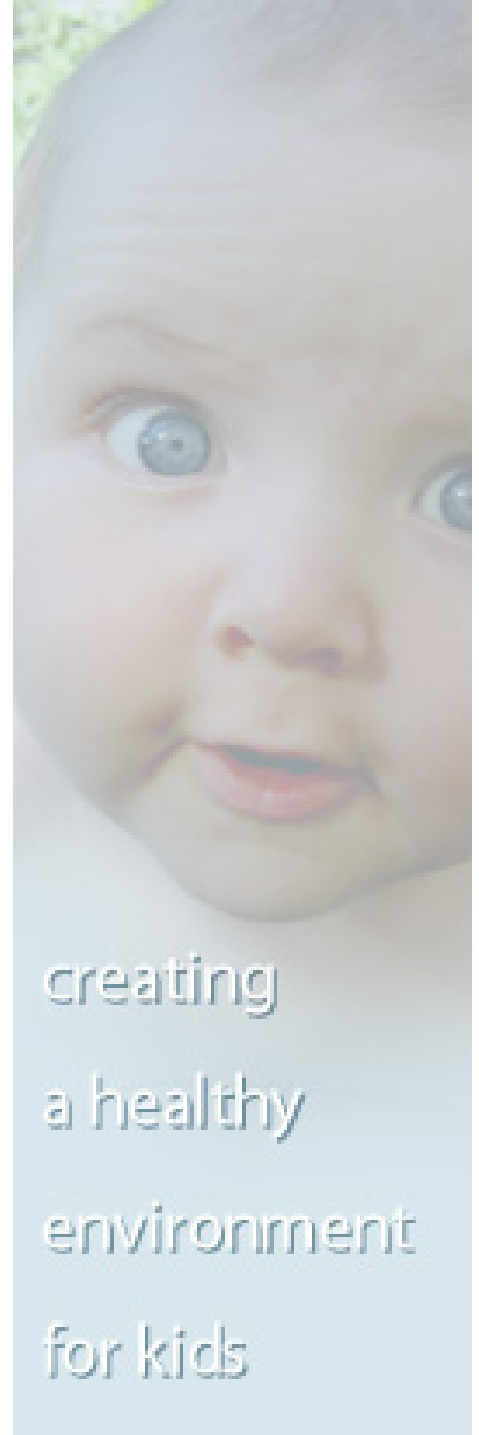
- Immune system effects
- Endocrine system effects



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# What is happening in CEH research?

- CEH is an emerging field of study
- Huge and growing body of scientific literature
- Despite this, are huge data gaps
- Research stronger in some areas than others (e.g. respiratory evidence is strong)



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# What is happening in CEH policy?

- Traditional environment & health protection measures generally do not account for heightened child vulnerability
- No one department /agency has responsibility
- Slow pace of change
- Some promising signs (PCPA) and opportunities for change(CHPA, CEPA)



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## What is happening in CEH Practice?

- Variable, and generally low levels of knowledge
- among service providers
- Limited funding opportunities
- Few programs dedicated to CEH
- Little integration of CEH into programming

## What needs to happen?

- Increased knowledge and access to information
- Programming dedicated to CEH
- Integration of CEH principles into programming
- Increased access to funding for CEH



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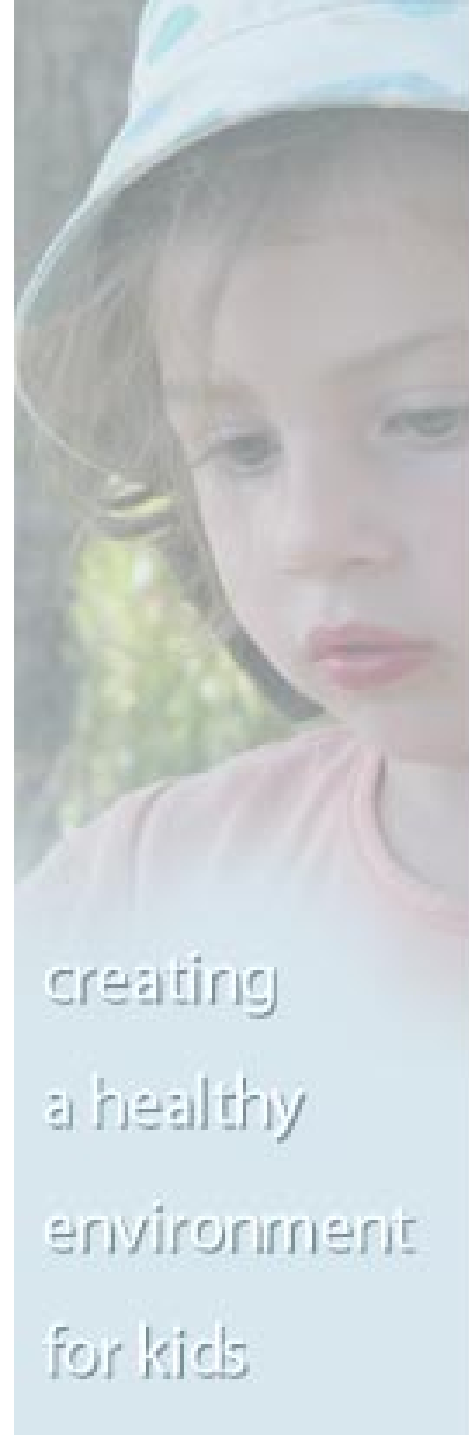
# Change is needed...

- At the individual level
- At the community level
- At the industry / corporate level
- At all levels of government



# What can individuals do?

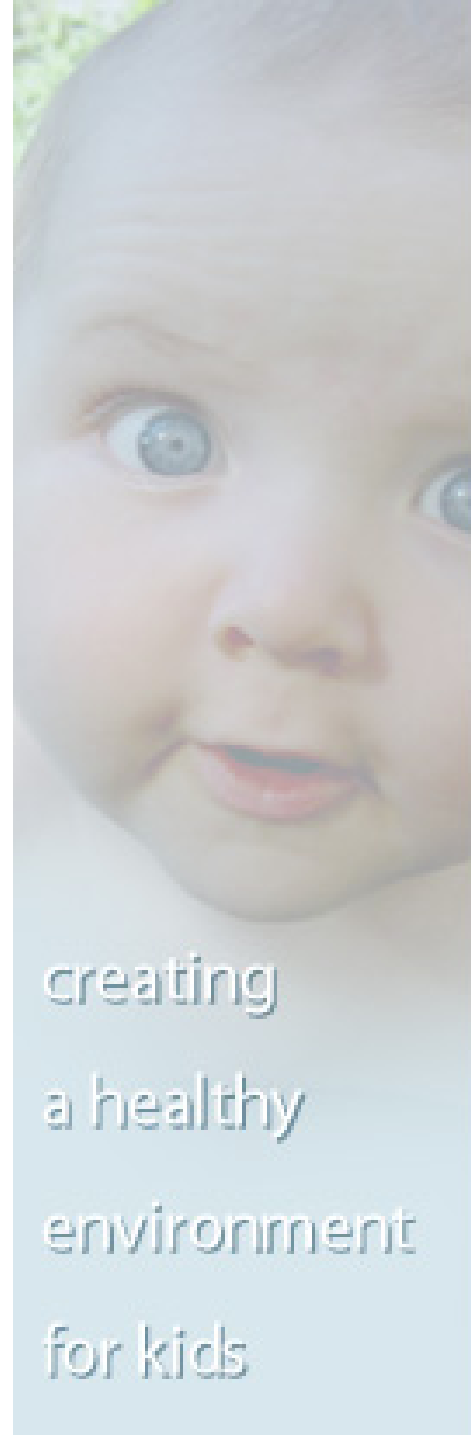
- Stay informed and educated
- Use a precautionary approach
- Make positive personal choices
- Create consumer demand for alternatives
- Demand policies that are protective of children



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# What can organizations do?

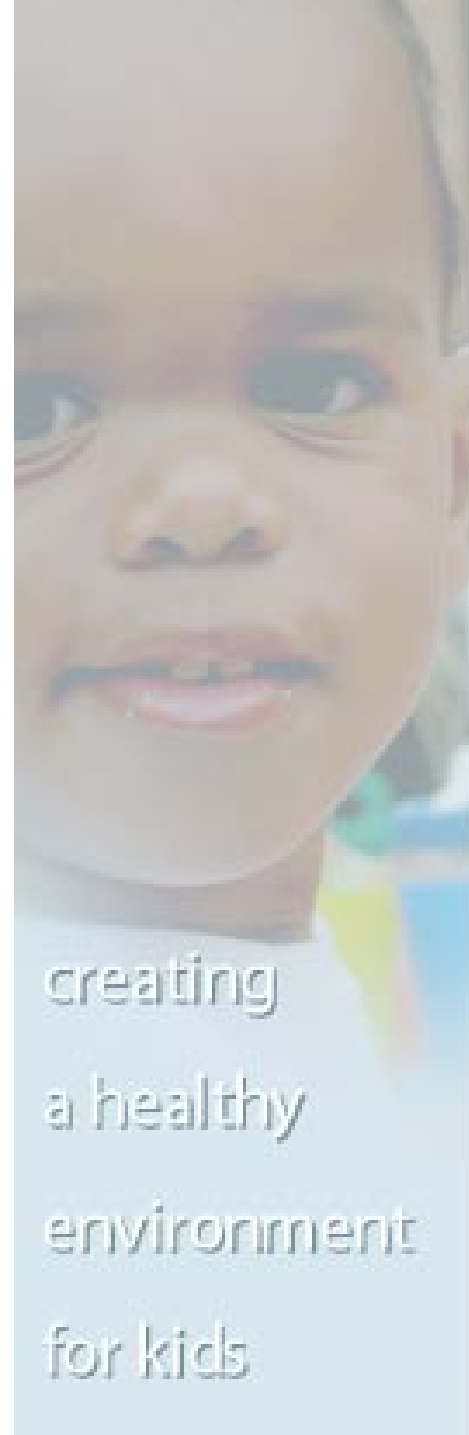
- Develop policies that are protective of child health
- Environmentally childproof facilities and activities
- Advocate for public policies that are protective of child health
- Provide support to others active in CEH
- Join networks active on issues that relate to CEH



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# What can communities do?

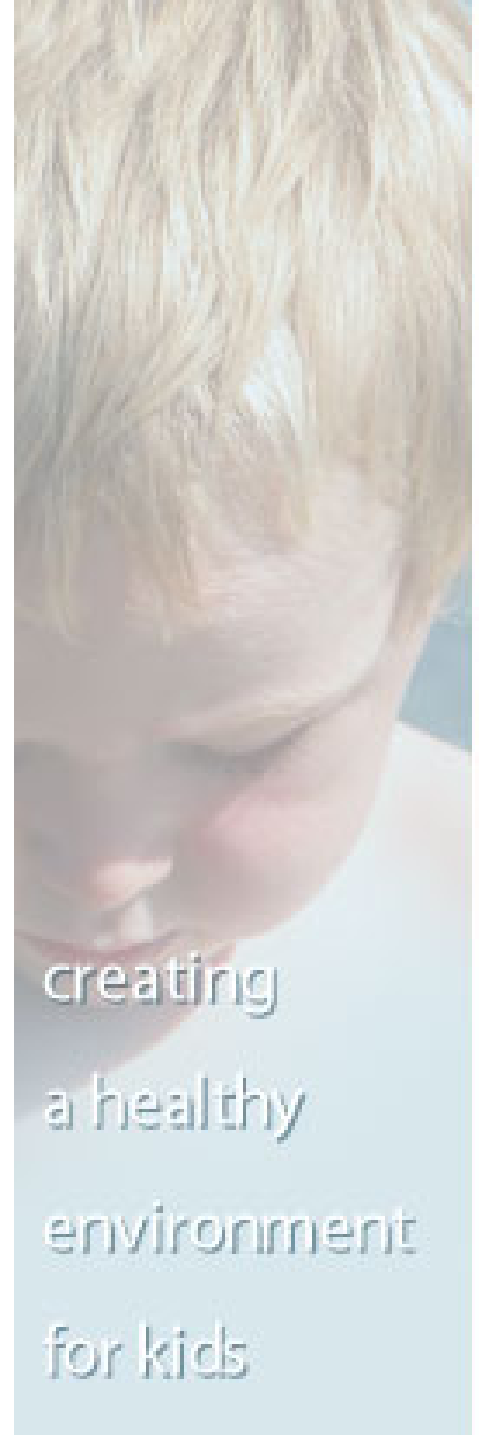
- Demand and create a childproof community
- Advocate for public policies that are protective of child health
- Draw attention to local issues that impact on CEH
- Hold events to raise awareness



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# What can industry do?

- Consider government standards the minimum
- Apply cradle to grave philosophy with respect to health and safety
- Be proactive about protecting environment and health (procurement policies, materials use policies...)
- Eliminate toxic substances from all children's products



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# Who is CPCHE?

Canadian Partnership for  
Children's Health and Environment  
(CPCHE) is...

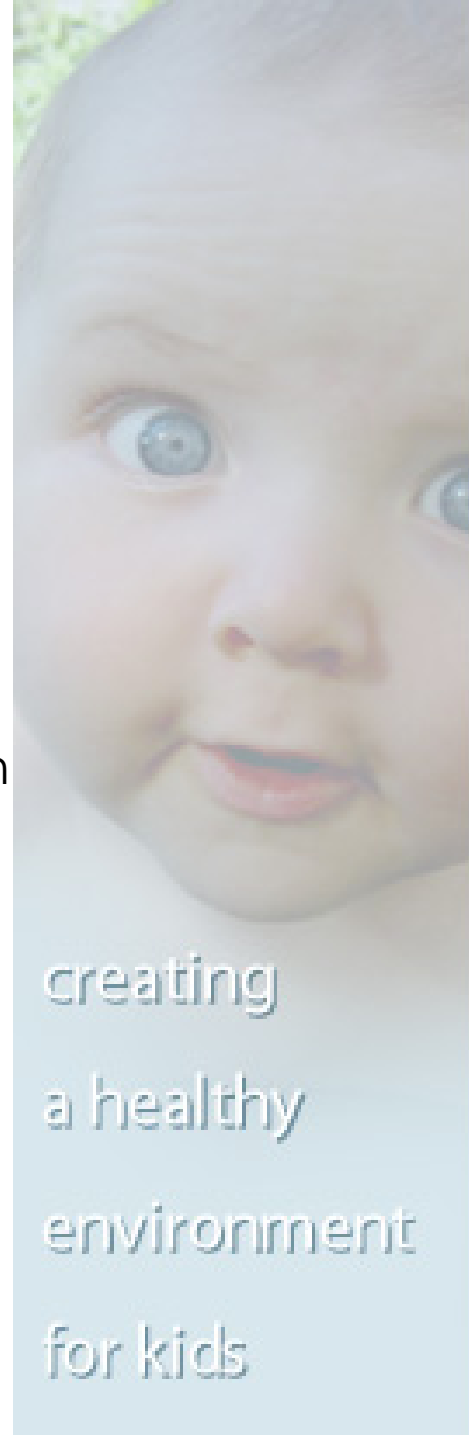
...an affiliation of organizations  
working together to protect  
children from toxic substances in  
the environment and in consumer  
products.



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# Who we are...

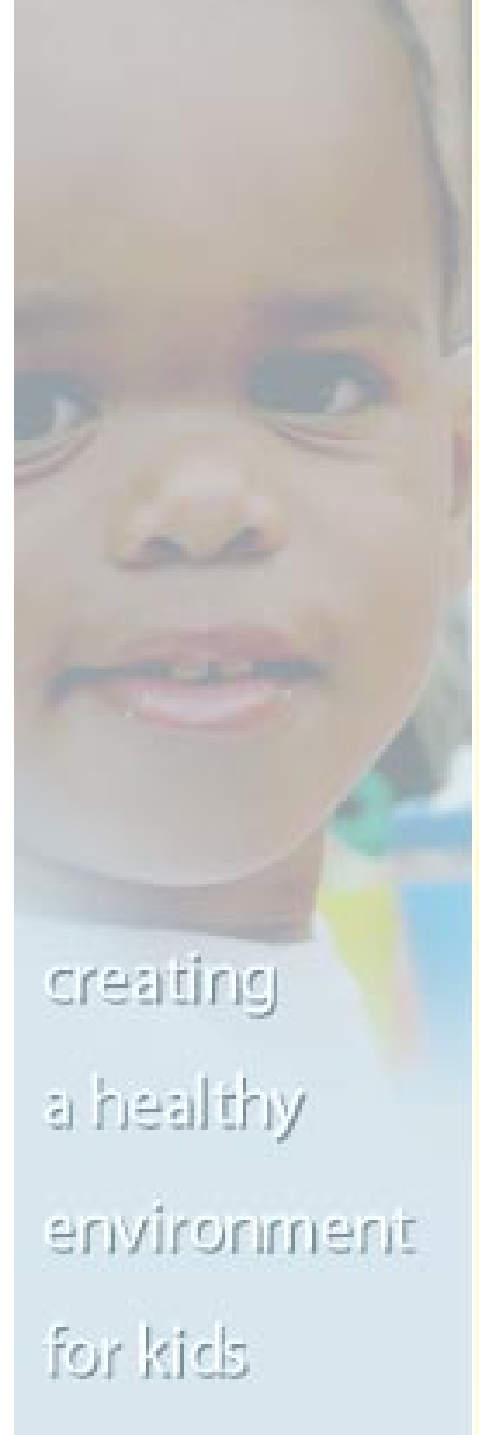
- Canadian Association of Physicians for the Environment
- Canadian Child Care Federation
- Canadian Environmental Law Association
- Canadian Institute of Child Health
- Environmental Health Clinic, Sunnybrook & Women's College Health Sciences Centre
- Environmental Protection Office, Toronto Public Health
- Learning Disabilities Association of Canada
- Ontario College of Family Physicians
- Ontario Public Health Association
- Pollution Probe
- South Riverdale Community Health Centre



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## We are...

Working to move children's environmental health issues into the minds of decision-makers, caregivers and the public. Using [www.healthyenvironmentforkids.ca](http://www.healthyenvironmentforkids.ca) as a foundation, we are researching the issues, educating each other, working to improve Canadian policy and raising public awareness.



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