



19<sup>TH</sup> ANNUAL TRIBAL EPA ENVIRONMENTAL CONFERENCE

PALA BAND OF MISSION INDIANS - PALA, CA. 10/20/2011

EPA REGION IX

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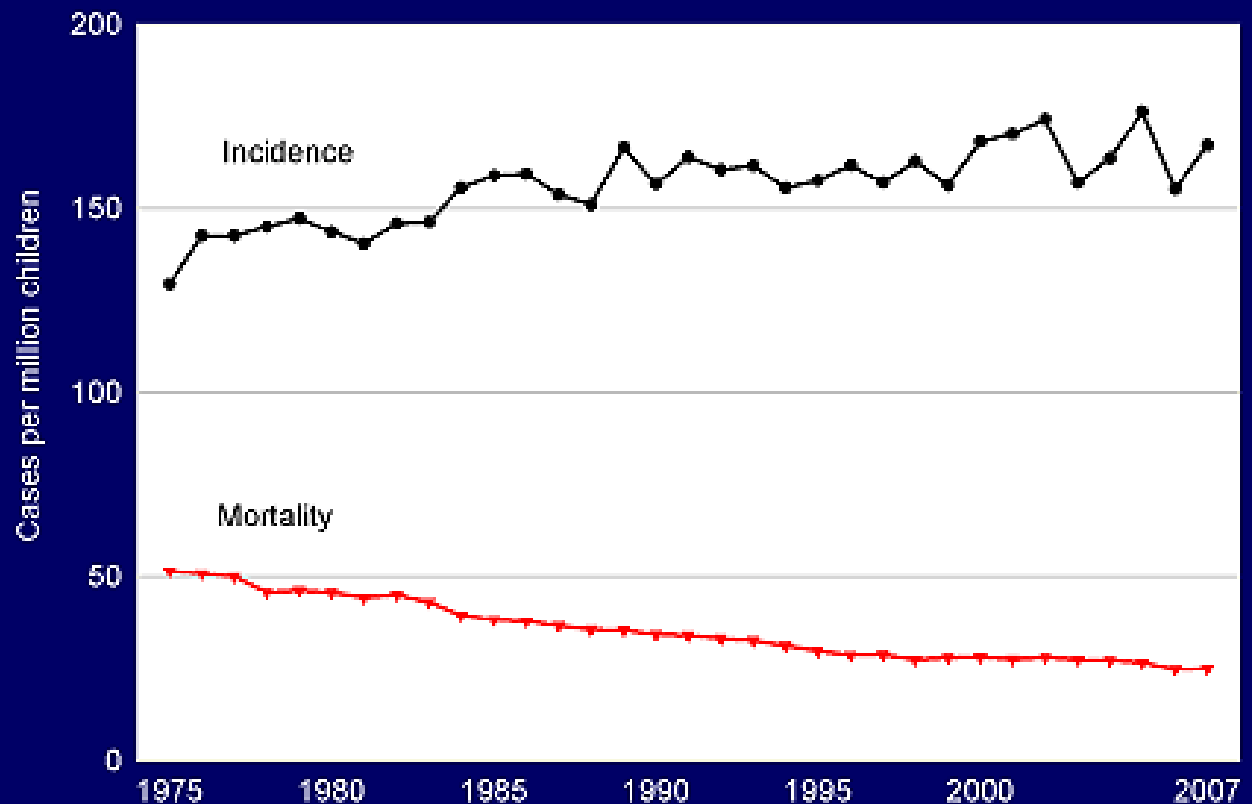
# Why We Care



Kids  
are...  
**UNIQUE**

Many childhood diseases are on the rise

Cancer incidence and mortality for children under 20



# Children Are Not “Little Adults”



Developing human beings (starting in the womb and continuing through puberty) can be uniquely vulnerable to environmental toxicants, depending on the substance and the exposure.

# Prenatal Period: Unique Vulnerability

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Before birth, children are forming the body organs that need to last a lifetime



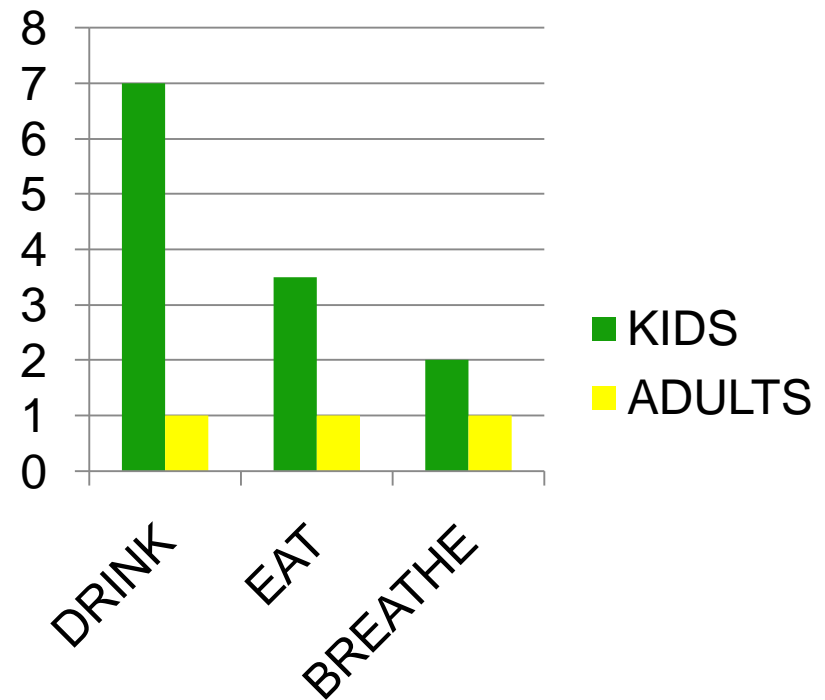
# Children Have Greater Exposures

After birth, children may have greater exposures to environmental toxicants than adults:

- Pound for pound of body weight, children drink more water, eat more food, and breathe more air than adults.
- Have a less varied diet:
  - ❖ breastmilk /formula
  - ❖ picky eaters

→ **HIGHER EXPOSURES IF FOOD OR WATER IS CONTAMINATED**

Kids vs Adults  
(rough comparisons, adjusted to bodyweight)



# Kids Have Unique Behaviors

## KIDS:

- ▣ CRAWL (contact with pollutants on the ground)
- ▣ PUT THINGS IN THEIR MOUTHS
- ▣ SPEND MORE TIME INDOORS



→ **HIGHER EXPOSURES TO ANY TOXICANTS PRESENT IN AIR AND ON SURFACES OR OBJECTS**

# Effects Of Pollutants – More Severe

## CRITICAL WINDOWS = TARGETS

- ❑ Lungs
- ❑ Immune System
- ❑ Brain
- ❑ Reproductive System
- ❑ Skeleton
- ❑ Others



## DIFFERENT PHYSIOLOGY = MORE TOXIC, OFTEN

- ❑ Different Detox mechanisms
- ❑ Immature barriers (for instance the blood/brain barrier and gut is more permeable)
- ❑ Increased Uptake (for instance the body absorbs more lead)

→ CONCERNS FOR FETUS, INFANTS AND TODDLERS, KIDS, AND TEENS!

# Health Disparities

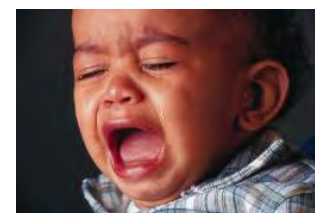
- **Asthma rates are 40-50% higher among minority children living in U.S. cities; and according to CDC may be higher in Tribal Nations**

Asthma Status	Total	White	Black	AI/AN	Chinese	Filipino	Asian Indian	Other or Multiple Race
Current asthma	9.2 (0.2)	8.4 (0.2)	13.3 (0.4)	13.0 (1.7)	5.1 (1.3)	10.7 (2.2)	4.4 (1.2)	8.1 (0.5)
Lifetime asthma	13.2 (0.2)	12.3 (0.2)	18.1 (0.5)	18.0 (2.0)	9.0 (1.8)	15.7 (2.4)	9.4 (1.9)	12.4 (0.5)
Attack past 12 mo <sup>a</sup>	60.7 (0.9)	61.3 (1.1)	59.1 (1.6)	67.3 (7.0)	47.1 (13.4)	61.2 (11.1)	59.8 (12.3)	59.6 (2.7)

- **Children from communities of color are five times more likely to suffer from lead poisoning than their white counterparts.**
- **Children from low-income communities, including Tribes are eight times more likely to suffer from lead poisoning compared to moderate and upper income children.**

From: Asthma Prevalence Among US Children in Underrepresented Minority Populations: American Indian/Alaska Native, Chinese, Filipino, and Asian Indian. Brim, Rudd, Funk, and Callahan. PEDIATRICS: 122(1). July 2008, pp. e217-e222

<http://pediatrics.aappublications.org/cgi/content/full/122/1/e217#SEC2>





# Where are kids most vulnerable?

Children spend 90% of their time indoors

- Home
- School
- Childcare Facility



# Major Children's Environmental Health Issues

- Asthma
- Pest & Pesticides
- Lead Poisoning
- Mercury



# Asthma



- Most common chronic disease affecting 1 in 13 school aged children nationwide.
- Asthma is the third ranking cause of non-injury related hospitalization among children under 15 years of age nationwide.
- Disproportionately affects lower-income minority children.
- Asthma affects 13.0% of American Indian/Alaska Native children compared to 8.9% of children in the U.S.

# Second Hand Smoke



## Exposure Can Cause

- Asthma
- Sudden Infant Death Syndrome
- Bronchitis and Pneumonia
- Ear Infections

# Lead Poisoning

- Lead is most commonly found in lead based paint, contaminated dust, and residential soil.
  - Lead can also be found in imported ceramic dishes and pottery, drinking water transported through old lead pipes, the workplace, some home remedies, and some cosmetics.
- Can Cause:
- Behavioral problems and learning disabilities
  - Headaches
  - Seizures
  - Death
  - Children six and under most at risk
  - Can affect unborn babies
  - Blood lead levels are higher in children from lower income families.
  - Even low levels of lead can affect a child's IQ

# Pest & Pesticides

Common pest are cockroaches, fleas, termites, ants, rats, mold or mildew.

Both pests and pesticides can cause:

- ❑ Asthma attacks and other health effects

Pesticides:

- ❑ Can effect the nervous system
- ❑ Irritate skin and eyes
- ❑ Some are a carcinogen

# Mercury



Mercury (Hg) is a naturally occurring element found in air, water, and soil.

## Sources of exposure:

- Eating contaminated fish (most common source of exposure)
- Thermometers, switches, and some light bulbs (CFLs and fluorescent)
- Coal Burning Power Plants – largest human-caused source of Hg

## Health Effects:

- Targets baby's growing brain and nervous system
- Impacts cognitive thinking, memory, attention, language, and fine motor and visual spatial skills in children.

# WHAT IS YOUR ROLE?

## As Environmental Leaders, You Can:



- Form a community-wide **children's environmental health workgroup** to assess and prioritize children's environmental health concerns in your community and develop a plan to address those concerns.
- Work with EPA and other contacts to start or continue children's environmental health intervention programs for concerns such as lead, mercury, asthma, water quality, and indoor and outdoor air quality.



# RESOURCES

## Tips to Protect Children:

- <http://yosemite.epa.gov/o CHP/o CHPweb.nsf/content/tips.htm>

## Healthy Homes:

- <http://tribalhealthyhomes.org/>

## Pediatric Environmental Health Specialty Units:

- <http://www.aoec.org/pehsu/index.html>

## Healthy Schools:

- <http://www.epa.gov/schools/>
- <http://www.epa.gov/region8/tribalschools/>
- <http://yosemite.epa.gov/r10/tribal.nsf/programs/tribal+schools>

## General Resources:

- <http://www.epa.gov/region8/humanhealth/children/2007summit.html>