

# EPA Region 9 Children's Environmental Health

- ▶ Erik Martinez  
Children's Environmental Health Coordinator  
[martinez.erik@epa.gov](mailto:martinez.erik@epa.gov) | 415-972-3761

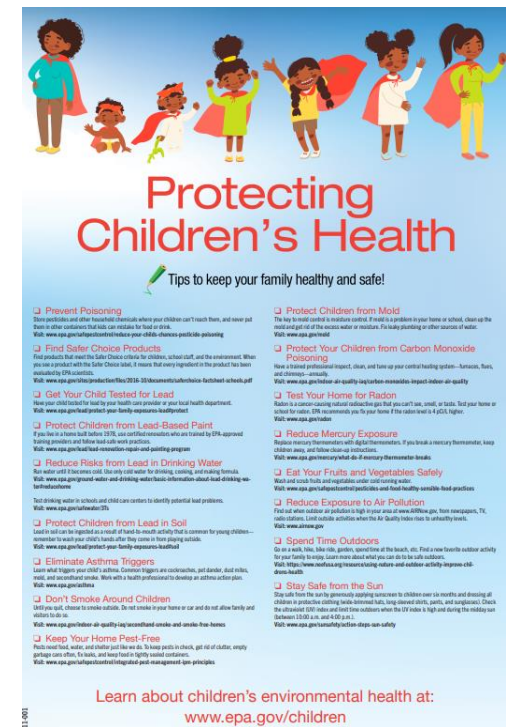
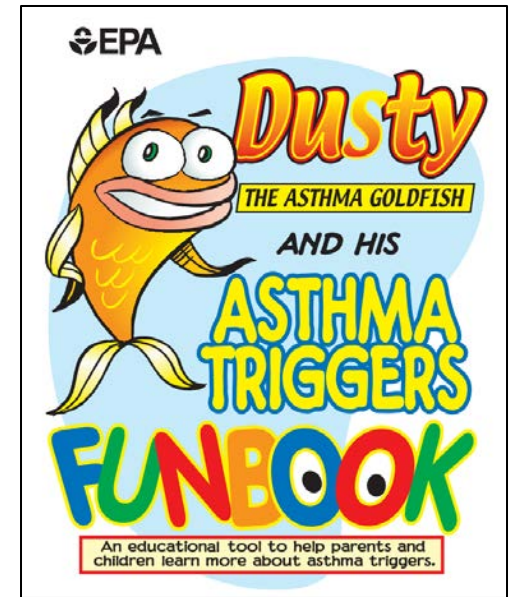
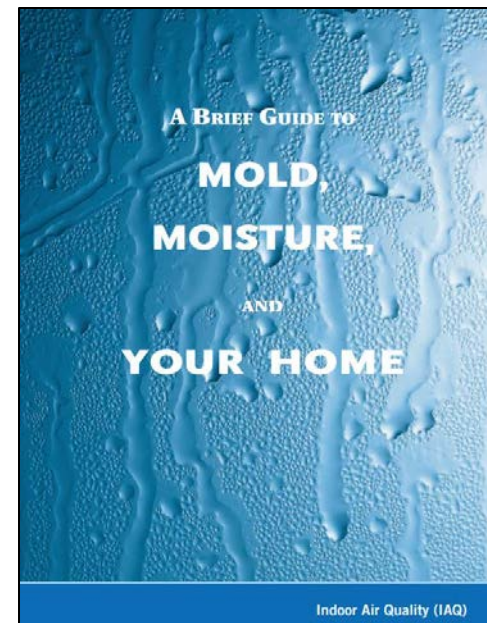
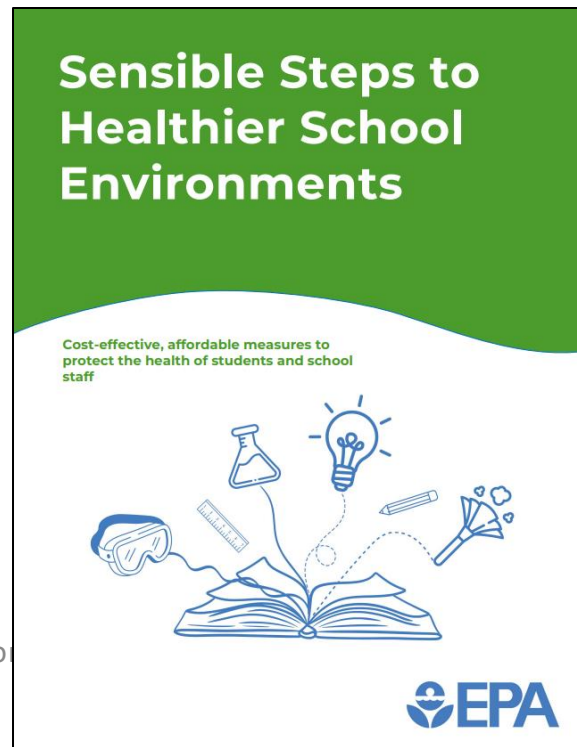
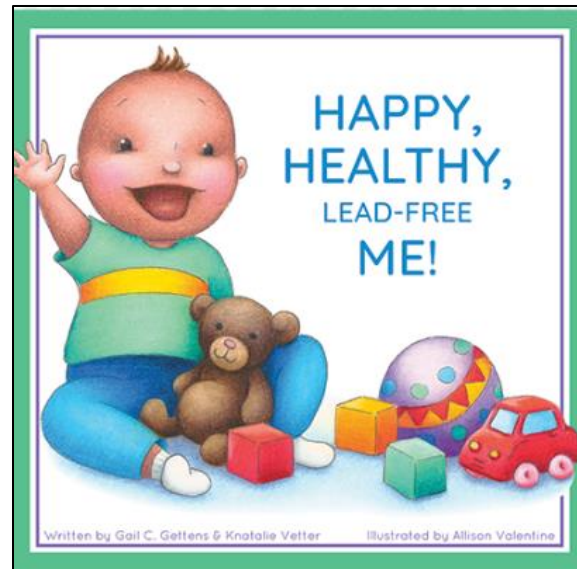
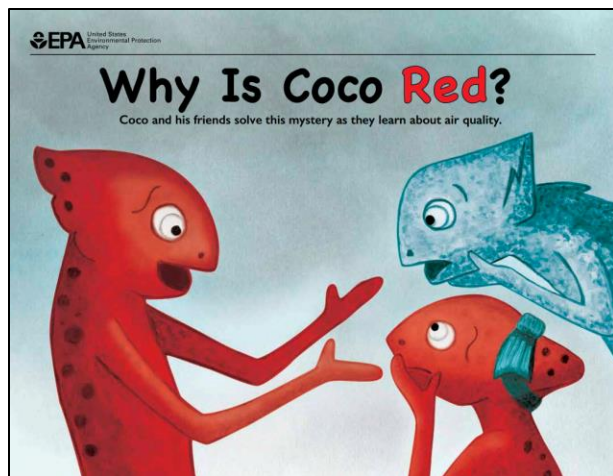


U.S. Environmental Protection Agency





Protect children from harmful environmental exposures  
by consistently and explicitly considering early life  
exposures and potential lifelong health impacts in all  
human health decisions.





# Pediatric Environmental Health Specialty Units (PEHSU)

**James Earl Schier Nolan, MPH**  
Associate Director, PEHSU Region 9  
Associate Director, Community  
Engagement EaRTH  
University of California San Francisco

*No financial relationships to disclose.*

The Pediatric Environmental Health Specialty Units (**PEHSU**) are supported by cooperative agreement FAIN: NU61TS000356 with the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry (**CDC/ATSDR**). The U.S. Environmental Protection Agency (**EPA**) also provides support through Inter-Agency Agreement 24TSS2400078 with CDC/ATSDR. The **Public Health Institute supports** the PEHSU as the National Program Office. The content in this presentation has not been formally disseminated by CDC/ATSDR or the EPA and **should not be construed to represent any agency determination or policy**. Use of trade names that may be mentioned is for identification only and does not imply endorsement by the CDC/ATSDR or EPA.

# Outline

- **The What and Why of Environmental Health**
- **PEHSU Background**
- **Healthcare Provider Resource: Pediatric Environmental Health Toolkit**
- **Patient Education Resource: Prescriptions for Prevention**
- **Free CME**





# Unique Vulnerability of Children

1. Behaviors and preferences that increase ***exposure***
  - (ex. *mouth*ing objects)
2. Differences in physiology such as ***metabolism and excretion*** that increase dose
  - (ex. breathe, eat and drink more per unit of mass)
3. Unique windows of development meaning they have ***differential susceptibility*** and ***a longer life span***
  - (ex. *rapid cell division*)



# Unique Vulnerabilities during Pregnancy



- Small and fat soluble molecules can cross the placenta
- 20% increase in oxygen consumption
- 40% increase in minute ventilation
- 40% increase in cardiac output
- susceptibility to hypertension, including preeclampsia and gestational hypertension
- Transportation and health care accommodations needed

# Environmental Harm

Total environment

**24%**

of all estimated global deaths are linked to the environment

Household air pollution

**3.2 million**

deaths every year as a result of exposure to indoor smoke from cooking fuels

Ambient air pollution

**4.2 million**

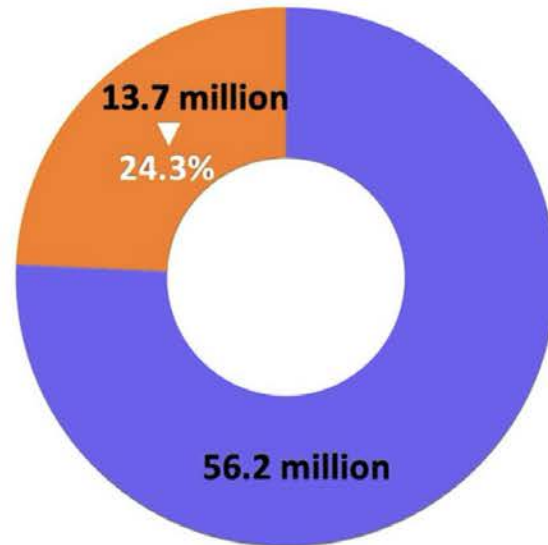
deaths every year as a result of exposure to fine particulate matter



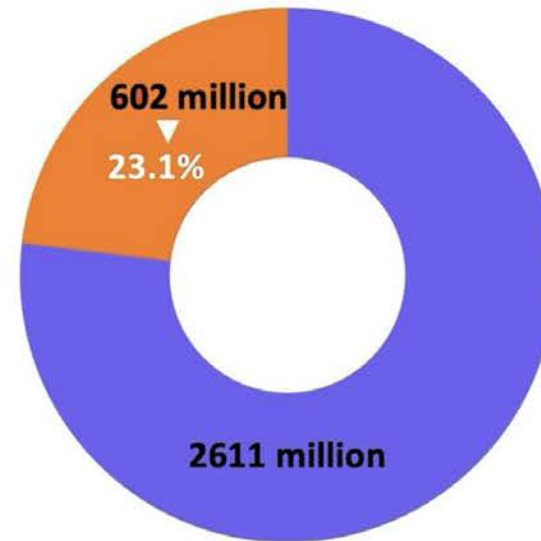
World Health Organization

Fraction of deaths and DALYs attributable to the environment globally, 2016

Deaths (millions)



DALYs (millions)



- Attributable to the environment
- Not attributable to the environment

# Cont... Environmental Harm

- **“Pollution’s annual death toll of 9 million is unchanged from four years ago...three times as great as the number of deaths caused by AIDS, malaria and tuberculosis combined (Hayward, 2022).”**
- Some estimate that **black people in the US are 75% more likely to live in fenceline communities** than the average American (NAACP, 2017)
- **“...Non-Hispanic whites...experience ~17% less air pollution exposure than is caused by their consumption. Blacks and Hispanics on average bear a “pollution burden” of 56% and 63% excess exposure...(Tessum, Z. 2019).”**



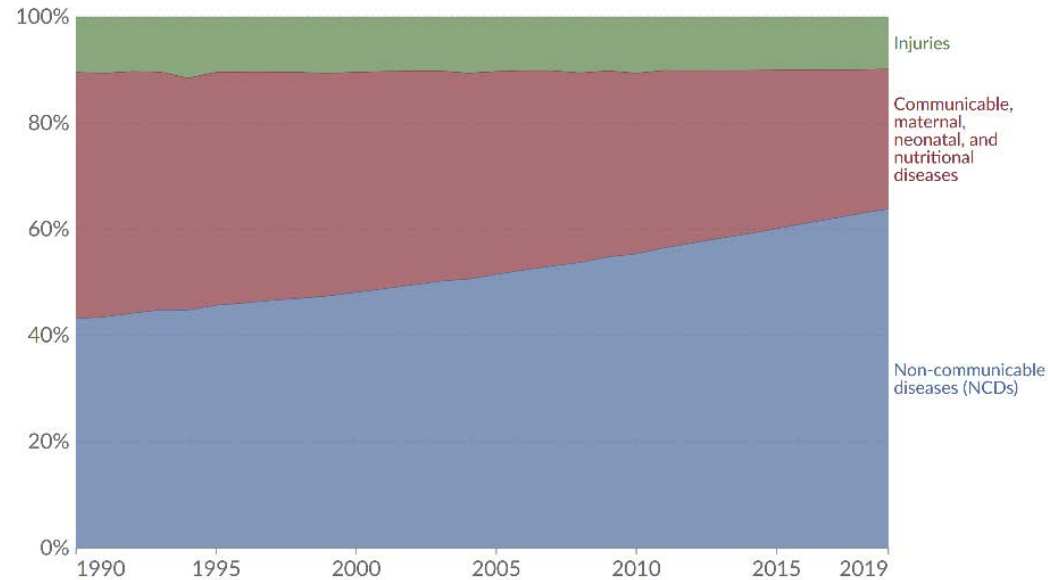
~40% of premature deaths due to corporate-produced risk factors:  
Tobacco, fossil fuel pollution, alcohol, and processed/ultra-processed foods.

Moodie R, Stuckler D, Monteiro C et al. (2013) Lancet 381, 670-679 Gilmore et al. Lancet 2023 PMID: 36966782

# Shift from communicable to noncommunicable disease since 1990

## Total disease burden by cause, World, 1990 to 2019

Total disease burden measured as Disability-Adjusted Life Years (DALYs) per year. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

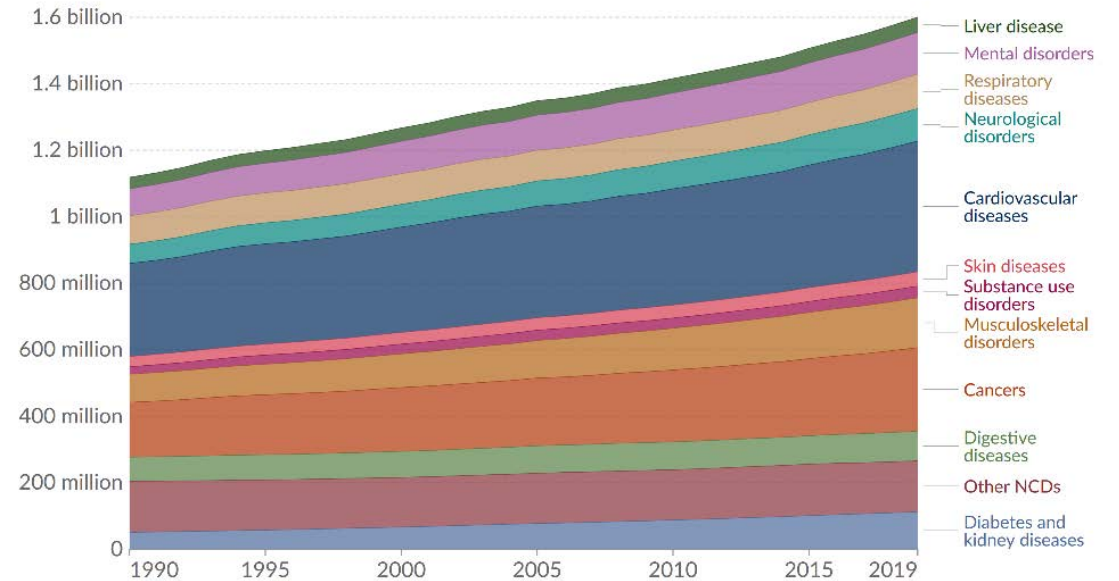


Data source: IHME, Global Burden of Disease (2019)

[OurWorldInData.org/burden-of-disease](https://OurWorldInData.org/burden-of-disease) | CC BY

## Disease burden from non-communicable diseases, World, 1990 to 2019

Total disease burden from non-communicable diseases (NCDs), measured in DALYs (Disability-Adjusted Life Years) per year. DALYs are used to measure total burden of disease – both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.



Data source: IHME, Global Burden of Disease (2019)

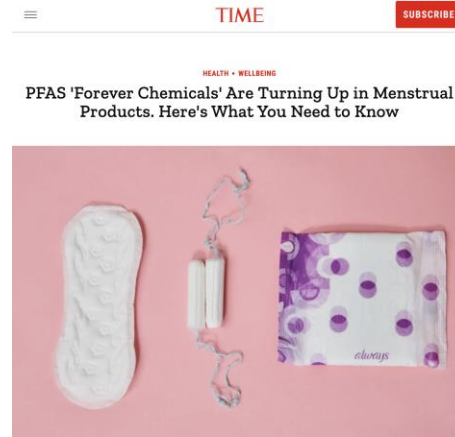
[OurWorldInData.org/burden-of-disease](https://OurWorldInData.org/burden-of-disease) | CC BY

- **1990 - communicable diseases highest share at 46 %, now 28%**
- **2019 - noncommunicable disease now the highest at 64%**
  - Cancer, respiratory, cardiovascular, neurological, metabolic disease

# When and where is environmental health relevant?



Gas Stoves  
January 2023



PFAS in  
Menstrual products  
February 2023



Train Derailment  
East Palestine, Ohio  
February 2023



Over Use of  
Disinfectants  
March 2023

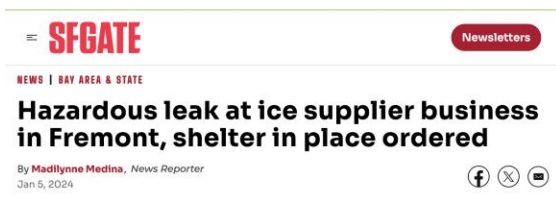


Heavy metals in  
baby foods  
July 2023



Tropical Storm Hilary  
Los Angeles, CA  
August 2023





Hazardous Leak  
Fremont, CA  
January 2024



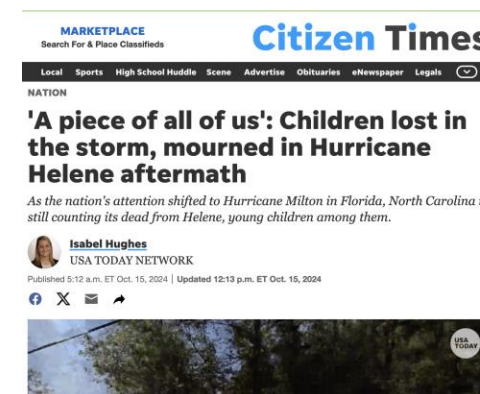
Air Pollution activism  
February 2024



Disinfecting Wipes  
September 2024



Heavy Metals in Applesauce  
February 2024



Hurricane Helene  
Hurricane in Asheville, NC  
October 2024



PFAS Water Contamination  
April 2024



About 99% or more of all PCBs used and sold within the U.S. between 1929 and 1977 were manufactured by Monsanto, according to the city attorney's office.



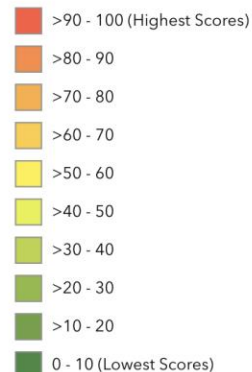
The CalEnviroScreen 4.0 tool shows cumulative impacts in California communities by census tract.

### How to use this map

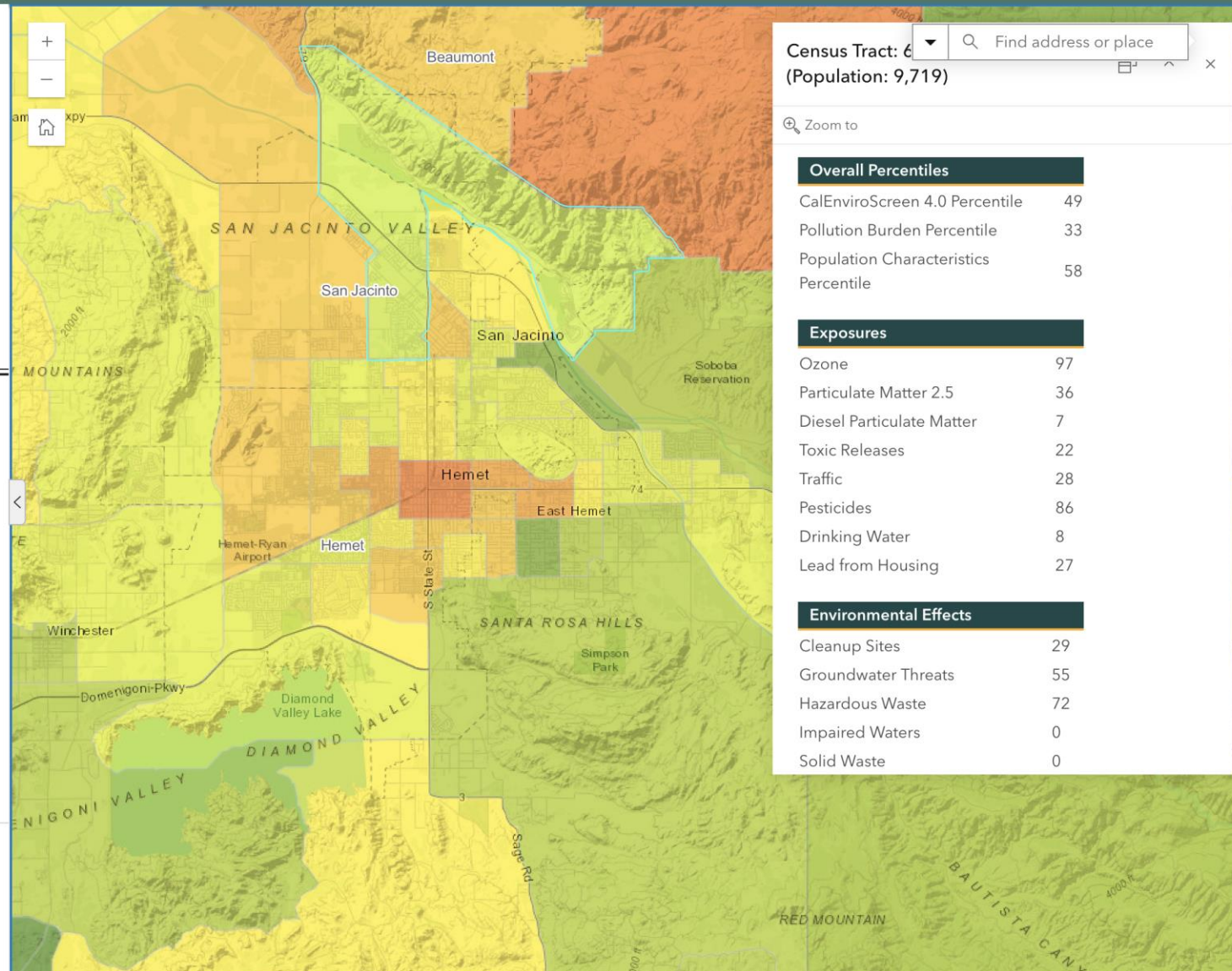
- Use your mouse or touchpad to pan around.
- Zoom in/out with a mouse wheel or the +/- icons.
- Search by location or census tract number with the **search icon**.
- Click on a census tract to view additional information in the pop-up window.
- Dock the pop-up window to the side of the screen by clicking the **dock icon**.
- Export a map view that includes the legend and popup using the **screenshot widget**.
- Learn more about CalEnviroScreen 4.0 and how this map was created [here](#).

### Overall Percentile

#### CalEnviroScreen 4.0 Results



### CalEnviroScreen 4.0 High Pollution, Low Population



Census Tract: 6

Find address or place

(Population: 9,719)

Zoom to

### Overall Percentiles

|                                       |    |
|---------------------------------------|----|
| CalEnviroScreen 4.0 Percentile        | 49 |
| Pollution Burden Percentile           | 33 |
| Population Characteristics Percentile | 58 |

### Exposures

|                           |    |
|---------------------------|----|
| Ozone                     | 97 |
| Particulate Matter 2.5    | 36 |
| Diesel Particulate Matter | 7  |
| Toxic Releases            | 22 |
| Traffic                   | 28 |
| Pesticides                | 86 |
| Drinking Water            | 8  |
| Lead from Housing         | 27 |

### Environmental Effects

|                     |    |
|---------------------|----|
| Cleanup Sites       | 29 |
| Groundwater Threats | 55 |
| Hazardous Waste     | 72 |
| Impaired Waters     | 0  |
| Solid Waste         | 0  |



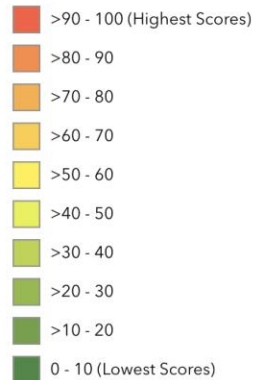
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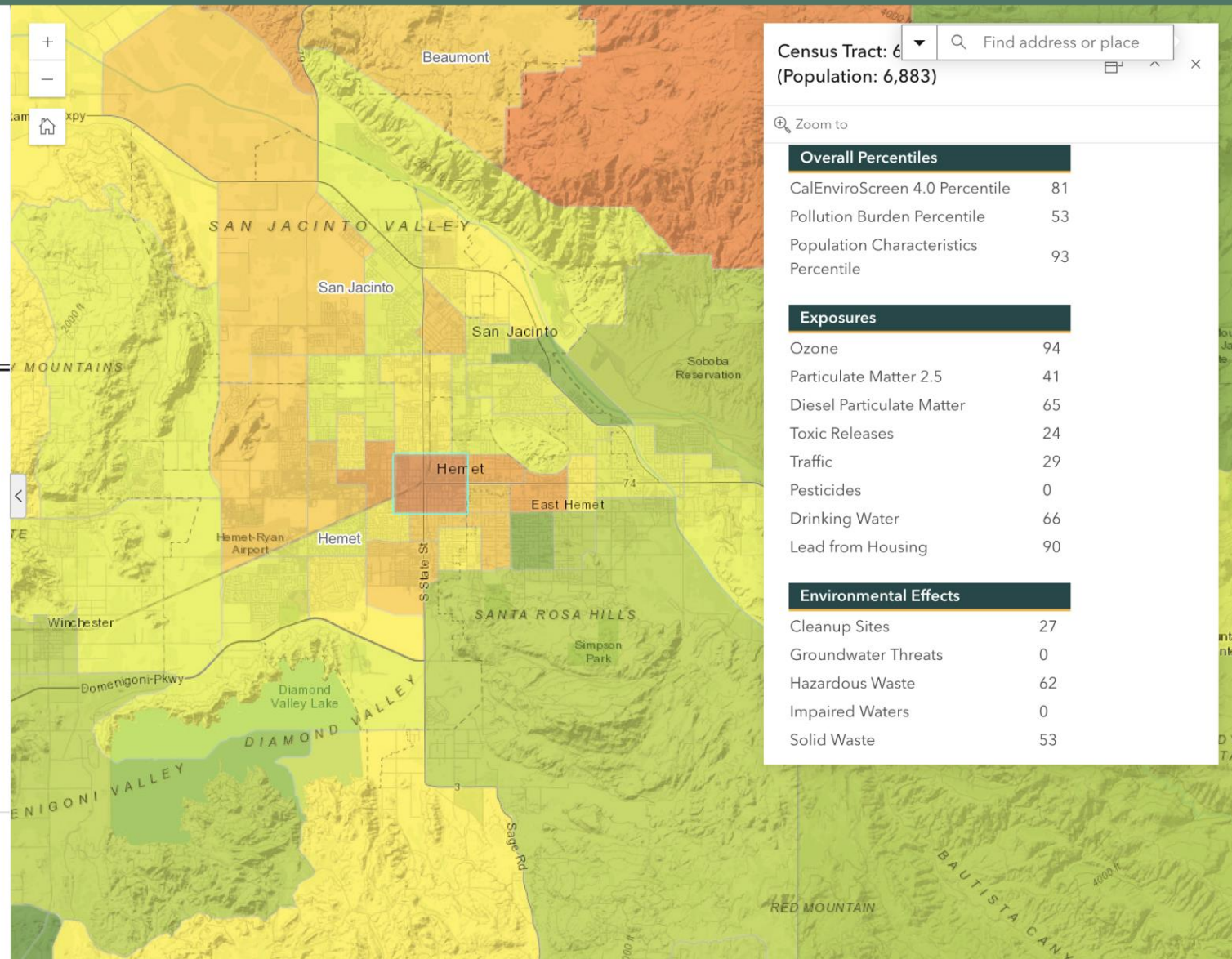
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## Overall Percentile

### CalEnviroScreen 4.0 Results



## CalEnviroScreen 4.0 High Pollution, Low Population





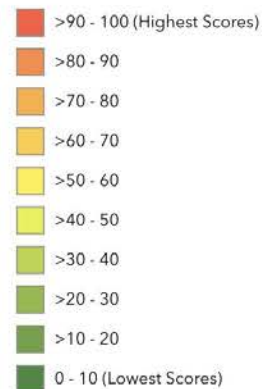
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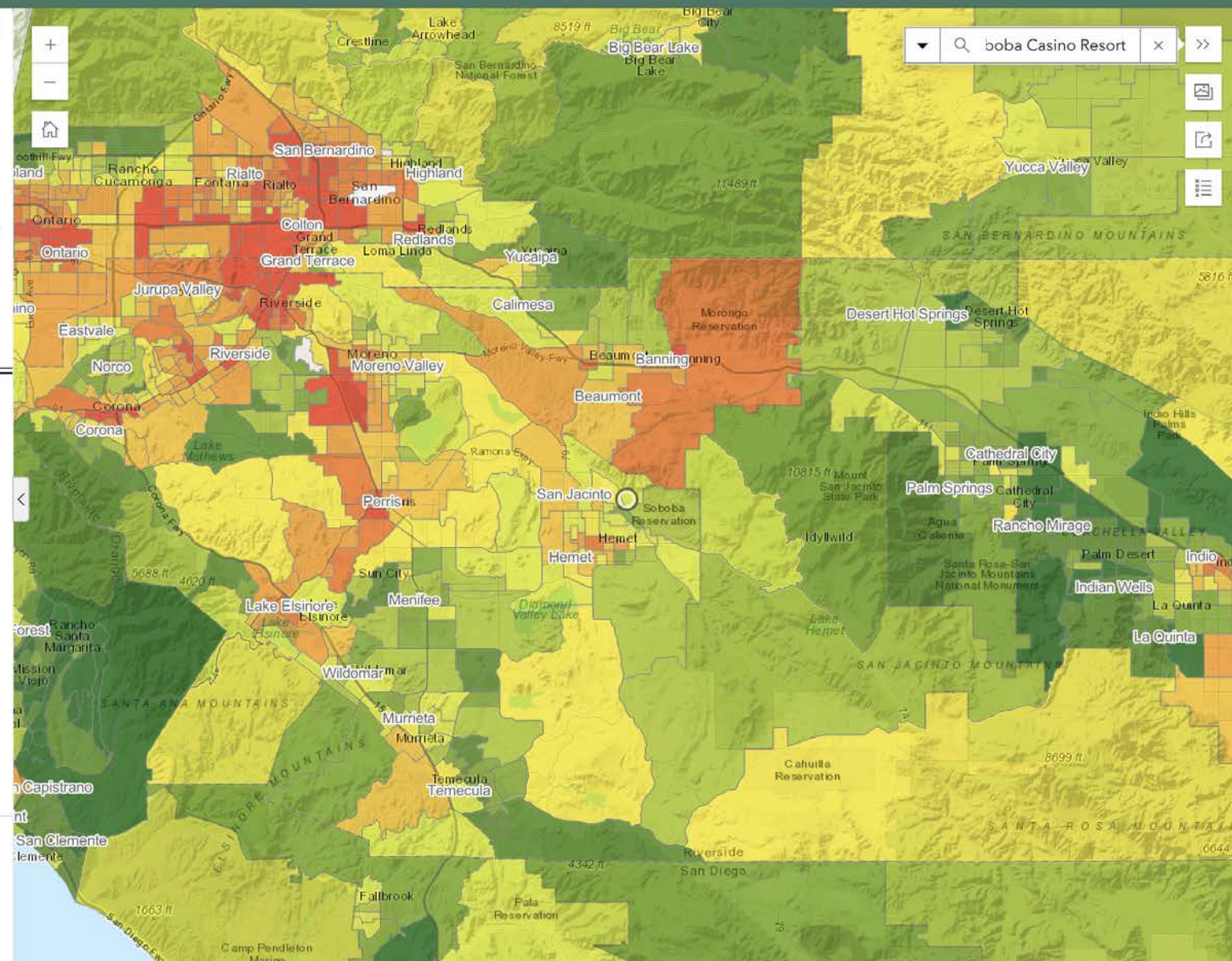
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### Overall Percentile

#### CalEnviroScreen 4.0 Results



### CalEnviroScreen 4.0 High Pollution, Low Population



# Solutions

- Improving the outdoor environment is one part of the puzzle
- Our **indoor environment is also vital**
  - Affected by housing design, appliances, and the products we buy and use everyday
  - PEHSU offers guidance on best practices like:
    - Using a hood fan or ventilation when cooking, using a portable HEPA air cleaner, using EPA Safer Choice Certified cleaning products, microfiber cloths and mops, and taking shoes off at the door can make a big difference



# PEHSU Background



## PEHSU History

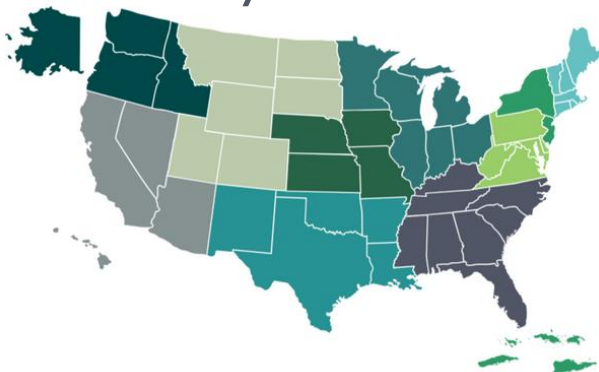
Founded in 1998 by ATSDR/CDC, the **Pediatric Environmental Health Specialty Units (PEHSU)** is a national network of experts who work together to address reproductive and children's health issues related to environmental exposures. It has had longstanding support from the EPA.





## PEHSU Network

The PEHSU network is made up of **10 regional PEHSUs across the U.S.** and the **National Program Office**. Anyone can contact their regional PEHSU by visiting our website and selecting the U.S. state, territory, or freely associated state they live in. **pehsu.net**





# What PEHSU Does



## Health Professionals

PEHSU **trains and partners with health professionals (HPs)** to expand their expertise to provide evidence-based care and solutions for their **pediatric patients and expectant parents.**





## Who PEHSU Serves

PEHSU also works with **parents, schools, community groups, federal, state, and local government agencies**, and others, to offer resources, practical advice and referrals to specialists.





## Communications

Example communication channels:

- PEHSU external newsletter; Blog (profiles, events)
- Podcast: Pediatric Environmental Health Radio
- LinkedIn, Instagram and YouTube



### Childhood Cancer Prevention & Survivorship with Dr. Omar Shakeel

02/03/2026



#### "Why did this happen?"

For many families facing a childhood cancer diagnosis, this question echoes in their minds relentlessly. It is underscored with grief, confusion, and potential regret. Could they have prevented or mitigated the onset of the cancer? What caused this tragedy? Understandably, they reach out to their oncologist for answers.

For **Dr. Omar Shakeel**, this question became the compass guiding his career into the field of childhood cancer prevention and survivorship.

## PEDIATRIC ENVIRONMENTAL HEALTH RADIO



### EPISODE 4: HEALTHY PREGNANCY



PEHSU.NET



## Federal Region 9



John R. Balmes, MD

**Pulmonary Consultant**



Timur S. Durrani, MD, MPH,  
MBA

**Director, toxicologist,  
heavy metals**



Ariel Eastburn McCormick,  
MA

**Coordinator**



Sonja Swenson, MD

**Pediatric Consult Lead**



Gina Solomon, MD, MPH

**Principal Investigator,  
Oc Med, Wildfires**



Victoria Leonard, RN, NP  
(retired), PhD

**Safer cleaning & disinfecting,  
ECE consultant**



Mark Miller, MD, MPH

**Director Emeritus,  
Children's Cancer**



James Earl Schier Nolan, MPH

**Associate Director,  
SDOH & curriculum**



Marya Zlatnik, MD

**Associate Director of OBGYN**

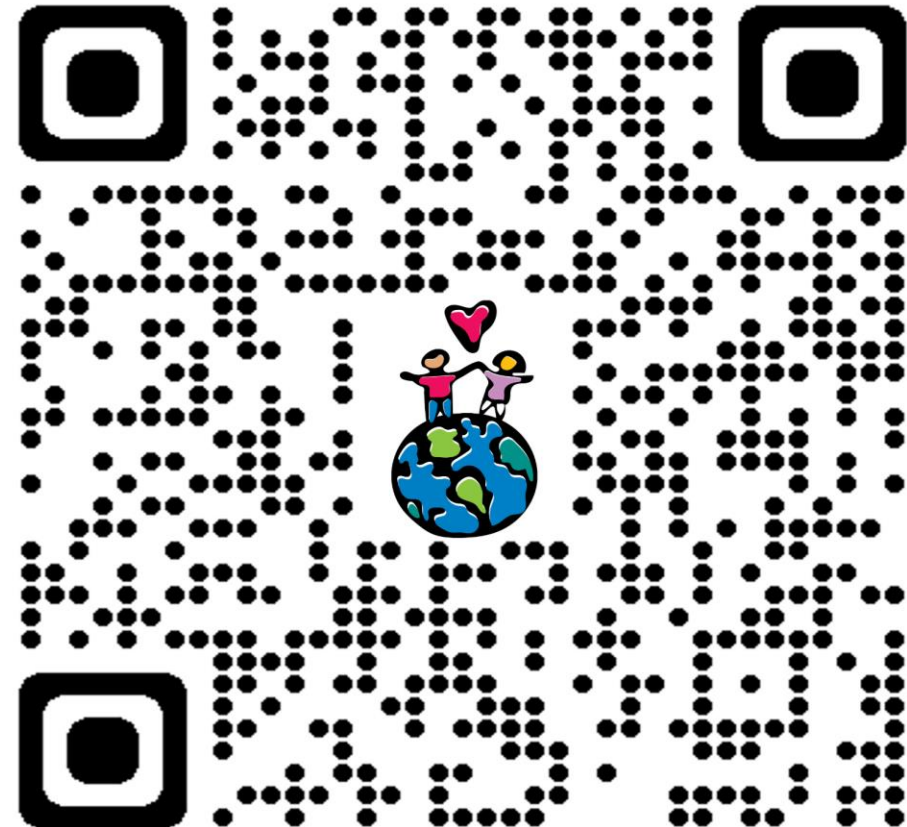
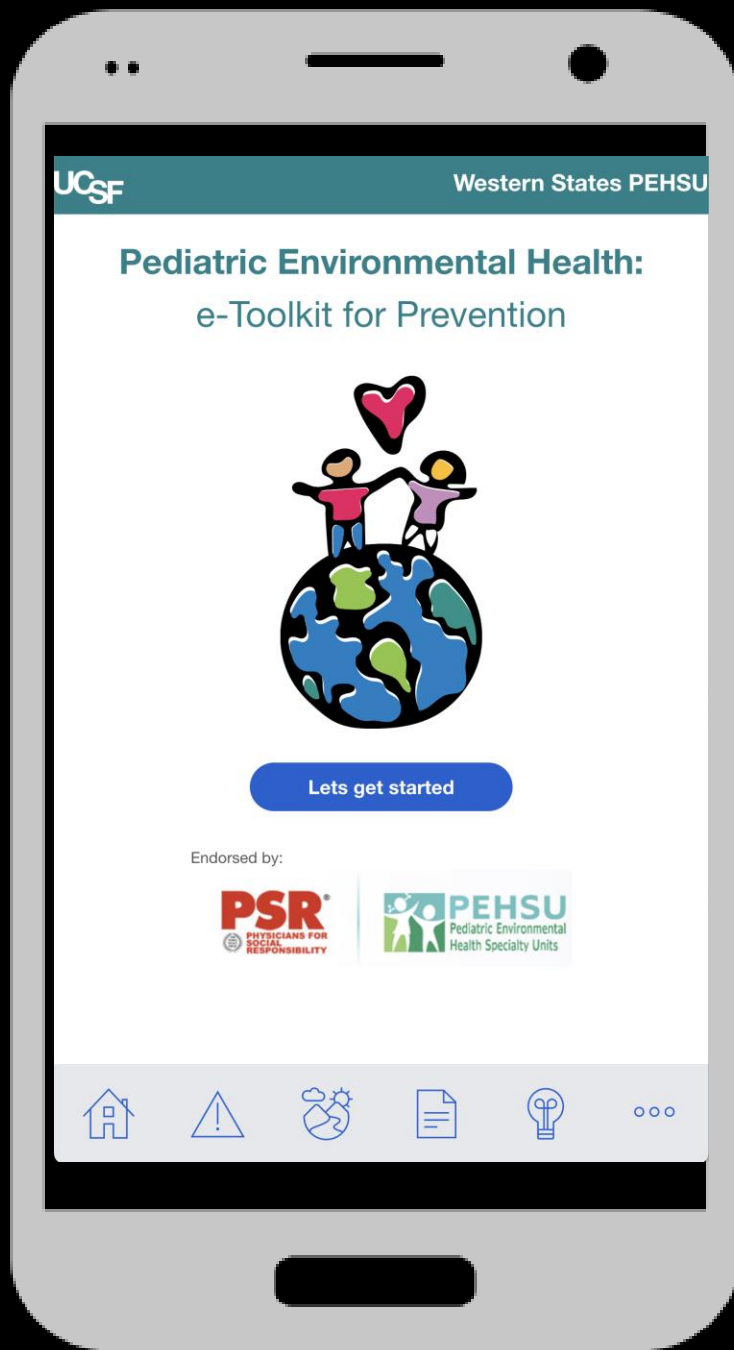


# **Resources for Clinicians:**

## Pediatric Environmental Health Toolkit

# Pediatric Environmental Health Toolkit

[peht.ucsf.edu](http://peht.ucsf.edu)



# National PEHSU Effort

- **37 content sections** (18 hazards, 11 sources, 7 key concepts, Anticipatory Guidance)
- 14 content section authors (from 5 PEHSUs)
- 18 peer reviewers (from all 10 national PEHSUs)
- Support from Physicians for Social Responsibility



|                       |
|-----------------------|
| Environmental Hazards |
| Anticipatory Guidance |
| Key Concepts          |

# PEHT Topics

## Hazards

- Arsenic
- Asbestos
- BPA
- CO
- Lead
- Mercury
- Mold
- Nitrates
- PAHs
- Particles & Nitrogen Oxides
- PBDEs
- PCBs & Dioxin
- Pesticides
- PFAS
- Phthalates
- Radon
- Second-hand Smoke & Ecigs
- VOCs

## Sources

- Baby Foods
- Climate Change
- Consumer Products
- Dust
- Food
- Human Milk
- Indoor Air
- Natural Disasters
- Outdoor Air
- Plastics
- Soil
- Water

# No plans for nationwide ban of gas stoves, CPSC says following report, backlash



**Jordan Mendoza**  
USA TODAY

Published 11:59 a.m. ET Jan. 11, 2023 | Updated 4:20 p.m. ET Jan. 11, 2023



## US Consumer Product Safety Commission to consider banning gas stoves

Gas stoves have been found to emit toxic chemicals that have been linked to cancer and childhood asthma. *Anthony Jackson, Getty Images*

The head of the Consumer Product Safety Commission announced he has no plans to ban gas stoves days after a report said officials with the agency were considering putting a stop to the use of them.



## Pediatric Environmental Health: e-Toolkit for Prevention



### Environmental Hazards

## Particles and Nitrogen oxides

Topic

[Health Effects](#)

[Exposure Sources](#)

[Prevention](#)

### Overview

Particulate Matter (PM) and Nitrogen Oxides (NO<sub>x</sub>) are common air pollutants that are created during combustion. Particles are defined by their size (such as PM<sub>2.5</sub> which is less than 2.5 microns in diameter) rather than a specific chemical structure. Particles less than 10 microns in diameter pose a greater risk to human health than larger inhaled particles. Particles are produced when anything burns, can result from airborne dust, and from reactions of other pollutants in the atmosphere. Nitrogen oxides have one nitrogen molecule with one or more oxygens. The two most common nitrogen oxides are nitric oxide and nitrogen dioxide. Nitrogen oxides are created when carbonaceous fuels are burned.

Many of the processes that produce particles and nitrogen oxides also produce greenhouse gases, which contribute to [climate change](#). In addition, climate change is contributing to increases in natural disasters, such as large wildfires, which can increase particulate matter pollution substantially.

Outdoor exposures to these pollutants are often much higher in communities with [environmental justice](#) concerns, many of which are situated near major roadways and/or industrial sites, including in urban industry as well as large agricultural operations in rural areas.

### References/Additional Resources ▾



Search Anticipatory Guidance

### Environmental Health Guidance

These are suggestions of intervals when environmental health guidance could be given, but incorporate these as appropriate for your individual patient. These are meant as a supplement to the anticipatory guidance given in Bright Futures and further detail on suggested environmental health anticipatory guidance can be found in the chapter titled "Taking an Environmental Health History and Giving Anticipatory Guidance" in AAP's Pediatric Environmental Health (often called "the green book").

#### Applicable to Every Visit

- Parents and adult caregivers should avoid using tobacco/e-cigarettes. Keep car/home free of tobacco smoke/e-cigarette vapor. Call 800-QUIT-NOW (800-784-8669) for help to quit smoking. As the child gets older, they should also be encouraged to avoid smoking or vaping.

|                             |
|-----------------------------|
| Prenatal Visit              |
| Newborn Visit               |
| First Week Visit (3-5 Days) |
| 1 Month Visit               |
| 2 Month Visit               |
| 4 Month Visit               |
| 6 Month Visit               |
| 9 Month Visit               |
| 12 Month Visit              |
| 15 Month Visit              |
| 18 Month Visit              |
| 2 Year Visit                |
| 2 ½ Year Visit              |
| 3 Year Visit                |
| 4 Year Visit                |
| 5 and 6 Year Visits         |
| 7 and 8 Year Visits         |

# Supplement to Bright Futures



**Bright Futures™**  
prevention and health promotion for infants,  
children, adolescents, and their families™



# Resources for Patients and Families:

## Prescriptions for Prevention

## PRESCRIPTIONS FOR PREVENTION



# Prescriptions for PREVENTION

Guidance from the Western States  
Pediatric Environmental Health Specialty Unit

How and where we live, eat, sleep, work, and play, can have huge impacts on our health! These factors have especially large impacts during pregnancy and in early child years, but continue to be vital throughout our lives. We created Prescriptions for Prevention to guide parents and caregivers in the best actions they can take to protect children's environmental health and prevent future harm. These materials are based off of our clinician facing [Pediatric Environmental Health Toolkit \(PEHT\)](#), featuring evidence-based overviews on health hazards related to air, water, food and consumer products. Two key groups of concern are Hazards, and Sources. Hazards are the different kinds of harms we are concerned about, like groups of toxic chemicals. Sources are where harms may come from, like our food or water. Click each below to learn more about how to protect your child! [Be sure to scroll down further to check out our animated video series too!](#)

### [ENVIRONMENTAL HAZARDS](#)



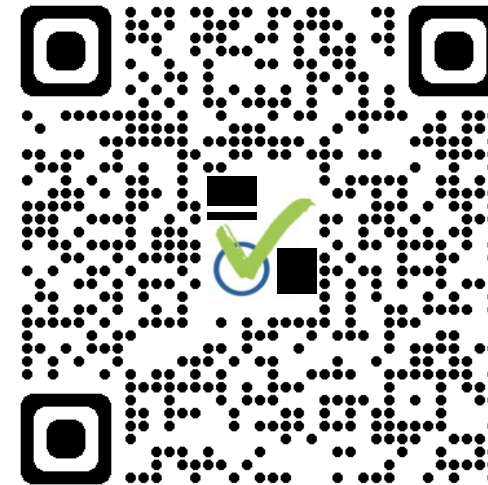
### [EXPOSURE SOURCES](#)



# Patient Education Resource

[wspehsu.ucsf.edu/prescriptions-for-prevention](https://wspehsu.ucsf.edu/prescriptions-for-prevention)

Free, online, & in EMS, in English & Spanish



# Prescriptions for Prevention

- Patient education factsheet series based on PEHT
  - Same 37 environmental health topics
- Doctor, medical student, healthcare professional & public health specialist reviewers (20 contributors!)
- Simple overviews w/ easy & actionable low/no-cost do's & don'ts at 6<sup>th</sup> grade reading level
- National level resources w/ space for regional ones
- English and Spanish
- Powered by support from UCSF's Environmental Research and Translation for Health (EaRTH) Center (OBGYN)



# Prescriptions for PREVENTION

Guidance from the Western States  
Pediatric Environmental Health Specialty Unit



## Pesticides



### Did you know?

**M**illions of pounds of pesticides are used each year by homeowners, communities and industries like agriculture to control insects, weeds, rodents and fungus. They can drift across properties and be tracked into homes. Exposures during pregnancy and in childhood are of particular concern as potential health effects include impacts on brain development and childhood cancer.



### Do

- ✓ **Buy organic foods** when possible. Wash or peel produce before eating it, especially if it's one of the "dirty dozen": Find out more at the Environmental Working Group's (EWG)'s [Shopper's Guide to Pesticides in Produce](#).™
- ✓ **Consider safer tick/flea control for pets:**
- ✓ **Clean your home** frequently:
  - ✓ **Use soap**, microfiber cloths/mops and a hepa filter vacuum;
  - ✓ **Minimize the use of sanitizers** and disinfectants. If you use them, choose one from the EPA [Safer Choice list](#).
- ✓ **Have doormats** at your entryways and take shoes off before entering the home.



### Don't

- ✗ **Don't use pesticides in your home** or on your lawn or garden unless absolutely necessary. Instead, use [integrated pest management \(IPM\) methods](#).
- ✗ **Don't leave out food** in unsealed containers (so you don't attract pests).
- ✗ **Avoid using pesticide sprays** or "bombs" anywhere. Instead, if necessary, use traps/baits or gels.
- ✗ **Don't leave pesticides** within the reach of children. Always store pesticides in locked cabinets.



# Prescriptions for PREVENTION

Guidance from the Western States  
Pediatric Environmental Health Specialty Unit



## Lead



### Did you know?

**L**ead-contaminated paint dust is the most common source of childhood lead exposure. There is no safe level of lead in our bodies. Lead can affect your child's brain development and learning. Health effects can also include high blood pressure, kidney problems, abdominal pain, seizures and anemia. Lead can pass from parent to baby through the placenta or through breastmilk.



### Do

- ✓ **Test your home's paint** to make sure it is not lead-based, especially if built before the 1970's or if there's chipping paint.
- ✓ **Patch spots where paint is flaking**, repaint or cover.
- ✓ **In older houses**, wash children's hands after playing, and damp wash surfaces regularly, especially window sills.
- ✓ **If exposed during pregnancy**, take vitamin D and calcium supplements before breastfeeding.
- ✓ **Most pregnant people** who have had lead exposures are still able to breastfeed, but follow up with your doctor for testing if you've been highly exposed.



### Don't

- ✗ **Don't forget to contact your local or state agency** to see if they have free or reduced price lead test kits!
- ✗ **Don't allow children to dig** in soil after major weather events, near industrial sites, or near older homes.
- ✗ **Don't grow food in soil with lead.** Add at least a 6" layer of clean topsoil for gardening.
- ✗ **Don't allow children around chipping paint** in your home.
- ✗ **Don't try to boil water** to reduce lead content, this does not work!



# Prescriptions for PREVENTION

Guidance from the Western States  
Pediatric Environmental Health Specialty Unit



## Outdoor Air Pollution



### Did you know?

Outdoor air pollution exposure is associated with health issues such as asthma, heart disease, and cancer. Highways, ports, wildfires, volcanoes, power plants, refineries, and factories are major sources of pollution. **Some communities**, such as low income communities and communities of color, are more impacted by air pollution than others.



### Do

- ✓ **Check the EPA's [AirNow.gov](https://www.airnow.gov)** for guidance on outdoor activities.
- ✓ **Consider wearing a N95 mask** when the air quality is unhealthy.
- ✓ **Create a clean indoor air space** that your family can use when air pollution is unhealthy.

#### To help improve outdoor air quality:

- ✓ **Drive less**, walk, carpool, bike, or use public transport if available.
- ✓ **Choose energy-efficient appliances** and light bulbs.
- ✓ **Limit the use of gasoline-powered** lawn mowers and leaf blowers. Invest in electric alternatives if possible.



### Don't

- ✗ **Don't rely solely on masks.** Use your clean indoor air space as needed.
- ✗ **Don't leave doors and windows open** on severe air pollution days.
- ✗ **Don't idle your car** unnecessarily.
- ✗ **Don't burn wood** or other materials in your fireplace or stove. Consider using space heaters or converting to a gas fireplace if needed. Follow the EPA's [Best Wood-Burning Practices](#).



Home



Shorts

## Subscriptions &gt;



Coalition for Clean ...



UCSF EaRTH Center



UCSF School of Me...



University of Cali...



NIEHS



Sociedad Mexicana...



A Story of Health



Show more

## You &gt;



Your channel



History



Playlists



Watch later



Liked videos



## Prescriptions for Prevention



by Western States PEHSU

Playlist • Public • 5 videos • 263 views

This video is brought to you by the Western States Pediatric Environmental Health Specialty Unit (WSPEHSU) ...more



Play all



Manual ▾



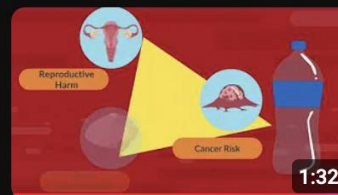
### Keep Kids Healthy by Preparing for Natural Disasters

Western States PEHSU • 2K views • 2 years ago



### Extreme Weather, Heat Stress and Health

Western States PEHSU • 585 views • 2 years ago



### Children's Health and the Impacts of Plastics

Western States PEHSU • 349 views • 2 years ago



### Keep it Outside: Mold and Human Health

Western States PEHSU • 234 views • 1 year ago



### Health effects of heavy metals in food

Western States PEHSU • 290 views • 1 year ago



# EMS Integration

- Allows for ease of review in clinical encounters, & integration into enduring aftercare summaries etc
- Reviewed entire Prescriptions for Prevention Series with UCSF Patient Education Committee and integrated into UCSF's EMS (Epic)
  - Each Prescription comes with a "dot phrase" that summarizes talking points for healthcare providers to review with patients
  - **Currently seeking to partner with additional systems free of charge**

# Continuing Medical Education

# Story of Health

- **Free, online & asynchronous** continuing medical education modules
- Accredited by the CDC, Accreditation Council for Continuing Medical Education, Accreditation Council for Pharmacy Education, & American Nurses Credentialing Center
- Can be enrolled in individually for **1-3.75** credits
  - or as a whole series for up to **6 credits**
- **Module Topics:**
  - Wildfires, Asthma, and Children's Cancer

# Health Effects of Wildfires (1 CME/CNE)

1. Identify the components of smoke resulting from wildfires.
2. Explain the relationship between climate change and wildfires.
3. Explain how wildfire smoke affects asthma.
4. List ways patients can protect themselves from wildfire smoke.
5. Describe wildfire emergency preparedness procedures to protect health.
6. Explain how to assess and protect indoor air quality during wildfires.
7. Explain why children are more vulnerable to wildfire smoke than adults.
8. Describe how to improve collaborative practice across the healthcare team regarding the diagnosis and treatment of patients exposed to smoke from wildfires.

A Story of Health • Sofia's Story

## WILDFIRE HEALTH IMPACTS Sofia's Story

Help Page | Free Continuing Education | References | Go Back

Brett asks "Could I stay and play inside with Sofia since we don't have practice?"

Charles says sure and calls Brett's mom to double check.

"If the air quality is so bad that we can't play soccer, why is it okay to play inside?" asks Sofia.

"Well, Sofia," says Jose, "We actually do a lot of things related to indoor air quality where I work, so I know a lot about ways to keep the air inside cleaner than it is outside."

**+** How does wildfire smoke get into the house?

**+** Mitigation techniques

**+** Look for the MERV rating on air filters

For more info:  
[CARB certified air cleaners](#)  
[California Air Resources Board : Protecting Yourself from Wildfire Smoke](#)  
[EPA: How Does Wildfire Smoke Affect Indoor Air Quality?](#)  
[Mitigation techniques: Create a "Clean room" in your house](#)  
[EPA's Wildfire Guide Indoor Air Filtration fact sheet](#)

### Create a Cleaner Air Space

Choose a room that fits everyone and is comfy enough to spend time in.

Close windows and doors, but do not block exits.

Filter the air. Use a certified portable air cleaner and run continuously on the highest setting.

Avoid activities that create smoke or other particles indoors.

Stay cool. Run fans or AC on recirculate with a new filter.

Use a damp cloth or mop to trap settled dust and particles.

CARB  
Graphic courtesy of California Air Resources Board

### Do It Yourself Air Filter Fan

Innovative appropriate technology solutions can provide some low-cost protection from wildfire smoke. An example is the "Do It Yourself Air Filter Fan."

Using an ordinary house fan and a MERV 13 filter, these can be made at much less cost than purchasing a room HEPA filter and thus provide an option for many in vulnerable low-income families where cost or availability may hamper protection efforts.

Information on how to make your own is available at the Puget Sound Clean Air Agency website. Their tests showed that in a small room a filter fan can reduce particulates by as much as 90%.

# Childhood Cancer (3.75 CME/CNE)

1. Describe the characteristics of childhood cancer.
2. Discuss trends associated with childhood cancer.
3. Discuss environmental risk factors for childhood cancer.
4. Discuss factors that reduce the risk of childhood leukemia.
5. Describe how to improve collaborative practice across the healthcare team regarding preventing risk factors for childhood cancer.

A Story of Health

## CHILDHOOD CANCER Stephen's Story

Dr. Baker discussed with them what the course of treatment should be, including intravenous (IV) hydration (liquids), and initiating a course of chemotherapy.

Stephen would need to be in the hospital for this, since the initial treatment is the riskiest time period.

Dr. Baker arranged for Stephen to continue his hospital stay and begin treatment immediately.

[Help Page](#) [Free Continuing Education](#) [References](#) [Go Back](#)



# Asthma (1.5 CME/CNE)

1. Discuss clinical symptoms associated with asthma.
2. Describe the latest science on environmental, gene-environment risk factors for asthma.
3. Describe how to counsel patients to avoid risk factors that may contribute to asthma.
4. Describe how to improve collaborative practice across the healthcare team regarding the prevention of asthma.

A Story of Health

## ASTHMA: A Multifactorial Disease

Brett's mother sometimes wonders what caused Brett's asthma, and why so many of his friends have it.

The causes of asthma in Brett may differ considerably from the causes of asthma in another person, or the most common causes of asthma in a population.

**Key Concept: Addressing disease risks in individuals and populations**

In general, asthma is a multifactorial disease although in some individuals, a single factor may be predominantly responsible for its onset. For example, an exposure to a chemical airway sensitizer like formaldehyde, or exposure to secondhand smoke.

After asthma develops, various exposures can trigger or exacerbate an asthmatic episode.

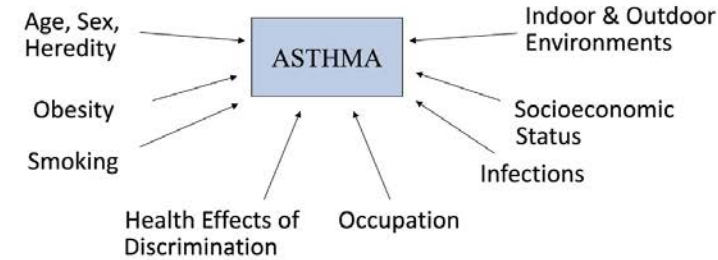
**Key Concept: Causation and Association**

When Brett's asthma started, the nurse at his pediatrician's office took an environmental history so his doctor could assess what the influencing factors might have been.

**Resources – For Clinicians:**  
Pediatric Environmental History Forms, National Environmental Education Foundation

Help Page | Free Continuing Education | References | Go Back

### Risk Factors for Asthma



Graphic reproduced with permission.

**Watch this short informative video by Dr. John Balmes that explains the many risk factors for developing asthma. (1.5 min.)**



John Balmes MD, Professor Emeritus, Division of Occupational, Environmental and Climate Medicine at University of California; San Francisco

<sup>1</sup> Rose G. Sick individuals and sick populations. *Int J Epidemiol.* 1985; 14(1):32-38.  
<sup>2</sup> Puska P. From Framingham to North Karelia: from descriptive epidemiology to public health action. *Prog Cardiovasc Dis.* 2010; 53(1):15-20.  
<sup>3</sup> Editorial: Short-gun prevention? *Int J Epidemiol.* 1973; 2(3):219-220.

## Subscribe to the Promotores de Salud newsletter!

\* indicates required

Email Address \*

This field is required.

First Name

Last Name

Profession

Subscribe

made with  mailchimp



# Childhood Cancer & Environment Newsletter



Thank you for your interest in childhood cancer and the environment! Whether you attended a training, a conference, or just heard about us through the grapevine, we're happy you're here.

This signup form will enroll you in Western States PEHSU's quarterly e-newsletter. Through it, we hope to further educate and activate health professionals and advocates like you to address environmental influences on childhood cancer. This newsletter will highlight key topics, lift up relevant resources, and provide opportunities for engagement.

\* indicates required



# External Resources



# **Environmental Health Toolkit**

## **Strengthening Environmental Health Programs and Services in your Tribal Community**



July 2017

<https://www.ihs.gov/ehsc/resources/>



## Publications in Peer-Reviewed Journals

[All](#)
[Biomonitoring](#)
[Children's Health](#)
[Climate & Chemicals](#)

[Community Based Participatory Research](#)

[Environmental Health & Justice](#)
[Food Security](#)
[Military Toxics](#)

[Persistent Organic Pollutants \(POPs\)](#)
[Pesticides & Alternatives](#)

[PFAS](#)
[Publications](#)
[Reproductive Health](#)
[Water Quality](#)



2023

Protecting the health of future generations in the arctic through community-based participatory research and action

## Investigative Reports

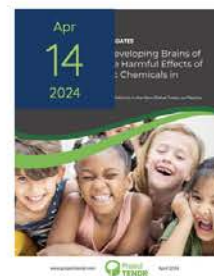
[All](#)
[Air Quality](#)
[Biomonitoring](#)
[Chemicals & Plastics](#)

[Children's Health](#)
[Community Based Participatory Research](#)

[Environmental Health & Justice](#)
[Food Security](#)
[Military Toxics](#)

[Mining](#)
[Persistent Organic Pollutants \(POPs\)](#)

[Pesticides & Alternatives](#)
[PFAS](#)
[Publications](#)
[Water Quality](#)



2024

Project TENDR Briefing Paper:  
Protecting the Developing Brains of  
Children from Plastics and Toxic  
Chemicals in Plastics

## Health & Education

### Environmental Health Topics

Population Research

Agricultural Health

Children's Environmental Health

Emergency Response

**Native American Health and the Environment**

Women's Health and the Environment

Workers' Health

# Native American Health and the Environment

In the U.S., there are 574 federally recognized Tribes, and each has its own history, governance, and culture. There are also more than 100 state recognized Tribes.

➤ [Table of Contents](#)

## Introduction

In the U.S., there are [574 federally recognized](#) Tribes, and each has its own history, governance, and culture. There are also more than 100 state recognized Tribes.

NIEHS supports research to determine how environmental agents cause or exacerbate human diseases, including research to improve the environmental health of American Indians and Alaska Natives (AI/AN).



# Additional Resources:

- [California Poison Control System](#)
- [UCSF Department of Pediatrics](#)
- [Center for Occupational and Environmental Health at Berkeley, Davis, & UCSF](#)



# WESTERN STATES

# PEHSU

Pediatric Environmental  
Health Specialty Unit



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WS Pediatric Environmental  
Health Specialty Unit



WSPEHSU



Western States PEHSU

[wspehsu.ucsf.edu](https://wspehsu.ucsf.edu)



# Discussion:

- What are some key environmental challenges that affect your tribe?
- What are some of the actions being done to address them?
- Are there additional opportunities to collaborate?
- What are the best ways to share materials?
- Are there additional types of materials or activities that would be beneficial?

# APPENDIX



# Access in EMS:

8/15/2024 visit with Marya Gail Zlatnik, MD for VIDEO VISIT ... 3+

Med Sched Pt Education Videos Send Pt Message UCSF MyChart Appt Request More ▾

Patient Instructions Charge Capture FindHelp LOS Follow-up Patient Understanding

Social Determinants

**Patient Instructions** search here

Attach reference + Add Clinical References ↗

pdc instructions 1

★ B + abc ↶ ? + Insert SmartText ↷ ↺ ↻ ↵

[www.pme.ucsf.edu/pme/tmlinks.html#remodeling](http://www.pme.ucsf.edu/pme/tmlinks.html#remodeling)

**Keep mercury out of your diet, home, and garbage.**

- Choose fish that are less contaminated with mercury. Find information on healthy and environmentally sustainable fish at:  
[www.nrhe.ucsf.edu/nrhe/tmlinks.html#mercury](http://www.nrhe.ucsf.edu/nrhe/tmlinks.html#mercury)

- ☆ PRESCRIPTIONS FOR PREVENTION: ARSENIC - UCSF (ENGLISH)
- ★ PRESCRIPTIONS FOR PREVENTION: ASBESTOS ENVIRONMENT...
- ☆ PRESCRIPTIONS FOR PREVENTION: BABY FOOD - UCSF (ENGLI...
- ★ PRESCRIPTIONS FOR PREVENTION: BPA ENVIRONMENTAL EXP...
- ★ PRESCRIPTIONS FOR PREVENTION: CARBON MONOXIDE (CO) E...
- ☆ PRESCRIPTIONS FOR PREVENTION: CLIMATE CHANGE - UCSF (...)
- ☆ PRESCRIPTIONS FOR PREVENTION: CONSUMER PRODUCTS - U...
- ☆ PRESCRIPTIONS FOR PREVENTION: DUST - UCSF (ENGLISH)
- ☆ PRESCRIPTIONS FOR PREVENTION: FLAME RETARDANTS INCL...
- ☆ PRESCRIPTIONS FOR PREVENTION: FOOD - UCSF (ENGLISH)
- ☆ PRESCRIPTIONS FOR PREVENTION: HUMAN MILK - UCSF (ENGLI...
- ☆ PRESCRIPTIONS FOR PREVENTION: INDOOR AIR POLLUTANTS - ...
- ☆ PRESCRIPTIONS FOR PREVENTION: LEAD - UCSF (ENGLISH)
- ☆ PRESCRIPTIONS FOR PREVENTION: MERCURY ENVIRONMENTA...
- ☆ PRESCRIPTIONS FOR PREVENTION: MOLD - UCSF (ENGLISH)
- ☆ PRESCRIPTIONS FOR PREVENTION: NATURAL DISASTERS - UCS...
- ☆ PRESCRIPTIONS FOR PREVENTION: NITRATES IN FOOD AND WA...
- ☆ PRESCRIPTIONS FOR PREVENTION: OUTDOOR AIR POLLUTION ...

## Prescriptions for Prevention: Asbestos Environmental Exposure - UCSF

### *Did you know?*

Asbestos was used in buildings because of its fireproofing, insulating, and soundproofing qualities. It was banned in the US in the late 1970s because of the health hazards it posed, including increased cancer risk. Other than buildings, some talc-containing child play materials have also been found to contain asbestos, such as play sand, imported crayons, fingerprint powder and makeup kits.

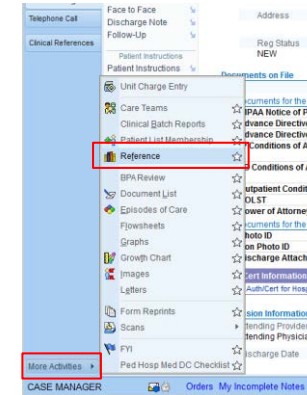
| DO'S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DON'TS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• If your home, workplace or school is undergoing renovation and was built before the 1980's, contact licensed asbestos professionals who can evaluate exposure risk<ul style="list-style-type: none"><li>◦ Check with your local health department to find certified contractors.</li></ul></li><li>• If you are exposed:<ul style="list-style-type: none"><li>◦ Shower and change clothes and shoes before going home.</li><li>◦ Review <a href="#">OSHA's mandated procedures</a> regarding asbestos safety at work.</li></ul></li><li>• Request a copy of your school's asbestos management plan<ul style="list-style-type: none"><li>◦ <a href="#">For more information on</a></li></ul></li></ul> | <ul style="list-style-type: none"><li>• Don't disturb or damage asbestos if it is suspected in your home. Undamaged asbestos is better contained and left alone.</li><li>• Don't use talc-containing products, especially powdered talc.</li><li>• Pay attention to news and recalls of children's products (eg. crayons). These are reported locally or listed <a href="#">here</a>.</li><li>• Don't smoke if you are at risk for or have had asbestos exposure. Smokers are many times more at risk of negative health impacts from asbestos.</li></ul> |

## Clinical Reference / Patient Instructions in Apex

In the clinical reference section, you can choose patient instructions (UCSF and Healthwise material) to add to the AVS.

### I. Accessing Clinical Reference Section

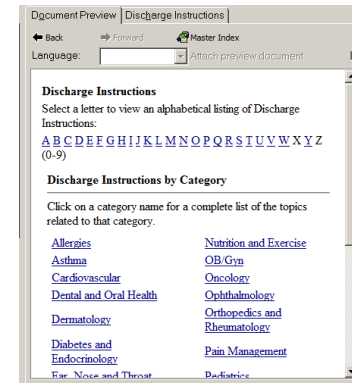
1. Open a patient encounter
2. Choose **More Activities**, lower left-hand side
3. Then **References**



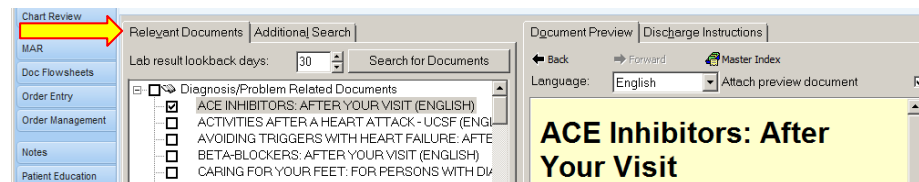
### II. Navigating Clinical References

There are three ways to find Patient Instructions

1. The **Master Index** on right side of screen allows you to browse topics by alphabetical title listing or by category.



2. You can choose a patient instruction from **relevant documents** associated with the patient's problems list

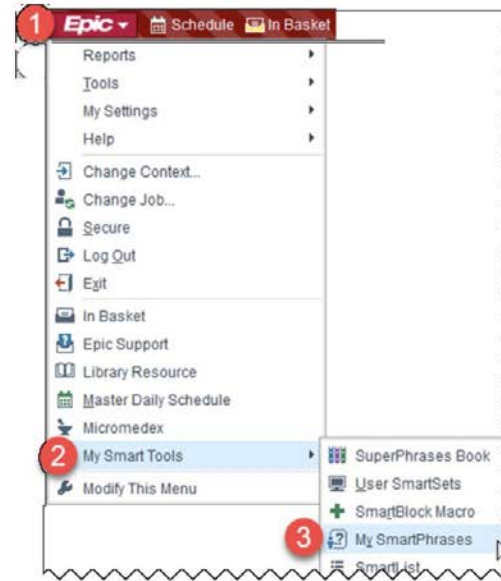


# Dot Phrases

- [Link to dot phrase guide here](#)
- Under User, type “Marya Zlatnik” in user field and press enter

## Sharing SmartPhrases

1. Click the **Epic** dropdown.
2. Click **My Smart Tools**.
3. Click **My SmartPhrases**. Ensure that you are in **Manage SmartPhrases**. (Or you can search for My SmartPhrases or SmartPhrase Manager)



4. Type the colleague's name that you want to steal phrase(s) from in the **User** field and press **Enter**.
5. **Single click** the phrase you wish to steal.
6. Click **Share With**. Your name should come up automatically in the “Choose users to share with” box in the dialogue box. Press **Accept**.



**Note:** By holding the **Ctrl** key on your keyboard you can select multiple phrases at the same time.

# Public Dot Phrases

- Many dot phrases available publicly
- [Public Dot Phrase document here](#)

Climate/Environmental Health Dotphrases

File Edit View Tools Help

Contributors: Hannah El-Sabrou, Donavon Sandoval-Heglund, Sonia Swenson MD, Marya Zlatnik MD, Annemarie Charlesworth, Robin Cooper MD

**Environmental Health history:**

Environmental & Exposure History

Occupation: \*\*\*

Exposures to any of the following at work?

Metals - {YES/NO (DEFAULT NO):24150}

Solvents - {YES/NO (DEFAULT NO):24150}

Chemicals - {YES/NO (DEFAULT NO):24150}

Radiation - {YES/NO (DEFAULT NO):24150}

Fumes - {YES/NO (DEFAULT NO):24150}

Lead

Has pt or anyone living in pt's home ever been treated for lead poisoning?  
{YES/NO (DEFAULT NO):24150}

Current home built before 1978 {YES/NO:22975}

Plans to remodel home {YES/NO:22975}

Ever lived outside US? {Yes Location/No:33265}

Family uses imported pottery, ceramics for cooking/eating/drinking?  
{YES/NO (DEFAULT NO):24150}