

Strategies to Improve Children's Environmental Health in King County, WA

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King County

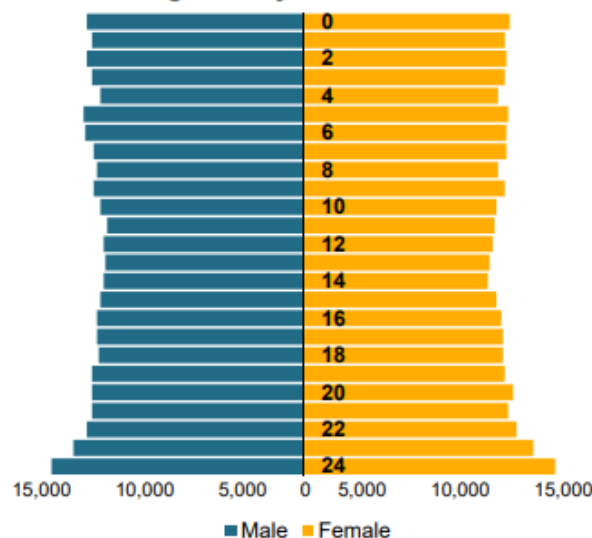
- Most populated county in WA (over 2.2 million residents)
= Seattle + 38 other incorporated cities
= 2,134 square miles
= 13th most populous county in US

King County Kids

~30% of households speak a language other than English at home

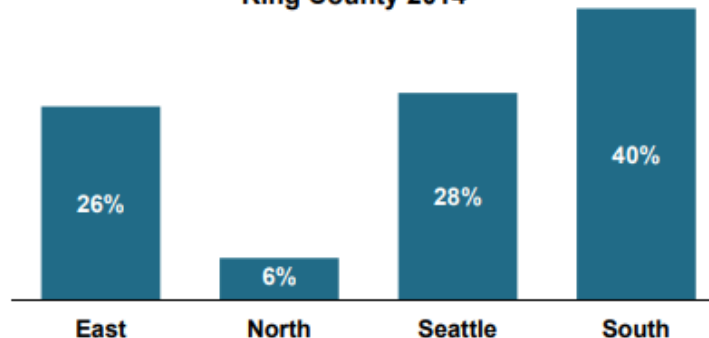
There are approximately 604,000 children and youth in King County

Children & Youth (0-24 Years) by Age, King County 2015 Estimates

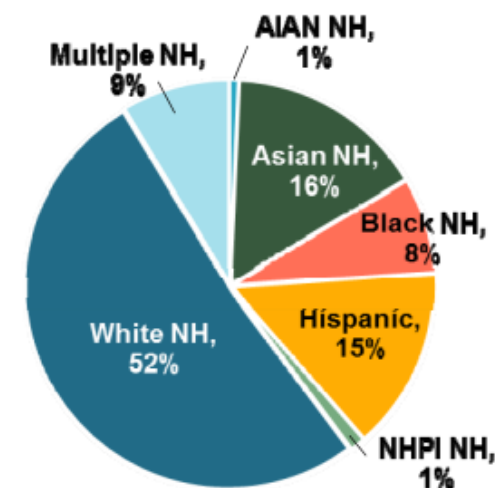


Children and youth ages 0 to 24 make up 30% of the total King County population.

Percent of Children & Youth by Region, King County 2014



Children and youth of color make up almost half of this population.



Most children live in the Seattle and South regions of King County.

Source: Washington State Department of Health, Population Health Estimates for Public Health



Differences Across the County Are Large

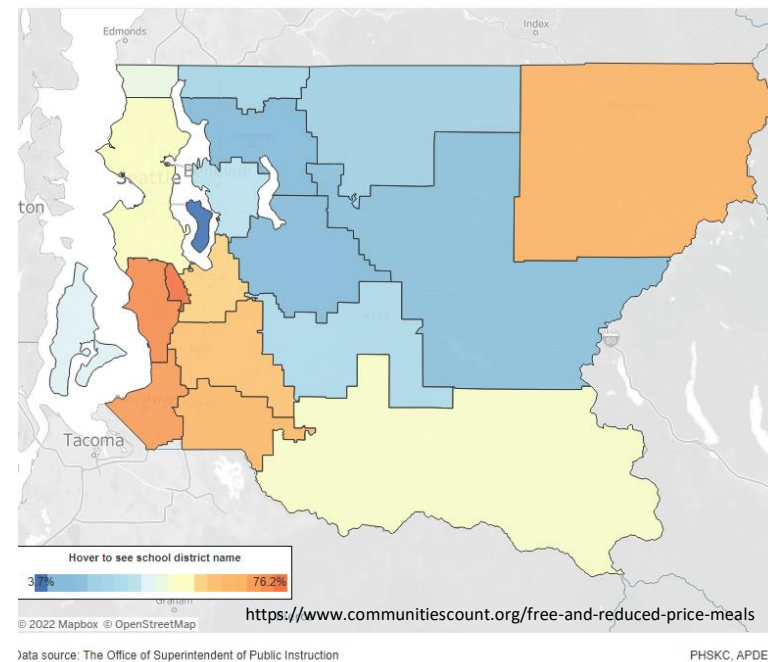
- Examples

% Kids qualifying for free and reduced-price lunch

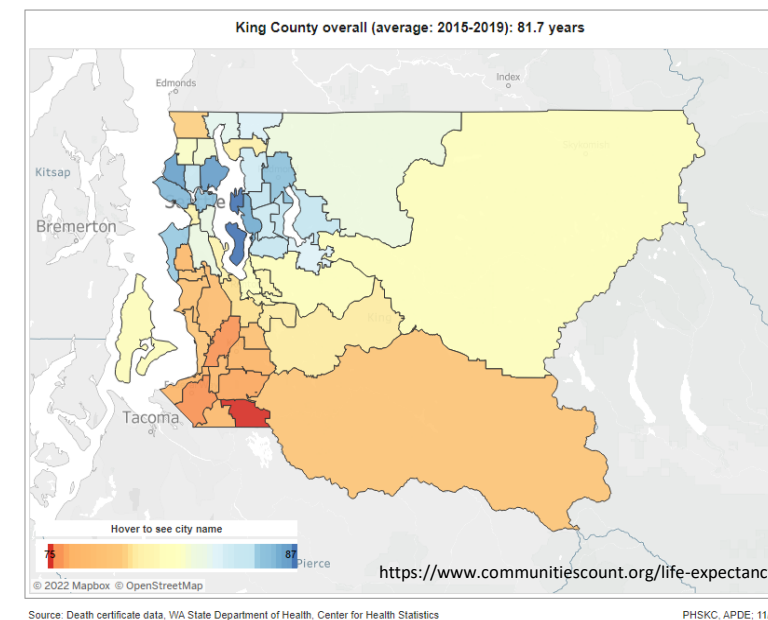
- 34.8% qualified in 2020-2021
 - 3.7% of kids on Mercer Island
 - 76.2% of kids in Tukwila

Life Expectancy at Birth

- King County average = 81.3 years
- Auburn South = 74.1 years
- Mercer Island = 87 years



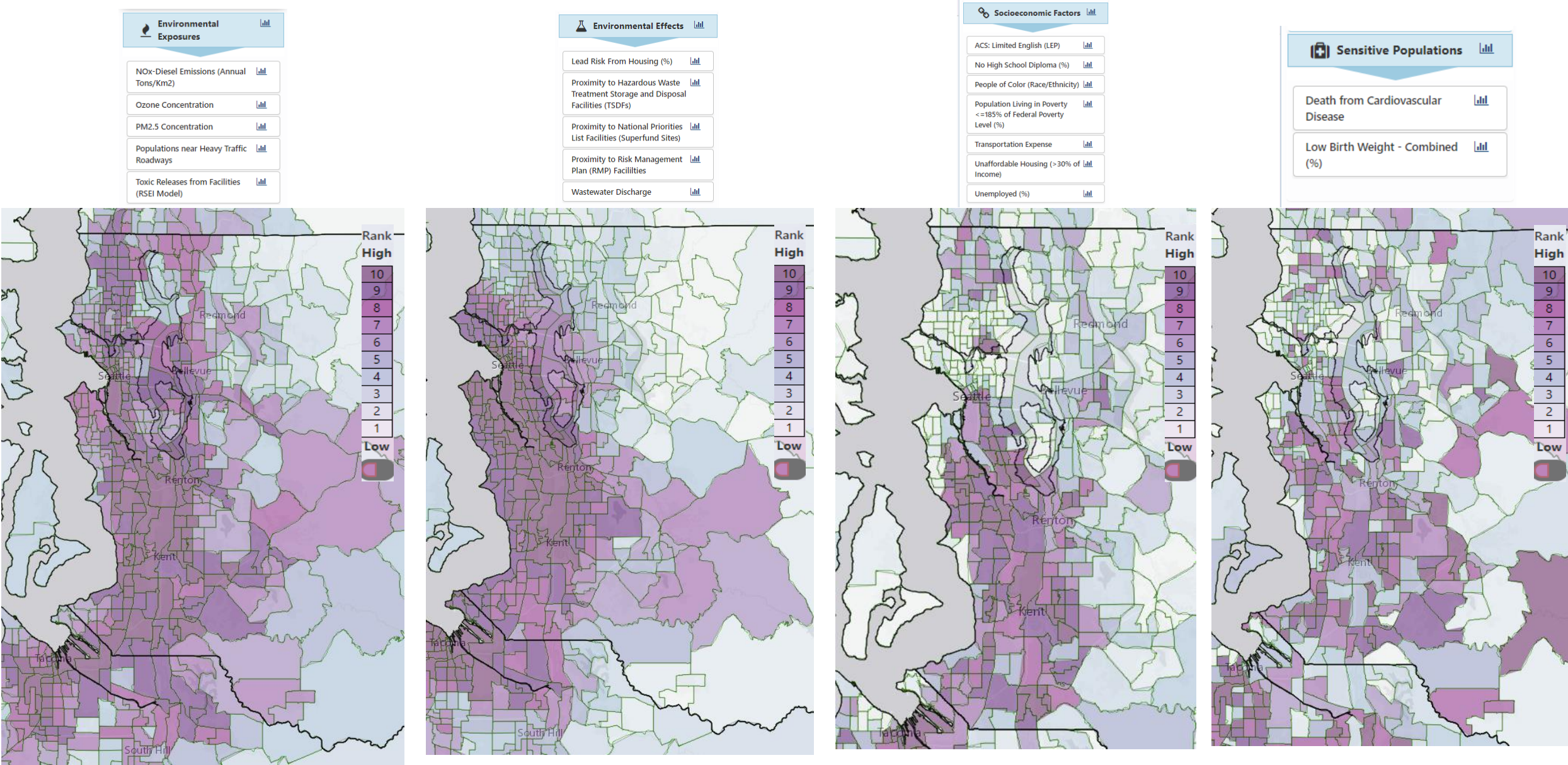
Free and reduced-price lunch



Life Expectancy at birth

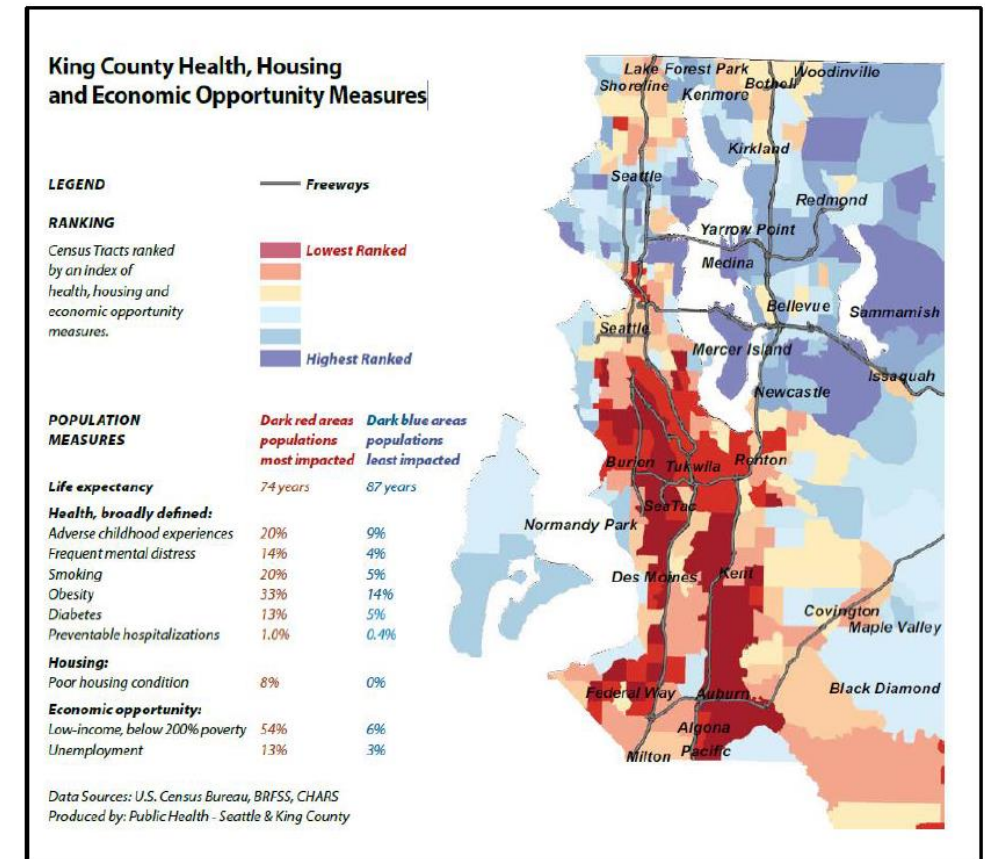


WA State Health Disparities Mapping Tool – Demonstrates Clear Inequities in Vulnerability to Environmental Exposures



How Do We Reduce Environmental Health Impacts Most Effectively at the Local Level?

- Focus on communities experiencing the largest inequities
- Often focus on children:
 - Continued growth and development
 - Size and metabolism
 - Unique exposures
- Exposure reduction
- Work towards policy change



Tools We Use to Improve Children's Environmental Health

- **Policies**

- **Equity and Social Justice Policies/Plans**

- King County ESJ Strategic Plan (<https://kingcounty.gov/elected/executive/equity-social-justice/strategic-plan.aspx>)
 - WA State Healthy Environmental For All (HEAL) Act (<https://doh.wa.gov/community-and-environment/health-equity/environmental-justice#:~:text=The%20passage%20of%20the%20Healthy,agency%20approach%20to%20environmental%20justice>)

- **Chemical legislation**

- **WA State Children's Safe Products Act** (<https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Childrens-Safe-Products-Act>)
 - Safer Products for WA (<https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Safer-products>)
 - WA State Chemical Action Plans - address toxic chemical priorities ([https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals#:~:text=Chemical%20action%20plans%20\(CAPs\)%2C,human%20health%20and%20the%20environment](https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals#:~:text=Chemical%20action%20plans%20(CAPs)%2C,human%20health%20and%20the%20environment))
 - PFAS legislation (<https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals/PFAS>)

- **Data** collected through county, state and other programs

- WA State Health Disparities Map (doh.wa.gov/data-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map)
 - Communities Count (<https://www.communitiescount.org/>)
 - Public Health – Seattle & King County Health Profiles and Data Dashboards (<https://kingcounty.gov/depts/health/data/city-health-profiles.aspx>; <https://kingcounty.gov/depts/health/data.aspx>)

- **Programs** that focus on cross collaboration

- **King County Best Starts for Kids Program** (<https://kingcounty.gov/depts/community-human-services/initiatives/best-starts-for-kids.aspx>)

- **Strategic Partnerships**

- Community-Based Organizations, Community Health Workers/Advocates.
 - Cross-Agency Collaboration - WA State Department of Health, WA State Department of Ecology, Puget Sound Clean Air Agency, Academic Partners, PEHSU, KC Medical Society, WA Poison Control Center, etc.

- **Build Staff Capacity** - staff expertise and dedication



WA State Legislation focused on Children's Environmental Health

- Children's Safe Products Act of WA (2008) – applies to children's products in WA State
- Limits the use of priority toxic chemicals:
 - Lead
 - Cadmium
 - Phthalates (6 types)
 - Flame retardants (5 types)
- Requires manufacturers to report if their children's products contain 85 [chemicals of high concern to children \(CHCC list\)](https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Childrens-Safe-Products-Act).

<https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Childrens-Safe-Products-Act>



Best Starts for Kids

A King County voter-approved initiative

- Prenatal development to adulthood
- **Community-driven initiative**
- Catalyzes strong early starts and sustains those gains as kids progress to adulthood.
- **2015-2020 (\$400 million) - Served more than 500,000 children, youth, young adults, and families in partnership with more than five hundred community-based organizations.**
- **2021-2027 (\$800 million) to maintain investments in promotion, prevention and early intervention**

What we accomplished in 2021



www.kingcounty.gov/beststarts

Best Starts For Kids Investment Areas

- www.kingcounty.gov/beststarts

● Investing early

Best Starts prenatal to five investments reach children and families where they are — in their homes, child care settings, and communities — to support healthy child development and family well-being. *Click on each strategy to learn more!*

- [Workforce Development](#)
- [Community-based Parenting Supports](#)
- [Early Support for Infants and Toddlers](#)
- [Maternal and Child Health Services](#)
- [Home-based Services](#)
- [Child Care Health Consultations](#)
- [Innovation Supports](#)
- [Universal Developmental Screening](#)
- [Infant and Early Childhood Mental Health](#)
- [Help Me Grow](#)
- [Environmental Supports: Lead and Toxics](#)

● Sustaining the gain

Best Starts 5 to 24 investments continue the progress made in early childhood with school- and community-based opportunities to learn, grow, and develop through childhood, adolescence, and into adulthood. *Click on each strategy to learn more!*

- [Expanded Learning](#)
- [Youth Development](#)
- [School-Based Screening, Brief Intervention and Referral to Treatment/ Services](#)
- [School-Based Health Centers](#)
- [Healthy and Safe Environments](#)
- [Positive Family Connections](#)
- [Stopping the School-to-Prison Pipeline](#)
- [Transitions to Adulthood](#)
- [Child and Adolescent Immunizations](#)
- [Liberation and Healing](#)

● Preventing youth & family homelessness

The Youth and Family Homelessness Prevention Initiative invests in case management and flexible funds to support families that are on the verge of homelessness. Learn more [here](#).

● Child Care Subsidy Program & Workforce Demonstration Project

We expand access for children and their families who are not eligible for existing federal, state, or local subsidy programs or for whom these programs are insufficient. Learn more [here](#).

● Strengthening communities

Best Starts invests in Communities of Opportunity, a unique community-public-private initiative that believes the most meaningful, just, and sustainable solutions are generated in partnership with communities, who know what they need to be healthy and thrive. Learn more [here](#).

● Capital projects

If the total projected levy proceeds exceeds \$822M, additional funding - up to \$50M - will be used to provide grants to support repairs and expansion of buildings and facilities, and to support the construction of new buildings and facilities that will serve children and youth.

+ COVID-19 Relief Indoor Air Program

BSK – Lead and Toxics Program

Integrating environmental health into BSK initiatives and other EH programs

- Childhood Lead Poisoning Prevention
- Toxics Exposure Reduction



Potential Sources of Lead Exposure



Paint in Pre-1978 Homes



Lead Dust



Drinking Water



Dirt/Soil



Job Exposures



Traditional Remedies



Imported Spices



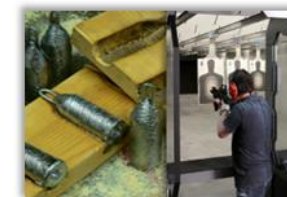
Imported Pottery



Costume Jewelry



Recalled Toy



Hobbies/Sport



Hobbies





Nap Mats Example



Environmental Pollution
Volume 238, July 2018, Pages 1056-1068



Exposure to brominated and organophosphate ester flame retardants in U.S. childcare environments: Effect of removal of flame-retarded nap mats on indoor levels ☆

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Toxic flame retardants in nap mats



Health experts are concerned about children's exposures to **toxic flame retardants** because these chemicals are linked to cancer, obesity, and learning issues.

Childcare centers that use foam nap mats can have higher levels of cancer-causing flame retardants in their dust. Children are exposed to the chemicals when they breathe or ingest the dust.

Toxic-Free Future teamed up with researchers from Indiana University's School of Public and Environmental Affairs (SPEA) to study whether replacing flame-retarded nap mats with flame-retardant free mats affected indoor levels of flame retardants. We tested the air and dust in seven Seattle-area childcares before and after replacing the flame-retardant laden mats and found levels in dust of four flame retardants found in the nap mats were lower in the samples taken after replacement of the mats.

The study is the first time researchers have shown that eliminating a single source of flame retardants—nap mats—can significantly reduce children's exposure to the hazardous chemicals.

Specifically, researchers found:

- A 90% decrease in the levels of **BEHTBP** (bis(2-ethylhexyl) tetrabromophthalate), a component of the commercial flame retardant mixture Firemaster 550®. Firemaster 550® has been linked to obesity and early puberty.
- A 79% decrease in the levels of **EHTBB** (2-ethylhexyl tetrabromobenzoate), another flame retardant found in Firemaster 550®.
- A 40% decrease in the levels of **chlorinated Tris** (TDCPP, tris(1,3-dichloroisopropyl) phosphate). Chlorinated Tris has been banned in children's products in 5 states, including Washington. It is designated as a carcinogen by the State of California.
- A 65% decrease in the levels of **TBPP** (tris(4-butylphenyl)phosphate), a flame retardant and plasticizer considered highly bioaccumulative and high hazard for systemic toxicity by the USEPA.

The results show that foam nap mats are a significant source of flame retardants in child cares and demonstrate the need to phase out the use of hazardous flame retardants in children's products. Manufacturers should remove toxic flame retardants from nap mats and other products, and state policymakers and the US Consumer Product Safety Commission should ban the use of the chemicals in consumer products like nap mats.

LATEST RESEARCH

[Path of Toxic Pollution, an investigative report](#)
September 16, 2021



[PFAS in Breast Milk: Concerning Trends for Current-Use PFAS](#)
May 13, 2021



[Hidden Danger: Lead in Puget Sound Homes](#)
December 11, 2019



[Toxic TV Binge: An Investigation into Flame Retardants in Televisions](#)
October 23, 2019



[Study: PFAS in Food Packaging](#)
December 9, 2018



[Toxic flame retardants in nap mats](#)
April 10, 2018



[PFASs in Popcorn Bags and Pizza Boxes](#)
January 22, 2018



[TV Reality: Toxic Flame Retardants in TVs](#)
September 10, 2017



[Pollution in People](#)
March 16, 2017



[From Homes to Waters](#)
September 25, 2016



[What's on Your List? Toxic Chemicals in Your Shopping Cart](#)
September 13, 2016



[Puget Sound - Down the Drain](#)
September 13, 2016



Flame Retardants: Nap Mat Exchange



1

Determined a way to reduce children's exposures to toxic flame retardants by substituting with flame retardant free nap mats through work Toxic Free Future.

2

Identified where interventions would be most impactful by working with partners in Best Starts for Kids, Child Care Health Team

3

2021 - Provided Flame Retardant Free Nap Mats - Worked with Community Based Organization, Child Care Resources (CCR) to distribute 2880 mat covers and 2440 FR-free nap mats to child care providers serving low-income and BIPOC families. Old mats were collected and properly disposed. Educational materials translated in 5 languages.

4

2022 - Expanding Distribution of additional nap mats to more centers

Improving Indoor Air Quality

- Provide HEPA Air Cleaners to Schools and Child Cares to reduce COVID-19 transmission risks in most impacted communities and sectors
- Effective for COVID-19, asthma, wildfire smoke, and general health improvements



- Child Care Distribution
 - 227 units through assessments
 - 222 during webinars
 - 1220 through 7 Community Based Organizations to small and home based child cares
 - 800 additional being distributed to small and home based child cares
- School Distribution
 - 445 through requests for assistance
 - 560 to prioritized schools
 - Hundreds of Filter replacements

Using equity and COVID data to reduce COVID-19 indoor air transmission risks

1

Identify zip codes and sectors where COVID-19 risks and impacts are greatest

2

Identify best intervention strategies for different situations (e.g., worked with community partners in BSK to identify child cares with greatest need for assistance)

3

Provided technical assistance and HEPA Air Cleaners-
Worked with 7 Community Based Organizations and schools using an equity prioritization.

* Added benefits of this work include general health benefits, improved environments for kids with asthma, and improved resilience during wildfire smoke events

Environmental Health Challenge for Local Health



Current approach

- Our main tool is to reduce exposures to harmful chemicals
- Local/State Policy to remove exposure risks
- Expensive approach (health, time, funding)



Need to move upstream

Move away from Exposure Reduction as our focus



Ultimate public health goal

Preventing environmental health hazards in the first place

Recommendations

- **Uncertainty should not limit action** – we should not wait for clear evidence of impacts on children
 - Any indication (epidemiological, toxicological, mechanistic) → regulatory action
- **Practice equitable consideration of cumulative and aggregate exposures**, at every step - risk assessment → policies that impact child health.
- **Work across silos** to find better solutions – environment is only one factor on the road to health.
- **Policies that facilitate environmental health are impactful.** Policies should ensure kids environments are healthy, this responsibility should not be placed on parents and caregivers.

LIFETIME ADVERSITY AND CHRONIC STRESS

Systemic disadvantages and racism throughout the lifespan lead to chronic stress that adversely affects the health of Black communities.

King County government and Public Health – Seattle & King County are committed to working in stronger and better-resourced partnerships with community organizations and leaders to disrupt and dismantle racism and protect the health and well-being of Black, Indigenous People and People of Color.



Source: <https://kingcounty.gov/depts/health/data/~media/depts/health/data/documents/the-race-gap.ashx>

Thank you!

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Image attributed to: <https://www.ohchr.org/en/stories/2020/07/realising-childrens-rights-through-healthy-environment>