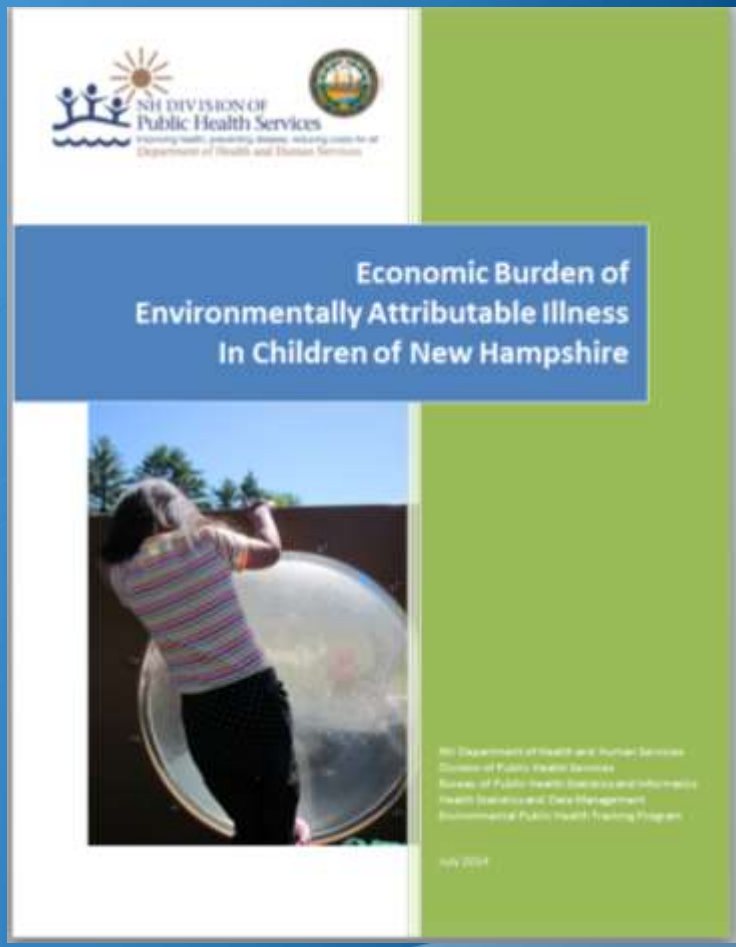
Estimated Costs of Environmentally Related Childhood Illnesses in NH



Chiahui Chawla
NH Environmental Public Health Tracking Program

NATIONAL Environmental Public Health Tracking Program

EPHT

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

FACTS in NH

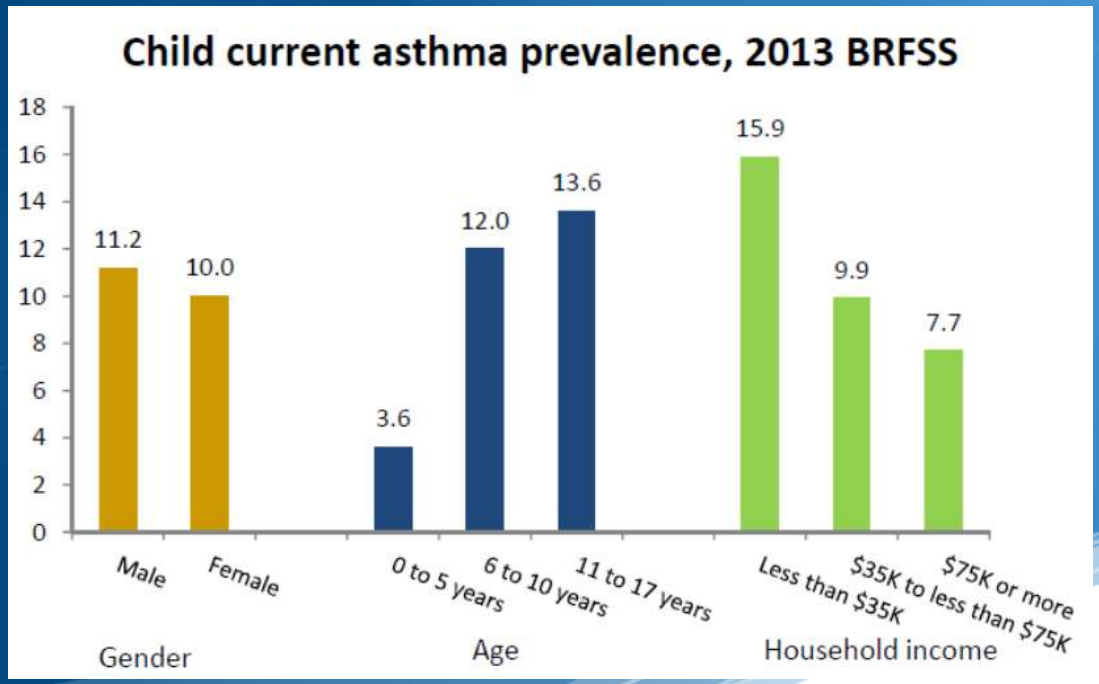
- N.H. Ranked 2nd For Child Well-Being in the U.S. by 2015 Kids Count data.

However….

- NH has high children asthma rate: 10.6 % in 2013 among the **highest** in the U.S.
- NH childhood cancer incidence rate is significantly higher than the rest of the nation in the years 2008-12
  NH: 196.6 (171.5 - 224.3) V.S. 165.0 (163.5 - 166.4)
- 61% of the children who were at highest risk of lead poisoning did not receive the recommended test for lead in 2013.

Childhood Asthma in NH

- 28,000 NH children, 10.6%, have asthma in 2013
- 34% of children with current asthma had NOT well-controlled asthma (2006-2008)
- 0 to 4 years olds had the highest discharge rates (17.3 per 10,000 inpatient ; 82.2 per 10,000 ED/OBS)



Childhood Asthma in NH

Common environmental asthma triggers outdoor

- Pollens and Air pollutants: O_3, $PM_{2.5}$, NO and SO_2
- NH tends to have higher air pollution levels late spring through the summer
- Wood fireplace or stove use has a major impact on winter outdoor/indoor $PM_{2.5}$ pollution in NH

Environmentally Attributable Fraction (EAF)

Asthma
30% (10-35%)

Source: Landrigan et al. 2002

* Only outdoor, nonbiologic pollutants from sources potentially amenable to abatement, such as vehicular exhaust and emissions from stationary sources, were considered.

Childhood Asthma in NH

- Health/medical care cost:
  $951 for each asthma case
- Missed school days lost:
  $167 for parental earnings due to missed school

Asthma-All Payers (2010 $)

	Population	% Treated	Treated pop.	Cost per perso	Total costs
US overall	304,059,724	4.9%	**14,757,200**	$2,090	**$30,825**
New Hamps					
Overall	1,315,809	5.8%	**76,800**	$1,990	**$153**
Age 0-17	293,358	8.3%	**24,300**	$890	**$22**
Age 18-44	464,223	4.3%	**20,000**	$1,400	**$28**
Age 45-64	388,250	5.7%	**22,300**	$2,420	**$54**
Age 65+	169,978	6.0%	**10,200**	$4,860	**$49**

Asthma-Absenteeism

	Population	% Treated	Treated pop.	% Employed	Empl treated pop.	Missed days/ empl person	Total missed days	Daily wage	Total absenteeism
US overall	304,059,724	4.9%	14,757,200	60.8%	8,974,200	2.1	18,683,000	$189	$3,523
New Hampshire									
Overall	1,315,809	5.8%	76,800	63.8%	49,000	2.1	101,000	$193	$19
Age 0-17	293,358	8.3%	24,300	71.2%	17,300	2.4	42,000	$156	$7
Age 18-44	464,223	4.3%	20,000	78.5%	15,700	1.5	24,000	$180	$4
Age 45-64	388,250	5.7%	22,300	65.0%	14,500	2.1	30,000	$249	$7
Age 65+	169,978	6.0%	10,200	14.0%	1,400	3.7	5,000	$224	$1

* No costs of premature deaths available in NH

Source:
CDC Chronic Disease Cost Calculator V2.

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

The Impact of the Environment on Childhood Asthma in NH

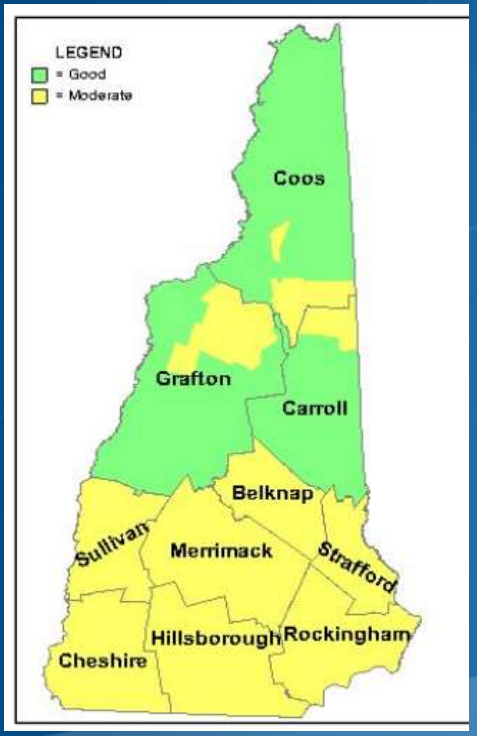
Reducing environmental hazards (EAF= 30%) would….

- Reduce asthma among **8,600 children** every year
- Save **$9 million** annually in direct and indirect costs

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

Actions to Minimize Children's Asthma

- Improve understanding of environmental risks and their impact on childhood asthma and its cost burden.
- Promote the Air Quality Index (AQI) as a reference to air pollution and asthma.
- Issue alerts based on NH DES current and forecast air quality information.
- Promote NH Anti-Idling Initiatives and regulate emissions from heavy-duty diesel trucks and buses.
- Encourage to switch out an older woodstove for a new EPA certified kind.



NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

Childhood Cancer in NH

The Impact of the Environment on Childhood Cancer in NH

Reducing environmental hazards (EAF= 5%) would….

- Reduce cancer among **2** children every year
- Save **$0.7 million** in annual and lifetime costs

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

Lead Exposure in NH

The Impact of the Environment on Childhood Lead Poisoning in NH

Reducing environmental hazards (EAF=100%) would….

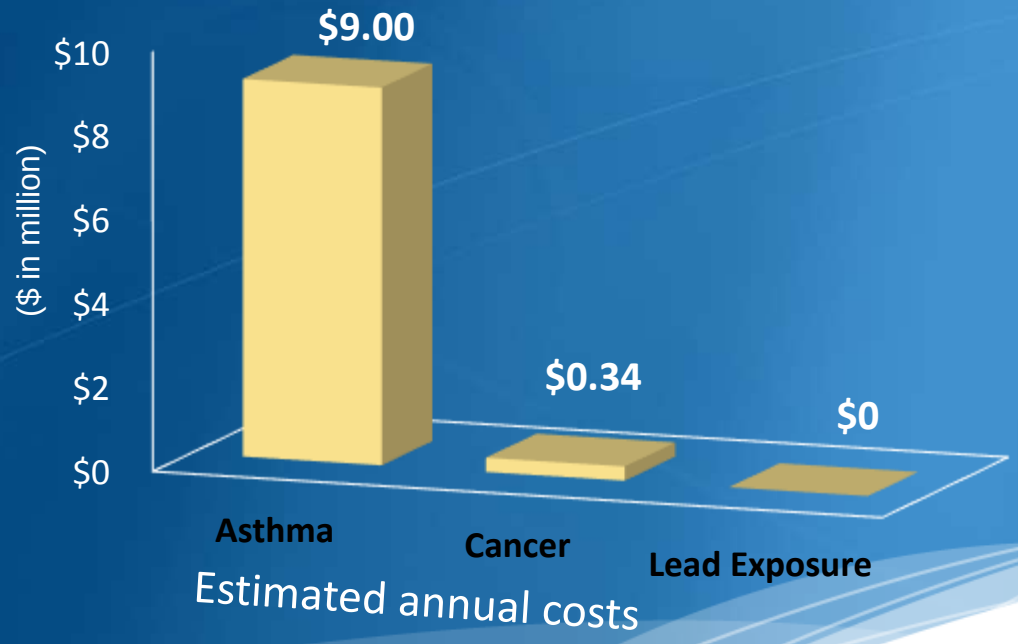
- Save **$240 million** over the lifetime of all children born within a single year.

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

	Estimated annual costs – in 2013$ (million)	Estimated lifetime costs – in 2013$ (million)	Estimated total cost of environmentally attributable illnesses – in 2013$ (million)
Asthma	**$9.0**	N/A	$9.0
Cancer	$0.34	$0.4	$0.74
Lead Exposure	N/A	**$240.4**	$240.4
TOTAL	$9.34	$240.8	**$250.1**

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

$250,000,000 — Estimated Costs of Environmentally Related Childhood Diseases in NH in 2013



- **2.4%** of the 2009 total NH health expenditures for all residents, and
- **0.4%** of the 2014 NH GDP.

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services

Lessons Learned

- The economic costs of environmental childhood diseases are substantial.
- The EAF model provides a method for identifying the combinations of contaminants and exposure pathways with the most substantial public health impacts, especially in children.

Thank you

Special thanks to:

NH Asthma Control Program

NH Comprehensive Cancer Control Program

NH Healthy Homes and Environment Section

NH Department of Environmental Services Air Resources Division

All individuals who contributed for editorial review and input

The full report Economic Burden of Environmentally Attributable Illness In Children of New Hampshire is available on the NH EPHT Program web site (http://www.nh.gov/epht/publications/documents/nhchildrenreport.pdf).

For More Information
Chiahui.chawla@dhhs.state.nh.us
http://www.nh.gov/epht/; http://http://wisdom.dhhs.nh.gov/wisdom/

This publication was supported by grant number #1U38EH000947-01 from the National Center for Environmental Health (NCEH) at the Centers for Disease Control and Prevention (CDC) in Atlanta. Its content is solely the responsibility of the authors and does not necessarily represent the official views of the CDC.

NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs for all
Department of Health & Human Services