Investing In Michigan's Children:

Economic benefits of reducing lead exposure and the costs of inaction

Michigan Premier Public Health Conference
October 16, 2019



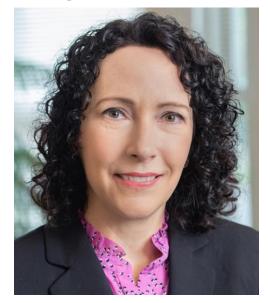


About us

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Outline

- 1. Review of studies on costs of lead exposure
 - National focus
 - Michigan focus
- 2. Facilitated Discussion: What analyses on cost would help you?
- 3. Available Funding to reduce lead exposure
- 4. Innovative initiatives: Policies, Pilots, Commissions and Coalitions.
- 5. Q/A





The Cost of Lead Exposure: National Studies

he Lancet Commissions



Philip J Landrigan, Richard Fuller, Nereus J R Acosta, Cliusoji Adeyi, Robert Armold, Niladri (Nil) Basu, Abdoul aye Bibi Baldit, Roberto Bert dilini, Stephan Bose-O'Reilly, Jo Ivey Boufford, Patrick N Breysse, Thomas Chiles, Chulabhorn Mahidol, Awa M Coll-Sedx, Maureen L Cropper, Julius Fobil, Valent in First er, Michael Greenstone, Andy Haines, David Harrahan, David Hunter, Mirkesh Khare, Alan Krupnick, Bruce Lanphear, Bindu Lohani, Keith Martin, Karen V Mathiasen, Maur een AMcTeer, Christopher J L. Murray, Johanita D Ndahimananjara, Frederica Perera, Janez Potočnik, Alexander S Parker Johan Rometh Johan Rody drilling Carlos Sollings Leana D Samson Karti Sandfun Peter D Su Kith R Smith Arhim Steine Richard B Stewart, William A Suk, Onno C P van Schayck, Gautam N Yadama, Kandeh Yumkella, Ma Zhong

Lancet 2018; 391: 462-512 Executive summary

Pollution is the largest environmental cause of disease systems, and is intimately linked to global climate change. October 13, 2017 and premature death in the world today. Diseases caused Puel combustion—fossil fuel combustion in high-income http://dx.doi.org/10.2004/ by pollution were responsible for an estimated 9 million and middle-income countries and burning of biomass in premature deaths in 2015—16% of all deaths worldwide— low-income countries—accounts for 85% of airborne Miscoffus publication has been three times more deaths than from AIDS, tuberculosis, particulate pollution and for almost all pollution by oxides The consensation and malaria combined and 15 times more than from all of sulphur and nitrogen. Fuel combustion is also a major so November 7,200 wars and other forms of violence. In the most severely source of the greenhouse gases and short-lived climate Sus Community 1921 and affected countries, pollution-related disease is responsible pollutants that drive climate change. Key emitters of 408 for more than one death in four.

Health (Pod F) (Lindrage MC), Mont Health (Mark Pod Mark MC), and performance and middle-income countries and, in major sources of pollution. Coal is the world's most of invisormental Medicine countries at every income level, disease caused by polluting fossil fuel, and coal combustion is an important and Global Health pollution is most prevalent among minorities and the cause of both pollution and climate change. (ProfA 5 Protec PRO) kates marginalised. Children are at high risk of pollution-School of Medicine although the strength of the world, point and the world, point and the strength of the world, point and the world, point and the strength of the world, point and the world, which are the world, which are the world, which are the world,

Pollution in low-income and middle-income countries countries. DC USA; Department of that is caused by industrial emissions, vehicular exhaust, Chemical pollution is a great and growing global enticuland instrumental and toxic chemicals has particularly been overlooked in problem. The effects of chemical pollution on human RAMONIANO AND AND AND STREET THE REPORT OF THE RESEARCH OF THE Agricultural and caused by pollution are non-communicable diseases, More than 140000 new chemicals and pesticides have not contained interventions against pollution are barely mentioned in been synthesised since 1950. Of these materials, THE NAME OF THE GOOD ACTION Plan for the Prevention and Control of the 5000 that are produced in greatest volume have

additional associations between pollution and disease

Pollution endangers planetary health, destroys ecocarbon dioxide, such as electricity-generating plants, mote tentions for Global Pollution disproportionately kills the poor and the chemical manufacturing facilities, mining operations,

In many parts of the world, pollution is getting worse. A state of the sta National Profile Department
Despite its substantial effects on human health, the forms of pollution produced by industry, mining, of Health, Nobelboo, and economy, and the environment, pollution has been electricity generation, mechanised agriculture, and or water, Newson, and CHESS of COUNTINESS. The CHESS OF COUNTINESS OF CO GUNDATIONS MALED, estimated in calculations of the global burden of disease. industrialising low-income and middle-income

witeerment and Santatushie
Non-Communicable Diseases.

Wood Pollution is costly. Pollution-related diseases cause responsible for nearly universal human exposure. Fewer (i) Scientific productivity losses that reduce gross domestic product than half of these high-production volume chemicals have sentiand inneging (GDP) in low-income to middle-income countries by up undergone any testing for safety or toxicity, and rigorous to 2% per year. Pollution-related disease also results in pre-market evaluation of new chemicals has become health-care costs that are responsible for 1.7% of mandatory in only the past decade and in only a few highnecoup 8 decides MCS. annual and the spending in high-income countries and income countries. The result is that chemicals and income countries. The result is that chemicals and income countries are the countries and income countries. nety of Profits for up to 7% of health spending in middle-income pesticides whose effects on human health and the Health, Doba, Qutar countries that are heavily polluted and rapidly environment were never examined have repeatedly been Rientalini; institutes and developing. Welfare losses due to pollution are responsible for episodes of disease, death, and OutputtentCink for episodes of disease, death, and conputtent Social and estimated to amount to US\$4-6 trillion per year: environmental degradation. Historical examples include Continuous and Medicins, 6-2% of global economic output. The costs attributed to lead, asbestos, dichlorodiphenyltrichloroethane (DDT), pollution-related disease will probably increase as polychlorinated biphenyls (PCBs), and the ozonedestroying chlorofluorocarbons. Newer synthetic chemicals that have entered world markets in the past

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10 Policies to Prevent and Respond to Childhood Lead **Exposure**

An assessment of the risks communities face and key federal, state, and local solutions





e Lancet Commissions



- 2018 Philip Landrigan, et. al.
- Burden of disease attributable to pollution
- The economic costs of pollution and pollutionrelated disease
- Pollution-related disease, poverty, and the SDGs
- Effective interventions against pollution: priorities, solutions, and benefits





10 Policies to Prevent and Respond to Childhood Lead Exposure

- 2017, Pew Charitable Trusts, Robert Wood Johnson Fnd., Health Impact Project
- NHANES surveys (2011-14) for baseline childhood BLL
- Top 3 Policy Priorities
- Additional sources
- Poisoning response
- Data and research





10 Policies to Prevent and Respond to Childhood Lead Exposure

An assessment of the risks communities face and key federal, state, and local solutions



Top 3 Policy Priorities

- Reduce lead in drinking water in homes built before 1986 and other places children frequent.
- Remove lead paint hazards from low-income housing built before 1960 and other places children spend time.
- Increase enforcement of the federal renovation, repair, and painting rule.







Table 1

Keeping Blood Lead Levels of Children Born in 2018 at Zero Would Generate \$84 Billion in Benefits

Future savings and increased earnings by source and recipient

Benefit	Value (in billions)
Increased lifetime earnings for entire 2018 cohort	\$77.2
Health savings	\$1.7
Education savings	\$1.9
Quality-adjusted life years benefits	\$3.1
Total future benefits	\$84.0
Share to the federal government	\$18.5
Share to state and local governments	\$9.6
Share to households, private sector, and other nongovernmental entities	\$55.9

Notes: Analysis is based on the 2018 birth cohort, estimated at approximately 4 million children. Future benefits are discounted at 3 percent per year to account for the changing value of money over time. Quality-adjusted life years is the number of additional healthy years of life resulting from an intervention, which the research team conservatively valued at \$50,000 for each additional year of healthy life. Total future benefits include small changes in incarceration costs, which are not itemized in the table.

Source: Altarum Institute Value of Prevention Tool calculation. See the appendix for details on the model methodology and underlying data sources.

© 2017 The Pew Charitable Trusts

The Cost of Lead Exposure: Michigan Studies

- Price of Pollution, 2010 Ecology Center & Michigan Network for Children's Environmental (MNCEH)
- Health Economic Impacts of Lead Exposure and Remediation in Michigan, 2014 – UM Risk Science Center & MNCEH
- Health Economic Impacts of Lead Exposure and Remediation in Michigan: Update, 2016 – Ecology Center & MNCEH
- Valueofleadprevention.org Altarum 2019

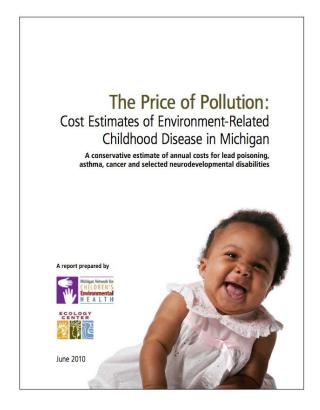




Earlier Michigan Studies

Total Lead Cost \$3.2-4.85 Billion/yr – looks at all EBLLs, uses means from MI and CDC

Total Lead Cost \$330 Million/yr Looks at EBLL > 5μ/dL



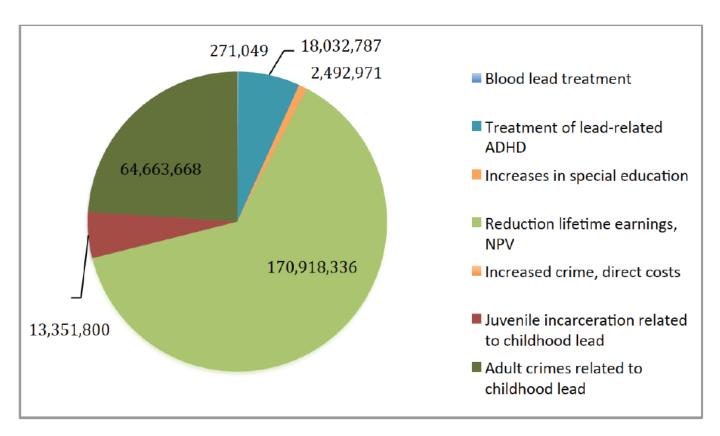


2016 Economic Impacts of Lead Exposure in MI

Total Cost 270 million/yr

- Decreased lifetime earnings \$171M
- Increased lead associated crime and juvenile delinquency \$77M
- Increased health care costs \$18M
- Increased special education costs \$2.5M

Summary of Costs Associated with Lead Exposure, 2014



ValueOfLeadPrevention.org — MI

Michigan

Estimate Exposure Burden Calculate Intervention Impacts

Total Cost

\$2.3B

Lifetime economic burden of childhood lead exposure in Michigan.

Calculated for the 2019 birth cohort. Includes costs of reduced lifetime productivity; increased health care, education, and social assistance spending; and premature mortality.

Number of Children Exposed @

12,161

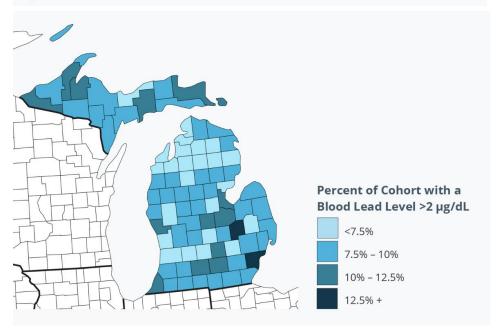
Blood levels >2 µg/dL

Children in the 2019 birth cohort predicted to have blood lead levels >2ug/dL. This is 11% of all births in Michigan.



Map of Current Exposure Risks ②

Lead exposure risks for children born in 2019, shown as the estimated percent of children who will have blood lead levels above 2 ug/dL for each county in the State of Michigan. Darker shades indicate greater risks of lead exposure for children.







Discussion:

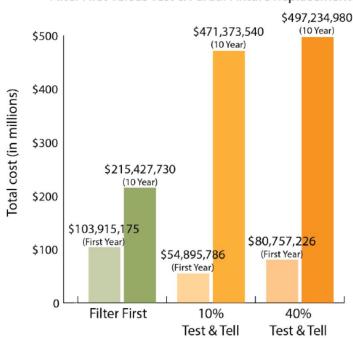
What cost estimates do you need? What is most compelling to you?

- Costs of specific policies?
 - see example on re: lead in school water
- Cost comparison of different types of remediation?
- Primary prevention, estimated abatement, case management?
- Annual costs?
- Per child costs?
- Community level (county, city, zip, etc)?



Michigan Projected Costs

Filter First versus Test & Partial Fixture Replacement





Available Resources

HH & CLPPP Dollars

CHIP \$

GF\$

HUD\$

DUFB

Lead & Cu Rule/A.L.E





Innovative Initiatives

MIALSH policy priorities

\$ to local communities

daycare pilot

Essential Local Public Health Service

CLEEC







Policy Priorities

- Universal lead testing
- Require a lead-based paint inspection
- Shift the burden of proof to landlords
- Alert prospective buyers or renters to Repeat Homes
- Identify and secure a dedicated funding
- Have the state of Michigan takeover the federal RRP program
- Support workforce development efforts
- Get match for Michigan's federal Children's Health Insurance Program (CHIP)

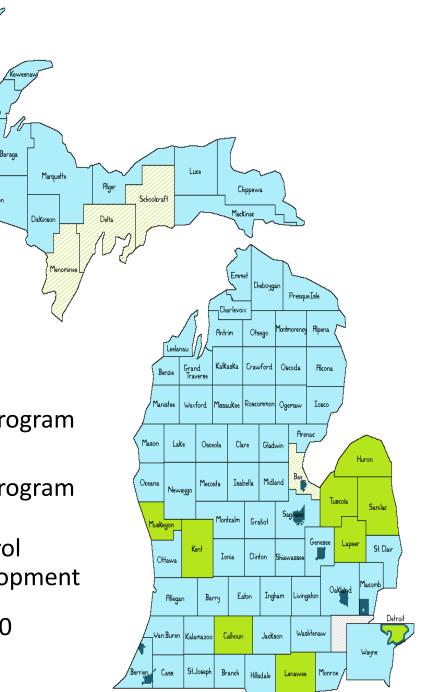




Lead Hazard Control Programs



- Lead Safe Home Program
 Target Areas
- Lead Hazard Control
 Community Development
- Grantees (LHCCD)
 LHCCD Future FY20



Daycare Pilots

- Year one pilot
- In home residential childcare
- 9,222 Licensed childcare facilities in Michigan
- Outreach, education and interventions
- Goal to cover gaps & validate approach













Making Lead Response an Essential Local Public Health Service

- Essential Local Public Health Service- PA 368 of 1978
- New budget boilerplate- Sec. 1238 of PA 67 of 2019
- State- wide baseline
- Even the playing field
- Unmet need
- Supporting families
- Preparing for a bump

Child Lead Exposure Elimination Commission (CLEEC)

Established 2017 - executive order by Gov. Snyder https://www.michigan.gov/leadcommission

- 15 members appointed by Governor
- Main goal: Primary Prevention of lead Exposure
- Tina and Becca proud to serve on the CLEEC!







CLEEC Policy Priorities - 2018 Action Plan

- Lead inspection, risk assessments (LIRA) before transfer or lease transfer of pre-1978 housing.
- Rental certification program for high-risk housing requiring lead inspection risk assessment until deemed lead-free.
- Require LIRA in childcare and adult-care facilities every two years in pre-1978 buildings, and require dust, soil, and water testing in post-1978 buildings.

- Update "Landlord Penalty" law: use when child's blood level > 5 µg/dL.
- Set a health-based household action limit for drinking water.
- Adopt statewide housing code enforcement addressing exposure from lead based paint.
- Require a contractor seeking a building permit on a pre-1978 home to prove Lead-Safe Certification.





CLEEC Funding Priorities



- Find adequate, dedicated, sustained funding.
- Permanent source of funding for EBLL investigations.
- Funding for Lead Safe Housing Registry.
- Incentives for local health departments to build capacity.
- Funding for follow-up when owner fails to remediate hazards.
- Funding for LIRAs in high-lead neighborhoods.
- Funding, IT, and infrastructure support to local communities.





Child Lead Exposure Elimination Commission

2018 RFP Focus: primary prevention - 11 Funded Projects, \$757,500

- City of Detroit Health Department 1. Head Start Service Integration Project: Lead Prevention & 2. Lead
 Education and Prevention Service for Pregnant Women
- District Health Department #10 Primary Lead Exposure Prevention Project for Pregnant Women and Families
- Healthy Homes Coalition of West Michigan, Inc.- Infant/Toddler Home Screening Project
- Institute for Population Health, Inc. Protect Michigan's Children: Actions to Prevent Childhood Lead Poisoning
- Jackson County Health Department Preventing Lead Exposure in Pregnant Women
- Michigan State University Division of Occupational and Environmental Medicine Worksite Intervention to Mitigate Child Take-Home Lead Exposure
- National Center for Healthy Housing Technical Assistance for Code Transformation and Innovation Collaborative
- Oakland County Health Division Multi-Component Lead Poisoning Testing and Education Initiative for Oakland County
- Our Kitchen Table Educate to Elevate
- Southeastern Michigan Health Association/CLEARCorps Detroit Lead Safe Blocks: 48206 Primary Prevention Project

2019 RFP: primary prevention and universal testing - 13 Funded Projects





Questions and Discussion





Contact us!

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Materials from our organizations are available at the Ecology Center's booth. Stop by and visit us!



