Why Data Are Not Enough to Solve Health Inequities: Environmental Injustice, Corporate Influence and Public Health

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• October, 2020
Healthier Environments for Healthier People
Targeted Research * Improved Clinical Care * Just Public Policy
Toxic Environmental Chemicals Are Found Everywhere, Everyday ... In Every Body

- Chlorinated byproducts
- Pesticides
- Heavy metals (Hg)
- Persistent organic pollutants (DDT, PCBs)
- Microorganisms
- Inorganic & organic chemicals
- Radionuclides

- PBDEs
- Phthalates
- Formaldehyde
- Parabens
- Toluene
- 1,4-dioxane

- Ozone, particulate matter, lead
- Hazardous air pollutants

- Bisphenol a

- Pesticides

- PBDEs, phthalates, formaldehyde
Our children could be healthier

Children in the U.S. are at high risk for chronic disease

Source: NIEHS/EPA Children's Environmental Health and Disease Prevention Research Centers Impact Report 2017
Percentage of children ages 0 to 17 years reported to have current asthma, by race/ethnicity and family income, 2014-2017
Production compared to the year 2007

Source: U.S. Federal Reserve Board, Division of Research and Statistics
U.S. Chemical Production Volume Compared to Population

9,500,000,000,000 pounds of chemicals

- 30,000 pounds of chemicals per person

U.S. POPULATION: 313,000,000

US EPA CDR Fact Sheet: Chemical Snapshot, June 2014. The total reported (domestically manufactured and imported) for 2012.
Exposures start in utero to Toxic Chemicals

Industrial Chemicals in Virtually Every U.S. Pregnant Woman

43+

industrial chemicals found in pregnant women

Perchlorate
1-Hydroxypyrene
3-Hydroxyphenanthrene
2-Hydroxyphenanthrene
1-Hydroxyphenanthrene
1-Naphthol
2-Naphthol
2-Hydroxyfluorene
3-Hydroxyfluorene
9-Hydroxyfluorene
Mono-(3-carboxypropyl) phthalate (MCPP)
Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP)
Mono-(2-ethyl-5-oxohexyl) phthalate (MOEHP)
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)
Mono-ethyl phthalate (MEP)
Mono-n-butyl phthalate (MnBP)
Mono-isobutyl phthalate (MiBP)
Mono-benzyl phthalate (MBzP)
Benzophenone-3
Hexachlorobenzene
p,p'-Dichlorodiphenyldichloroethene (DDE)
1,2,3,4,6,7,8-Heptachlorodibenzod-p-dioxin (HpCDD)
PCB-170
PCB-150
PCB-146
PCB-118
PCB-110
PCB-105
PCB-101
PCB-99
PCB-74
PCB-66
PCB-52
PCB-49
PCB-44
PCB-28
PBDE-153
PBDE-100
PBDE-47
Perfluorononanoic acid (PFNA)
Perfluorooctane sulfonic acid (PFOS)
Perfluorooctanoic acid (PFOA)
PCB-138 and -158

Source: University of California, San Francisco, Program on Reproductive Health and the Environment
… “to a disturbing extent, babies are born pre-polluted.”

National Cancer Institute
Triple Jeopardy of Social Inequality

- Exposure Disparities (Extrinsic Factor)
- Social Vulnerabilities (Extrinsic Factor)
- Biological Susceptibility (Intrinsic Factor)

Interaction / Additive Effects

Health Outcomes and Disparities Across the Lifespan

Morello-Frosch et al., 2011
Gee and Payne-Sturges, 2004
O’Neill et al. 2003
IOM, 1999
The Emergence of Environmental Justice Advocacy: Warren County, North Carolina

1978, a waste hauler illegally dumps over 30,000 gallons of waste contaminated with PCBs on roadways in 14 counties in North Carolina

U.S. EPA designates roadsides as Superfund site to trigger clean-up process

60,000 tons of highly PCB-contaminated soil is scraped up from 210 miles of roadside shoulders in North Carolina.

NC selects Warren County to put the waste 65% African Americans, one of the poorest counties in the nation
1978-1982: Protesting Landfill Siting in Warren County and Beyond

*Washington Post* described Warren County's PCB protest movement as "the marriage of environmentalism with civil rights."
TOXIC WASTES AND RACE
In The United States

A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites

COMMISSION FOR RACIAL JUSTICE
United Church of Christ
©1987
Researchers and regulators pushed by EJ advocates to better address cumulative impacts

Consider social inequality and links to environmental degradation & health disparities:

- **Multiple** hazards where communities live, work, and play

- **Vulnerability** due to chronic social stressors
  - poverty, malnutrition, discrimination chronic health problems

Morello-Frosch et al. *Health Affairs*, 2011
Hicken et al. , *Health Affairs*, 2011
Initiated in 1990 Report Finds

- PCB protest movement "the watershed event that led to the environmental equity movement of the 1980’s.

- There are clear differences between racial group in terms of disease and death

- Racial minority and low-income populations experience higher than average exposure to selected air pollutants, hazardous waste facilities, contaminated fish and agricultural pesticides in the workplace
Cumulative Exposure Project

About the Project

The objectives of the Cumulative Exposure Project are to:

- estimate exposure levels for a wide variety of toxic pollutants;
- characterize the national distribution of these estimated exposure levels across communities and demographic groups;
- identify the types of communities and demographic groups which appear to have the highest exposure levels; and
- identify potentially important emission sources and pollutants for which information is most uncertain.

Many of EPA’s exposure analyses and risk assessments focus on a single pollutant, a single source or category of emissions, or a single environmental medium (such as air or water). In reality, people tend to be exposed through multiple pathways to numerous pollutants originating from a variety of sources.

The Cumulative Exposure Project (CEP), initiated in 1994 by EPA’s Office of Policy, uses existing data and methods to evaluate the combined exposures to multiple through three different pathways -- air, food, and drinking water. The goal is to examine the cumulative impacts of multiple pollutants and to determine the important contributors to cumulative exposure.
148 toxic air contaminants * 60,803 census tracts * 1990

Woodruff et al EHP, 1998
National Air Toxics Assessment

2014 NATA
View the 2014 NATA Map to see NATA results anywhere in the nation.

On August 22, 2018, EPA released the most recent update to the National Air Toxics Assessment (NATA). NATA uses emissions data from 2014 to estimate health risks from toxic air pollutants.
Learn more
En español

Learn about NATA
- Overview
- Limitations

2014 NATA Assessment
- 2014 Assessment Results
- 2014 NATA Map

Quick Links
- Previous versions of NATA
- Other environmental screening tools
- Learn about risk assessment
- Hazardous Air Pollutants website
Qualitative and quantitative health effects information on >540 substances

Provides information on CANCER and noncancer Hazard and Ris...
Robert Taylor and Mary Hampton outside EPA headquarters in Washington, DC.

Matt Roth for Earthjustice

The NTP (1998, 042076; 2005, 093207) described chloroprene as reasonably anticipated to be a human carcinogen. The International Agency for Research on Cancer (IARC) classified chloroprene as “possibly carcinogenic to humans” in 1999.
Certified Mail
Return Receipt Requested

Document Processing Center (TS-790)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
401 M Street., S.W.
Washington, D.C. 20460
Attn: Section 8(e) Coordinator (CAP Agreement)

Dear Coordinator:

8ECAP-0025

On behalf of the Regulatee and pursuant to Unit II B.1.b. and Unit II C of the 6/28/91 CAP Agreement, E.I. Du Pont de Nemours and Co. hereby submits (in triplicate) the attached studies. Submission of this information is voluntary and is occasioned by unilateral changes in EPA's standard as to what EPA now considers as reportable information. Regulatee's submission of information is made solely in response to the new EPA §8(e) reporting standards and is not an admission: (1) of TSCA violation or liability; (2) that Regulatee's activities with the study compounds reasonably support a conclusion of substantial health or environmental risk or (3) that the studies themselves reasonably support a conclusion of substantial health or environmental risk.

The "Reporting Guide" creates new TSCA 8(e) reporting criteria which were not previously announced by EPA in its 1978 Statement of Interpretation and Enforcement Policy, 43 Fed Reg 11110 (March 16, 1978). The "Reporting Guide" states criteria which expands upon and conflicts with the 1978 Statement of Interpretation. Absent amendment of the Statement of Interpretation, the informal issuance of the "Reporting Guide" raises significant due processes issues and clouds the appropriate reporting standard by which regulated persons can assure TSCA Section 8(e) compliance.

Based on clarification of reporting requirements 1991
Medical Research Project No. MR-77

The Toxicity of Monovinyl Acetylene, Chlorobutadiene and Phosphine

Maskell Laboratory of Industrial Toxicology
Wilmington, Delaware

Medical Research Project No. MR-77

Distribution
5/28/41
The greatest number of complaints was found in workers with chlorobutadiene, and the least in those working with monovinyl acetylene. In decreasing frequency of occurrence, the complaints were:

- Nervousness
- Fatigue
- Indigestion (heartburn, gas on stomach, or gastric fullness)
- Dizziness
- Palpitation
- Headache
- Nausea
- Epigastric pain
- Precordial pain
- Constipation or Diarrhea

The most marked signs were circulatory abnormalities (slow or rapid pulse, moderately elevated or low blood pressure and pulse pressure). There was also frequent abnormality in the response of the circulation to change from a lying to a standing position. These
• December 2015 - EPA’s 2011 National Air Toxics Assessment (NATA) released
  • Risk of cancer from Denka neoprene facility ~50 times national average from chloroprene
• May 2016 - EPA sends memo to EPA Region 6 about chloroprene cancer risk, recommends a lower emissions level
• Region meets with Louisiana Environmental Action Network
Going to EPA to meet with IRIS staff

Meetings & with who
- Aug, 2016 - industry
- Oct, 2017 - industry
- July 2018 - industry
- June 2019 - industry
- Nov 2019 (citizens and environmental health groups - note that there is NO EPA people recorded attending)
- Feb 2020 - industry

Industry meetings with EPA
- Denka Performance Elastomer (DPE)
- Ramboll Consulting
- Environ
- Bracewell
- Karv Communications
- Cardno ChemRisk
- Andersen ToxConsulting

- Industry asking for reconsideration of chloroprene officially since 2017
Chloroprene Air EPA Integrated Risk Information System Limit
0.2 ug/m3

EPA Air Sampling Locations - highest concentration of 2018
1. Fifth Ward Elementary School - 57.7 ug/m3
2. 238 Chad Baker Street - 37.4 ug/m3
3. East St John Highschool - 30.3 ug/m3
4. Oschner Hospital - 41.0 ug/m3
5. Acorn at Highway 44 - 77.3 ug/m3
6. Mississippi River Levee - 98.7 ug/m3

150-about 500 times greater than the EPA limit
November 21, 2019

Robert Taylor and Mary Hampton outside EPA headquarters in Washington, DC.

*Matt Roth for Earthjustice*

148 toxic air contaminants * 60,803 census tracts * 1990

Woodruff et al EHP, 1998
Closer to Home – Bay View Hunters Point – 1994-97

- 340 Business handling hazardous materials
- 160 Hazardous waste generators
- 100 Brownfield sites
- 1(2) Superfund Sites

Thank you Michelle Pierce
Tetra Tech was responsible for radiological remediation at the Shipyard, consistent with a Superfund cleanup plan known as a Record of Decision (“ROD”). Rather than conducting a proper cleanup, however, Tetra Tech faked potentially thousands of soil samples, substituting known “clean” samples to prove remediation had been completed when it had not discarded “dirty” samples altered data to avoid further cleanup; used potentially contaminated soil as backfill on the Shipyard; permitted potentially contaminated soil to be shipped offsite to locations not permitted for radiological waste; and falsified building surveys to make them appear clean enough for “free release.”

Tetra Tech committed widespread radiological fraud at a Superfund site in a neighborhood long known to be burdened by serious pollution.
The Industry Documents Library is a digital archive of documents created by industries which influence public health, hosted by the University of California San Francisco Library. Originally established in 2002 to house the millions of documents publicly disclosed in litigation against the tobacco industry in the 1990s, the Library has expanded to include documents from the drug, chemical, food, and fossil fuel industries to preserve open access to this information and to support research on the commercial determinants of public health.
“I’m afraid there’s not much I can do for you now. You should’ve come in sooner, before you got sick.”
Beyond our individual control............
Multi-Prong Strategy

Research that matters

- Basic Science
- Exposure Science
- Epidemiology
- Research Translation
- Transform Clinical Care and Public Policy
- Healthy Infants & Children

Addressing Industry Influence on Research
Recommendation 1: Advocate for policies to prevent exposure to toxic environmental chemicals

Recommendation 2: Work to ensure a healthy food system for all

Recommendation 3: Make environmental health part of health care

Recommendation 4: Champion environmental justice
Governor signs cap-and-trade bills

Oct 1, 2012, 1:36pm PDT

INDUSTRIES & TAGS  Environment, Energy, Cleantech

A two-bill package that establishes how proceeds from the sale of carbon permits will be spent under California’s cap-and-trade regulation was signed into law by Gov. Jerry Brown on Sunday.

The bill package, which sends a significant portion of the proceeds to disadvantaged communities, was supported by a broad coalition of environmental and civil rights groups.

requires a minimum of 10 percent of revenue generated by the cap-and-trade program to be directed to disadvantaged communities to reduce pollution and develop clean energy.
Student Recommendations on the Future of Community Engagement at UCSF

We speak directly from our experiences as researchers, community advocates, and students at UCSF in saying that our institution has not earned the trust of the communities we serve. We write as members of the Do No Harm Coalition and other student allies.

- Community Leadership Boards
- UCSF should redistribute small percent of large philanthropic gifts toward community partnership

- Consistent with recommendations from School of Medicine Community Action Group
  - Wylie Liu, myself - cochairs
Conclusions

• Environmental chemical exposures is ubiquitous and is adversely affecting health inequitably

• Science alone cannot move systematic change
  • But engagement by scientists and health care providers is critical

• Research and translation that leads to less biased science

• Community partnership/support
Acknowledgements

• Sharon Lerner
• University Network for Human Rights
• Community in St. John the Baptist Parish, LA

Reading

• Waiting to Die – University Network for Human Rights – https://www.humanrightsnetwork.org/waiting-to-die
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