



# Children's Health and Climate Change

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New York City, 3/16/16

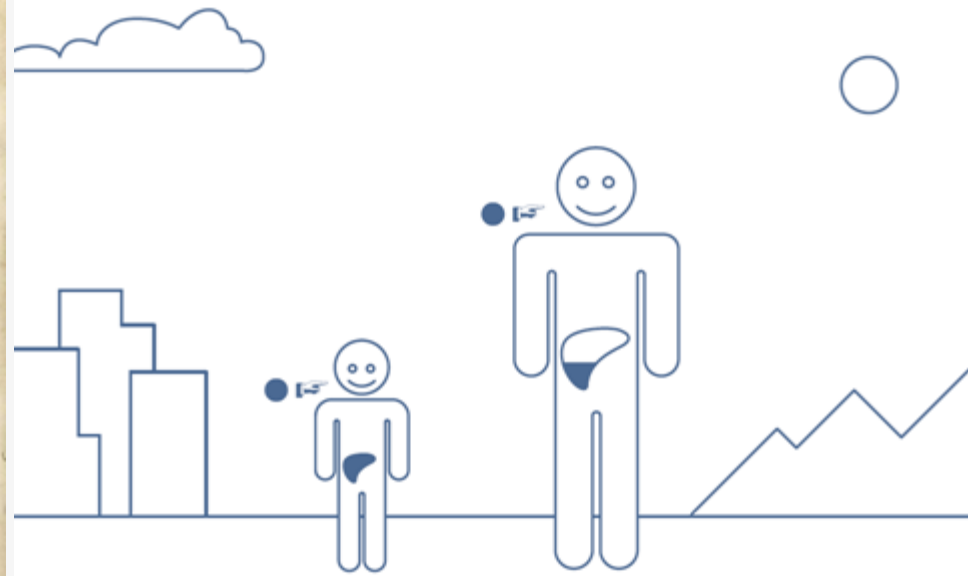


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# **PEDIATRIC ENVIRONMENTAL HEALTH 101**

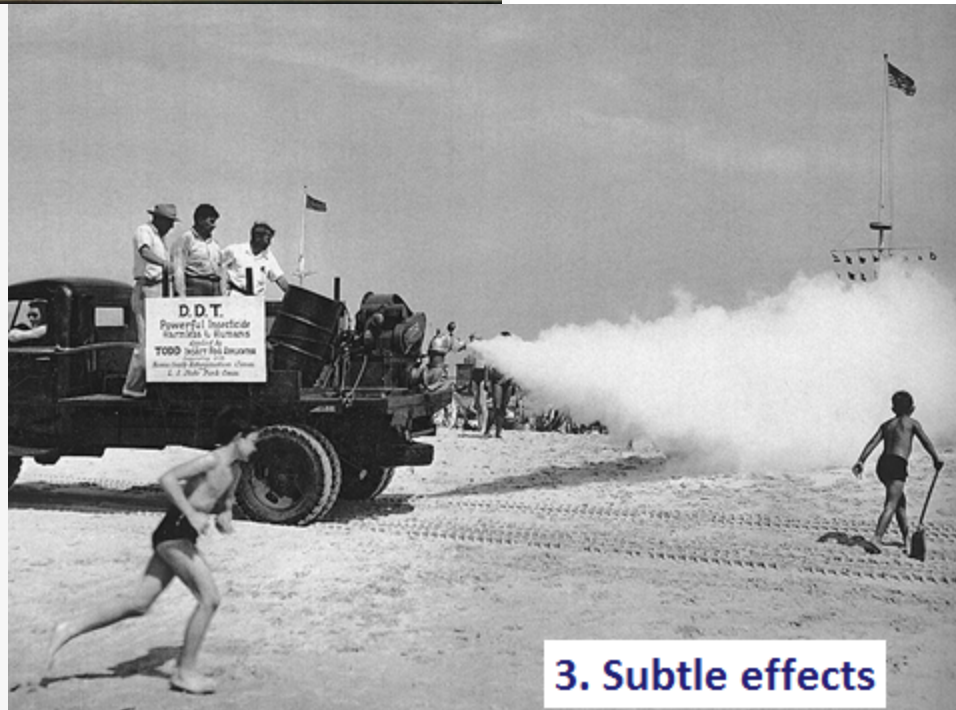


## 1. Pathways of exposure



## 2. Different physiology

Graphic: Cappy Collins, MD



## 3. Subtle effects

By Leonardo Trasande and Yinghua Liu

# Reducing The Staggering Costs Of Environmental Disease In Children, Estimated At \$76.6 Billion In 2008

**ABSTRACT** A 2002 analysis documented \$54.9 billion in annual costs of environmentally mediated diseases in US children. However, few important changes in federal policy have been implemented to prevent exposures to toxic chemicals. We therefore updated and expanded the previous analysis and found that the costs of lead poisoning, prenatal methylmercury exposure, childhood cancer, asthma, intellectual disability, autism, and attention deficit hyperactivity disorder were \$76.6 billion in 2008. To prevent further increases in these costs, efforts are needed to institute premarket testing of new chemicals; conduct toxicity testing on chemicals already in use; reduce lead-based paint hazards; and curb mercury emissions from coal-fired power plants.

# Health Effects of Climate Change

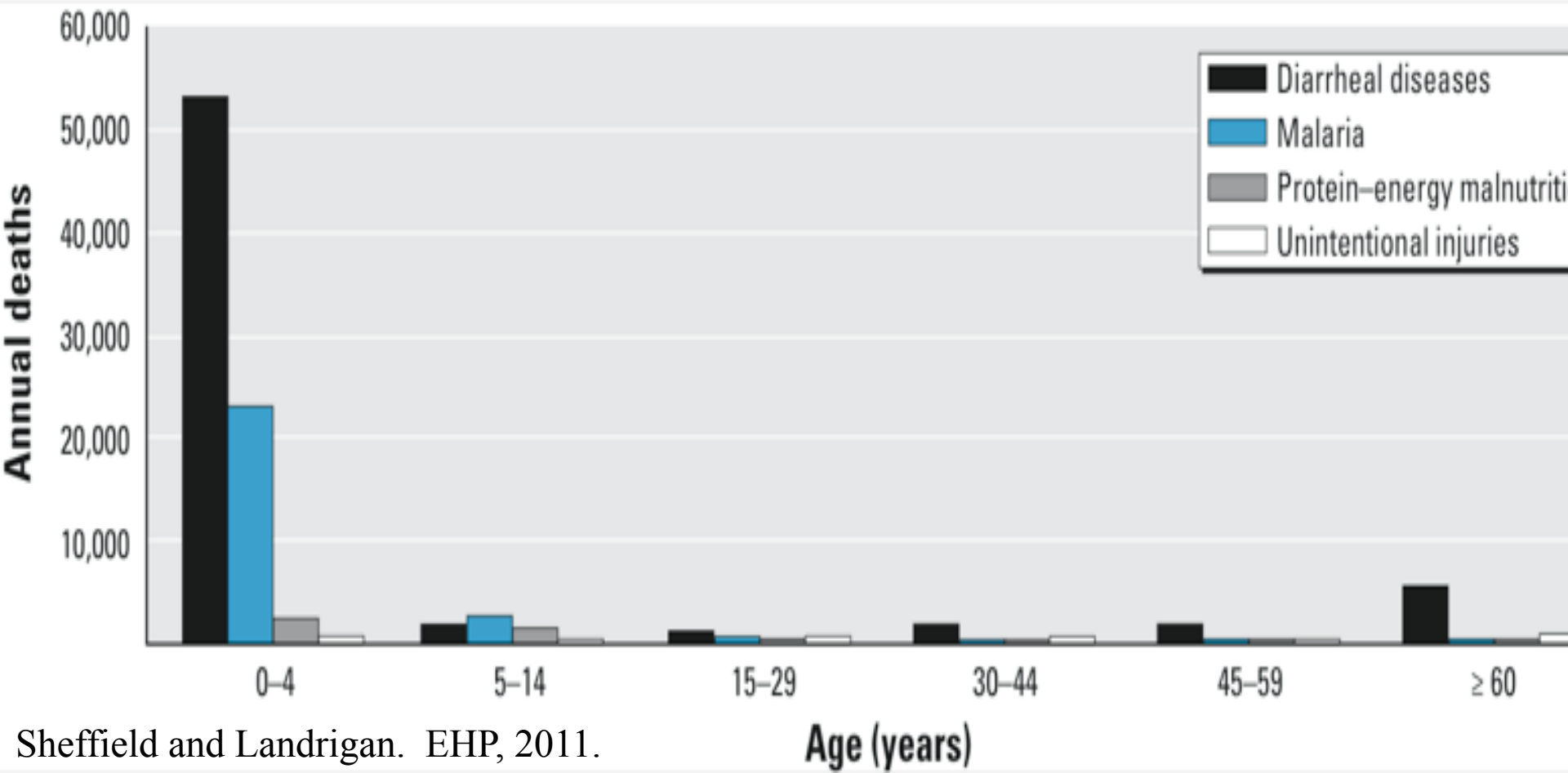


# Health Effects of Climate Change



# Impacts on children globally

► Over 80% of climate GBD on children







■ SCIENCE & HEALTH > ENVIRONMENTS & SUSTAINABILITY

# Rising CO<sub>2</sub> poses significant threat to human nutrition

Reduction in dietary zinc and iron already evident

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May 7, 2014 | ✓



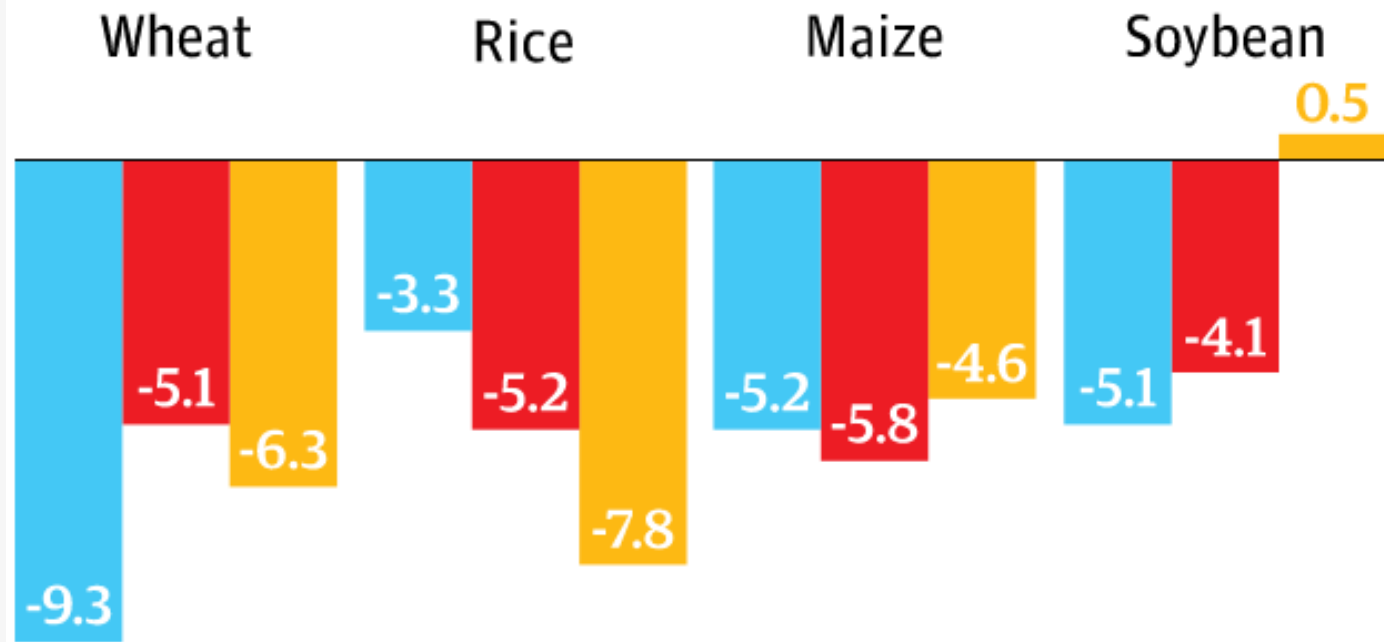
iStock

Myers et al, "Increasing CO<sub>2</sub> threatens human nutrition." Nature, 2014.

# High CO2 cuts crop nutrients

Percentage under co2 levels expected in 2050,

■ Zinc ■ Iron ■ Protein



SOURCE: NATURE

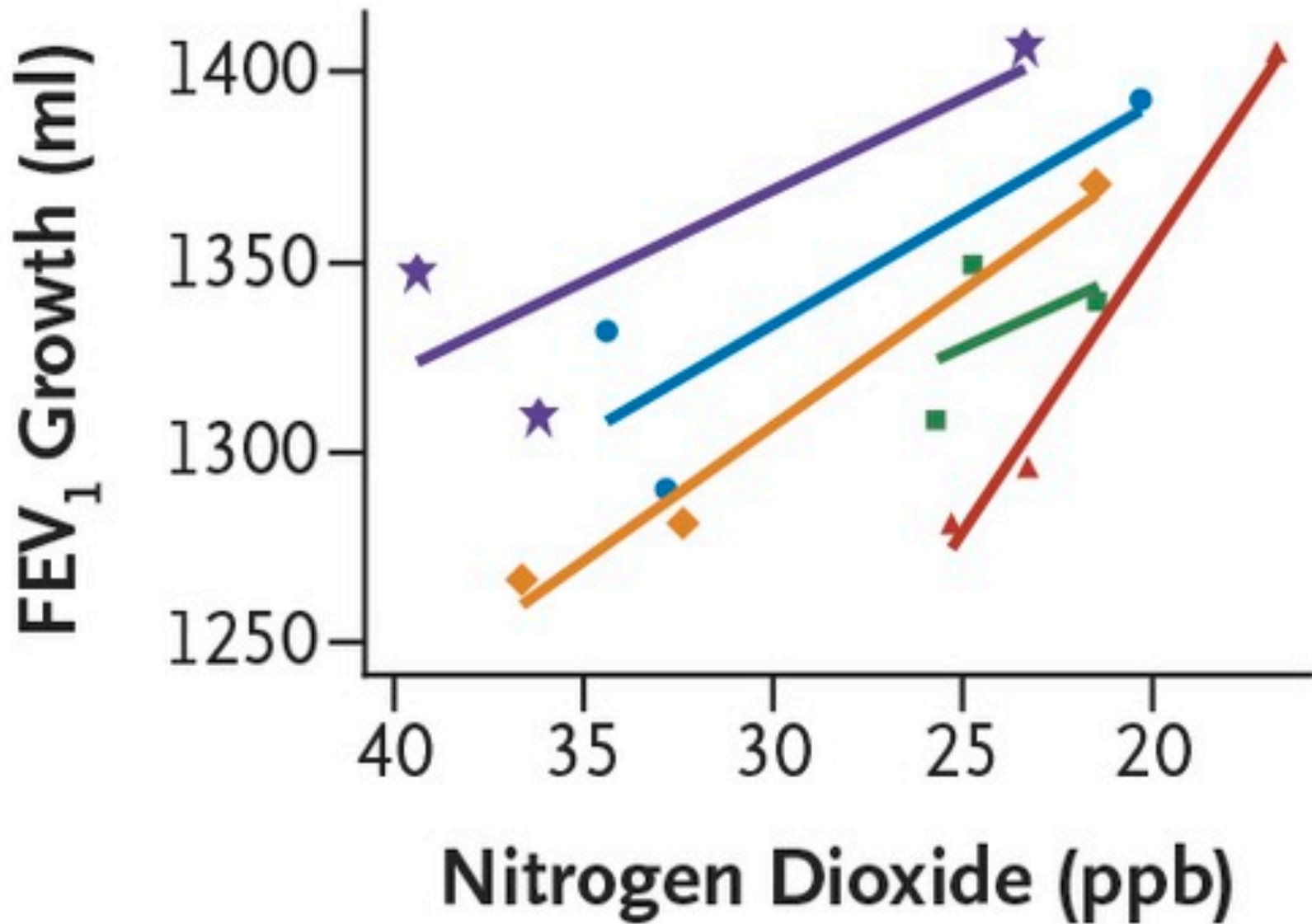
# **SUCCESSSES IN PROTECTING CHILD HEALTH**



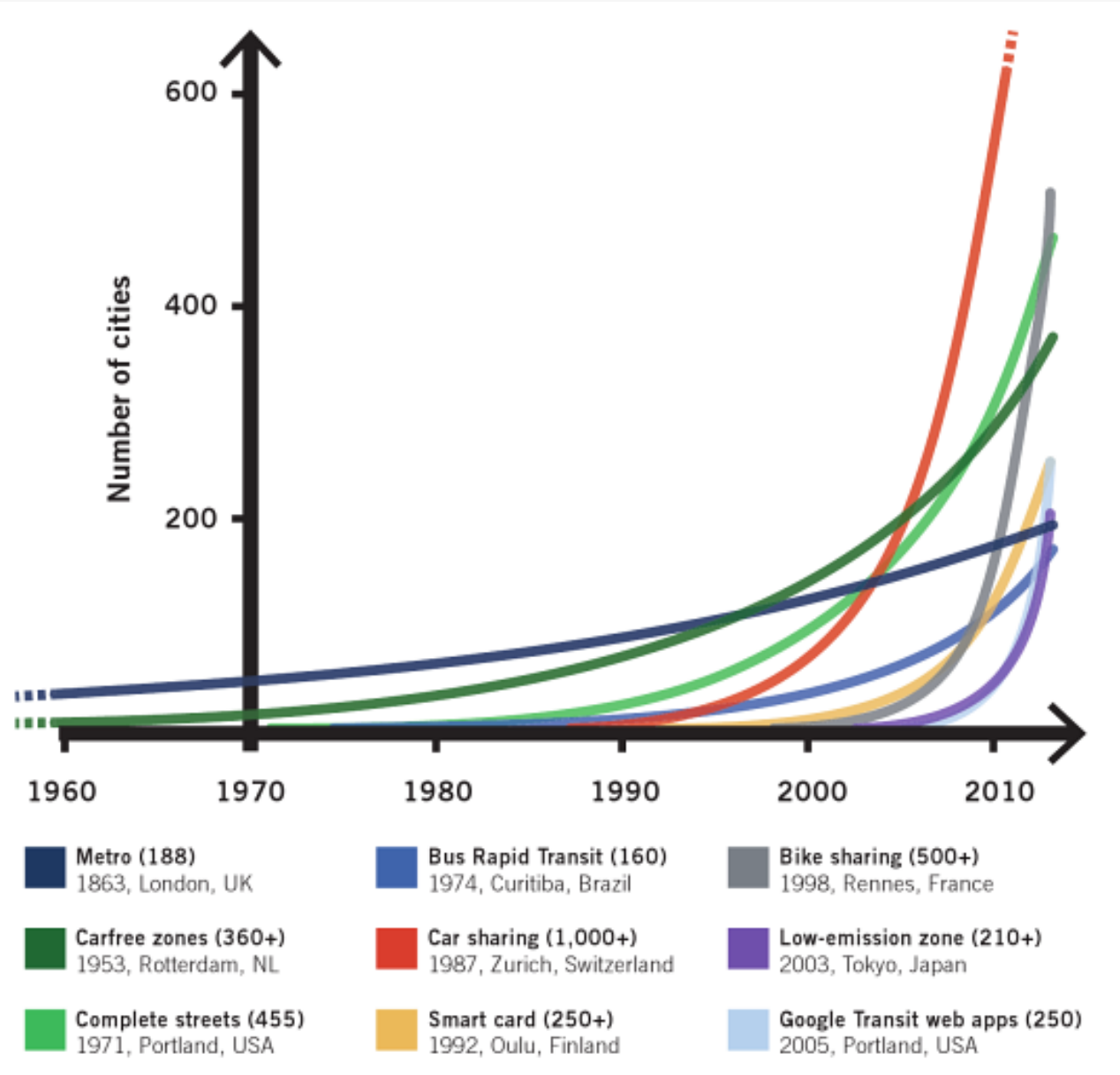
**Lead level reduction since 1970s...**  
**Estimated annual benefit: \$110 - 319 billion**

Grosse SD, Matte TD, Schwartz J, Jackson RJ. "Economic gains resulting from the reduction in children's exposure to lead in the U. S." *Env Hlth Persp* 2002.

● Long Beach ▲ Mira Loma ■ Riverside ◆ San Dimas ★ Upland



# Innovations in Transportation



Source: J Rockstrom and M Klum. Big World, Small Planet: Abundance Within Planetary Boundaries . 2014





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