



Persistent sources of Pb exposure in South Africa

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The South African Medical Research Council recognizes the catastrophic and persisting consequences of colonialism and apartheid, including land dispossession and the intentional imposition of educational and health inequities.

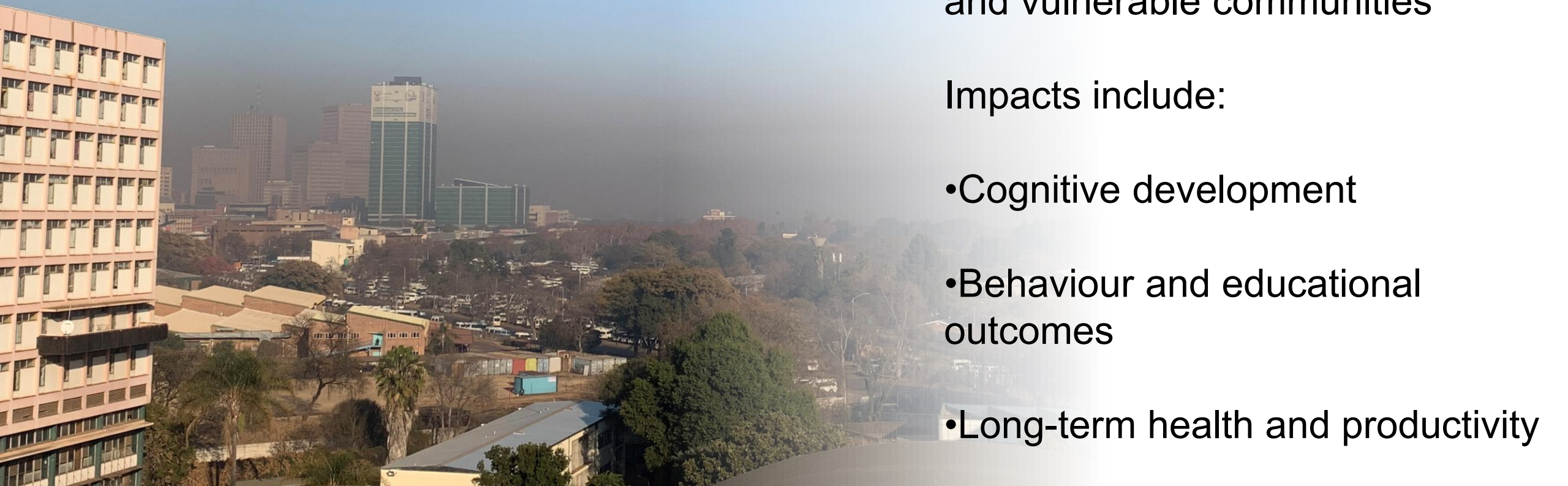
Acknowledging the SAMRC's historical role and silence during apartheid, we commit our capacities and resources to the continued promotion of justice and dignity in health research in South Africa.

Why lead still matters

- Lead (Pb) is a potent neurotoxin with no safe exposure level
- Disproportionately affects children and vulnerable communities

Impacts include:

- Cognitive development
- Behaviour and educational outcomes
- Long-term health and productivity



Global Progress vs Local Reality



- Significant global reductions (e.g. phase-out of leaded petrol)
- Yet exposure persists, particularly in LMICs
- Shift from historical sources → diffuse, ongoing sources
- Limited routine surveillance in many settings

South African Context



- Historical legacy of mining, smelting, and industrial activity
- Past widespread exposure from leaded petrol (phased out, but legacy remains)
- Ongoing exposure in low-income and informal settings
- Evidence of elevated blood lead levels in children in some communities
- Multiple persistent and poorly regulated sources still present

Key sources of Pb

Contaminated Soil and Dust

- Legacy contamination from:
 - Mining
 - Industry
 - Historical emissions
- Key exposure for children:
 - Hand-to-mouth behaviour



Lead in Paint: Legacy and Ongoing Risks

- Older housing stock remains a source
- Non-compliant paints still present in market
- Exposure via:
 - Peeling paint
 - Household dust
 - Renovations / demolition

Key sources of Pb



Consumer products

Examples:

- Cookware
- Cosmetics
- Toys
- Spices



Traditional medicines and cultural practices

- Some products may contain lead
- Important cultural context

- Exposure is often unrecognized

Risk communication



Do NOT Melt Lead!

- Lead is a poisonous substance
- Lead is especially harmful to the health of children
- Melting lead to make fishing sinkers is very dangerous



LEAD IN CERAMIC WARE

Studies show that certain ceramic ware such as traditional pottery and decorative foodware may contain lead. Lead particles in ceramic ware, especially degrading, cracked items, may be released into food or drinks. Lead is toxic and can accumulate in the body causing serious long term health effects.

What is lead and what are the health risk associated with it?
Lead is a metal that is widely used in modern society, but is also associated with harmful health effects. Children are particularly vulnerable to lead exposure, as well as to the associated health effects. Lead exposure in children may cause:

- LEARNING DIFFICULTIES AND POOR SCHOOL PERFORMANCE
- SHORTENED CONCENTRATION SPANS
- BEHAVIOR PROBLEMS
- DELAYED BODY GROWTH AND DEVELOPMENT

Lead exposure in adults is linked to:

- HEADACHES, MEMORY LOSS, IRRITABILITY, MUSCLE WEAKNESS
- HIGH BLOOD PRESSURE AND CARDIAC DISEASE
- KIDNEY DAMAGE
- REDUCED SPERM COUNT
- PREGNANCY COMPLICATIONS

There is no measurable amount of lead in the blood that is considered safe.



Why is lead added to ceramic ware?
Lead may be added to ceramic ware to fix the pigments used or to speed up the drying process.

How may lead be released from ceramic ware?

Reduce exposure of children to TOXIC METALS

- What is the problem**
- The environment around sources of pollution, such as certain industries and mining operations, may be contaminated with toxic metals.
 - Elevated exposure to metals such as arsenic (As), cadmium (Cd), mercury (Hg) and lead (Pb) may result in threats to the ecology and human health.
 - Children living in homes or attending schools close to sources of pollution are at increased risk.
- Many activities may increase the exposure of children to toxic metals. These include:**
- Smelting operations
 - Home-based/cottage industries (e.g., welding, spray painting, carpentry, car repairs, scrap metal recycling, metal jewellery making and the production of artisanal pots)
 - Battery manufacturing and recycling
 - Construction and demolition activities
 - Agricultural activities
- There are many ways in which children may be exposed to heavy metals. The following are the major exposure pathways:**
- Eating with unwashed hands
 - Inhalation of dust particles
 - Consumption of contaminated crops or produce from residential food gardens
 - Putting contaminated fingers, toys, and other objects into their mouths
 - Drinking contaminated water
 - A condition called pica, in which children eat non-food items, such as soil or paint.
- Children may develop adverse health outcomes when exposed to even low levels of heavy metals, for example:**
- Tiredness or weakness
 - Muscle or joint pain
 - Headaches or stomach cramps
 - Loss of appetite
 - Cognitive and social impacts, including learning difficulties, reductions in IQ scores or higher levels of aggression, violence and criminal behaviour
 - Heavy metals may also damage the brain, kidneys, heart, nerves, blood cells and may even cause muscular paralysis, coma and death at very high concentrations.
- Parents, guardians, caregivers or teachers may help reduce exposure of children to toxic metals. The following are some of the safety practices for preventing exposure to toxic metals:**
- Wash children's hands often, especially before eating and after playing
 - Keep children's fingernails short and clean
 - Keep play areas clean and dust free
 - Gently discourage children from putting soil, toys, sticks, stones or other non-food items into their mouths
 - Use paint and toys with no added lead
 - Greening and/or paving preschool grounds/home backyards may also help reduce exposure of children to heavy metals.

Call to Action



- Strengthen monitoring and surveillance
- Target high-risk sources and populations
- Improve enforcement of existing regulations
- Increase public and practitioner awareness
- Support cross-sector collaboration
- One Health approach



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