The Tooth Fairy Project of Professor Herbert Needleman

LEAD IN AUSTRALIA – WHAT YOU DIDN'T KNOW

LeadTox blog of Rick Mack, Member of The LEAD Group's Technical Advisory Board

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I've written quite a lot about the importance of bone lead in prolonging the effects of lead poisoning, but I left out an important, item, not deliberately, but because isn't an important fraction of the body's lead stores.

Except it is, in one incredibly relevant way. When I wrote about bone lead, I should have said hard tissue because your children's teeth, and yours, also accumulate lead and tooth lead is an important indicator of body lead burden.

In the very early days of measuring bone lead, volunteers submitted to bone biopsies to measure bone lead. This was before we had a less invasive way to measure bone lead using x-ray fluorescence spectrometry (XRF) which unfortunately still isn't widely available.

But measuring tooth lead levels, either in baby teeth or in extracted teeth is a perfectly good way to estimate the extent of lead exposure. Regardless of blood lead levels, if the tooth lead levels are high, you're dealing with chronic lead exposure.

I'd like to repost a Facebook article about Herbert Needleman that is absolutely worth reading:

He treated one small patient and sent her home.

By every standard of the time, the case was closed.

But something about her stayed with him.

Her name was not recorded in history. His was. Herbert Needleman

In 1957, he was a young pediatrician in Philadelphia when a three-year-old girl was brought in, barely conscious. Lead poisoning. Severe, but treatable. He did what doctors are trained to do. He treated her. She survived.

That should have been the end of it.

It wasn't.

Because he began to notice something others dismissed. Children who survived lead poisoning did not always return to themselves. They came back quieter. Slower. Struggling in ways that were easy to overlook but impossible to ignore once you saw the pattern.

The medical consensus was simple. Survive the poisoning, and you were fine.

He didn't believe that.

What if the damage didn't end when the crisis passed. What if it stayed, hidden, accumulating over time in ways no one was measuring.

The question followed him for decades.

The problem was how to prove it. Blood tests could only show what was happening in the moment. They could not reveal what had been building over years. Bone samples could, but no parent would allow that for research.

He needed something else.

The answer came from somewhere no one had thought to look.

Children's baby teeth.

In the late 1960s, he began working with schools, asking teachers to collect teeth as they fell out naturally. No procedures. No fear. Just something children would lose anyway.

Inside each tooth was a record. A chemical history of exposure over time.

He collected thousands.

And when he analyzed them, the pattern was unmistakable.

Children with higher levels of lead in their teeth showed measurable differences. Lower IQ scores. Weaker language skills. Shorter attention spans. Delayed reading ability.

These were not children anyone considered sick.

They were simply living in an environment no one had fully understood.

His findings were published in 1979.

The implications were enormous. Lead was everywhere. In paint. In pipes. In

the air from gasoline burned in every city. Children were breathing it, touching it, living inside it.

And it was quietly shaping their minds.

The response was not acceptance.

It was attack.

Industries built around lead had too much at stake. They funded opposing research. Questioned his methods. Accused him of misconduct. His career, his reputation, everything he had built was placed under pressure.

He could have stepped back.

He didn't.

He demanded his work be examined openly. It was. Independent reviews confirmed his findings. Every accusation was dismissed.

And the science stood.

Change followed. Lead was removed from gasoline. Regulations were introduced. Public health policies shifted.

Over time, the results became clear. Lead levels in children dropped dramatically.

And something else changed quietly alongside it.

Millions of children grew up with clearer minds. Stronger attention. Greater potential than they might have had before.

Not because of something they did.

Because of something he refused to ignore.

He died in 2017, after spending most of his life asking a question others thought unnecessary.

There are children today learning, reading, thinking more clearly than they would have in another time.

They will never know his name.

But their lives carry the answer to the question he asked.

I'd like to be able to say that things have changed radically in the last few decades, but the

truth is they haven't changed very much and definitely not enough. The air near roads is no longer filled with ultrafine lead dust that kids can breathe in. But the lead from leaded gasoline is still there, in the buildings and homes along major roadways, in lead paint in old houses, old plumbing, legacy toys and furniture, spices and so on.

Exposure to lead may no longer be universal, but it's still there, still harming children AND adults.

Maybe it's time to repeat Dr Herbert Needleman's tooth research to prove that lead is still a problem and treating lead poisoning is possible, not just to save a life but to reduce life-long harm.

Keywords: health, Lead poisoning, life, teeth

2020 Volcano Art Prize (VAP) entry by Manasa Ramesh, Age: 7, School Name: Merryhill Elementary and Middle School. Title: Seal's life. Lead-Safety Message: Lead can harm production of blood cells and the absorption of calcium needed for strong bones and teeth, muscle movements, and the work of nerves and blood vessels. Description of Work: Oil pastels and water colour.
https://volcanoartprize.com/portfolio-item/seals-life/
