

Gold, and lead, bring illness and death in Nigeria

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In this Wednesday, June 9, 2010 photo, men walk amongst the graves of children killed by lead poisoning, in Yangalma village, in Gusau, Nigeria. Among the flat lands and dried-out creekbeds of northern Zamfara state, Nigerian officials say more than 160 people have died from lead poisoning, the majority of them children. At least six villages remain contaminated with the lead, released during illegal, but highly profitable gold mining in the poor region.(AP Photo/Sunday Alamba)

(AP) -- Mound after tiny mound of red clay earth dots the cemetery on the outskirts of this impoverished Nigerian village where grieving parents come to pray.

Children began falling ill months ago here and in a half-dozen other villages in this remote northern region on the cusp of the [Sahara Desert](#). Some could not stand, some went blind or deaf.

Then they began dying.

Doctors suspected malaria. But they were wrong - after 160 died and hundreds more were ailing, blood tests revealed the real killer: Lead unearthed by villagers digging for gold.

In a tragedy described by the U.S. [Centers for Disease Control and Prevention](#) as "unprecedented" in its work with lead poisoning worldwide, most victims are children.

Many had played in homes or village common areas contaminated by lead. The level of exposure was so high that most blood samples were off the scale on lead screening machines.

The existence of gold deposits in this area along the Niger border had been long known. But it wasn't until gold prices soared in recent years that villagers began heading into the bush to search for it.

Soon the poor herdsman in rural Zamfara state could sell gold for more than \$23 a gram - a huge sum in a country where most people live on less than \$1 a day.

"There is no other business one can do to make that much money," said Haruna Musa, a 70-year-old elder in Yargalma.

The process of extracting gold from the ore is simple and dates back a millennia. Villagers bash the rocks with hammers, then grind the smaller pieces into a powder, these days with the help of a generator-powered machine. The powder is added to a slurry mixture of water and mercury - itself a dangerous substance - to draw the [gold particles](#) together.

However, this time the ore brought back to the villages in Zamfara contained extremely high levels of lead. Fathers carried the precious

rocks home to store inside their mud-walled compounds, sometimes leaving them on sleeping mats.

The work of breaking the rocks often fell to their wives. The women of the Muslim villages would chisel the rocks into smaller pieces as their young children played nearby. Dust and flakes accumulated in the villages' communal areas, which children run through.

An international team of doctors and hazardous waste experts arrived in Zamfara in mid-May and is racing to treat victims and remove the poison from villages, pastureland and creek beds.

"This is as bad as it gets," said Richard Fuller, president of the Blacksmith Institute, a U.S. group leading cleanup efforts.

On Thursday, crews of local farmers wearing white coveralls, surgical masks and latex gloves used picks and shovels to dig up the floors of a contaminated mud-walled compound in the village of Dareta. Ore processing sites lay abandoned, the equipment sitting idle as rainwater washed contaminated soil into a pond.

Cleanup efforts have not even begun in Yargalma.

At the village cemetery on Wednesday, Rabiuh Mohammed knelt among the dozens of fresh child-sized graves, grief etched on his face. A son and a daughter are buried here and Mohammed had come to offer Muslim prayers.

Nearby, other fathers, some shielding themselves under umbrellas from the searing sun, walked among the tiny mounds of earth.

Children, particularly those under age 5, are most susceptible to lead poisoning because their brains are developing. High levels of exposure

can damage the brain and nervous system. Lead also can cause reproductive problems, high blood pressure, nervous disorders and memory loss. In severe cases, it can lead to seizures, coma and death.

These days, when a child is brought to a clinic, silence is the worst sign.

As volunteers drew blood this week from a baby boy at a hospital in Bukkuyum, about 12 miles (20 kilometers) from Yargalma, a wail was a welcome sign that, at least for him, the treatment was working.

For a young girl with a tube running through her nostril laying mute on a gurney - and the hundreds more afflicted children who remain untreated - the future is much more bleak. In Western countries, a lead level of more than 10 micrograms per deciliter of blood often requires hospitalization. Screening machines generally read up to about 65 micrograms.

In northern Nigeria, the machines would prove useless at gauging the extent of the crisis.

Nearly "all of the blood samples read higher than the machine could measure," said Dr. Jenny Mackenzie, an Australian volunteering with the aid agency Medecins Sans Frontieres, or Doctors Without Borders. Further tests revealed at least one child with lead readings higher than 300 micrograms, she said.

Mackenzie cares for 48 children undergoing a four-week treatment at an aid station in the town of Bukkuyum. Her group uses succimer, a drug that combines with lead in the blood so that it can then be removed from the body by the kidneys.

Volunteers break open the drug capsules and mix the medication with honey to help coax the children into swallowing it.

Those with severe lead poisoning often need a second treatment, as lead leaches out of the bones after the blood is initially cleaned, Mackenzie said. She said many children she treated began responding favorably to the drug after only 48 hours.

Still, many children remain untreated. Mackenzie said her group plans to open a second aid station in a few weeks. Many of those who survive could end up with severe mental disabilities.

The cleanup effort will be a challenge. Lead remains beaten into the dirt floors of compounds and is embedded in the villages' muddy, narrow streets. Fuller said volunteers will remove up to two inches (five centimeters) of dirt from the affected areas, as well as any mercury.

The region's rainy season has begun, sending torrents of water coursing down mud streets and spreading the [lead](#).

The local wells have been tested; the results could foretell more trouble for these poor villages.

More information: Blacksmith Institute, <http://www.blacksmithinstitute.org/>
Medecins Sans Frontieres, <http://www.msf.org>

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