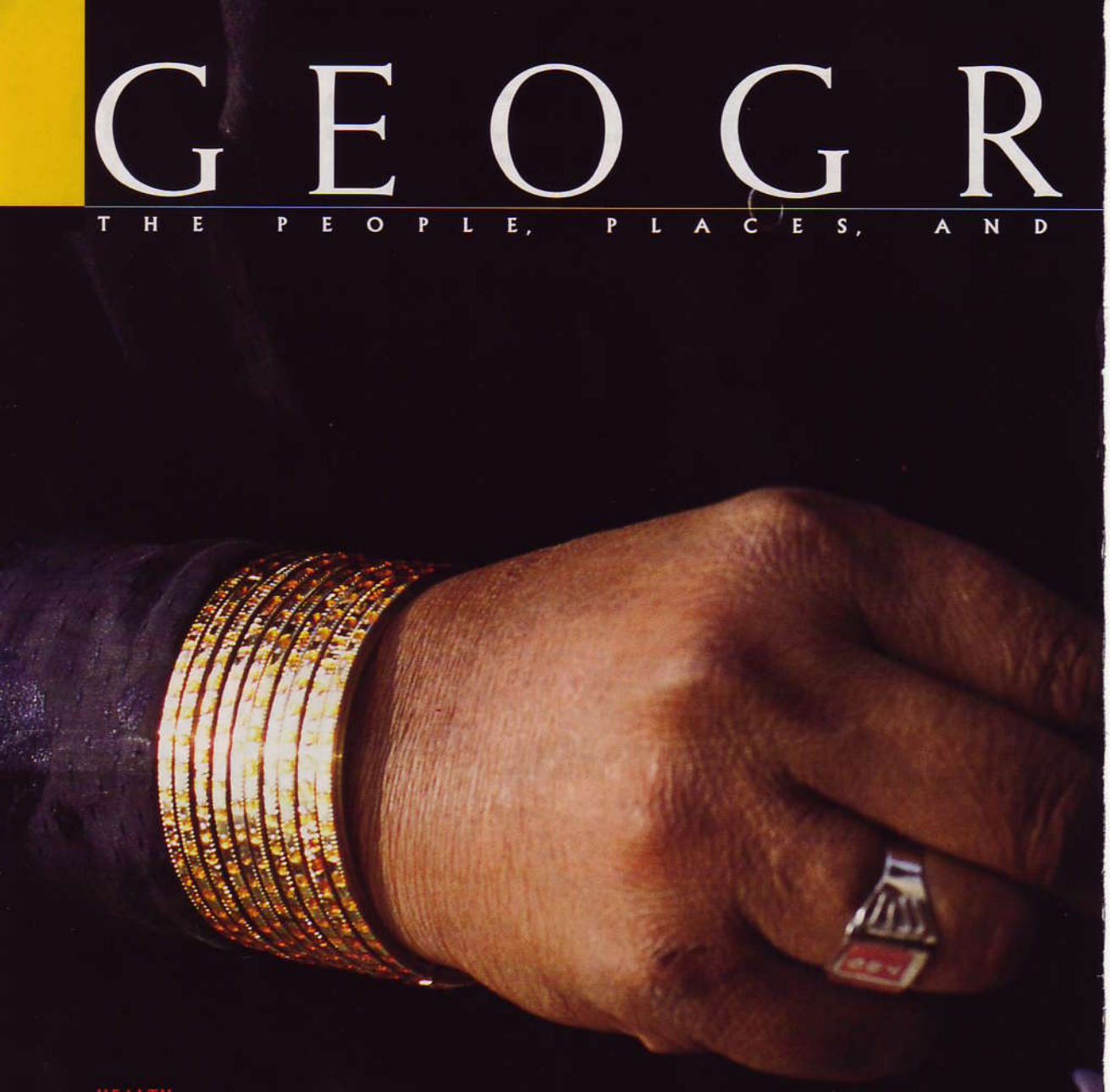

HEALTH

Polio's Last Mile

India fights back after largest outbreak in recent history

Polio was meant to be gone. By 2002. That's what health officials hoped would be the result of the Global Polio Eradication Initiative, launched in 1988.

Although aggressive vaccination programs to protect children have cut an annual 350,000 polio cases worldwide to fewer than 2,000 in seven countries, the disease has made a comeback, mainly in Nigeria, Pakistan, and India. Cases in India rose from 268 in 2001 to 1,600 in 2002.

How did this disease—that by invading the spinal cord and brain can cause muscle weakness and atrophy or, in severe cases, permanent paralysis or death—return to India with such a vengeance after near eradication?

A majority of India's victims live in Uttar Pradesh, the country's most populous state and one of its poorest. People are crowded together, with open sewers the norm. Such conditions favor transmission of the poliovirus, which lives and replicates in the intestines and spreads either from person to person or by ingestion of

APHICA

CREATURES OF OUR UNIVERSE

A boy in Moradabad gets a few drops of polio vaccine. Multiple national campaigns in 2003 have each targeted 165 million children as part of India's push to eradicate the paralyzing disease by 2005.

KAREN KASMAUSKI

anything that is contaminated with infected fecal material.

Another contributing factor: Nearly two-thirds of polio sufferers in Uttar Pradesh are Muslims. The fact that male health care workers cannot enter Muslim homes has complicated immunization efforts by the Indian government and other organizations helping in the fight to eradicate the disease: the World Health Organization (WHO), the U.S. Centers for Disease Control and Prevention (CDC), UNICEF, and Rotary International. "Muslim women aren't supposed to let male strangers into their homes," says Monique Petrofsky, a CDC nurse epidemiologist who accompanied an immunization team.

Repeated visits from health care workers also raise suspicions in Muslim communities distrustful of the Hindu-led government's motives. "All of a sudden workers show up with these drops, and people wonder: Is this birth control? Will this make my child sterile?" says Bruce Aylward, WHO's coordinator for the Global Polio Eradication Initiative. Many parents refuse multiple vaccinations for their children, unaware that at least four doses are needed.

INDIAN CHILD DISABLED BY POLIO.

Still another cause of the upswing may have been overconfidence. With cases declining sharply, the Indian government in 2001 reduced mass immunizations everywhere, including in high-risk zones. In hindsight it was a tragic error.

But now the government has changed tactics, targeting the needs of the poor, including the country's Muslim minority. Trusted local schoolteachers, academics, doctors, and imams have joined immunization teams. Mosques announce vaccination days on the same loudspeakers used to call worshipers to prayer. And a woman is now included on nearly every team.

The hope is to eradicate polio from India—and from the Earth—by 2005. "We know villages and even specific blocks where children are not immunized," says a spokesman for the National Polio Surveillance Project in New Delhi. "We are closing in on this virus once and for all." —*Bijal P. Trivedi*

BUSY STREET IN INDIA'S UTTAR PRADESH. KAREN KASMAUSKI (BOTH)

Other Diseases We Can Eradicate

Only one human disease has ever been officially declared eradicated by world authorities: smallpox, in 1980. After polio, here are four that could fall.

Guinea worm The only other disease with a formal global eradication plan (estimated date: five years after war in Sudan ends). Affects 55,000 people in 13 African nations; 75 percent of cases are in southern Sudan. Eruption of worm from body causes debilitating pain.
Measles Kills some 800,000 children under the age of five annually in the developing world.
Rubella An estimated 100,000 babies are born blind, deaf, or mentally impaired each year as a result of maternal infection with rubella in early pregnancy.
Hepatitis B Believed to contribute to over 600,000 deaths annually. A challenging foe because many carriers are symptomless, yet still can spread the disease.

WEBSITE EXCLUSIVE

Find links with more information about polio and other diseases at **nationalgeographic.com/ngm/resources/0310.**