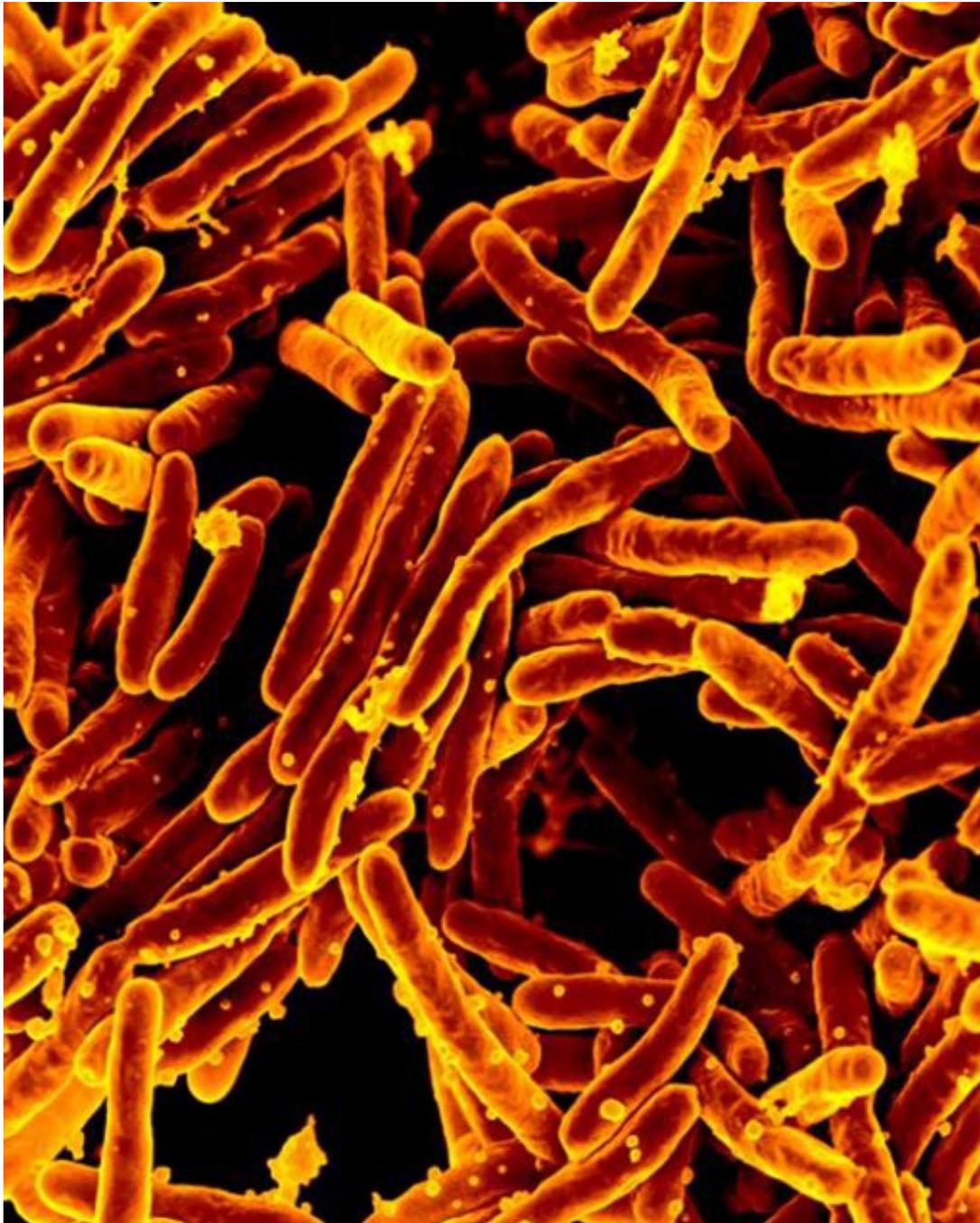


We May Have Reached The 'Apocalyptic Scenario' With Antibiotics

BUSINESS INSIDER By **Erin Brodwin**
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CDC Rod-shaped tuberculosis bacteria.

Centers for Disease Control and Prevention director Tom Frieden made headlines last year when [he](#)

proclaimed that the United States would "soon be in a post-antibiotic era," meaning we'd be plagued by everyday infections that our drugs could no longer handle.

It appears that age is already on our doorstep.

Newborns in India are now dying at alarming rates from infections that were once curable, [The New York Times reported on Thursday](#). The same deadly "superbugs" are spreading around the globe and have already come to the United States, fueled in part by our country's overuse of antibiotics [on farms](#) and [in hospitals](#).

The problem isn't just the bacteria — it's the fact that the drugs we once relied on to kill them no longer work.

Smart Bacteria

Doctors commonly treat bacterial infections with antibiotics. When one drug doesn't work, they try another. But now, physicians are finding that some of our infections are resistant to even our strongest antibiotics.

The bacteria have, genetically speaking, outsmarted us.

Last year, [nearly a quarter of a million Americans](#) died from bacterial infections that didn't respond to antibiotics. Certain strains of "nightmare bacteria" kill up to half of the patients they infect, and cases are becoming increasingly common across 42 states.

Several [diseases that the US has kept in check with antibiotics have developed antibiotic-resistant strains](#), including gonorrhea, which is sexually transmitted and infects more than 100 million people a year, and tuberculosis, a serious lung infection that's returned with a vengeance across several continents in recent years.

An 'Apocalyptic Scenario'

In cases of severe infection, when bacteria are not responding to an initial round of antibiotics, doctors may turn to carbapenems, a stronger, "second-line" class of drugs. But [a group of Indian scientists in Mumbai told Nature in 2012](#) that half of the bacterial samples they had collected from patients with infections were resistant to carbapenems, compared with just 30% of such samples a few years ago.

It's not just the US and India that are sounding the alarm bells on superbugs — earlier this year, [the UK's chief medical officer Sally Davies said an "apocalyptic scenario" would be upon us this century](#) unless we began taking extreme measures to stop it.

The worst-case-scenario situation would [take humanity about a century back in time in terms of](#)

[deaths from infections](#), when 1 in 9 skin infections killed and routine surgeries were considered super risky (since any incision left you open and vulnerable to infection).

In India, that scenario may already be unfolding.

Last year, [58,000 newborns there died of bacterial infections that didn't respond to antibiotics](#). "While that is still a fraction of the nearly [800,000 newborns who die annually in India](#)," Gardiner Harris writes [in The Times](#), "Indian pediatricians say that the rising toll of resistant infections could soon swamp efforts to improve India's abysmal infant death rate." (India already has one of the [highest rates of newborn death in the world](#).)

"Five years ago, we almost never saw these kinds of infections," New Delhi neonatologist Neelam Kler [told The Times](#). "Now, close to 100% of the babies referred to us have multi-drug resistant infections. It's scary."

The bacteria are likely transferred to newborns from the mother, who comes into contact with them just like everyone else — via the water, animals, and soil in her surroundings. Unlike adults, however, newborns are especially vulnerable to infection since their immune systems haven't had a chance to develop completely yet.



Getty Images / Frank Bienewald Dharavi Slum in Mumbai, the second-largest slum in Asia. A Vicious Cycle

A nightmarish combination of [crowded slums](#), [a lack of toilets](#), and [the country's severe over-reliance](#)

[on antibiotics](#) (doctors and pharmacists give them out for everything from undiagnosed to mild infections) is making India's problem worse. Plus, getting antibiotics [almost never requires a prescription](#) .

That's not to say severe infections — ones that actually require antibiotic treatment — don't happen. With [half the population relieving themselves outdoors](#), bacterial infections are rampant. Powerless to address the root problems, however, doctors simply [give out as many antibiotics as they can](#).

[One study](#) found that, among adults in New Delhi, close to half of the patients at public facilities and nearly 70% of the patients at private facilities were given antibiotics for acute diarrhea. Among children, about a quarter of those at public facilities and 52% of those at private facilities were given the drugs.

Acute diarrhea is a severe [infection that comes on suddenly and, in adults, typically disappears on its own in a couple weeks](#). Among children younger than 4, it can be deadly. Most importantly, about [three-quarters of the world's acute diarrhea cases are caused by viruses](#), not bacteria.

Instead of plying patients with drugs that likely won't work, the [WHO and the UN International Children's Emergency Relief Fund recommends](#) doctors give patients water enriched with electrolytes (to keep them hydrated) and zinc.

"This study clearly showed the irrational use of antibiotics for the treatment of acute diarrhea in children and adults that warrants interventional strategies," [the study authors wrote](#).

It's a troubling scenario, but India is far from alone in contributing to the problem.

In the US, [as many as half of antibiotic prescriptions are unnecessary](#), and American farmers continue to [overuse them in pigs, cattle, and chickens](#), creating stronger, more resistant bacterial strains. Between 2000 and 2010, international sales of antibiotics for human use shot up 36%, [the New York Times reports](#), with Brazil, Russia, India, China, and South Africa making up three-quarters of that increase.