

Medical breakthroughs, a victim of their success

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Credit: National Cancer Institute

Vaccinations, antibiotics and antivirals are medical breakthroughs that have saved millions of lives in the 20th century, even if today they are increasingly contested or taken for granted.

The success of modern medicine presents a paradox: as disease and epidemics are progressively brought under control, the public sees less

need for medical treatment.

"We are in a regressive dynamic of defiance vis-a-vis medicine that worries me and is fuelling the desire for alternative medicines," says recognised French doctor, researcher and microbiology professor, Philippe Sansonetti.

Here is a look back at three major [medical breakthroughs](#) that some are defying today.

Anti-vax vs vaccinated

At the end of the 18th century, English doctor Edward Jenner carried out the first successful [vaccine](#) by inserting pus taken from an adult with cowpox into a cut made in the arm of a boy. Several days later, Jenner exposed the boy to smallpox and he was found to be immune.

The antiviral vaccination was born.

It became obligatory in England in 1853 but an anti-vaccines movement formed quickly, forcing through a "conscience clause" that allowed Brits to escape compulsory vaccination.

With its highly contagious pimples, smallpox was a terrible plague: it killed 300 million people in the 20th century, according to the World Health Organization—more than armed conflicts.

Thanks to a worldwide push on vaccination, it was eradicated in 1980. Vaccines also made it possible to contain polio, diphtheria, tetanus and measles.

Yet the "anti-vax"—those resolutely opposed to obligatory vaccination—have never been so visible in their claims about the

supposed danger of injections and against the "pharmaceutical lobby".

"The problem is we are victims of the success of vaccination. Because we no longer see children die of tetanus or measles, we lose the notion of risk," said WHO expert Philippe Duclos in the Swiss newspaper Le Temps.

Anti antibiotics

Discovered accidentally in London in 1928 by Britain's Alexander Fleming, penicillin revolutionised medicine. It made it possible to effectively treat for the first time pneumonia, meningitis and syphilis.

Dozens of antibiotics discovered since then have added 20 years to the life expectancy of humanity, according to the WHO.

Antibiotics have lost some of their shine in recent years, however. Misused or overused, including in farming, they have become less effective against infections such as tuberculosis, as bacteria become more resistant.

Patients are also increasingly likely to cut short treatment as soon as symptoms disappear, which specialists say is the best way to develop resistance.

Triple therapy time-out

When AIDS appeared on the medical radar at the start of the 1980s, science was caught short: an infection of the HIV virus was a death warrant.

Rock Hudson in 1985, Freddie Mercury in 1991, Rudolf Nureyev in

1993—as the list of famous victims grew so did the public realisation of the danger of this disease.

In 1994 AIDS became the first cause of death for Americans aged between 25 and 44.

A corner was turned in the 1990s when new antiretroviral drugs enabled effective combinations against HIV in what became known as [triple therapy](#).

While the epidemic has not disappeared, the number of related deaths has fallen by 48 percent since a peak in 2005, according to UNAIDS.

Treatments have become effective enough to almost eliminate the risk of infection but consistency is essential to avoid the reappearance of resistant viruses.

Nonetheless, US studies have shown that only 30 percent of patients respect their prescriptions.

And in France a 2010 study by the SIDA Info Service found that 3.6 percent of patients stopped their treatment after having tests that did not detect low levels of the virus, leading them wrongly to believe it had been rendered harmless.

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