

# Mutated scarlet fever fuels Hong Kong outbreak

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In this June 22, 2011 file photo, parents meet at a school where a 5-year-old boy who died at a hospital June 21, 2011 was confirmed to have scarlet fever in Hong Kong. Ultramodern Hong Kong is tussling with a centuries-old bug long forgotten in many developed countries, an outbreak of drug-resistant scarlet fever that has killed the first children there in a decade. (AP Photo/Apple Daily, File) HONG KONG OUT, TAIWAN OUT, NO SALE, NO ARCHIVES

(AP) -- Ultramodern Hong Kong is tussling with a centuries-old bug long forgotten in many developed countries - an outbreak of drug-resistant scarlet fever that has killed the first children there in a decade. And with it is the rise of a mutated strain that appears to be more contagious.

The number of cases has spiked this year to more than 500, with [health officials](#) issuing warnings in the southern Chinese city jammed with 7 million people and hypersensitive to any type of disease outbreak.

Experts warn the main strain of the [bacterial infection](#) is likely transmitted easier. It is 60 percent resistant to two drugs of choice, up from a resistance level of 10 to 30 percent previously.

The illness leaves children with a fever, [sore throat](#), bright red tongue and sandpapery rash. Penicillin still cures it, but doctors worry options will be limited if the germ eventually outsmarts that antibiotic before a vaccine is developed.

"That's the cause of lots of nightmares," said Dr. Edward Kaplan. He heads a [World Health Organization](#) research center at the University of Minnesota that focuses on the strep germ, which causes [scarlet fever](#). "The fact that we still have penicillin is something we all get down on our knees and say prayers about each night."

The widespread availability of penicillin and the development of other [new antibiotics](#) in the 20th century virtually wiped out diseases that were once major killers in [developed countries](#), such as tuberculosis. But the overuse and misuse of drugs - patients not finishing a full prescription or taking antibiotics for a virus when they are only effective against bacteria - have allowed old bugs to fight back and eventually overpower antibiotics, rendering some of them useless.

Penicillin, once useful to treat a number of ailments from [gonorrhea](#) to pneumonia, has lost much of its potency due to resistance that has built over decades. Some say it's a miracle it still works for the streptococci group that causes an array of diseases from strep throat to toxic shock syndrome and flesh-eating disease.

"That's the one thing that we're both a bit fearful of and also, in one respect, really surprised that the bug hasn't developed penicillin resistance yet," said Mark Walker, a microbiologist and strep expert who heads the Australian Infectious Disease Research Center. "We're very

lucky. We still have a treatment we can use and additionally there are vaccines that are under development."

But even penicillin has its problems because many people are allergic to it. That means trying older antibiotics or newer drugs of last resort, which doctors typically try to avoid for fear of rendering those drugs useless, too. A vaccine against the [germ](#) that causes scarlet fever is likely years away.

Pockets of drug-resistant scarlet fever, which typically spreads through coughing and sneezing and is most common in children under 10, have sprung up over the past few decades in various parts of the world. And while the Hong Kong deaths and rise in cases are disturbing, the resistance seen in the standard treatments erythromycin and clindamycin is not new, Kaplan said.

A 7-year-old girl who died in May became the first recorded scarlet fever death in Hong Kong in at least 10 years, while a 5-year-old boy also died last Tuesday. Both deteriorated quickly in the hospital and were killed by toxic shock syndrome resulting from the infection. The children were infected with two different common strains of scarlet fever that are circulating simultaneously, both antibiotic resistant. However, the one that appears to be dominant also has undergone a genetic mutation that may make it easier to spread, said Kwok-yung Yuen, head of Hong Kong University's microbiology department, who sequenced samples taken from the current outbreak.

The nearly 550 cases of scarlet fever so far this year are about double Hong Kong's annual total. Local media also are reporting some 9,000 cases detected in mainland China, also about twice the normal rate there, but it's unclear if it's becoming a regional problem because many countries do not track the common childhood illness, according to the World Health Organization.

Scarlet fever, also called scarlatina, was once a highly feared scourge in Europe and the United States. Clothes, bedding and toys were often burned and children were sometimes isolated after infection, as portrayed in the popular 1920s children's book, "The Velveteen Rabbit." Experts say they fear rising drug resistance could one day take the world back to a time when there were no easy treatments.

"This will really turn us back to 1940s in terms of treatment of infectious disease if this trend continues," Yuen said.

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