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# Report details lessons from SARS outbreak

Plumbers and politicians have been urged to learn lessons from the severe acute respiratory syndrome (SARS) outbreak in two new reports that identified inadequate sewage systems and poor administration as major factors in the spread of the disease earlier this year.

A technical study by WHO noted that one possible source of transmission for the SARS coronavirus may have been the "faecal droplet" route. In buildings with poor drainage, this would allow droplets from virus-rich excreta to re-enter residents' apartments via sewage systems where there were strong upward air flows, inadequate traps, and non-functional water seals.

This sequence is seen as a probable route of contagion in the concentration of cases in Hong Kong's Amoy Gardens housing estate; though in most other cases water droplets are seen as the main means of transmission.

"While the evidence suggests that, under most circumstances, the spread of SARS among people occurred overwhelmingly across a short range of distance through water droplets, there are specific situations where conditions allowed other transmission routes", said Jamie Bertram, head of WHO's Water, Sanitation, and Health Programme. "One of these is through sewage-associated faecal droplets and this consultation has, therefore, recommended measures to reduce sewage-borne transmission routes of pathogenic viruses."

To minimise such risks—which also include the spread of the gastroenteritis virus, some adenoviruses, and enteroviruses—WHO's consultative group has drawn up a list of building design and maintenance checks.

Hong Kong released the results of its own probe into the outbreak on Oct 2. A

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## Police guard Amoy Gardens housing estate

panel of experts said delays in the release of information from the mainland contributed to the spread of the disease, that Hong Kong authorities failed to make a proper epidemiological investigation of the outbreak at Amoy Gardens, and that the designation of one hospital, Princess Margaret Hospital, for handling SARS cases should have been reviewed when the institution

was swamped with patients.

The report did not blame individuals on the grounds that too little was known about the disease at the time to judge anyone negligent, but it said there were "clearly significant shortcomings in the system performance during the early days of the epidemic".

In response to the report, health secretary Yeoh Eng-kiong apologised for his

handling of the outbreak, but patient groups said they were unimpressed. More than 40 people, including 30 nurses who contracted SARS, have decided to sue the government for needlessly putting their lives at risk with poor equipment and a lack of information. Critics have also called for a new enquiry by the legislative council.

Jonathan Watts

## WHO lowers figures on SARS infections

WHO has lowered the official global death toll from severe acute respiratory syndrome (SARS) to 774, from the previously reported figure of 916, following a revision by authorities in Taiwan.

The Taiwanese government said on Oct 3 that it officially recognised 346 SARS cases and 37 deaths, compared with earlier figures of 665 cases and 180 deaths. New antibody tests were done on stored samples from patients previously thought to be infected.

The Taiwanese Center of Disease Control said that during the outbreak, many people were listed as SARS patients and quarantined after they developed common SARS symptoms. But many had non-SARS related pneumonia or other chronic illnesses that were misdiagnosed.

Other governments also made minor changes: Hong Kong reduced its death toll by one to 299 and the USA has reduced its number of cases by four to 29, WHO said.

"Everybody is going back to re-examine

what is happening because we have finally got some breathing time", said WHO spokesman Dick Thompson.

Separately, WHO warned of the risk of inadequate safety procedures in laboratories researching the virus following the infection of a student at a government laboratory in Singapore.

It said it was anxious to verify that all Chinese laboratories handling the virus were at Biosafety Level 3. So far, Chinese authorities have not informed the UN health agency how many labs are holding the virus.

"The big risk, to my mind, is laboratories that are below level 3", said John MacKenzie, head of WHO's SARS laboratory group.

"Not only the operators might be infected, but he or she might infect other people nearby. We are in the process of trying to find out [the situation in China] right now", he told a press conference.

Clare Kapp