



**GENEVA AND ROME** -- Inadequate plumbing is likely to have been a contributor to the spread of SARS in residential buildings in Hong Kong Special Administrative Region of China, a World Health Organization (WHO) technical Consultation concluded today. It also contributes to the spread of a number of other infectious diseases in several other countries. In the absence of proper maintenance and without consistent monitoring, reviewing, enforcing and updating of building standards and practices, inadequate plumbing and sewage systems could continue to enhance the potential of SARS and some other diseases to spread. The meeting concluded that it would be relatively easy to interrupt and avoid some diseases, including SARS if it were to return.

The Consultation developed a checklist of environmental hygiene factors in building design and maintenance that, if followed, could contribute to controlling environmental transmission of SARS Coronavirus (CoV) and other viruses. Viruses that can be transmitted by the “faecal droplet” route also include gastro-enteritis virus (such as Norwalk-like viruses), some adenoviruses and enteroviruses responsible for a number of gastro-intestinal and neurological diseases.

“With this Consultation, WHO is helping its Member States appreciate the need to assess and manage the health risks associated with inadequate plumbing and sewage systems. It has documented lessons learned, it has pointed to risk assessment and management tools to be better prepared in case of future outbreaks and it has listed concrete measures and regulatory frameworks for the prevention of faecal droplet transmission of disease-causing viruses. This information will be brought together in a guidelines document,” commented Dr Jamie Bartram, Head of WHO’s Water, Sanitation and Health Programme at its Geneva headquarters.

It has been suggested that the “faecal droplet” route may have been one of several modes of transmission in Hong Kong during the SARS outbreak in early 2003. In this case, droplets originating from virus-rich excreta in a given building’s drainage system re-entered into resident’s apartments via sewage and drainage systems where there were strong upward air flows, inadequate “traps” and non-functional water seals.

Meeting in Rome, an international group of WHO experts reviewed the transmission risks related to the current state of plumbing systems around the world and how inadequate construction and maintenance practices could contribute to the spread of SARS.

“In many countries there will be buildings where keeping sewage separate from building occupants is a critical challenge,” observed Dr Bartram. “This could result in harmful viruses, including the SARS Coronavirus (CoV), being sucked from the sewage system into the home if, for example, there are strong extractor fans working in a family’s bathroom. Fortunately, solutions are simple and already in place in most areas world-wide, but there remain places where short-cuts in design, construction and maintenance continue to compromise safety.”

“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. 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,” added Dr Bartram.

The Consultation emphasized that the solution – proper plumbing – is a simple public health measure which is often overlooked but can be addressed at minimal extra cost. Nevertheless, it is a significant tool in stopping faecal droplet transmission of disease.

The Consultation resolved that Governments establish or strengthen intersectoral arrangements and mechanisms to enhance joint efforts of ministries of health, building authorities, local governments and architects/designers to both raise general awareness of the risks from inadequate plumbing and sewage systems, and to take concrete actions to address shortcomings in this area.

The experts meeting at the WHO European Centre for Environment and Health in Rome came from nine countries and represented the fields of epidemiology, virology, environmental health, risk assessment/management, building design and plumbing.

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