

# SARS: prudence, not panic

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**A**s I write this article (on Apr. 21, 2003), Ontario is well into the eighth week of an outbreak of severe acute respiratory syndrome (SARS). SARS is an important new respiratory infection capable of causing significant levels of illness and death, particularly in compromised patients. To date, 128 Ontarians have met the case definition for probable SARS,<sup>1</sup> and 13 of these have died.<sup>2</sup>

Ontario, where most of Canada's 132 cases of SARS and all of its SARS-related deaths have occurred, has declared a health emergency to deal with the disease and has used aggressive measures to try to control it.<sup>3</sup> Hospital services have been drastically curtailed. Two hospitals have been closed outright. Thousands and thousands of people (including me) have been quarantined.

Despite these efforts, there has been a slow but steady flow of new infections from community settings. The Toronto media<sup>4,5</sup> and some physicians (A. Detsky and T. Stewart, Mount Sinai Hospital, Toronto: personal communication, Apr. 17, 2003) are calling for even more aggressive measures to stamp out SARS. Public health officials are reportedly considering "worst case" scenarios.<sup>6</sup>

Now is a good time to pause and take stock. Our experience with SARS in Canada is now less than 2 months old, but our knowledge has grown substantially. Our understanding of SARS today is very different from what it was even 2 weeks ago, and it may be very different 2 weeks from now. We need to assess what we have learned and apply this knowledge. Certainly SARS is a serious problem that needs to be dealt with seriously. Yet our actions must be based on facts and experience, not on fears. The response should not be worse than the disease.

Let's look at the good news about SARS. First, it might help to put SARS in perspective. In the 8-week period since SARS hit Ontario, the province could expect to see about 100 deaths from influenza (Teresa Tam, Health Canada, Ottawa: personal communication, Apr. 21, 2003), 200 deaths from motor vehicle crashes<sup>7</sup> and 2000 deaths from tobacco addiction.<sup>7</sup>

Second, transmission of SARS appears to be by respiratory droplets, not airborne spread.<sup>8</sup> Hence, SARS does not appear to be highly infectious for casual contacts.<sup>9</sup> Other routes of transmission (e.g., sewage contamination) may be plausible but do not appear to be playing a role in Canada.<sup>10</sup>

Third, SARS is not behaving like the next great pan-

demic. SARS has been present in Guangdong province in China since November 2002. Even if we allow for under-reporting, we are still counting cases worldwide in the thousands, not the millions.<sup>11</sup> If SARS behaved like pandemic influenza, the case count would now be much, much higher.

Fourth, nosocomial spread, which played a critical role in the first phase of the Ontario outbreak, has been effectively curtailed. The hospital system responded, and the respiratory precautions have worked very well. My own hospital, York Central, had 15 cases of nosocomial SARS caused by infection acquired in the 12 days between March 16 and March 28. However, there have been no cases of SARS transmission in the subsequent 3 weeks, following the introduction of stricter respiratory precautions.<sup>12</sup> Breakdowns in the precautions will occur, but overall the benefits have been impressive.

Fifth, we are rapidly developing experience in treating SARS. Clinicians are communicating with each other and publishing their experiences in real time.

Sixth, the virus that causes SARS has already been identified,<sup>13</sup> and accurate diagnostic tests will probably be available soon.

The bad news, of course, is that SARS is now established in Ontario and is spreading in the community, in Toronto and elsewhere in Canada. Suspect cases have been reported in at least 6 Canadian provinces.<sup>14</sup> These developments should not come as a surprise. SARS was present in the community from the beginning. The first few cases in Ontario were community-acquired, although they were soon overshadowed by nosocomial cases.<sup>9</sup>

Ontario's response to SARS has been energetic. Unfortunately, however, it appears to have been based on unachievable expectations, specifically, that quarantine would eliminate the disease. Let's be realistic. Quarantine plays an important but limited role in the community control of respiratory infections. It can reduce the impact of an outbreak but, according to our experience with other respiratory diseases, it won't stop transmission entirely.

The future of SARS is uncertain. A number of scenarios are plausible. The disease may yet develop into a major pandemic, with explosive growth in the number of cases, but I consider this very unlikely given the behaviour of the outbreak to date. At the opposite extreme, SARS may dis-

appear as mysteriously as it appeared. This could happen if SARS is insufficiently infectious to sustain transmission in our social environment. As an incorrigible optimist, I actually regard this as the most likely course of events, in Canada at least. The epidemic curves of SARS in Canada and elsewhere lend credence to this view.<sup>15</sup>

We should not, however, base our current planning on either of these extreme-case scenarios. Our planning for SARS should be based on an in-between scenario. We will continue to see new SARS cases, usually at relatively low levels but with occasional flare-ups. In other words, we should plan on getting used to living with SARS. SARS will be a problem everywhere, not just in Toronto, Hong Kong and Singapore. We can anticipate spread from community to community and, sporadically, by international travellers. Our SARS control strategy must therefore be global.

Under this scenario, what should we do? We need realistic goals and sustainable interventions. I have several recommendations.

First, we must tighten our control of respiratory infections in acute care hospitals. This is the single most important measure and one that we now know can be effective. Until we have a rapid and accurate diagnostic test for SARS, all patients with pneumonia admitted to hospital in areas where SARS is active must be treated under full respiratory precautions: N95-rated mask (95% filtration efficiency against solid and liquid aerosols), gown, gloves and eye protection. This approach will place severe strain on our already stretched acute care hospitals. But it is the new reality that York Central and other Toronto area hospitals, as well as hospitals in Hong Kong, Singapore and parts of China, are already facing. Good respiratory precautions and routine screening of staff and visitors for fever and respiratory symptoms should be sustainable in a fully functioning hospital. Cancellation of elective hospital services is unsustainable and probably unnecessary.

Second, public health should get back to basics. Mass quarantine of casual contacts has sapped public health resources and contributed very little to SARS control. Instead, the public health sector should focus its efforts on general surveillance of respiratory illnesses, SARS case finding and investigation, isolation of close contacts of SARS cases, and public and professional education. These activities are consistent with the recommendations of the World Health Organization.<sup>16</sup>

Third, there is an urgent need to develop and implement strategies for managing SARS-like illness in community health care settings. The offices of family doctors are rapidly becoming the front lines in the battle against SARS, and there have already been several cases of SARS in family doctors.<sup>17</sup> Community health care providers need to be ready to don masks, gloves and goggles when they see patients with a respiratory illness. This will pose logistical challenges for family doctors. Practical protocols are required now.

Fourth, clinicians need to collaborate to generate an evi-

dentiary — or at least an experiential — basis for the treatment of SARS. For example, many clinicians treating SARS in Toronto started by using ribavirin because they thought that it was the standard. They discovered, through a regular teleconference, that none of them believed that it was actually helpful, and their practices changed accordingly (T. Stewart, Mount Sinai Hospital, Toronto, personal communication: Apr. 17, 2003). Sharing experiences and opinions is very helpful. Medical journals are contributing by fast-tracking articles and publishing them on the Internet.

Finally, we need to get on with our lives. Poor communication, excessive precautions and failure to meet unrealistic goals have fuelled public fears. The social, economic and health costs have been substantial. Even more draconian measures, unwisely advocated by some Toronto newspaper editorials,<sup>4,5</sup> would be ineffective and would cause much further harm.

Good decision-making in a crisis is always difficult. It depends on our learning from experience and adjusting our response to fit the circumstances. Public health officials must show leadership in restoring calm and balance to the battle against SARS. Regaining public confidence is a priority.

*Editor's note:* The personal communication cited in the third paragraph from the end of this article has been amended since online publication.

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## Why was Toronto included in the World Health Organization's SARS-related travel advisory?

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β See related articles pages 1415 and 1432.

On Apr. 23, the World Health Organization (WHO) advised international travellers to consider postponing all but essential travel to Beijing and Shanxi Province, China, and to Toronto. This advice was based on an assessment of the risk that travellers to these 3 areas might become infected with the SARS virus during their stay and export the disease to another country, possibly seeding an outbreak there. Similar advice to travellers contemplating visits to Hong Kong and Guangdong Province, China, had been issued Apr. 2.

Factors considered when making these assessments include the magnitude and dynamics of the outbreak measured, in part, through data on the prevalence of cases (total number of reported cases minus patients who have recovered or died) and the number of new cases detected each day. Another key factor is the occurrence of local chains of transmission outside a confined setting, such as a health care environment. When an outbreak is large and dynamically evolving, the likelihood is greater that time will elapse between the onset of infectivity and the detection and isolation of cases. This lapse, in turn, increases opportunities for further spread within the general community. The risk to international public health occurs when an infected person undertakes international travel, regardless of whether the infection was acquired in the general community or following contact with a high-risk person or in a hospital setting.

SARS is a disease that places extreme demands on hospitals, health care staff and the entire public health system. Experience to date in some of the hardest hit countries indicates that the sheer magnitude of the outbreak can lead to a breakdown in essential public health measures, whether

involving infection control in hospitals, contact tracing, quarantine of close contacts, prompt detection and isolation of cases, or exit screening of international travellers. When an infected person is able to board an airplane and undertake international travel, such a breakdown in control measures has clearly taken place.

When issuing the Apr. 23 travel advisory, which included Toronto, WHO epidemiologists considered all of these factors, together with reports of possible cases exported from Toronto, from Mar. 29 through Apr. 3, to Australia, the United States and the Philippines. In the Philippines, which had previously been free of SARS, the presence of a first probable case, epidemiologically linked to a charismatic religious group in Toronto, was reported to WHO Apr. 14. The patient subsequently died, a suspected case in a health care worker has been reported, and numerous contacts are under investigation.

SARS is the first major new infectious disease of the 21st century and, as such, is taking full advantage of the opportunities for rapid international spread afforded by a closely interconnected and highly mobile society. It is the duty of WHO to do everything possible to prevent spread to other countries of a poorly understood, severe disease for which there is no reliable diagnostic test and no effective treatment beyond supportive care. To date, most outbreaks have occurred in countries with good surveillance and strong health care systems. The importation and subsequent spread of SARS in a densely populated country with a poor health infrastructure can have enormous public health consequences, as we are now seeing in parts of China. In all countries with SARS outbreaks, the social and economic consequences have likewise been enormous.