Accuracy of WHO case definition for SARS screening

To the Editor: I congratulate Dr. Wong Wing Nam and his coauthors on their outstanding work during the Hong Kong SARS outbreak and on the excellent overview of their experience, published in *CJEM*.[1] However the authors, and Dr. Thompson in his accompanying commentary,[2] frequently use the term "screening" with respect to the World Health Organization (WHO) definition in a vague manner.

The WHO definition is meant to ensure we count SARS cases consistently and correctly in different jurisdictions. It is a retrospective definition that does not meet the needs of emergency departments (EDs), where we typically see patients early in their illness.

We "screen" patients for possible SARS twice in the ED. The first is at triage when the patient arrives. The tool used by triage nurses must be as close to 100% sensitive as possible, and applicable in a brief assessment. The triage tool will vary with the outbreak conditions in the community at the time. In a community where transmission is occurring outside health care settings, the tool may include ALL patients with any SARS-like signs or symptoms (fever OR cough or other respiratory symptoms OR diarrhea OR malaise, etc.). In Toronto, where transmission was largely confined to specific settings, we had a dynamic list of potential contact sites on our triage tool. Patients had to have a contact history AND any one of the SARS-like symptoms to fail the screen. Those who failed the screen were put into full SARS isolation until complete assessment determined whether this was necessary.

The second SARS "screen" occurs at the time of the disposition decision. At this point, because of potential risk to household contacts and the community, we still target 100% sensitivity but must be more specific to avoid overwhelming the wards with non-SARS admissions. At Mount Sinai Hospital we developed a tool (later modified for province-wide use) to support clinical judgement, which relied on chest imaging (chest x-ray and CT in selected cases), screening blood work and a careful contact history. Persons under investigation were admitted and isolated until further results were available, while low-risk patients were sent home on precautions in a process much like that described by the authors.

The Toronto SARS cohort on average had fever for 48 hours before developing chest symptoms;[3] therefore we believe the WHO definition is useful only as a guide in developing triage- and disposition-support tools for ED decision-making. More sensitive tools reflecting local outbreak conditions are necessary and will evolve as outbreak conditions change. Perhaps the most important lesson from this experience is the need for emergency practitioners who understand our own practice environment to work collaboratively with public health and infection control practitioners to develop the right tools for the right job.

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To the Editor: In their retrospective review of SARS cases associated with the Amoy Garden outbreak in Hong Kong,[1] Wong Wing Nam and colleagues question the diagnostic accuracy of the WHO "suspect" case definition for SARS and suggest that it requires revision. The authors make the mistake of confusing a case definition developed for public health and epidemiological purposes with one appropriate for clinical diagnosis. This was not the intent of the WHO or other organizations that established case definitions for the purposes of reporting and counting SARS cases.

Diagnostic criteria and public health case definitions are different and have different purposes. Case definitions are meant to monitor disease incidence and outbreaks in populations and to guide public health management. The current WHO case definitions and public health guidelines for SARS make clear the distinction between case counting and diagnosis.[2] The WHO notes the range of symptoms, including atypical presentations, of SARS patients and provides clinicians with clues for diagnosis. In particular, it is noted that SARS patients may have neither fever nor respiratory symptoms, and that early signs and symptoms may be non-specific. While patients in the early stages of diseases like SARS may have non-specific symptoms, this is not a reason to change case definitions because these patients will eventually go on to declare themselves and get classified appropriately, as they did in the study by Wong Wing Nam and colleagues. If established public health case definitions and guide-

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lines had failed to control the spread of SARS, these would have been altered as needed. In fact, these guidelines led to the worldwide interruption of SARS transmission within 4 months of the first WHO SARS alert, issued on Mar. 12, 2003.

The authors suggest that many Amoy Garden patients did not initially present with findings consistent with the WHO case definition and therefore there was the potential for disease spread if emergency physicians had released these patients in the community without appropriate follow-up. However, they fail to acknowledge the ongoing actions of Hong Kong public health authorities in managing the Amoy Garden outbreak at the time these patients presented, which could have had a significant impact on the study results. These actions, as described in the report of the Hong Kong SARS Expert Committee,[3] included daily visits to the Amoy Garden by Hong Kong Department of Health staff with reports of the first SARS cases from Amoy Garden, referral of residents for daily screening at SARS clinics, and quarantine of residents. In particular, the referral of residents for screening daily would have meant many of those who ultimately developed SARS would have initially had few, if any, symptoms on initial assessments. Public health officials recommended chest x-ray as part of the screening, which may in part explain the high rate of x-rays ordered by the emergency physicians in this study, despite minimal respiratory symptoms in these patients. The information and recommendations of Hong Kong public health authorities therefore likely served to enhance physician judgement in this study and is a major source of bias that the authors fail to acknowledge.

Follow-up and quarantine of close contacts of SARS cases, or those who had contact with an identified SARS transmission setting, like the Amoy Garden, was a recommendation of the WHO, and was part of the protocol of Hong Kong public health authorities and all public health authorities managing SARS outbreaks around the world. Under these protocols, follow-up and quarantine of contacts did not depend on a diagnosis of SARS by emergency doctors, as suggested by the authors, but was part of routine public health management.

While emergency physicians may rightly feel concerned that re-emergence of SARS, if it occurs, may lead to new outbreaks if initial cases present with atypical findings and are missed, the answer is not to establish public health case definitions that can encompass every possible presentation. The answer is to establish appropriate infection control guidelines in acute care settings so that any patient presenting with a potential communicable disease is appropriately isolated until a diagnosis is established. Adherence to appropriate infection control will prevent spread while allowing time for clinical assessment and laboratory investigation.

Finally, I would like to correct one error in the Discussion by Wong Wing Nam and colleagues pertaining to a July 2003 outbreak of upper respiratory tract illness in a long-term care facility in British Columbia, Canada (see p. 390). The authors suggest that residents were suspected of having SARS and that a rapid SARS-CoV (SARS-associated coronavirus [CoV]) test helped to identify a virus similar to SARS-CoV, which may represent a new, less virulent variant of CoV. In fact, patients in this outbreak had symptoms consistent with the common cold and were not suspected of having SARS. SARS testing was included in a panel of tests by a reference laboratory where specimens were sent to look for other viruses. SARS PCR (polymerase chain reaction) and serological testing was falsely positive on a few of the patients, leading to unnecessary anxiety and unwarranted public health actions. The virus was subsequently found not to be related to the SARS-CoV but rather to be consistent with previously identified human coronaviruses known to cause upper respiratory infections. Contrary to the authors' conclusions, this episode highlighted the importance of interpreting newly developed but unvalidated SARS-CoV rapid tests with caution, and prompted the WHO to recommend that all positive SARS-CoV rapid tests should be confirmed by a second, external laboratory.[4]

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[The lead author responds:]

To the editor: We appreciate the read-

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