

# The Disaster at Mount Sinai Hospital

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## Introduction

On March 12, 2003, Mr. N, a 75-year-old man with a history of serious illness, including a liver transplant and triple-bypass surgery, visited a foot clinic at Scarborough Grace Hospital, where he contracted SARS.

These were still early days in the outbreak at the Grace, and the focus remained on Mr. T, and on whether he might have tuberculosis. There was concern that something unusual was happening at the Grace, but as of March 12 no one realized that a new disease, later called SARS, was in the hospital, let alone that it would spread among patients, visitors and staff.

Mr. N felt unwell a few days after his foot clinic visit, and was admitted to the Grace on March 22. His condition worsened and he needed intensive care the next day. With the outbreak surging through the Grace, its ICU could take no new patients, and he was transferred to Mount Sinai's ICU. No one knew that Mr. N had SARS and was bringing it to Sinai. He infected 13 others, including three members of his immediate family; a cousin; two close friends, one of whom died; his family doctor; and three nurses, two physicians and one respiratory therapist at Mount Sinai. Sixty-nine Mount Sinai staff also were quarantined, and its ICU was closed to new patients.<sup>292</sup> SARS claimed the life of Mr. N on April 1, 2003.

This is the story of how difficult it was to detect SARS in the early days of the outbreak, and of the dangers posed by unrecognized patients. On two separate occasions, once when he was at the Grace, and a second time at Mount Sinai, experts acting to the best of their abilities and on the basis of all that was known about SARS at the time examined Mr. N and ruled he did not have it. This does not reflect poorly

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292. Mount Sinai Hospital, "Mount Sinai on the SARS Frontlines," Summer 2003, <http://www.mtsinai.on.ca/Publications/YHRSummer2003/GoingsOn/SARS.htm>

on the Grace or Mount Sinai. The Grace and Mount Sinai<sup>293</sup> did their best under trying circumstances, and their staffs worked with courage and dedication.

In hindsight, the experts would have benefited from taking a precautionary approach.<sup>294</sup> With the benefit of hindsight, the case of Mr. N points to the importance in the future of employing a precautionary approach when fighting a new disease like SARS that is not well understood, mimics the symptoms of known illnesses and is particularly dangerous if cases are not recognized and enter the health care system.

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293. It is worth noting the important voluntary contributions made by Mount Sinai to containing the outbreak. Some of its highly respected experts, including Dr. Donald Low and Dr. Allison McGeer, led the fight against SARS. And, at that time when Ontario's laboratory resources were woefully inadequate, Mount Sinai helped to fill that gap. As the Naylor Report noted:

With the provincial lab overwhelmed, some hospitals sent specimens directly to the National Microbiology Laboratory, bypassing the usual hierarchy of referral.

The Hospital for Sick Children, Mount Sinai, and Sunnybrook and Women's had strong platforms in polymerase chain reaction technology—an elegant laboratory testing modality that identifies microorganisms by analyzing strands of their DNA or RNA. They became the de facto and unfunded referral centres for Toronto SARS testing.

294. Mr. Justice Horace Krever has said:

Where there is reasonable evidence of an impending threat to public health, it is inappropriate to require proof of causation beyond a reasonable doubt before taking steps to avert the threat. As an editorial in the *American Journal of Public Health* in May 1984 put it:

The incomplete state of our knowledge must not serve as an excuse for failure to take prudent action. Public health has never clung to the principle that complete knowledge about a potential health hazard is a pre-requisite for action. Quite the contrary, the historical record shows that public health's finest hours often occurred when vigorous preventative action preceded the crossing of every scientific "t" and the dotting of every epidemiological "i".

Address by the Honourable Horace Krever, International Joint Commission, Great Lakes Science Advisory Board Workshop, Methodologies for Community Health Assessment in Areas of Concern, Windsor, October 4, 2000.

## Mr. N Is Admitted to the Grace

On Wednesday, March 19, 2003, one week after visiting the foot clinic, Mr. N began to develop what physicians thought was community-acquired pneumonia.<sup>295</sup> The next day he visited his family doctor. The physician looked for signs of fever or respiratory symptoms, but didn't find any. Mr. N had other underlying health problems which, at that time, were the focus of attention.

In the next few days, Mr. N got sicker. A cousin who visited him on the evening of Friday, March 21 recalled that Mr. N was quite ill and had a high fever. The cousin later became ill with SARS.

By Saturday morning, March 22nd, Mr. N's condition had worsened. His family doctor visited him at home, found that his health had declined considerably, and arranged for him to be admitted to the Grace. The following week, the family doctor felt ill and was eventually diagnosed as a suspect case.

On Sunday, March 23, 2003, Mr. N's condition continued to deteriorate. A family member recalled that he was very ill:

When I went in to see him on Sunday morning, it was like he was a different person. He could not breathe: the nurse said that he had a very bad night.

As Mr. N became more gravely ill, doctors at the Grace decided he needed intensive care. The Grace intensive care unit was closed to new patients, so Mr. N would have to be transferred elsewhere.

CritiCall, the provincial agency that manages patient transfers,<sup>296</sup> was contacted and

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295. "Community-Acquired Pneumonia: Pneumonia caused by any organism found regularly outside the hospital; common organisms include *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Mycoplasma*, as opposed to hospital-acquired or nosocomial pneumonia." *Stedman's Medical Dictionary*, 28th ed. [http://www.drugs.com/medical\\_dictionary.html](http://www.drugs.com/medical_dictionary.html)

296. "CritiCall is a 24-hour-a-day emergency referral service for physicians across the province of Ontario. CritiCall links hospitals and medical resources throughout Ontario, to provide strategic healthcare communications solutions anywhere, any time they're needed .... As a key provincial medical resource, CritiCall is a fast, efficient, and reliable tool for healthcare providers. We: Provide effective and efficient resources for all levels of care; Promote accessibility for a greater number of people, at reduced cost; Offer physicians increased efficiency of time-management; Allow governments to increase network efficiency; Provide enhanced disaster planning capabilities; Improve communications among emergency services and ambulances and between hospitals." Source: <https://www.criticall.com/info/Default.shtml>.

found an available bed at Mount Sinai's ICU. It put Mount Sinai's ICU into contact with the sending physician at the Grace. CritiCall also advised Mount Sinai of the SARS outbreak at the Grace.<sup>297</sup> Also at this time, infectious disease experts from Mount Sinai were at the Scarborough Grace Hospital helping with the investigation and response.

## Transferring Mr. N to Mount Sinai

Because Mr. N came from the Grace, nurses at Mount Sinai were concerned he might have SARS.

One nurse who contracted SARS from Mr. N said:

We were concerned that the patient had pneumonia and it was considered atypical community-acquired pneumonia. We were concerned that coming from a quarantine hospital, that even if he didn't have exposure, shouldn't we still maintain respiratory isolation and quarantine for him . . .

Before accepting Mr. N, Mount Sinai wanted to make sure he did not have SARS, and contacted the sending physician at the Grace, who said:

... I remember getting a call back from him [the admitting physician at Mount Sinai] saying, You know, we really need someone else to look at this case.

One continuing problem during the outbreak was determining whether a patient had SARS or another disease with similar symptoms. Clinicians relied on the case definition, which, at this time, required an epidemiological link, or epilink as it's often called, to reach a diagnosis. An epilink provided sufficient evidence of a cause-and-effect connection between a person with SARS symptoms and someone who might

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297. An external review by infection control practitioner Carol Goldman, commissioned by Mount Sinai to examine how it handled the case, said:

CritiCall called the MSH, ICU attending staff MD to request a transfer of a patient from SGH to MSH-ICU because of deteriorating respiratory status

- CritiCall call taker made specific mention of SARS cases and the investigation occurring at SGH and the fact that the ICU was closed (necessitating transfer of patient)

have infected them. Alternatively, it might provide sufficient evidence of a direct connection between a person with SARS symptoms and a jurisdiction or location where there were confirmed cases of SARS transmission.

Two physicians who treated SARS patients wrote:

While the various case definitions caused some degree of confusion in the organizational response to SARS, front-line clinicians made the diagnosis of SARS based on the presence of three factors: fever, respiratory symptoms, and an epidemiologic link to someone else with SARS. The epidemiologic link was clearly the most important criteria and extensive public health resources were devoted to tracking down case contacts.

The epilink was often difficult to identify.

Dr. Donald Low said:

We used the epilink. The problem was that, as the disease spread throughout Toronto, sometimes that epilink was not evident. It was only evident in hindsight when you pulled the story together. So if a person came into your emergency room complaining of fever or a headache or a muscle ache or a bit of a cough, but had no link whatsoever to SARS that you could discern, you sent that person home. In actual fact, that person may have happened to be sitting in the waiting room of a doctor's office next to a person who had SARS.<sup>298</sup>

The sending physician at the Grace asked an infection control expert from Mount Sinai who was at the Grace helping contain its outbreak to examine Mr. N. No evidence of an epilink was found. This was a critical element in concluding that Mr. N did not have SARS.

A study into the case of Mr. N published by the CDC said:

Before transfer, SARS was excluded from the differential diagnosis because the patient had not traveled, had never left the emergency

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298. Interview with Dr. Donald Low in *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, And Science* Volume 2, No. 1, 2004.

department of the referring hospital, and had only had a single recent outpatient visit to an area of the original hospital in which SARS had not been identified.<sup>299</sup>

An external review<sup>300</sup> commissioned by Mount Sinai to examine how it handled the case of Mr. N summarized the measures taken to rule out SARS before Mr. N was transferred from the Grace:

- Discussion between sending and receiving medical staff about epidemiological links to SARS-MSH was advised no contact to SARS at SGH
- Transfer was held until MSH could confer with MSH infection control personnel (who coincidentally were consulting infection control at SGH and intimately involved in the ongoing investigation) and who confirmed that there appeared to be no link<sup>301</sup>

On March 23<sup>rd</sup>, the third-floor foot clinic that Mr. N had visited on March 12 was not considered an epilink. This would change soon afterwards, as the sending physician at Scarborough Grace Hospital told the SARS Commission:

We were being careful. We knew about the chiropody clinic. But we did not see how that was the link because I don't believe the 3D staff started getting sick until a day or two later. Had he shown up one day later, OK, chiropody, 3D [CCU], it's close enough, and so we couldn't see the connection. And we didn't know about [Mr. H] at that point. We had to dig out this information. Had we gotten the call that [Mr. H] was ill, he came from the Grace, then we would have said 3D CCU you are a problem now. It would have been raised to a level that we would have said there is an epi-link somewhere in here, we'll find it... Had we gotten that

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299. Scales, Green, Chan et al. Illness in intensive-care staff after brief exposure to severe acute respiratory syndrome. *Emerging Infectious Diseases* 19,no. 10 (October 2003). <http://www.cdc.gov/ncidod/EID/vol9no10/03-03-0525.htm>. (Scales, Green, Chan et al., "Illness in intensive-care staff").

300. In the aftermath of SARS, Mount Sinai commissioned Carol Goldman, an infection control practitioner to review the hospital's handling of this case. The Commission is grateful that Mount Sinai generously shared this frank and insightful document.

301. Carol Goldman, "Infection Control, Critical Review Mount Sinai Hospital ICU," November 6, 2003 (Goldman, "Infection Control").

call [about Mr. H] the minute they knew about it, Mr. N would not have gotten to Mount Sinai or would have gone under certain circumstances, special care.

The external review said that those who concluded that Mr. N did not have SARS did the best they could under the circumstances:

The knowledge of the outbreak was known, and it seems that prudent steps were taken to determine if SARS was a diagnosis to consider. Attending staff in the ICU made careful inquiries from both [the Grace] critical care staff and those infection control/epidemiology personnel conducting the investigation. Based on their conclusions that no epidemiological link existed between this patient and any SARS patient at [the Grace], it was determined that this patient had [community-acquired pneumonia] not SARS, and isolation precautions were not indicated. I believe that at the time this would have been the only conclusion to make.<sup>302</sup>

## Mr. N Arrives at Mount Sinai

Mr. N was admitted at Mount Sinai at 8:18 p.m. and was placed in ICU room 1803.<sup>303</sup> When he was wheeled into the ICU, he was placed next to where a nurse was sitting. Her face was on the same level as Mr. N's. She later came down with SARS.

She told the Commission:

When the patient first came in I had the patient adjacent to the room ... the patient arrived by ambulance without warning onto the unit so we didn't have a chance to mask.

And the patient actually came in, was kind of wheeled in, like level to me, and I can basically turn around and there he was. I had no mask on. I had no idea at what time the patient was actually going to be arriving.

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302. Goldman, "Infection Control."

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So I didn't have a chance to prepare. And neither did any of the other people on the unit ...

This nurse was not on duty during the balance of Mr. N's stay at Mount Sinai, and had no further exposure to him.

And I didn't have any mask, I didn't have any gloves. So I don't really know for sure when exactly I contracted the virus. But that was my biggest, my most vulnerable time was at that time. Other times I had mask, gown and gloves when I was in the room.

The next day concern returned that Mr. N might have SARS. A medical article said:

After about 14 hours in the ICU, clinical suspicion of SARS resulted in the use of isolation precautions.<sup>304</sup>

Because of the growing unease, experts from the infectious disease department reviewed the diagnosis of SARS, and Scarborough Grace Hospital was called to determine Mr. N's appointments prior to his getting ill and try to identify any epilinks.

According to the external review, the experts from the infectious disease department concluded:

- That no epidemiological link occurred with SARS cases at SGH, but recommended that confirmation should be made by interview with wife to confirm that patient did not visit ER between March 7-14
- Agrees with Dx [diagnosis] of CAP [community acquired pneumonia] in an immunocompromised host.<sup>305</sup>

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304. Robert Maunder, Jonathan Hunter, Leslie Vincent et al. "The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital." *Canadian Medical Association Journal*, April 16, 2003. [www.cmaj.ca](http://www.cmaj.ca) on Apr. 16, 2003

305. Carol Goldman, "Infection Control."

## Mr. N Is Intubated

Mr. N's condition deteriorated during the course of March 24th. One of the physicians who treated him said:

... his respiratory status was progressively getting worse.

A nurse who had looked after Mr. N on the night of the 23<sup>rd</sup> recalled:

Next night [I] came in looking at him and thinking this patient is very sick. Went into room, he looked very, very ill. I thought, this fellow needs to be intubated.

By the evening of March 24<sup>th</sup> his breathing had become so laboured that doctors decided he needed to be intubated, a procedure in which a tube is placed into the windpipe, "to open the airway to administer oxygen, medication, or anesthesia."<sup>306</sup>

About one-quarter of SARS patients had to be intubated. Intubations of SARS patients were inherently risky because the procedure could aerosolize the patient's respiratory secretions, thereby creating tiny droplets of moisture that can carry microorganisms.<sup>307</sup>

As noted earlier, on March 17th four health workers at the Grace who had intubated an unidentified SARS patient contracted the disease. No directives had been issued after the Scarborough Grace intubation by the Provincial Operations Centre alerting staff to the dangers of this procedure.

However, the risk of intubating SARS patients did not go unnoticed at the CDC. On March 20<sup>th</sup>, four days before Mr. N's intubation, it issued the following warning:

Procedures that induce coughing can increase the likelihood of droplet

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306. "An endotracheal intubation places a tube into the windpipe (trachea). This is done to open the airway to administer oxygen, medication, or anesthesia. It may also be done to remove blockages or to view the interior walls." Source: *Medline Plus Encyclopedia*, a service of the U.S. National Library of Medicine and the U.S. National Institutes of Health.

307. "The process of creating very small droplets of moisture (droplet nuclei) that may carry microorganisms. The aerosolized droplets can be light enough to remain suspended in the air for short periods of time and facilitate inhalation of the microorganisms." MOHLTC, "Final Report of the Infection Control Standards Task Force: Non-Acute Institutional Settings," March 2004, p. 6

nuclei being expelled into the air. These potentially aerosol-generating procedures include aerosolized medication treatments (e.g., albuterol), diagnostic sputum induction, bronchoscopy, airway suctioning, and endotracheal intubation. For this reason, healthcare personnel should ensure that patients have been evaluated for SARS before initiation of aerosol-generating procedures. Evaluation for SARS should be based on the most recent case definition for SARS.<sup>308</sup>

Even if the CDC's warning had been distributed to staff at Mount Sinai, it is not certain this would have made a difference. The health workers who intubated Mr. N at Mount Sinai did not think he had SARS. The CDC warning was based on recognizing SARS.

Late on the evening of March 24, 2003, a resident attempted to intubate Mr. N, but was unable to do so.

The resident recalled:

I knew beforehand going in it would be very difficult and it was. So at that point, I knew I had to ask for help and I called an anesthetist in to help me. So a staff anesthetist and an anesthesia resident came up to assist me in securing the patient's airway.

The staff anesthetist was worried Mr. N might have SARS. He was told the infectious diseases consultation earlier that day had ruled out SARS.

The resident said:

Even at that time, though, we did not think this patient had SARS. That's the thing actually. Even at that point, it was believed that he was a patient severely immunocompromised and just crashing with a community-acquired pneumonia. Even in my mind I remember and that, not clicking in that this patient truly had SARS.

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308. CDC, "Infection control precautions for aerosol-generating procedures on patients who have Suspected Severe Acute Respiratory Syndrome (SARS)," March 20, 2003, 7:00 PM EST

The resident said that it's not unusual for severely ill elderly patients to get as sick as Mr. N was that night:

Question: And was there any suspicion, did you have any suspicion that maybe he had SARS?

Answer: He was an elderly patient and patients dealing with a community-acquired pneumonia can get very sick and that was my impression.

Five health workers were in the room during the intubation: the anesthetist, the medical resident, a postgraduate medical trainee, a nurse and a respiratory therapist. The anesthetist, the medical resident and the nurse got SARS. The anesthetist and the nurse wore gowns, gloves and surgical masks. The medical resident wore a gown, gloves and an N95 respirator, although he had not been fit-tested or trained in its use.

During the intubation of Mr. N:

. . . the patient's respiratory secretions were splashed onto the uncovered cheek of one of the healthcare workers.<sup>309</sup>

A health worker who got SARS recalled:

I remember at one time I got sprayed with secretions.

One health worker who got SARS said his face was very close to Mr. N's during the procedure:

The patient was breathing, almost into my face. I was wearing the face mask, but I did not have goggles ... this patient was in respiratory distress... and my face is not too far away from his, trying to put in a breathing tube.

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309. Scales, Green, Chan et al. "Illness in intensive-care staff".

## An Unexplained Transmission

Five of the six health workers who caught SARS at Mount Sinai, including the three who were in the room when Mr. N was intubated, had direct contact with him. The sixth health worker, however, was on the same floor as Mr. N but does not appear to have gone anywhere near either him or an earlier SARS patient who was admitted to Mount Sinai on March 13.

One nurse said:

And there was another nurse. She didn't have any contact with the patient, she was on the other side of the unit. She didn't have any contact, direct contact, with either of the patients. We still don't know how she got it.

While no one knows for certain how this nurse got SARS, a medical study noted a possible link between this nurse and one of the physicians involved in intubating Mr. N.

The study said:

SARS developed in one quarantined health care worker (a nurse) who had not entered the index patient's room; the disease did not occur in any other healthcare workers who had not touched or had close contact with the index patient. The nurse was present in the ICU for 18.75 h (two shifts) during the patient's admission. Of note, after the endotracheal intubation of the index patient, the physician who performed this procedure entered the room where the nurse was caring for another patient. Neither the nurse nor the physician recalled direct contact, and they were certain that the physician had changed gloves and gown before room entry. This nurse had no other epidemiologic risk to explain the development of SARS.<sup>310</sup>

The study also suggested a number of possible transmission routes, including airborne transmission:

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310. Scales, Green, Chan et al. "Illness in intensive-care staff".

In the second case, transmission could have occurred in a number of possible routes. The nurse may have come within sufficient range of the SARS patient to be exposed to large droplets. Recent reports indicate that the virus may survive for several hours on fomites or in body secretions (12) and raise the possibility of transmission by indirect contact with contaminated objects or of inadvertent carriage and spread by another healthcare worker. Fecal transmission is unlikely as the patient did not have a bowel movement during his stay. True airborne spread may also have occurred. Although evidence does not support this route of transmission for the SARS-associated coronavirus, existing literature suggests that other coronaviruses may be spread by an airborne route in certain circumstances.<sup>311</sup>

## Mr. N Is Transferred to Toronto General Hospital

After the intubation, the nurses attended to Mr. N. One nurse told the Commission:

... he was very, very nice. He helped us turn and he was very good. So I suctioned his mouth. I remember doing all that. Cleaned him. We cleaned his sheets because it's very messy after an intubation.

Late in the evening of March 24th, the possibility again arose that Mr. N might have SARS, and he was transferred to nearby Toronto General Hospital at about 4:30 a.m. on March 25. According to the external review, Mr. N's chart said he was transferred because "SARS precautions requiring."<sup>312</sup>

Nurses' notes on Mr. N's chart said:

2358hrs – waiting for transfer to a more secure isolation facility as SARS is being considered because of patient's contact at SGH.<sup>313</sup>

The decision to transfer Mr. N appears to have been prompted by the rising number of SARS cases at the Grace. The external review said:

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311. Scales, Green, Chan et al. "Illness in intensive-care staff".

312. Goldman, "Infection Control."

313. Goldman, "Infection Control."

Now infection control is concerned about the increasing number of people developing SARS at [the Grace] and therefore the decision is made to increase the management of the patient to full isolation with negative pressure isolation room.<sup>314</sup>

One senior hospital official told the Commission the suspicion that Mr. N might have SARS increased after the intubation:

And there was no suspicion at the time he was intubated that he could have SARS. It was felt that he was compromised because of his transplant, and the reason he had pneumonia was, he was a very severely compromised patient.

A medical study said:

Endotracheal intubation required fiber-optic placement. That the extent of the outbreak at the referring institution was larger than originally appreciated became apparent at this time; therefore, the patient was transferred to another facility for placement in negative pressure isolation for possible exposure to SARS.<sup>315</sup>

On the morning of March 25, after Mr. N was transferred to Toronto General, some of the Sunny brook nurses who cared for him had a sense of foreboding. One nurse was so concerned that before going home she called her husband to take special precautions and make sure their children did not come near her:

So I told everybody, you bet, you watch, we're going to be quarantined. And I remember calling my husband in the wee hours of the morning to say, please have the kids out of the house; I don't want you near me because when I come home, I'm just going to take my clothes off, throw them out and shower because I think I've been exposed to SARS. And I had concerns for my family because I thought, I've been in there, cleaned him up after intubation.

She also said:

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314. Goldman, "Infection Control."

315. Scales, Green, Chan et al. "Illness in intensive-care staff."

So when I came home, I sterilized myself in hot water and walked around the neighbourhood to clean out my lungs. I remember going for a walk for hours and hours, just trying to breathe in air ... because I was afraid.

Another nurse who attended Mr. N the night of March 24 and got SARS said she also had a bad feeling. "It played on my mind," she recalled. After an overnight shift, she often looked in on her elderly parents before going home. She called her father and said, "I have a bad feeling." She decided not to visit with them that day and went directly home. As we see time and again throughout the story of SARS, the intuition of front line staff proved to be right. In this case, the fears of the staff at Mount Sinai were realized, when they later learned that Mr. N had SARS.

One day later, on Wednesday, March 26, 2003, Mount Sinai told staff in a bulletin that an unidentified patient was under investigation as a possible SARS patient:

Today we have identified that a patient who was transferred from Scarborough Grace to our ICU late Sunday evening March 23 and subsequently transferred out of MSH in the early morning of Tuesday March 25 is under investigation for possible exposure to SARS.<sup>316</sup>

One hospital official recalled:

... the next day, the head of our ICU was quite concerned about the fact that someone was transferred from a hospital where all this was going on. We had a meeting with our senior administrators the next day and it was decided that we had to treat him as if he had SARS and we decided to send him about 75 health care workers who may have had contact with him in the ICU during those 31 hours so maybe that was Tuesday morning and 4 days later we admitted about 7 health care workers with fevers.

A medical study said:

Once the risk for SARS was identified, all patients in the ICU were considered to have been potentially exposed. To prevent spread of SARS, we closed the ICU to admissions and discharges and implemented strict

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316. Mount Sinai Hospital, "SARS Update," March 26, 2003.

respiratory and contact precautions for all remaining patients. We quarantined 69 healthcare workers who were considered to be at high risk for developing SARS.

On the basis of our understanding of disease transmission, we arbitrarily decided that persons at high risk included anyone who had entered the index patient's room or who had been in the ICU for >4 hours during the patient's 30.75-h stay.<sup>317</sup>

The case of Mr. N caused Mount Sinai to institute a number of other measures, including closing its ICU and cancelling most surgical procedures.

It is important to distinguish between systemic flaws and the skill and dedication of those who worked within a health system fettered by those flaws. In examining the case of Mr. N, the external review concluded:

The old adage that hindsight is 20/20 must be made in this case.<sup>318</sup>

The experts who examined Mr. N and ruled out SARS on two separate occasions acted in good faith on the best information then available according to the standards that prevailed at the time. They did their best under difficult circumstances.

With the benefit of hindsight, the story of Mr. N points to the importance of the precautionary principle as a lesson for the future, particularly if faced with a new, little-known disease that is so problematic in its diagnosis. It illustrates that the precautionary principle was not as sufficiently integrated into the system that responded to SARS in Ontario as it was in Vancouver, and it demonstrates the consequences of this systemic flaw.

It also shows the importance for the future of employing a precautionary approach when fighting a new disease like SARS that is not well understood, shares the symptoms of known illnesses, and is very dangerous if cases are not recognized and enter the health care system.

It is better to be safe than sorry. Action to reduce risk should not await scientific certainty.

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317. Scales, Green, Chan et al. "Illness in intensive-care staff."

318. Goldman, "Infection Control."