Making a Difference:

Milestones in Public Health & Biotechnology: Canadian Connections

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Lecture #10 – Legacies & Challenges

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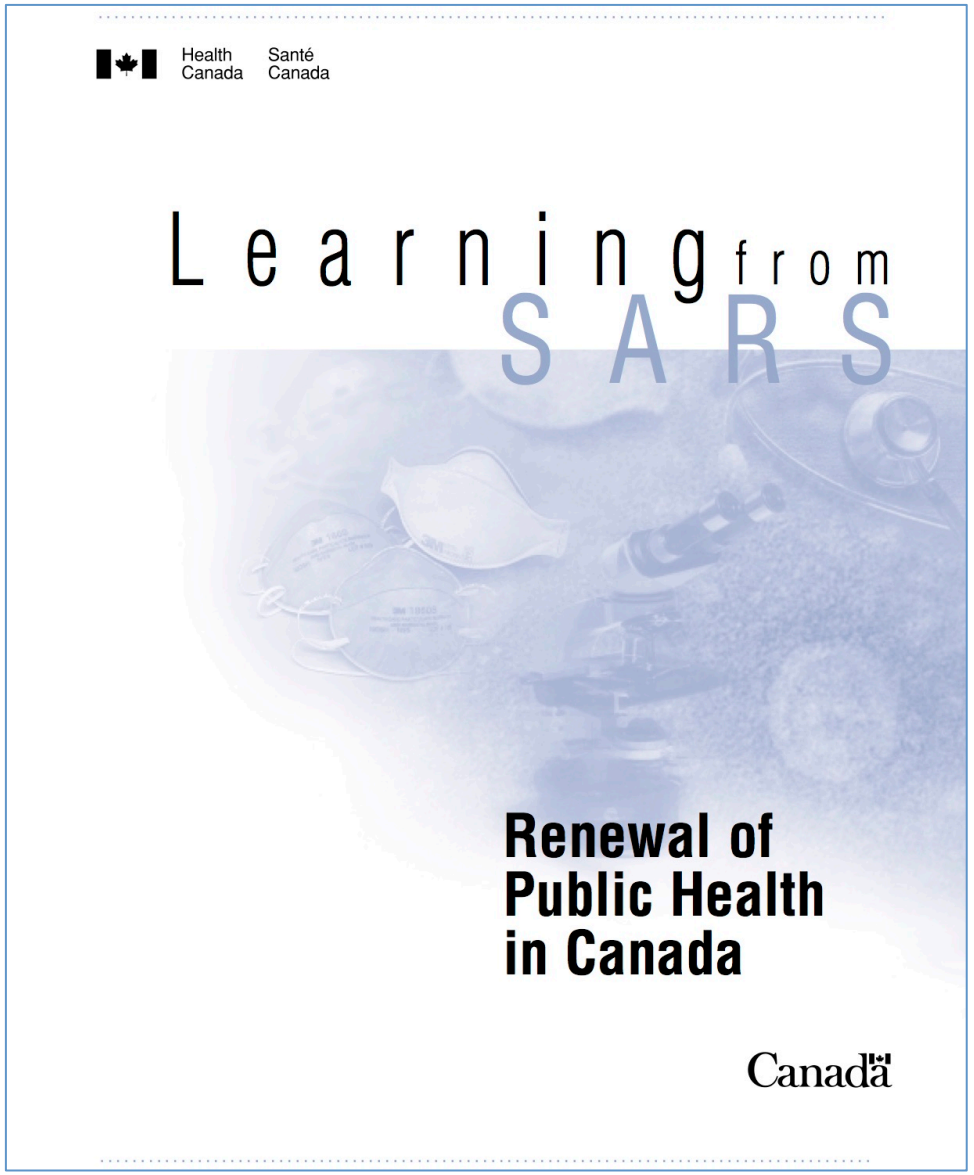
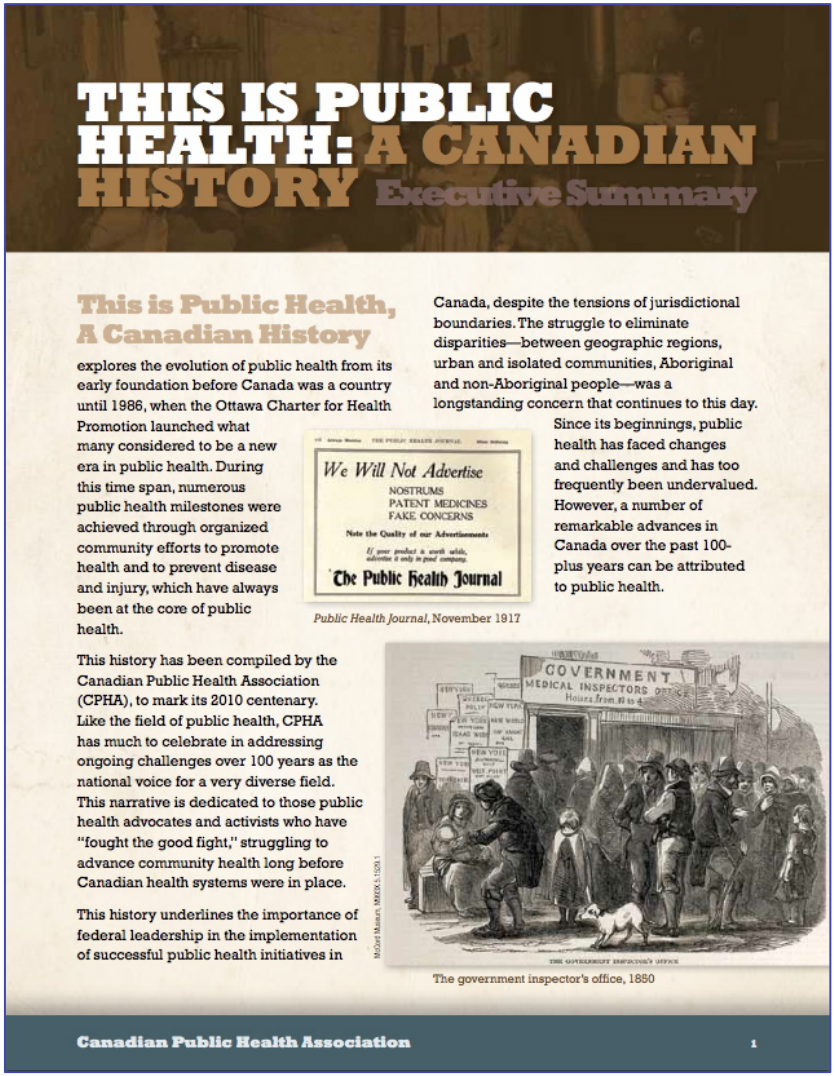
Living and Learning in Retirement, Course E
Class #2, November 17, 2017
Glendon College, York U., Room A002



Previous lecture slides available via:
http://healthheritageresearch.com/clients/LLiR/

Introduction

- Class #10, our last class, starts with continuing the SARS story and highlighting how it set in motion a transformation of public health in Canada
- From the echoes of SARS to the echoes of polio, we'll mark the 50th anniversary of the Salk vaccine, focus on the challenge of post-polio syndrome and track the recent progress and setbacks of the global polio eradication program
- The emergence of H1N1 pandemic influenza gave Canada's post-SARS public health infrastructure its first real test, revealing limitations in infectious disease control and pandemic vaccine flexibility
- Also revealed was persistent resistance, especially among adults, of influenza immunization within a context of broader vaccine hesitancy among parents about immunizing their children
- I'll conclude by underscoring how history can be a useful tool for countering such vaccine hesitancy



C.J. Rutty, *This is Public Health: A Canadian History* (Canadian Public Health Association eBook, 2010) - https://www.cpha.ca/history-e-book

Surviving SARS

- **July 30, 2003** – While the "SARSSTOCK" concert certainly marked the end of the Toronto SARS outbreak in a unique way, in telling the outbreak story during the last class I overlooked the key figure in both the management of the outbreak in Toronto and in driving much of the public health renewal that followed

- That figure was Dr. Sheela Basrur…

Globe & Mail, Sept. 3, 2003, p. A7

Experts prescribe national health team

BY BRIAN LAGHI, OTTAWA

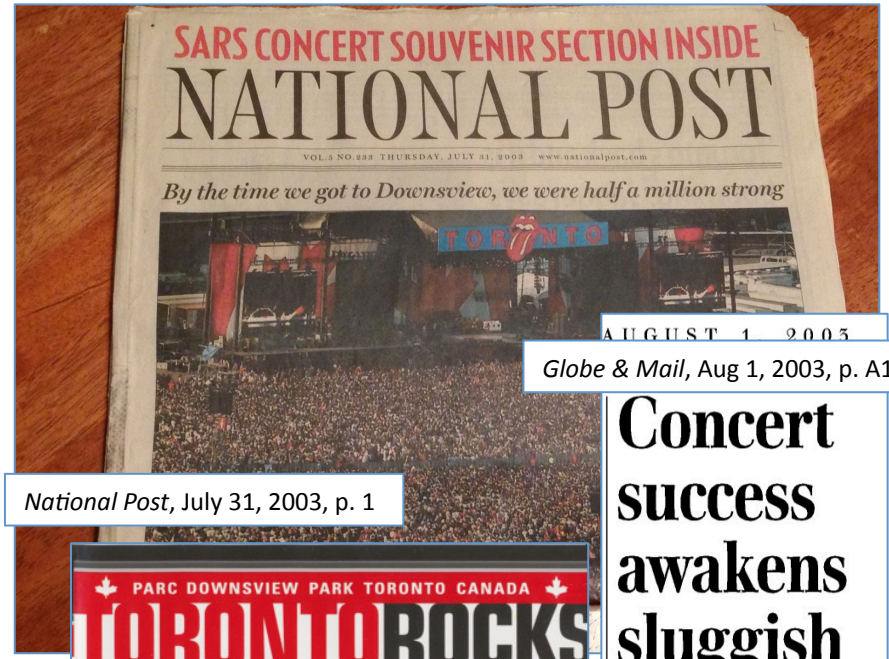
A blue-ribbon panel studying the fallout from the SARS crisis will recommend that Ottawa spend hundreds of millions of dollars on public health, including a national disease centre that could quickly co-ordinate responses to health emergencies, sources have told The Globe and Mail.

The improvements, which are part of a report to be outlined to Canada's health ministers today, could ultimately run toward $1-billion a year once provincial and territorial costs are included.

ment plan to move medical professionals to help cope with local emergencies.

However, he said the agency must also be augmented by more money for front-line workers employed in protecting the public from another SARS-type outbreak or crises such as the tainted-water tragedy in Walkerton, Ont. It could also have several other roles, including development of immunization programs and studying disease prevention.

Dr. Naylor, who is dean of medicine at the University of Toronto, noted that the Centers for Disease



National Post, July 31, 2003, p. 1

Globe & Mail, Aug 1, 2003, p. A1

Concert success awakens sluggish tourism

BY GLORIA GALLOWAY, TORONTO

Toronto's tourism industry is cautiously optimistic that Mick Jagger has provided an economic cure for SARS as the city basks in the blissful afterglow of a colossal concert that went astonishingly right.

Hotel bookings are up; the Rolling Stones lead singer's pronouncement that Toronto "is back and it's booming" has been heard across the United States; and the image of Torontonians as peaceful, fun-loving folk has been distributed worldwide via the Internet.

"We're looking in U.S. dailies and on Web sites and all they are talking about is the great concert that happened," Bruce MacMillan, president of Tourism Toronto, said yesterday.

"And the quote that Mick Jagger gave, that is precisely the message that needed to be told to the world."

Facing SARS

- **1998** – Dr. Sheela Basrur appointed Toronto's Medical Officer of Health following the forced amalgamation of the cities that had made up Metro Toronto (Toronto, Etobicoke, York, East York, North York, Scarborough)
- Born in Toronto of immigrant parents from India – a veterinary genetics professor and a radiation oncologist - Sheela followed a educational path that led to an MD from the University of Toronto in 1982 and then opening a general practice
- **1987-92** – However, travels to Nepal and India inspired a passion for public health that led to further studies in community health at UofT and an appointment as East York's Medical Officer of Health

Globe & Mail, Apr 26, 2003, p. F3

Medical officer of health Sheela Basrur has proved to be the city's real leader in the fight against the virus. It's no surprise, writes **JOHN BARBER**. She has always been outspoken, determined and progressive

Toronto's SARS star

DONALD WEBER/THE GLOBE AND MAIL

Sheela Basrur: 'At this point, the overreaction is worse than the disease.'

Lori of Toronto, as the call-in show identified her, spoke for an entire frightened, black-flagged city when she described her response to a just-televised press conference in which shaken civic leaders lashed out at the World Health Organization, just hours after it had declared Toronto a medical pariah on par with disease-ridden Shaanxi, China.

Led by an angry, unsteady Mayor Mel Lastman, clearly suffering from the debilitating effects of ongoing therapy for hepatitis C, the Torontonians put on a brave face. But Lori was worried.

"I have such faith in Dr. Basrur," she said, referring to the city's diminutive, 46-year-old, single-mother medical officer of health, who had followed the mayor's performance with a lucid and persuasive, fact-by-fact deconstruction of the WHO analysis.

"She is so honest and you know she has such integrity," Lori said, hesitating slightly before plunging forward. "*Please* don't let Mayor Mel represent us on CNN!"

In the actual event, it was appropriately Mr. Lastman who first proclaimed Toronto's outrage to the world via Aaron Brown at 11:30 p.m. Thursday. But by that time, after an emergency meeting in which a galvanized city council launched a fusillade of SARS-related initiatives, the real leader of the city's increasingly confident struggle with the disease was even more obvious to all. It was Dr. Sheela Basrur.

Nobody knew that better than Mr. Lastman and his party, who have spent the past five years cutting the city's public-health budget while treating its leader with suspicion and even outright hostility. At the end of Dr. Basrur's latest comprehensive and reassuring presentation of actual facts regarding severe acute respiratory syndrome in Toronto and the world, the grateful leaders rewarded her with a standing ovation and a bouquet of flowers.

Deputy Mayor Case Ootes, who has tangled with the good doctor in the past, hailed her as "the personification of excellence in every respect."

Dr. Basrur has become "a household name not just in Toronto and in Ontario but really across Canada," health board chairman Joe Mihevc enthused, singling her out in a glowing tribute to the city's exhausted public-health workers. "They appreciate, Dr. Basrur, the clarity, the integrity and the straightforwardness of your presentation of this disease."

Toronto needs a Rudy Giuliani? Just look down. There she is, "five feet and shrinking," she allows when pressed, a woman of colour with the physique of a Cornish hen, large expressive eyes shining behind her glasses and the unmistakable ways of a born leader.

Sheela Basrur is a New Age leader who came to prominence the old-fashioned way, much to her own surprise, as a down-and-dirty fighter in the infection-control trenches. Working in isolation, her department was almost overwhelmed trying to track down and gather up the far-flung cases that exploded out of Scarborough Grace Hospital last month. As the crisis widened to engulf the entire regional health-care system, however, it was her talents as a communicator that came to dominate.

Fearsomely articulate, logical and frank in her assessments of the epidemic, Dr. Basrur worked steadily to allay fears about rampant contagion in Toronto. Although little heeded at the height of the alarm, she emerged as the steadiest, most credible public spokesperson on SARS. By the time WHO hit, nobody was prepared to hit back harder.

Neither city council nor the Toronto public was necessarily receptive to a message of hope and calm in the wake of this week's devastating news from WHO. Mere facts seemed feeble in the face of that titanic judgment, which instantly decreed more hardship for a swath of the SARS-affected populace.

Wagering her entire boodle of carefully gathered medical credibility, Dr. Basrur took the opportunity to proclaim victory over SARS.

"All signs at this point are giving me cause for optimism," she declared in a big, steady voice at the end of her bravura presentation to the demoralized city councillors, laid out with every new fact battened down.

"We do not have further spread in the community. We do not have widespread disease in hospitals. We have localized transmission in high-risk environments, and the people who have been exposed are either in hospital being treated or at home in quarantine, where they belong."

What did we do wrong, one downcast politician asked.

"Bad luck and worse timing is the answer," Dr. Basrur replied. "There is no other rational explanation for it."

Nothing is going wrong in Toronto, she insisted. On the contrary, Toronto is once again showing the world how to do things right. "Proper infection control works," she said. We proved it. What's bad luck for us will be "an effective learning experience for others."

So listen up, silly WHO: "We absolutely do not have a medical emergency."

The time has come, Dr. Basrur concluded, to manage SARS "in a way that is realistic and responsible, not overly panicked and fear-driven." To get back to normal life, as quickly as possible.

"What we need most is the renewal of public confidence in this city, and that begins with us."

The standing ovation, the flowers, the tearful tributes, the relief: At last, a clear road forward.

Wide-eyed and clear-complexioned, Dr. Basrur shows none of the fatigue she must feel when she settles down a few hours later for her umpteenth disquisition on SARS. Her bag lunch goes uneaten as she talks on.

"I guess that's why I'm shrinking," she says. No time to eat.

She laughs at being called a diminutive dynamo, admitting to have taken one day off since the crisis began, a victim of the sniffles. "It was the type of thing where I had to follow my own advice," she says with a shrug. "So I stayed at home with two lines going on the cellphone as well as the land line and the Blackberry, watching the press conference on television with a box of Kleenex."

Things are easier now, with SARS under control. But now that the dirty work of corralling the disease has been accomplished, the need for effective communication is even stronger, according to Dr. Basrur. "At this point, the over-reaction is worse than the disease," she says, "especially if the disease is on the wane and panic shows no sign of abating. That would be a very, very bad thing."

Toronto's SARS crisis is a Walkerton-style wakeup call in her view, "a very useful reminder to all of us that if we don't take care of the basics, our health will be imperilled." For a public-health official in Toronto, she says, the main lesson of SARS is that "we have a very, very limited capacity to respond to the unexpected."

That's bound to change; one senses Dr. Basrur will have more money in her budget next year.

Born in Toronto — at Women's College Hospital, she notes proudly — Dr. Basrur never intended to spend her life here, preaching an old-fashioned sanitation gospel, when she completed her medical studies at the University of Toronto. Public health was her worst subject, she laughs, "if that's any consolation to the current cohort."

But her life changed with a round-the-world backpack odyssey in the mid-1980s, when she spent more than half a year in Nepal and also India, her parents' native country. "What I saw there were huge opportunities for prevention that were systematically missed because the infrastructure wasn't there to enable anything but treatment of the cases that could make it to hospital," she says.

She had already experienced the frustrations of a revolving-door general practice, so she threw herself into another four years of study in community health.

Nepal remained a long way off when Dr. Basrur took her first job as associate medical officer of health in the now-defunct borough of East York. Putting her dreams of an international career on hold, she raised a child — a girl, now 12 — and climbed the local ladder instead, emerging as the first MOH of amalgamated Toronto in 1997.

Although Dr. Basrur earned plaudits for implementing Toronto's first restaurant-rating system, she remained an outsider in Mr. Lastman's city hall regime — annoyingly resistant to the place's endemic gamesmanship, yet stubbornly progressive all the same. A very quiet yet determined troublemaker.

She refused to declare a health emergency during Toronto's garbage strike last summer, thus failing to enable the swift passage of back-to-work legislation. (Her provincial counterpart, Dr. Colin D'Cunha, did it instead, while Dr. Basrur stepped aside and bit her lip.) She also infuriated Mr. Ootes and other members of the mayor's party when she insisted that expansion of Toronto's waterfront airport was a serious health threat. Her department remains the most seriously understaffed in the entire municipal establishment.

But the Toronto public health department is also a storied service whose always-independent leaders have collectively made more history in this city than any number of mayors. Dr. Basrur situates herself firmly in a long line of hard-nosed, determined advocates stretching back to Victorian times, "doctors who were very active reducing the burden of communicable diseases by tackling malnutrition, bad housing, bad air, unclean water, unsafe food — the same issues that even a century later are confronting us."

"Often we give voice to those who don't have a voice," the unrepentant progressive continues, her uneaten sandwich going stale while she talks on. "People who are homeless, people who are marginalized in society, those with very low incomes, with poor English skills, people who are out of work. They may be trained professionals in their countries of origin, but they're delivering pizzas here. People who suffer needlessly from health problems.

"It may not be as stark as suffering from tuberculosis in Nepal, untreated for years on end, but it's still a problem in our society that should be dealt with. If I can't speak to those issues, who will?"

Currently, she says, the most marginalized citizens are the thousands who have been brushed by the bug, many of whom now suffer from serious discrimination as the disease abates. She spoke movingly to council about one family of 24, of whom 14 are sick and two dead.

Even before SARS began to make headlines, Dr. Basrur was testing the patience of her Queen's Park counterparts with sharp criticisms of what she considered their inadequate preparations for the region's next microbiological onslaught — West Nile disease. Those concerns remain, she says.

So she is not going off the air any time soon. From Walkerton to SARS to West Nile, public-health capacity — or the lack of it — has emerged surprisingly as the greatest challenge facing 21st-century Ontario. It will be easier for Torontonians to face with a proven leader firmly in charge of the job.

Proper infection control works, Dr. Basrur says. "If you can't manage that, you shouldn't be in the business."

Believe it.

John Barber is The Globe and Mail's City Hall columnist.

She has taken one day off since the crisis began, a victim of the sniffles. 'It was the type of thing where I had to follow my own advice. So I stayed at home with two lines going on the cellphone as well as the land line and the Blackberry, watching the press conference on television with a box of Kleenex.'

Facing SARS

- **1998-2003** – Within the prevailing view that the war on infectious diseases appeared to have been won, Basrur led a staff of 1,800 assembled from the 6 former municipalities, their main interests focused on health promotion strategies through behaviour modification and encouraging community development
- Meanwhile, there were diminishing resources and personnel dedicated to ongoing disease surveillance, infection control and isolation/quarantine
- Provincial funding cuts to health units further forced Toronto Public Health to redefine its goals that were focused more on children, families and specific "high risk" groups than on expanding communicable disease control activities

Globe & Mail, May 3, 2003, p. A1

Cutbacks fed SARS calamity, critics say

SATURDAY SPECIAL: The Ontario government decided its labs and scientists were redundant. The impact was disastrous

BY CAROLYN ABRAHAM AND LISA PRIEST

Just 16 months before SARS hit Toronto, the Ontario government deemed the last of its leading lab scientists redundant and sent them packing as it scoffed at the prospect of any new disease threatening the province.

The timing of government layoffs on Oct. 18, 2001, left five top microbiologists in utter disbelief. Walkerton's tainted-water scandal was a fresh memory. Bioterror threats loomed after Sept. 11 and the West Nile virus had made its Ontario debut.

But the Ontario government declared at the time that the province no longer needed their scientific expertise, insisting there were no new tests to develop: "Do we want five people sitting around waiting for work to arrive?" said Gordon Haugh, a Health Ministry spokesman. "It would be highly unlikely that we would find a new organism in Ontario."

This February, a new organism turned out to be just a plane flight away.

The SARS virus made a mockery of government predictions and exposed the weaknesses of a stripped-down public-health system that many had warned was headed for crisis, a Globe and Mail investigation has found.

"SARS was an accident waiting to happen — because of the priorities of the government, the cost-cutting measures, the conditions were great for SARS to take hold," said William Bowie, an infectious disease specialist at the University of British Columbia who answered Toronto's cry for help during the early weeks of the outbreak of severe acute respiratory syndrome.

People on the front lines fighting SARS say it is nothing short of a miracle that a "bare-bones" public-health system managed to control the crisis.

It was done despite skimpy resources and with the help of a fractured crisis-management crew that relied on favours, volunteers and "begging and borrowing" everything from software to scientists.

The outbreak highlighted the dire shortage of health workers to trace those at risk of the disease and glaring shortcomings in the province's laboratory services.

It exposed a patchwork communication system that left the containment team no direct means of quickly contacting hospital workers.

See PATCHWORK on page A6

Facing SARS

- **March 12-14, 2003 –** Basrur's SARS story began after the death of the 44 yr-old son of the woman who had brought the mystery infection from Hong Kong, but not before he had sat in Scarborough Grace Hospital's busy ER for 18-20 hours with a high fever, severe cough and difficulty breathing, waiting to be admitted
- He would be the "index case" for the first phase of Toronto's SARS epidemic, and when samples were sent for testing, with suspicions of TB, Toronto Public Health was alerted
- The alert was elevated sharply when the test was negative for TB, more people were sick, efforts began to identify the new disease, and the WHO issued a Global Alert announcing outbreaks of an atypical pneumonia in Hong Kong and Hanoi

Globe & Mail, March 15, 2003, p. A1

Deadly Asian pneumonia strikes two Canadian cities

BY COLIN FREEZE

Public health officials in Toronto have set up a hot line for people who think they may have a mysterious form of pneumonia that is sweeping Asia and appears to be linked to the recent deaths of two Canadians in Toronto and the illness of two more in British Columbia.

The disease, known as atypical pneumonia, is fast-moving and has already prompted a series of warnings. The World Health Organization issued a rare global alert this week and Health Canada is urgi
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pears to be confined to two families, one in B.C., the other in Ontario.

Toronto's Sui-chu-Kwan died on March 5, and her adult son, Chi Kwai Tse, died on March 13, of a severe form of pneumonia. Four other members of their family are sick in hospital, and medical officials have asked the remaining four family members not to go out.

Members of the family recently travelled to Hong Kong.

Officials at a Toronto briefing said the disease has affected a husband and wife in B.C., although one person's condition has im-

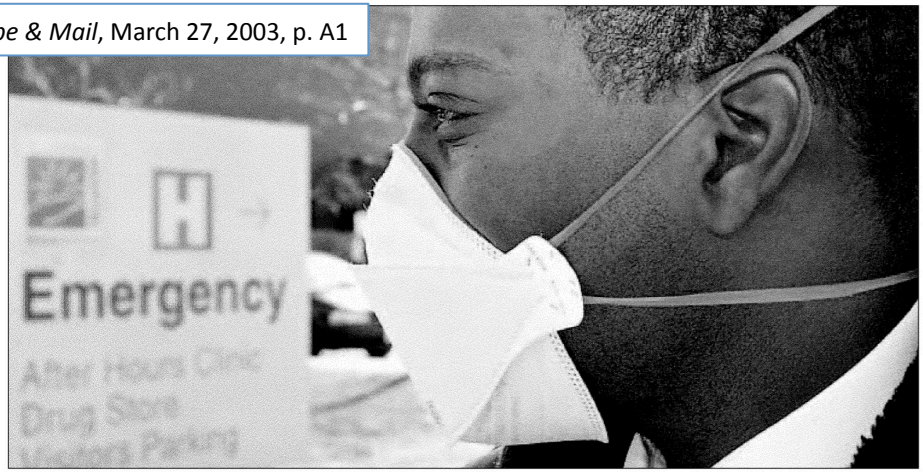
Facing SARS

- Basrur had recently thrown her back out and was staying with her parents when she got an urgent call
- **March 14** – After consulting with federal and provincial health officials, a press conference was called that activated Toronto Public Health's emergency response plan, which led to the city imposing a quarantine on its citizens for the first time in more than 50 years
- "With this new bug that we couldn't test for, couldn't treat and couldn't prevent, there was not much else we could do" she said

The SARS alert: Every person who's been to one Toronto hospital since March 16 is told to stay inside, as officials scramble to contain a puzzling infectious ailment

Thousands in Ontario face home quarantine

Globe & Mail, March 27, 2003, p. A1



I. P. MOCZULSKI/CANADIAN PRESS

A security guard wears a protective face mask yesterday outside Scarborough Grace Hospital in Toronto. The number of probable SARS cases in Ontario has jumped by 14 to 62.

Premier declares health emergency

suspected or probable SARS cases in Ontario has jumped by 14 to a total of 62. This includes 30 patients, mostly Scarborough Grace workers, who remain under strict quarantine, and three deaths.

Most patients are in the Toronto

An instant pariah goes into quarantine

BY CAROLYN
MEDICAL REPO

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QUARANTINE REGULATIONS
CITY OF TORONTO
(Revised 1940.)

Disease	Placard	Isolation Period for Patient	Quarantine Period for Contacts
Diphtheria	Yes	2 successive negative cultures after 10 days	Until one negative culture has been obtained (including breadwinner)
Scarlet fever	Yes	28 days (If nose, throat & ears are healthy)	7 days
Measles	Yes	7 days	16 days
Whooping cough	Yes	21 days (From first whoop.)	14 days (No restrictions 12 yrs. of age & over.)
Poliomyelitis	Yes	21 days (Provided temperature is normal)	10 days
Cerebro-spinal meningitis	Yes	Until clinical recovery	10 days (Breadwinner may be released under certain conditions)
Smallpox	Yes	Until all scabs have fallen off and lesions healed (minimum 21 days)	16 days

This list of quarantine regulations was distributed by the City of Toronto in 1940.

Globe & Mail, March 27, 2003, p. A15

- 13,374 people were put in quarantine in Toronto out of 23,300 SARS contacts

Facing SARS

- As the outbreak played out, the weakened state of communicable disease control that existed at the local, provincial and federal levels became increasingly clear to the media and the public, as did the lack of coordination between federal and provincial health officials
- This situation often left Sheela Basrur caught between differing messages to the public, sometimes on clear view in regular press conferences during the outbreak
- But Basrur quickly emerged as the city's real leader during the crisis, standing tall, despite her diminutive frame, and the source of calm, empathy and confidence to a frightened public

After SARS

- **Early May 2003** – During what seemed like the end of the outbreak and before the second wave started, Sheela Basrur was called into service on Health Canada's "National Advisory Committee on SARS and Public Health" to examine the outbreak and to provide a "third party assessment of current public health efforts and lessons learned for ongoing and future infectious disease control"
- **October 7, 2003** - This Expert Committee, led by Dr. David Naylor, Dean of Medicine, University of Toronto, released its far-reaching report, "Learning From SARS: Renewal of Public Health in Canada"

Globe & Mail, Oct 8, 2003, p. A10

Squabbling abetted SARS, panel says

National agency for disease control must be in place before next crisis, experts say

BY MARINA JIMENEZ, TORONTO
AND BRIAN LAGHI, OTTAWA

Without a new federal centre for disease control and $700-million in funding to manage the next public-health crisis, Canada will fall prey to the same chaos that erupted during last spring's SARS outbreak, a blue-ribbon panel warned yesterday.

A Canadian Agency for Public Health, led by a chief public health officer, must be established to prepare immediately for the next foreign invader, which could be pandemic flu, the experts said.

"The lack of collaboration between the federal and provincial governments [during the SARS outbreak] was an international embarrassment," David Naylor, the University of Toronto's dean of medicine and head of the panel, told reporters yesterday. "People are chastened. We don't want to see this happen again."

Mary Ferguson-Pare, a panel member and vice-president of the University Health Network, said the flu season "is the next test and we are not ready."

Federal Health Minister Anne McLellan said yesterday she supports an agency for disease control that probably won't cost a lot of money "in terms of bricks and mortar." She promised to move as quickly as possible to obtain funding for Dr. Naylor's recommendations, and to use the 224-page report as a framework to "renew public health infrastructure."

"For over 10 years, signals have been sent to all levels of government to ensure we have the right public-health infrastructure in place," she said in Ottawa. "Now it's time to act . . . I will go to cabinet committee fairly soon to ensure my colleagues understand the nature of the recommendations."

The outbreak of severe acute respiratory syndrome claimed the lives of 44 people in the Toronto area. Thousands more were forced into quarantine as the health-care system struggled to contain the virus, which was spread by droplets and transmitted largely in hospitals.

Dr. Naylor, whom Ms. McLellan appointed to lead the National Advisory Committee on SARS and Public Health, said efforts to control the outbreak were hampered by squabbling among jurisdictions, dysfunctional relationships among public-health officials from the three levels of government, an inability to collect and share epidemiological data, and ineffective leadership.

He said the health of Canadians was held hostage to these problems.

While the role of Health Canada was almost "invisible," Ontario also refused to appoint a SARS czar to lead efforts to contain the outbreak. Instead, James Young, the province's public security commissioner, and Colin D'Cunha, public health commissioner, were jointly in charge.

"In separate interviews, both Drs. Young and D'Cuhna acknowledged that the dual leadership structure was less than ideal and one person should have been in charge," the report said.

While Singapore, which was also hit hard by SARS, held daily news conferences with a single spokesman, in Toronto there was "no coherent communications strategy aimed at dispelling the sense of deepening crisis."

Data that officials needed to contain the disease were not made available to experts or Health Canada officials, who in turn couldn't pass the information along to the World Health Organization, the report said. Experts collating data on the disease had to use antiquated computer software.

Yesterday, Dr. Young acknowledged that Ontario "clearly had limited tools" to manage SARS. "Public-health units around the country need protocols for the exchange of information so that we can respect confidentiality but at the same time move information," he said.

Sheela Basrur, Toronto's medical officer of health and a member of the panel, said a computerized data base was set up to monitor only the 224 actual SARS cases; paper files had to be created for 23,000 "contacts," people who might have been infected.

"I witnessed thousands of staff hours wasted in the inefficient pursuit of manual transmission of information," she said.

Dr. Basrur said she is worried Ontario will not be prepared for the next pandemic, noting the SARS crisis was really just a "moment in the history of political memory."

Hospitals do not have the capacity to introduce the infection-control measures required, said Dr. Basrur, who wants a national immunization strategy put in place immediately to contain influenza outbreaks.

The U.S. Centers for Disease Control and Prevention is a model for the Canadian Agency for Public Health.

The proposed centre would both manage public-health emergencies and create a federal public-health strategy.

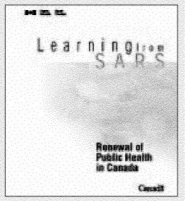
Other recommendations in the report include:

- Creating a new network of communicable disease control that could assist local efforts to contain disease outbreaks;
- Improving Canada's lab systems for better detection of infectious disease threats;
- Hiring more public health officials;
- Devising a national immunization strategy.

DONALD WEBER/THE GLOBE AND MAIL

Dr. David Naylor, head of the National Advisory Committee on SARS and Public Health, brings the panel's report to a news conference in Toronto yesterday. Following him is Dr. Mary Ferguson-Pare.

Learning from SARS

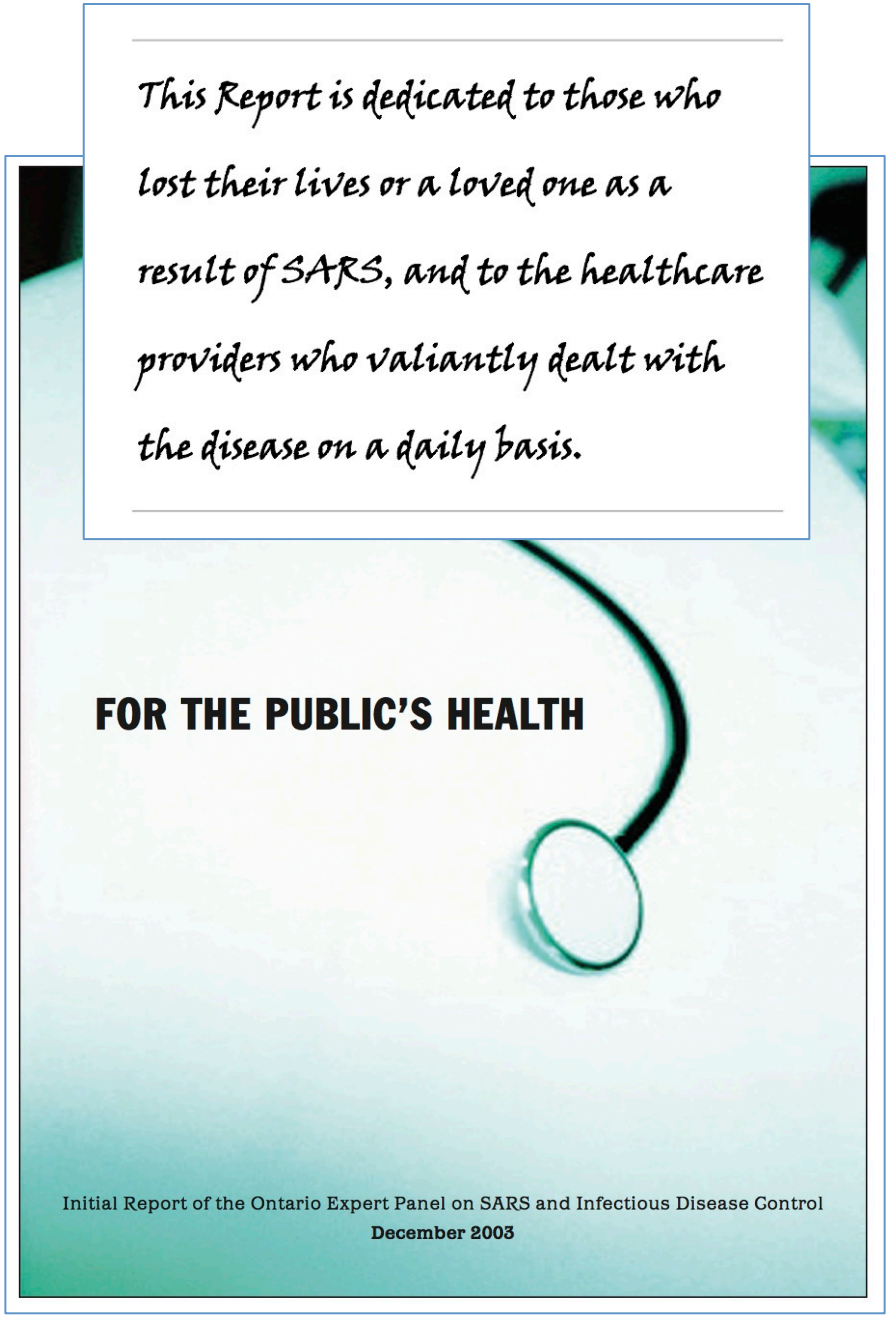


A copy of the report by the **National Advisory Committee on SARS and Public Health** is available at the Health Canada Web site at: **http://www.sars.gc.ca**

- Among Naylor's many recommendations, of most importance was the need for a "Canadian Agency for Public Health"
- **Dec 2006** – "Public Health Agency of Canada" established

After SARS

- **May 18, 2003** – Not unlike Health Canada's calling of an Expert Panel on SARS when it seemed the outbreak was over, the Ontario Ministry of Health also assembled an "Expert Panel on SARS and Infectious Disease Control," chaired by the Dean of Health Sciences at Queen's University, Dr. David Walker
- Basrur would serve as an advisor to the "Walker Panel"
- **Oct 2, 2003** – Ontario provincial election ushers in a majority Liberal government, which gives a boost to the Walker Panel's work
- **Dec 2003** – Initial Walker Panel Report released



After SARS

- The Panel's mandate was "to identify the key lessons learned from this experience and to provide practical, focused, and forward-looking recommendations regarding the management and control of infectious diseases and the capacity of Ontario to handle public health emergencies in the future."
- SARS was viewed as not an isolated disease requiring a specific set of interventions, "but rather as a warning that vividly illustrated the strengths and weaknesses in our healthcare system and demonstrated what needs to be in place in order to deal with the next heath emergency of this or greater magnitude."

Globe & Mail, Dec 16, 2003, p. A13

SARS panel recommends independent health-care agency

BY GLORIA GALLOWAY

Ontario should establish an independent health-protection agency and free the chief medical officer from any potential political interference, a panel of medical experts charged with identifying the key lessons learned from SARS said yesterday.

"Ontario's chief medical officer of health should report directly to the legislature," Dr. David Walker, dean of health sciences at Queen's University in Kingston, told a news conference held to release the initial report of the Ontario Expert Panel on SARS and Infectious Disease Control.

"We believe this allows the interest of the public to be supreme."

Dr. Walker, who chaired the panel, refused to comment directly when asked if the fact that the province's chief medical officer, Dr. Colin D'Cunha, reports to the province's health minister had an effect on the handling of the devastating outbreak of severe acute respiratory syndrome last spring.

After SARS

- Among the top recommendations were the establishment of a "Health Protection and Promotion Agency," the elevation of the Chief Medical Officer of Health to an independent officer who would report directly to the legislature, and the establishment of a standing "Provincial Infection Control Committee."
- Work began on setting up the new Committee quickly; it would provide "a systemic response to bring together public health, primary care and acute care." It was a tactical response, a bridge movement before an Agency was set up, and represented a "philosophical shift in how to think about infectious diseases."

Globe & Mail, Dec 16, 2003, p. A13

SARS panel recommends independent health-care agency

BY GLORIA GALLOWAY

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After SARS

- **Jan 19, 2004** – Sheela Basrur would play the key role in implementing the Walker Report's recommendations after her appointment as Ontario's Chief Medical Officer of Health, a position she accepted only if, as the Report recommended, that as CMOH she would indeed be independent and report directly to the legislature
- To the Minister of Health, George Smitherman, she was a "no brainer" for the CMOH job, the "kind of leader that made all boats rise." She was a constant reminder of the best of public service; devoted, smart, dedicated and everyone "couldn't help but be inspired by her."

Globe & Mail, Jan 20, 2004, p. A19

Ontario names new chief medical officer

Doctor who led fight against SARS handed mandate to revamp, upgrade public-health system

BY RICHARD MACKIE

LOUIE PALU/THE GLOBE AND MAIL

Dr. Sheela Basrur has been asked to build a public-health system driven 'by consensus' and to do away with battles over 'turf and infighting.'

The Ontario government has turned to the woman who championed Toronto's fight against the SARS outbreak last year to head the province's efforts to upgrade its understaffed and underfinanced public-health system.

Sheela Basrur was named Ontario's new chief medical officer of health yesterday, replacing Colin D'Cunha, whose handling of the SARS crisis last year came under fire and whose close ties to the former Progressive Conservative government helped ensure his departure.Dr. Basrur has been handed a mandate to "revamp the way we are delivering public-health programs in Ontario," Health Minister George Smitherman said at a Queen's Park news conference yesterday.

Her appointment comes as the three-month-old Liberal government starts to increase its emphasis on using the public-health system to prevent and contain outbreaks of infectious diseases. It marks a shift from the low-key approach to advocating public health under Dr. D'Cunha.

Dr. D'Cunha was known for his close work with, and refusal to criticize, the previous government. Mr. Smitherman said Dr. D'Cunha had been offered a post as an adviser to the provincial government on in-

tween the federal and provincial governments [during the SARS outbreak] was an international embar-

her new job by conducting "a proper assessment of the strengths and capabilities [of the existing system]

"There hasn't been the requisite amount of political will" in the past to put the needed emphasis on

crats had nothing but praise for her yesterday.

"Sheela Basrur is the kind of civil

After SARS

- **June 22, 2004** – Following the release of the full "Walker Report" on April 21, Smitherman expedited a plan to condense the Walker Report's 123 recommendations down to 18 actionable things that could be accomplished in 4-5 years
- The top priority was the creation of the Ontario Health Protection and Promotion Agency

Globe & Mail, June 23, 2004, p. A9

THE GLOBE AND MAIL
WEDNESDAY, JUNE 23, 2004

Ontario to put SARS lessons into practice

Smitherman announces $41.7-million to better respond to public-health crises

BY RICHARD MACKIE

When the next disease outbreak hits Ontario, the province will be prepared to combat it by implementing the lessons learned from battling last year's arrival of SARS, Health Minister George Smitherman said yesterday.

The province will spend $41.7-million to put into place the people, organizations and computer systems that were lacking in the fight against severe acute respiratory syndrome.

The new money is part of a three-year plan to strengthen the public-health system by adding key personnel and by increasing spending to $469-million a year from $273-million this year.

"We need to develop an overall plan to counter the most serious [disease] challenges, which tend to be from threats that are unknown and can arrive on our continent with little or no notice," Mr. Smitherman said.

"You can't wait to cobble together a plan for an emergency situation. You have to have a plan in place that contemplates it."

The new resources will also help hospitals and long-term care institutions fight more common infectious diseases, he said.

At the centre of the plans announced yesterday are increases in the responsibilities of the Chief Medical Officer of Health, Sheela Basrur. Until now, the chief health officer has been a member of the Health Ministry reporting to the minister and the premier.

Under the plan, officer will have in authority to take ac health risks anywh

A central organiz Ontario Health Pro motion Agency wil to support the chie

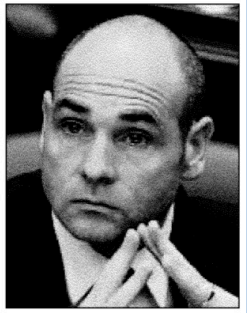
Several reports o the public-health s of SARS criticized t tral agency to prov

about infectious diseases, or to implement protocols on controlling such diseases. Reports also noted that computer systems did not allow the speedy sharing of information.

In fact, when it came to tracing contacts of those suspected of having contracted SARS, public-health personnel had to work through boxes and boxes of paper records.

The government's plan will help doctors and nurses obtain information about health threats, provide scientific and technical advice about dealing with infectious diseases, establish links with similar organizations in other jurisdictions and ensure rapid communication about a potential health crisis.

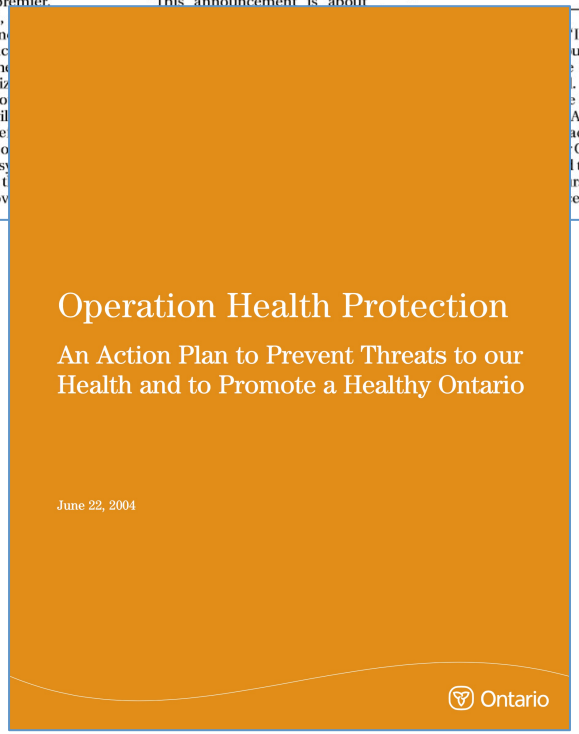
"This announcement is about



'You can't wait to cobble together a plan for an emergency situation. You have to have a plan in place that contemplates it.'

Ontario Health Minister Greg Smitherman

- At a meeting of the Walker Panel, and after a long weekend session with experts from other public health agencies, Basrur picked up a napkin and sketched out what the Ontario Agency for Health Protection and Promotion would look like.
- That napkin sketch was kept and framed and displayed at the Agency after it was established in 2008.



After SARS

- The more immediate task for Basrur was to fulfill the other key recommendation of the Walker Report, the establishment of the "Provincial Infectious Diseases Advisory Committee" (PIDAC)
- For Basrur, PIDAC was to be an independent source of scientific advice to her as CMOH and she would be free to share the information PIDAC generated to the world
- PIDAC's advice would not be based on political posturing, but on evidence and for the use of local MOHs and the public
- **July 2004** – With its first meeting, PIDAC would clearly be unique as a standing committee which consciously bridged public health, infection control and microbiology

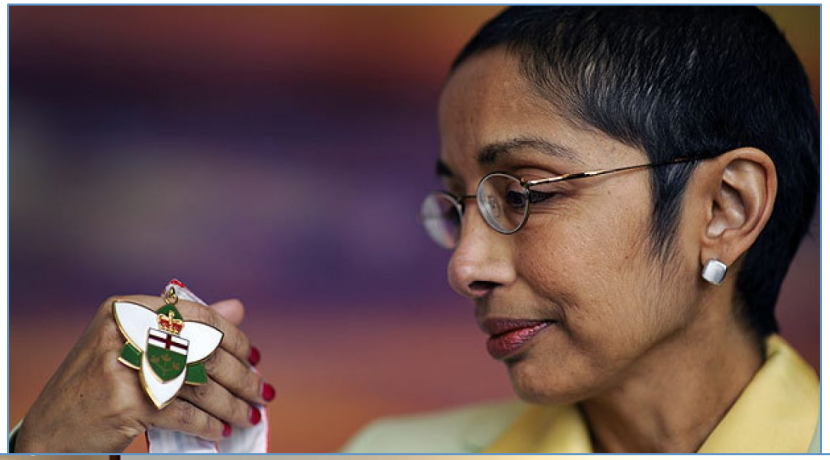
Public Health Ontario | Santé publique Ontario

Provincial Infectious Diseases Advisory Committees (PIDAC)

- Established in 2004 in response to the recommendation by the Walker Panel.
- On April 1, 2011, MOHLTC transferred the governance of PIDAC functions to PHO.
- PIDAC functions are reflected in the work of four advisory committees within PHO:
  - Communicable Diseases
  - Immunization
  - Infection Prevention and Control
  - Surveillance (until March 2013)

After SARS

- **Dec 6, 2006** – Amidst the growth of PIDAC into an internationally sought-out source of public health/infection control information, and work towards the new Agency was well developed, Sheela Basrur abruptly resigned her position as CMOH
- In the fall she had been diagnosed with a rare form of cancer, but had kept her illness private
- **June 4, 2007** - Basrur received a standing ovation from MPPs in the Ontario Legislature when the Ontario Agency for Health Protection and Promotion Act of 2007 was formally passed into law



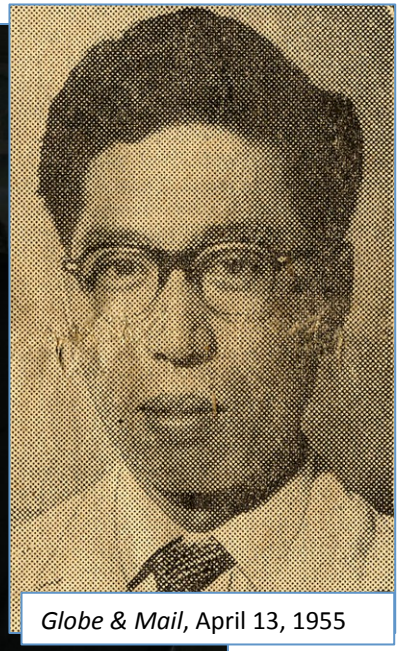
- **June 2, 2008** – Sheela Basrur passed away at age 51, her legacy commemorated with the Agency's home on University Avenue in Toronto named the "Sheela Basrur Centre" when it began operations as "Public Health Ontario" in July 2008

Polio Echoes:
Marking Polio Vaccine's 50th

- While the echoes of the SARS epidemic were certainly transformative for Canadian public health, the echoes continued to reverberate of another transformative infectious disease that, as we've seen, regularly struck with equal or greater ferocity than SARS… Polio
- **2005** – The 50th anniversary of the launch of the Salk polio vaccine widely celebrated with special conferences, and with a multimedia traveling exhibit that I curated and set up at a variety of events and venues across Canada
- **2004-05** – This work was led by Sanofi Pasteur Canada (Connaught Campus), the new identity of Aventis Pasteur when Aventis was merged with Sanofi-Synthelabo of France to create Sanofi-Aventis

Polio Echoes:
Marking Polio Vaccine's 50th

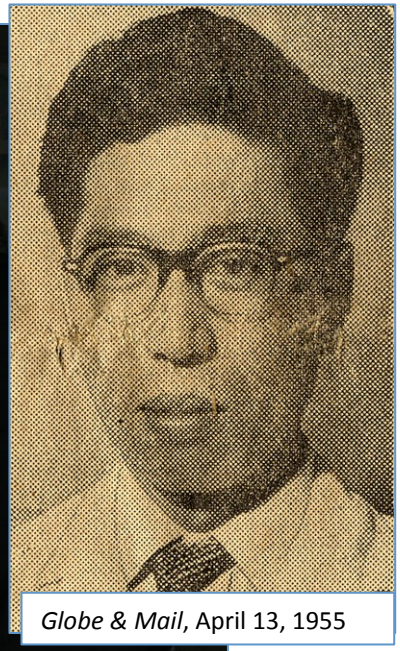
- The 50th anniversary also provided an opportunity to honour key members of the Connaught Labs research team that made the Salk vaccine possible
- Frank Shimada was born in Vancouver in 1926 and joined Connaught in 1949 as a lab technician, to work on Dr. Andrew J. Rhodes' poliovirus research team
- Two years later, he became a research assistant focused on developing methods to grow poliovirus fluids on a large scale, the key advance being "The Toronto Method" pioneered by Dr. Leone Farrell.



Globe & Mail, April 13, 1955

Polio Echoes:
Marking Polio Vaccine's 50th

- During the latter half of the 1950s, Frank focused on poliovirus assay and safety testing of the Salk vaccine, followed in the 1960s by developmental work on the Sabin oral polio and measles vaccines
- Frank retired from Connaught in 1991, but kept close ties to the company and remained a valuable resource for my understanding the history of polio vaccines when I was researching my Ph.D. thesis



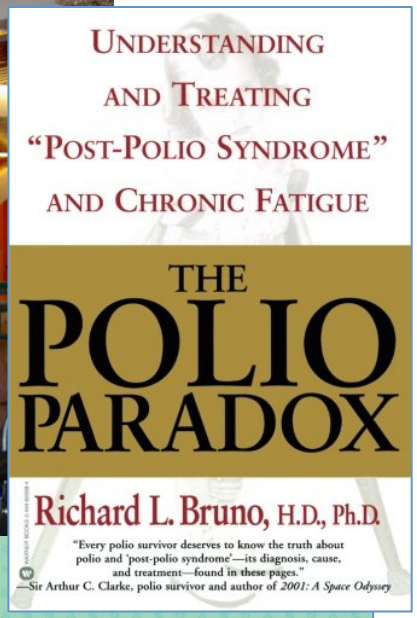
Globe & Mail, April 13, 1955

Polio Echoes:
Marking Polio Vaccine's 50th

- **2005** – Touring with the polio exhibit extended to several cities and involved engaging with several post polio support groups, the medical profession and the public across the country
- Key to facilitating developing the exhibit and the tour was Rob Van Exan, who I highlighted in the last class

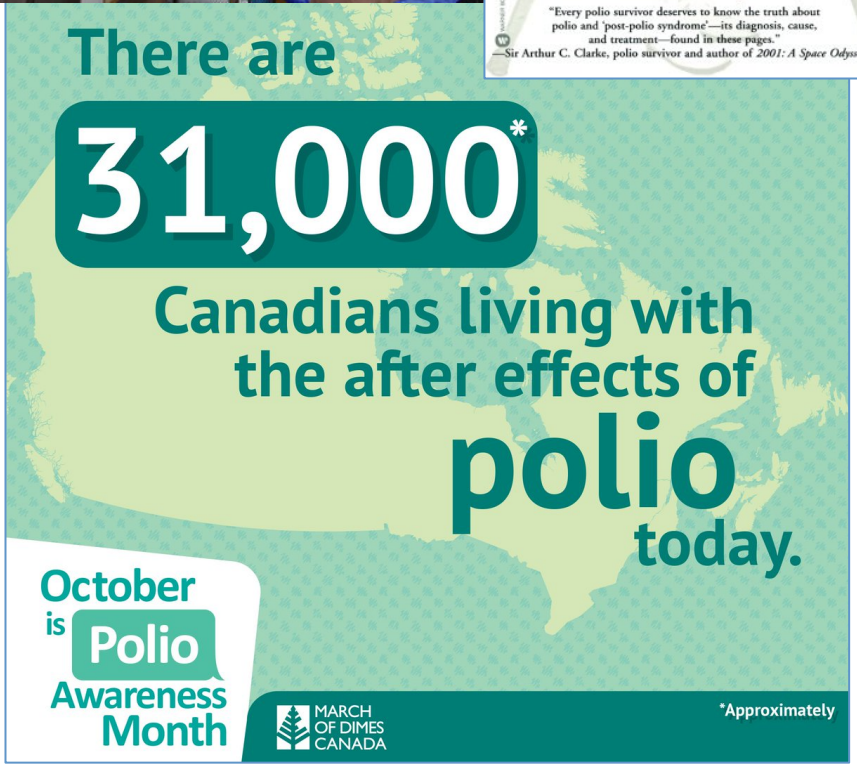
Polio Echoes
Post-Polio Syndrome

- Raising medical and public awareness about post-polio syndrome was an important part of the polio vaccine's 50th anniversary events

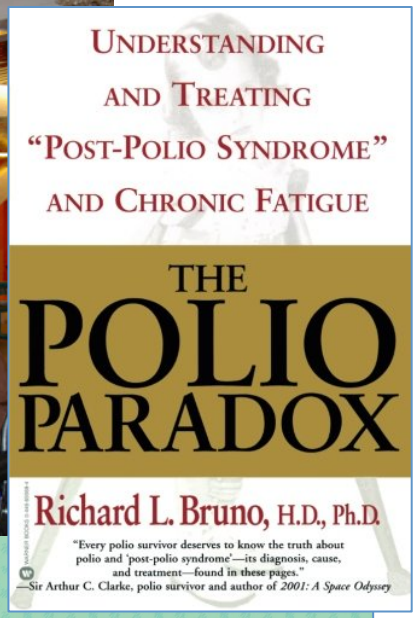


- Post-Polio Syndrome first emerged in the late 1970s/early 1980s as a mysterious set of symptoms among people who were stricken by paralytic polio some 30 years earlier

- When polio survivors originally recovered, new nerve connections compensated for damaged nerves, but as they age the newer nerve connections can degenerate or prematurely age because they had been overextended and overworked

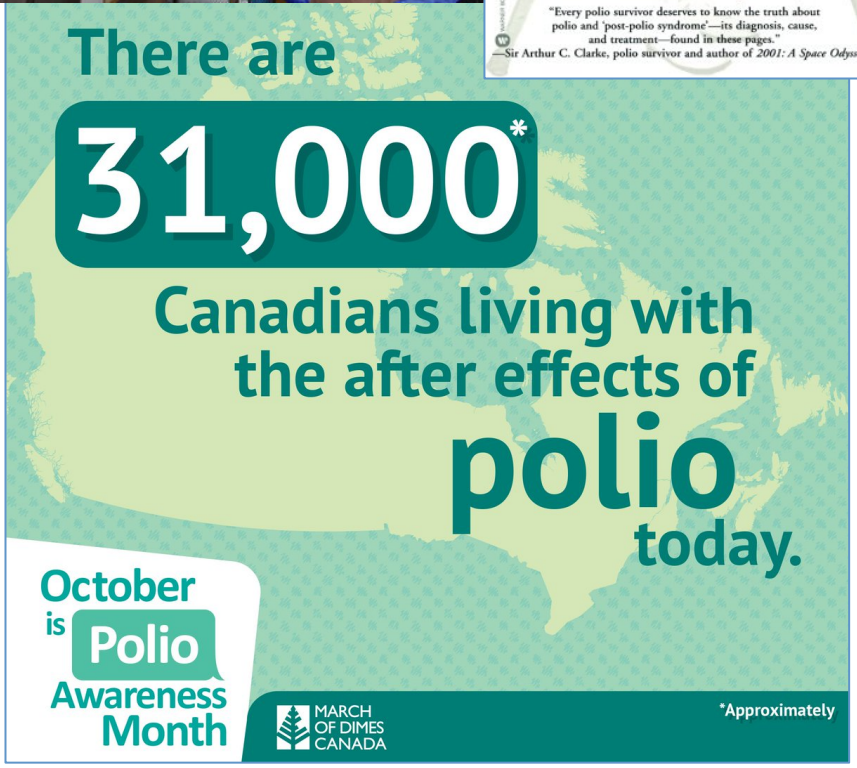


Polio Echoes
Post-Polio Syndrome



- It soon became clear that the management of post-polio syndrome depended upon a regimen of strictly limited exercises designed to help polio victims maintain and increase their strength
- It appeared that the grueling workouts popular in the 1940s-50s to encourage muscle weakness recovery, probably did more harm than good

- **2003** – Capping 20 years of supporting polio survivors, and marking the 50th anniversary of Canada's worst polio year, the Ontario March of Dimes established "Polio Canada" to connect provincial and local post-polio support groups and associations across the country



Polio Echoes:
Polio Eradication: Setbacks & Progress

- **2005** – As important as it was to celebrate the 50th anniversary of the Salk polio vaccine, and to support polio survivors struggling with post-polio syndrome, polio remained a real and present threat that worsened in several parts of Africa

- **2003-04** – Major setback in the polio eradication effort when Muslim leaders and politicians in northern Nigeria spread rumours that the oral polio vaccine was tainted with AIDS virus or infertility drugs

- Polio immunization programs were thus suspended, and inevitably, wild poliovirus spread from northern Nigeria into several previously polio-free African countries

Globe & Mail, March 5, 2004, p. A18

Rumours and vaccines

So much is riding on northern Nigeria's verdict on the polio vaccine that any delay is frustrating. It had been expected that the government and Islamic religious leaders in Nigeria's Kano state would announce this week whether vaccinations against polio would resume. On Wednesday, officials with the United Nations World Health Organization said the state had postponed any decision until March 15.

That decision will have implications far beyond Nigeria. When the WHO's 15-year, $3-billion polio eradication campaign began in 1988, 370,000 children in 125 countries had contracted the disease. And a horrible disease it is: an acute viral infection that attacks the central nervous system and can leave its victims para-

leaders and scientists to India and Indonesia may finally have persuaded them to put their children's health ahead of wild rumour. This is the message that had been scheduled to come this week, and is now promised by March 15.

The resumption can't come soon enough. Beyond allowing polio to claim new victims in Nigeria, last year's suspensions helped spread the Nigerian strain of the disease to eight neighbouring countries which h
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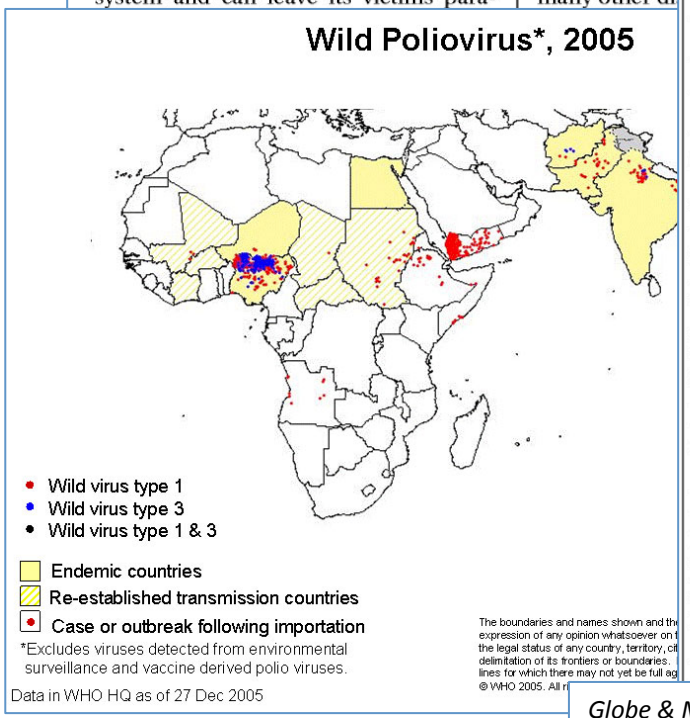


Nigerian polio virus spreading; Botswanan paralyzed

BY STEPHANIE NOLEN, JOHANNESBURG

A child in a village in Botswana has been paralyzed by poliomyelitis, the strain of the virus from northern Nigeria that has been spreading because Muslim religious leaders there refuse to allow vaccinations for the disease.

Botswana, thousands of kilometres from Nigeria, has been polio-free for more than a decade. The new case has epidemiologists warning of the globalization of disease and the World Heath Organization says it is a graphic illustration of the importance of immunization.

The 7-year-old boy in the Ngami district of northwestern Botswana developed paralysis in early February. Health workers in Botswana, a comparatively prosperous country in southern Africa with good surveillance for polio, recognized that he might have the virus even though the disease was eradicated there in 1991.

Lab results confirmed in March that he does have polio; genetic se-

Globe & Mail, Apr 16, 2004, p. A12

Polio Echoes:
Polio Eradication: Setbacks & Progress

- **Feb 2005** – The impact of the Nigerian interruption in polio immunization, along with the rumours, spread beyond Africa and into Saudi Arabia on the eve of Mecca, sparking worries that pilgrims leaving Mecca could spread the virus widely; Saudi Arabia had been polio-free since 1995
- A similar situation was feared during the last stages of the smallpox eradication effort
- **Summer 2004** - Immunizations had resumed in Nigeria after OPV produced in Indonesia was used

Globe & Mail, Feb 11, 2005, p. A18

Officials fear polio outbreak in pilgrims

BY DONALD G. McNEIL JR.

Polio apparently reached Mecca, Islam's holy city, just before the annual pilgrimage by two million Muslims last month, and World Health Organization officials fear the disease may be carried around the world by returning pilgrims.

In crowded nations with spotty vaccination coverage like Bangladesh and Indonesia, "there could be substantial consequences," said Bruce Aylward, co-ordinator of the health organization's Global Polio Eradication Initiative.

"This is a crucial point. We're staring at the whites of the eyes of this thing."

A spokesman at the Saudi embassy in Washington said his country had feared the arrival of polio this year and started vaccinating 800,000 people in September, hoping to head it off before the height of the hajj, or pilgrimage, in January.

See POLIO on page A10

Cases found in Saudi Arabia

POLIO *from page A1*

Saudi Arabia had been polio free since 1995, but two cases were found late last year. The first was in Jeddah, the port city 65 kilometres from Mecca where most pilgrims disembark. The patient was a Sudanese girl who became paralyzed on Nov. 6, just after arriving.

The second, more worrisome case was confirmed yesterday. It was a five-year-old Nigerian boy who developed paralysis on Dec. 15. What made it troubling, Dr. Aylward said, was that his family had lived for several years in an illegal encampment on the outskirts of Mecca, so he must have caught a strain circulating in Saudi Arabia.

Polio Echoes:
Polio Eradication: Setbacks & Progress

- **2006-2011** – Global polio incidence fell steadily:
- **2006** – 1,997 / **2007** – 1,315
- **2008** – 1,652 / **2009** – 1,606
- **2010** – 1,352 / **2011** – 650

- **2012** – While a new low of 232 cases was reached, a new and disturbing challenge to the eradication effort emerged with female polio immunization health workers attacked and killed in Nigeria and Pakistan by Islamist militants groups

- **2013-17** - Such attacks continue…

Globe & Mail, Dec 19, 2012, p. A19

PAKISTAN

Six polio health workers killed in string of attacks

IMTIAZ SHAH KARACHI

Gunmen shot dead six health workers on an anti-polio drive in a string of attacks in Pakistan over 24 hours, officials said on Tuesday, raising fears for the future of efforts to eradicate the crippling disease in one of its last strongholds.

It was not clear who was behind the shootings, but Taliban insurgents have repeatedly denounced the vaccination campaign as a Western plot. The campaign aims to wipe out polio in one of the last three countries where it is endemic.

"Such attacks deprive Pakistan's most vulnerable population – especially children – of basic life-saving health interventions," the World Health Organization and the UN Children's Fund, which are working with the Pakistani government on the campaign, said in a joint statement.

Health officials suspended the campaign in two provinces of Pakistan, Sindh and Khyber Pakhtunkhwa. Karachi, the capital of Sindh, is Pakistan's biggest city and home to 18 million people.

Four people were killed in separate attacks on health workers in Karachi on Tuesday, the UN said. Another health worker was killed in the same city on Mon-

Rukhsana Bibi grieves Tuesday as she touches the body of her daughter, polio worker Madiha Bibi, killed by unidentified gunmen, at the morgue of a hospital in Karachi. FAREED KHAN/AP

The team had received telephone calls warning workers they would regret helping the "infidel" campaign against polio, health official Gul Naz said.

In the northwestern city of Peshawar, gunmen on a motor-

vising an anti-polio campaign, government official Javed Marwar said.

She died of her wounds in hospital, a doctor said.

All of the victims were Pakistanis who are among the tens of

backed program to eradicate polio, a disease that can be prevented but not cured and can cause permanent paralysis within hours of infection.

Pakistan, its neighbour, Afghanistan, and Nigeria are the

is still endemic, and so are key to the campaign to eradicate the disease worldwide. At least 35 children have been infected in Pakistan this year.

There have been at least three other shootings involving polio-eradication workers this year.

Some Islamists and Muslim preachers say the polio vaccine is a Western plot to sterilize Muslims while other religious leaders have taken part in campaigns aimed at debunking that myth.

Accusations that immunization campaigns are cover for spies were given credence when it emerged that the United States had used a Pakistani vaccination team to gather intelligence about Osama bin Laden.

In Karachi, provincial Health Minister Saghir Ahmed said the government had told 24,000 polio workers it was suspending the anti-polio drive in Sindh province.

Officials could not confirm whether all of the attacks were linked to the health campaign, said Michael Coleman, a spokesman for Unicef.

Many of the attacks occurred in areas notorious for gun violence but the situation was a worry, he said. "We're concerned for the safety of front-line workers. They are the true heroes," he said.

- Boko Horam in Nigeria and the Taliban in Pakistan revived rumours about the vaccine being used to sterilize Muslims.
- Female polo health volunteers and polio centres were especially vulnerable to attack

Polio Echoes:
Polio Eradication: Setbacks & Progress

- **May 5, 2014** – While total polio case incidence had declined during 2013, new cases in several formerly polio-free countries prompted the WHO to declare a public health emergency, concerned that recent progress towards polio eradication could be undone
- The newest source of concern was the civil war in Syria, which disrupted immunization programs
- Wild polio cases emerged in Syria and spread to Iraq and Israel, and also spread in central Africa

Globe & Mail, May 6, 2014, p. A16

FROM PAGE 1

Picard: Polio flourishes in areas where there is political unrest and poverty

» To date this year, the world has had 68 cases of polio – which may seem trivial on a plan-

ly, India, long the cradle of polio, was declared polio-free.

Almost simultaneously, polio

workers who conduct vaccination clinics. Things are not much bet-ter in Afghanistan.

ians have been displaced, creat-ing ideal conditions for polio to spread domestically and across

campaign began, more than 1,000 children a day were being infect-ed. That number fell as low as 223

Globe & Mail, May 6, 2014, p. A1

HEALTH

WHO declares polio emergency

Infections rise in 10 countries as denial of vaccinations becomes widespread weapon of war

An child in Afghanistan – one of the 10 listed countries – receives anti-polio drops on Sunday, near the site of a recent landslide. MOHAMMAD ISMAIL/REUTERS

ANDRÉ PICARD

The resurgence of polio, a viral disease that can paralyze and cripple children, is so worrisome that the World Health Organization has declared a "public health emergency of international concern."

Practically, this means that people living in 10 countries where polio is currently spreading will have to show proof of vaccination before travelling abroad.

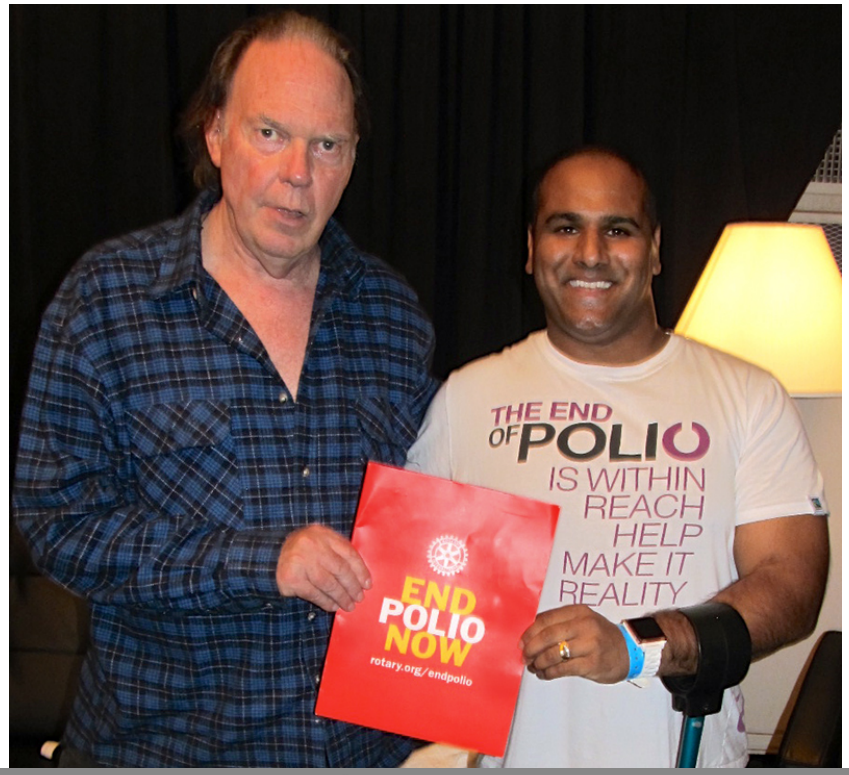
Symbolically, the WHO declaration is much more powerful: It is a warning that the three-decade effort to eradicate polio is in peril.

Until recently, polio was contained in three countries, but it is spreading largely because denying life-saving vaccination has become a weapon of choice for terrorists and despots.

The public health emergency is a thinly veiled diplomatic message that, if the world is serious about eradicating polio – and eliminating the need (and cost) to vaccinate and then revaccinate 500 million children every year – there must be a co-ordinated push, including confronting vaccination's foes.

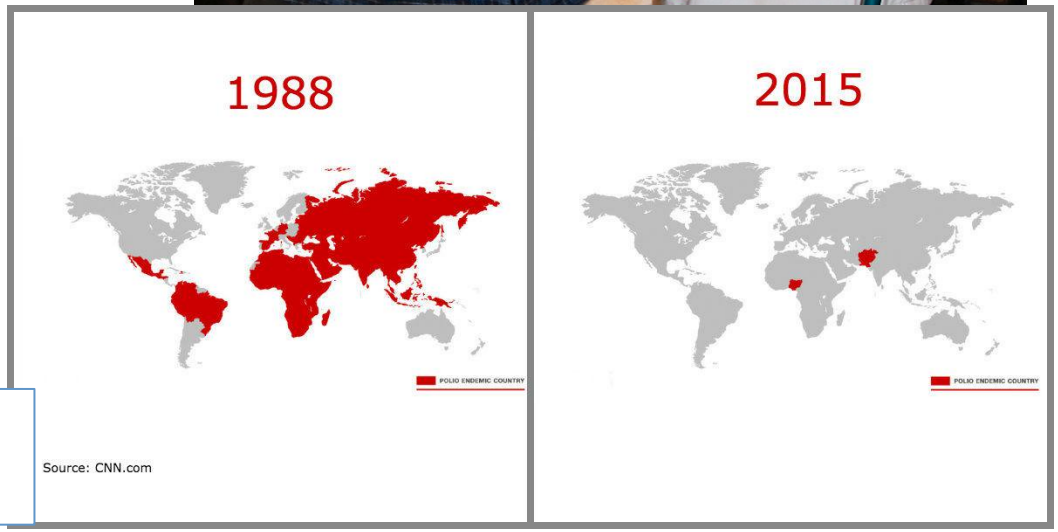
Picard, Page 16

Polio Echoes:
Polio Eradication: Setbacks & Progress



- Despite the setbacks and challenges, the Canadian government has remained a strong supporter of the polio eradication program
- **1985-2002** – Canada contributed $27.19 million
- **2003-2005** - $102.53 million
- **2006-2016** - $452 million

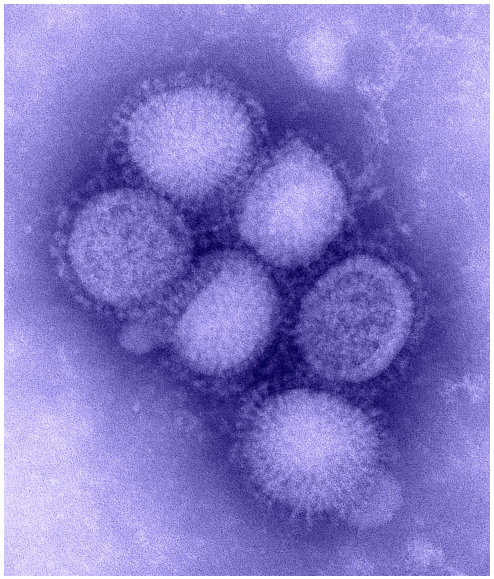
- **June 2017** – Canada commits another $100 million over 3 years to polio eradication effort, divided between the WHO and UNICEF



Global Wild Poliovirus cases:
- **2014** – 74 / **2015** – 74 / **2016** - 37

H1N1:
Pandemic Influenza, Again

- When the World Health Organization declared a polio public health emergency in May 2014, it noted how this was only the 2nd such declaration
- **April 29, 2009** – The WHO's first declaration of a "public health emergency of international concern" was made 5 years earlier when global incidence of a novel strain of H1N1 (or "swine flu") influenza reached Level 5 pandemic stage
- **June 11, 2009** – The WHO and the US Centers for Disease Control stopped counting cases and officially called the outbreak a "pandemic"



Globe & Mail, Apr 30, 2009, p. A1

» ALERT LEVEL 5

'All humanity' urged to fight swine flu pandemic

WHO raises alert level, saying global outbreak imminent and calls on all countries to activate preparedness plans

BY GLORIA GALLOWAY OTTAWA
AND CAROLINE ALPHONSO TORONTO

Global health authorities raised the alert level for a virulent new strain of swine flu yesterday, saying a pandemic is now imminent and "all of humanity" must join in an urgent battle against the disease.

The World Health Organization declared that the spread of the virus had reached Phase 5, meaning there has been sustained human-to-human transmission in at least two countries in a WHO region – Mexico and the United States – and there are strong signals that a worldwide outbreak is about to occur.

"All countries should immediately now activate their pandemic preparedness plans. Countries should remain on high alert for unusual outbreaks of influenza-like illness and severe pneumonia," WHO Director-General Margaret Chan said in a conference call from Geneva.

"This is an opportunity for global solidarity as we look for responses and solutions that benefit all countries, all of humanity. After all, it really is all of humanity that is under threat during a pandemic."

Canadian authorities say Canada's pandemic plan is already in effect. It includes, among other things, vaccine production, an anti-viral stockpile, and a citizen-readiness campaign for each phase of a pandemic.

"We already have cases [of the virus] in Canada and as we continue our surveillance, we will find more and more cases," said David Butler-Jones, Canada's Chief Public Health Officer. "As for any form of influenza, some will be more severe and, unfortunately, we may see some deaths as well."

The outbreak in Canada has so far been mild. Six new cases were confirmed yesterday – three in Ontario and three in British Columbia – bringing the total in this country to 19. That breaks down to six in B.C., seven in Ontario, four in N.S., and two in Alberta.

In one of the Ontario cases it was unclear whether the person had travelled outside Canada.

» SEE 'VIRUS' PAGE 12

H1N1:
Pandemic Influenza, Again

- **1976** – During the last experience with a H1N1 pandemic strain of influenza, as discussed in a previous class, the virus did not end up spreading, although an unprecedented mass immunization effort was mounted in the US and Canada
- **1918-19** – The great "Spanish Flu" pandemic at the end of WWI was caused by a H1N1 influenza strain, but subsequent flu pandemics in 1956-58 and 1968-69 were caused by other novel strains
- **2009** – In the end, this "Swine flu" was the primary cause of 14,286 deaths worldwide, with North America hit especially hard

2009 flu pandemic data

Area	Confirmed deaths
Worldwide (total)	**14,286**
European Union and EFTA	2,290
Other European countries and Central Asia	457
Mediterranean and Middle East	1,450
Africa	116
North America	3,642
Central America and Caribbean	237
South America	3,190
Northeast Asia and South Asia	2,294
Southeast Asia	393
Australia and Pacific	217

Source: ECDC – January 18, 2010[147]

Further information: Cases and deaths by country

Note: The ratio of confirmed deaths to total deaths due to the pandemic is unknown. For more information, see "Data reporting and accuracy".

V • T • E

20th and 21st century flu pandemics

Pandemic	Year	Influenza virus type	People infected (approximate)	Estimated deaths worldwide	Case fatality rate
Spanish flu	1918–1919	A/H1N1[186]	33% (500 million)[187]	50–100 million[188][189][190]	2-3%[191]
Asian flu	1956–1958	A/H2N2[186]	?	1-4 million[191]	<0.2%[191]
Hong Kong flu	1968–1969	A/H3N2[186]	?	1-4 million[191]	<0.2%[191]
Seasonal flu[t 1]	Every year	mainly A/H3N2, A/H1N1, and B	5–15% (340 million – 1 billion)[192]	250,000–500,000 per year[179]	<0.1%[193]
Swine flu	2009–2010	Pandemic H1N1/09	10-200 million[191]	18,500 (lab-confirmed;[t 2] WHO)[191] – 150,000+ (est. total)[194]	0.03%[195]

H1N1:
Pandemic Influenza, Again

- **April 24, 2009** - The first confirmed Canadian cases of H1N1 struck a Nova Scotia private school, appearing about seven weeks after the first cases of the new influenza strain emerged in La Gloria, Mexico.
- The initial Canadian cases were exposed to the virus during a March break holiday in Mexico, with some 99 additional cases ultimately associated with the Nova Scotia school outbreak.
- During the last week of April, H1N1 cases were also confirmed in 5 U.S. states, in 19 Mexican states and in Spain, such reports prompting the WHO to raise the Pandemic Alert to Level 4.

Globe & Mail, Apr 27, 2009, p. A1

SWINE FLU OUTBREAK

Flu fear spreads as six cases confirmed in Canada

Canadian sufferers showing milder symptoms, but health official says virus could mutate, and warns Ottawa to brace for severe cases

BY TU THANH HA TORONTO
AND BRIAN LAGHI OTTAWA

Canada should brace for more severe, even fatal, cases of the new strain of swine flu from Mexico, the top public health official said yesterday after the first six patients in this country were confirmed.

The Canadians – four Nova Scotia high school students and two young men in British Columbia – suffered mild symptoms and most are already recovering.

But the new H1N1 flu strain has triggered global health worries, with suspected cases reported in every corner of the world and the World Health Organization warning the virus could mutate.

"Nobody should take this for granted in any way," David Butler-Jones, Canada's chief public health officer, said at a news conference in Ottawa. "It doesn't mean we won't see either more severe illness or more potential deaths...

"No one should lull themselves into thinking that everything is just fine because it's a relatively mild disease. We can't say that forever, but we are doing everything we can."

The United States, which has 20 confirmed cases of the flu, declared a public health emergency and warned of worse to come.

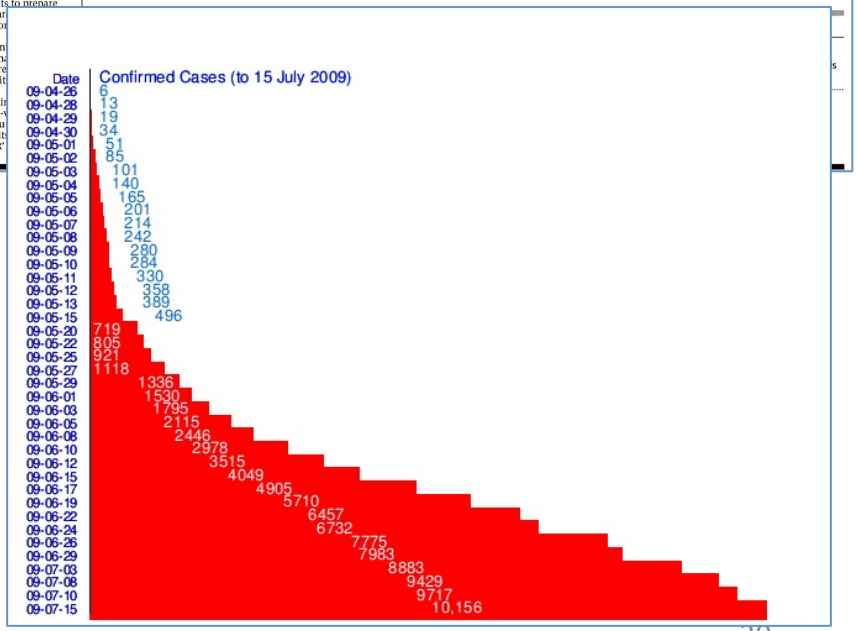
"I do fear that we will have deaths here," said Anne Schuchat, the interim deputy director for science and public health program at the U.S. Centers for Disease Control and Prevention.

At a White House briefing, acting CDC head Richard Besser urged parents to prepare backup childcar
the outbreak fo
ings.
"It's importan
think about wh
do if this outbre
their communit
said.
The new strai
nerable to anti-v
such as Tamiflu
it is caught in its
» SEE 'OUTBREAK'

RETURNING FROM MEXICO

Canadian customs agents wear masks while processing passengers arriving from Cancun at Toronto's Pearson Airport yesterday. J.P. MOCZULSKI FOR THE GLOBE AND MAIL

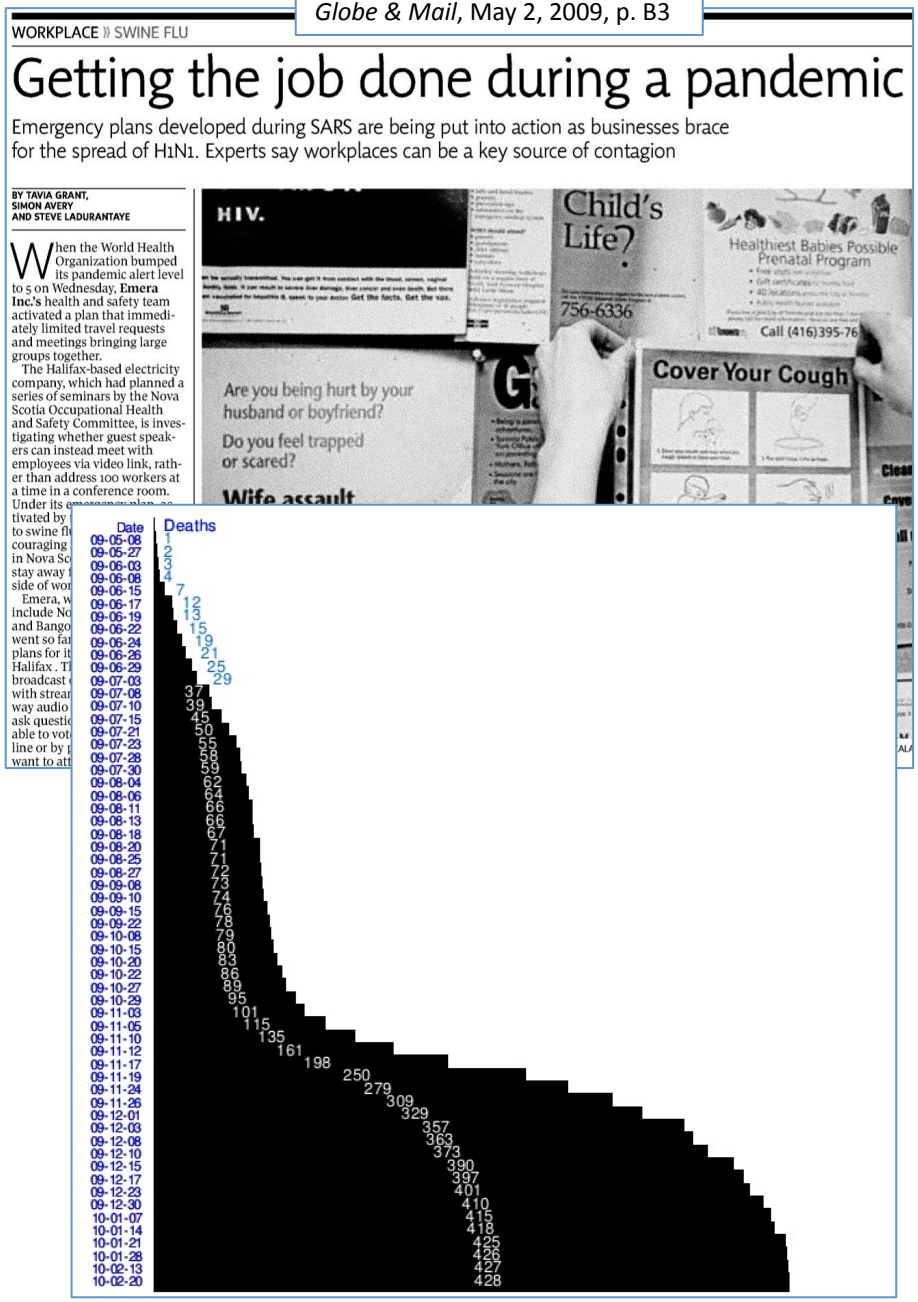
Cold comfort after sunny vacation as tourists greeted with masks



H1N1:
Pandemic Influenza, Again

- **April 28** - Toronto Public Health issued its first press release about the "swine flu" outbreak, noting it was monitoring the information about the disease elsewhere; there were no cases reported in Toronto and the public was advised to "take the usual measures"
- A pandemic influenza plan had been developed that would "guide us through the outbreak," applying lessons learned from Toronto's dramatic 2003 SARS experience.
- **May 8** - The first confirmed death in Canada due to H1N1 reported in Alberta, by which time there were 165 confirmed cases nationally

Globe & Mail, May 2, 2009, p. B3



WORKPLACE » SWINE FLU

Getting the job done during a pandemic

Emergency plans developed during SARS are being put into action as businesses brace for the spread of H1N1. Experts say workplaces can be a key source of contagion

BY TAVIA GRANT, SIMON AVERY AND STEVE LADURANTAYE

When the World Health Organization bumped its pandemic alert level to 5 on Wednesday, **Emera Inc.'s** health and safety team activated a plan that immediately limited travel requests and meetings bringing large groups together.

The Halifax-based electricity company, which had planned a series of seminars by the Nova Scotia Occupational Health and Safety Committee, is investigating whether guest speakers can instead meet with employees via video link, rather than address 100 workers at a time in a conference room. Under its

Date	Deaths
09-05-08	1
09-05-27	2
09-06-03	3
09-06-08	4
09-06-15	7
09-06-17	12
09-06-19	13
09-06-22	15
09-06-24	19
09-06-26	21
09-06-29	25
09-07-03	29
09-07-08	37
09-07-10	39
09-07-15	45
09-07-21	50
09-07-23	55
09-07-28	58
09-07-30	59
09-08-04	62
09-08-06	64
09-08-11	66
09-08-13	66
09-08-18	67
09-08-20	71
09-08-25	71
09-08-27	72
09-09-08	73
09-09-10	74
09-09-15	76
09-09-22	78
09-10-08	79
09-10-15	80
09-10-20	83
09-10-22	86
09-10-27	89
09-10-29	95
09-11-03	101
09-11-05	115
09-11-10	135
09-11-12	161
09-11-17	198
09-11-19	250
09-11-24	279
09-11-26	309
09-12-01	329
09-12-03	357
09-12-08	363
09-12-10	373
09-12-15	390
09-12-17	397
09-12-23	401
09-12-30	410
10-01-07	415
10-01-14	418
10-01-21	425
10-01-28	426
10-02-13	427
10-02-20	428

H1N1:
Pandemic Influenza, Again

- **May 27** – Influenza vaccine producers, including GSK Canada – which was granted the full contract to supply pandemic influenza vaccine in Canada – received the H1N1 virus seed strain to enable production to begin

- **June 10** – As the WHO declared H1N1 was a pandemic, Canada's Chief Public Health Officer, Dr. David Butler-Jones, suggested that a Canadian H1N1 vaccination program would likely roll out in the fall, although the WHO recommended that pandemic vaccine production not start until seasonal flu vaccine production was finished

Globe & Mail, June 12, 2009, p. A15

The Globe and Mail, Friday, June 12, 2009 | News » Canada A15

PUBLIC HEALTH

Swine-flu shots for Canadians ready 'in fall'

As WHO declares pandemic, nation's top health official says country is well prepared for virulent new influenza strain

CAROLINE ALPHONSO
calphonso@globeandmail.com

Flu vaccine manufacturers are ramping up to produce a vaccine by the fall after the World Health Organization's declaration yesterday that a virulent new influenza strain ignited the first pandemic in 41 years.

Canadians will be able to get an additional vaccine shot in the arm as early as October, said the country's chief medical officer of health.

"We are working towards actually having a vaccine ready some time in the fall and well before the worst of a potential winter flu season," David Butler-Jones told reporters yesterday. "Canada is well-prepared for these events, thanks to years of advanced planning."

Major manufacturers have signalled that their factories will be ready to switch to making a pandemic vaccine in a couple of weeks, when normal seasonal-flu vaccine production is complete. The federal government has a long-standing contract with pharmaceutical giant GlaxoSmithKline to produce a new pandemic vaccine when one is developed.

The WHO distributed a seed strain to manufacturers for use in the development of a vaccine, which will be tested in clinical trials before regulatory authorities approve it to be developed for mass production.

Raising the pandemic alert level to its highest point yesterday allowed the WHO to free up money [illegible] tracts with ph[illegible] companies to [illegible] finitively with [illegible] tion.

The WHO n[illegible] thorities yeste[illegible] raising the pa[illegible] Phase 6 for th[illegible] 1968 when th[illegible] killed about o[illegible] ple worldwide[illegible] flu virus has [illegible] 30,000 people[illegible] Canada has [illegible] most 3,000 ca[illegible] Four people h[illegible] other 138 have[illegible] to hospital.

Canadian ho[illegible] tried to calm [illegible] by indicating [illegible] awaited pand[illegible] was largely "[illegible]

Federal offic[illegible] activated the [illegible] demic plans w[illegible] surfaced a cou[illegible] ago. Most cas[illegible] mild, authorit[illegible] that health of[illegible] ing with First [illegible] in Manitoba [illegible] cent outbreak[illegible] munities.

"This decisi[illegible] change our ap[illegible] Canada," Hea[illegible] Leona Aglukk[illegible] ference call. "[illegible] prepared for t[illegible] have a nation[illegible] have been foll[illegible] Dr. Butler-J[illegible] down concern[illegible] "We've been[illegible]

A masked girl sits with a classmate at a kindergarten in Hong Kong yesterday where officials ordered all primary schools to be closed for two weeks after the first cluster of local swine flu cases was found. MIKE CLARKE-AFP/GETTY IMAGES

the pandemic for a few months now in Canada. As one of the three countries that were first affected, we implemented our plans, we've been acting on them, we've been ad-

H1N1 flu cases in Canada

A total of 3,047 cases of H1N1 flu have been confirmed by health authorities in Canada.

FROM PAGE 1 » NATIVES

First nations communities vulnerable to influenza

"The federal government says it has a plan in place, but that plan doesn't appear to include this part of the country," Mr. Harper said shortly after learning that a pregnant Garden Hill woman with flu symptoms miscarried yesterday. In the past week, 11 Garden Hill residents have been airlifted to urban hospitals, most with severe flu symptoms.

Across the province, 24 people with flu symptoms – two-thirds of them aboriginal – are breathing with ventilators.

Influenza A has long been known to hit first nations communities harder than the rest of the population. Fatality rates during past pandemics have hovered between 5 and 10 per cent, and entire aboriginal towns were wiped out during the 1918 outbreak.

But Canada's pandemic preparedness plan included specific protocols for aboriginal communities only two years ago. And they're already in need of revision, some health advocates say.

"It's a guideline, but there's no money attached to it," said Dr. Kim Barker, public health physician with the Assembly of First Nations. "There are

H1N1:
Pandemic Influenza, Again

- Butler-Jones' more immediate concern was increasing the country's stockpile of ventilators, of which there was a shortfall as the numbers of serious cases grew quickly, the "first wave" claiming 29 lives and sending 663 to hospital as of July 6
- It was clear that H1N1 was different; it started like regular flu, but then in many cases the lungs simply stopped functioning, its victims thus requiring respirator support; young adults seemed especially vulnerable
- Public Health Agency of Canada (PHAC) planned to spend some $3.7 million on 270 new ventilators, which would bring the stockpile up to 500

Globe & Mail, June 12, 2009, p. A15

The Globe and Mail, Friday, June 12, 2009 | News » Canada A15

PUBLIC HEALTH

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A masked girl sits with a classmate at a kindergarten in Hong Kong yesterday where officials ordered all primary schools to be closed for two weeks after the first cluster of local swine flu cases was found. MIKE CLARKE-AFP/GETTY IMAGES

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H1N1 flu cases in Canada

A total of 3,047 cases of H1N1 flu have been confirmed by health authorities in Canada.

THE GLOBE AND MAIL » SOURCE: CANADIAN PRESS

H1N1:
Pandemic Influenza, Again

- **Mid-July** - Despite initial progress in vaccine production, alarmingly low yields slowed production plans, prompting efforts to speed up production before "flu season" in the fall

Globe & Mail, July 14, 2009, p. A1

FLU PANDEMIC

Global vaccine shortfall looms for flu season

WHO warns countries could get only half what they need; manufacturer says there's no guarantee Canada will receive full supply in time

BY CAROLINE ALPHONSO TORONTO AND GLORIA GALLOWAY OTTAWA

The worldwide supply of a pandemic influenza vaccine will take twice as long to manufacture and countries could have barely half of what they need for the fall's flu season if current production problems persist, the World Health Organization revealed yesterday.

Canadian health authorities admitted that not everyone will receive the vaccine at the start of the flu season, as they scrambled to prioritize which groups would move to the head of the queue. Pharmaceutical manufacturer GlaxoSmithKline Inc. is under contract to produce enough vaccine for all Canadians who wish to receive it, but it's unclear how quickly the vaccine will be rolled out and even if most will be vaccinated in the event the virus returns with a vengeance this fall.

Still, Canada and other af-

The Globe's view

Where is the evidence that Ottawa is taking the flu ser Canadians are left to worry the U.S. takes action.

EDITORIAL, PAGE 12

FROM PAGE 1 » VACCINE

New virus strain not growing fast enough

The new virus strain is not growing fast enough in the eggs used as a mainstay of flu vaccine production. Manufacturers report that the swine flu strains being used are barely producing half as much yield to make vaccines as the seasonal flu virus. If the problem persists, the vaccine wouldn't be immediately available for everyone.

The WHO said laboratories are generating new seed strains for manufacturers, and hoped the problem could be worked out in the coming weeks.

But Theresa Tam, the director-general of infectious disease and emergency preparedness for the Public Health Agency of Canada, said it was prudent to determine who will get the first doses. The agency hadn't been in touch with GlaxoSmithKline on the amount of vaccine that will likely be available to Canadians, nor a timeline. There is an understanding that at least some of the drug will be available by early November.

"The vaccines may not come all at once and we can't vaccinate everybody at the same time," Dr. Tam said.

- Initial supplies of vaccine were not expected until September/ October, with full supplies not available until December/ January
- Amidst calls to streamline the vaccine production and delivery process, media reports stressed that vaccine safety could not be compromised

- There were other questions being asked: Should pregnant women get the vaccine? Were they at a higher risk? Would the vaccine be available for poorer countries?

H1N1:
Pandemic Influenza, Again

- **Aug 6** – Health Canada placed its order for 50.4 million doses of H1N1 influenza vaccine to be fully supplied from GSK's facility in St. Foy, Quebec;
- $400 million, 60% paid by federal government, 40% by provinces
- Assumed 75% of Canadians wanted the vaccine, enough ordered for 1 dose for everyone; or 2-doses for 75% of all that wanted it; yet poll showed only 60% might get it

Globe & Mail, Aug 7, 2009, p. A4

A4 News — The Globe and Mail, Friday, Aug. 7, 2009

Canada

THE H1N1 PANDEMIC

Canada to buy 50 million doses of flu vaccine

Federal government to cover 60 per cent of the cost, which will total more than $400-million

BY HELEN BRANSWELL TORONTO

Canada will purchase 50.4 million doses of pandemic flu vaccine, an amount that should be sufficient to protect all Canadians who want to be vaccinated against the swine flu virus, federal officials said yesterday.

The order was announced by Health Minister Leona Aglukkaq, who said the federal government would pick up 60 per cent of the more than $400-million tab for the vaccine. She noted that provincial and territorial governments are responsible for 100 per cent of the cost of seasonal flu vaccine.

"This investment reflects the unique circumstances of the situation as well as the gravity," Ms. Aglukkaq said.

The vaccine will be purchased from GlaxoSmithKline, which will make the product at its facility in Ste-Foy, Que.

David Butler-Jones, head of the Public Health Agency of Canada, said the size of the order should be sufficient to cover all Canadians who want and need pandemic vaccine.

It is not known whether one or two doses of vaccine will be needed to protect against the new H1N1 virus, though it is thought that older adults – who seem less vulnerable to the virus – may be able to get by with only one dose.

Dr. Butler-Jones explained the federal math: There are 33.6 million Canadians. The federal pandemic plan suggests authorities should bank on 75 per cent of them wanting or needing vaccination. With 50.4 million doses, 75 per cent of Canadians could each get two doses.

But if only one dose is needed for some or all Canadians, different formulas could come into play.

The order size obviously allows for one dose for 100 per cent of Canadians, or one dose for all and a second dose for 50 per cent of the population, if studies show some people need two doses, Dr. Butler-Jones said.

Canada has the option of going back to request more vaccine if studies show two doses per person are needed and demand outstrips supply, he added. But he said that it was unlikely the order would be insufficient to meet the country's needs.

In fact, polling commissioned by the government suggests that at this point, only about 60 per cent of people might want pandemic vaccine. Only about a third of Canadians get a seasonal flu shot, Dr. Butler-Jones noted.

"We're ordering more," he said. "This is all hedging our bets to ensure that we err on the side of caution."

In fact, it is quite possible the country could find itself with excess pandemic vaccine on its hands, the chief public health officer admitted in an interview.

He said the government is talking with GSK about potentially turning back part of the order, if it becomes apparent Canada doesn't need 50.4 million doses. That would allow the company to start filling other countries' orders sooner, Dr. Butler-Jones said.

Canada has first access to vaccine produced at the Ste-Foy plant, having signed the world's first pandemic flu vaccine contract in 2001 with Shire Biologics, a previous owner of the plant. GSK inherited the contract when it bought the facility in 2005.

It is likely the vaccine Canada will purchase will contain an adjuvant, a compound that boosts the immune system's response to the vaccine. GSK has indicated it wants to sell adjuvanted vaccine and the World Health Organization has urged countries to use vaccine formulas that allow limited global supplies to be stretched as far as possible.

Canadian officials have repeatedly said they expect to start receiving supplies of the vaccine in late October or early November.

» The Canadian Press

- **Aug-Sept** – While flu cases eased and the public waited for the vaccine, increasing debate about the vaccine arriving too late, yet the testing process shouldn't be rushed

Polls - Declining Demand:
- **Early Sept** – 45% likely to get the shot
- **Early Oct** – 33% likely to get the shot

H1N1:
Pandemic Influenza, Again

- **Early October** – Clear signs of a second wave of H1N1 outbreaks intensified public and public heath concerns about the status of the vaccine's approval and roll-out. Would it be too late?

- **Oct 21** – Finally, Health Canada approved GSK's H1N1 influenza vaccine, which was adjuvanted to allow smaller, more potent doses and more to be immunized

- **Oct 26** – H1N1 immunization clinics begin to open across the country in what would be the largest immunization effort in Canadian history. How many would show up?

H1N1 PANDEMIC

Globe & Mail, Oct 14, 2009, p. A1

Ottawa's plan to shelve flu vaccines breeds dissent in health ranks

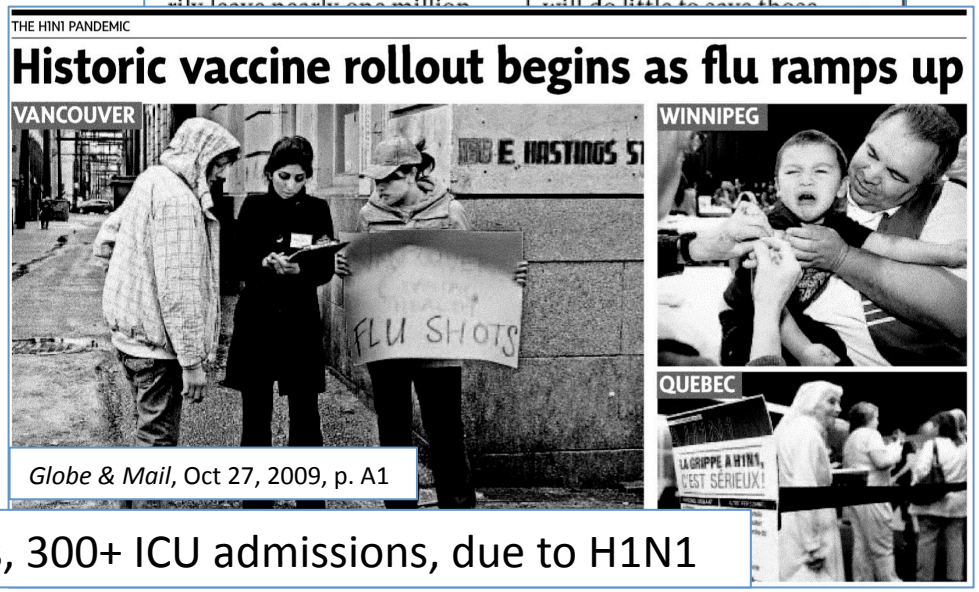
Doctors fear late rollout means flu shot will arrive just as virus begins to peak

BY CAROLINE ALPHONSO TORONTO

Dissent over Canada's H1N1 vaccination strategy continues to quietly mount in the country's medical community as the top public health official said the government will tempora-

and China, have already begun inoculating their populations against the swine-flu virus.

Some health experts fear that the late rollout in Canada could come just as the virus starts peaking – and that the vaccine, awaiting regulatory approval,



THE H1N1 PANDEMIC

Historic vaccine rollout begins as flu ramps up

VANCOUVER

WINNIPEG

QUEBEC

Globe & Mail, Oct 27, 2009, p. A1

- So far: 83 deaths, 1500+ hospitalizations, 300+ ICU admissions, due to H1N1

H1N1:
Pandemic Influenza, Again

- **Oct 27** – On the morning after H1N1 immunizations started in Ontario, news spread that a 13-year-old Toronto boy had died of H1N1-related causes.
- Evan Frustaglio, "healthy as can be," had fallen ill during a minor hockey trip to London, ON, and within 48 hours had died in a Toronto hospital.
- His case was the first H1N1-related death in Toronto and news of the tragedy prompted an intense media and public health response that changed the course of the pandemic in Canada

Globe & Mail, Oct 28, 2009, p. A1

SECOND OPINION

The recent deaths of two children shocked Canadians, but these tragic stories shouldn't cloud the facts. The fear is real but the flu's risk is small, **public health reporter André Picard** writes. So what should anxious parents do? Get their kids vaccinated and keep up their daily routines

WHY PANIC IS NOT THE ANSWER

Evan Frustaglio, 13, of Toronto and Vanetia Warner, 10, of Cornwall, Ont., died of the H1N1 flu this week.

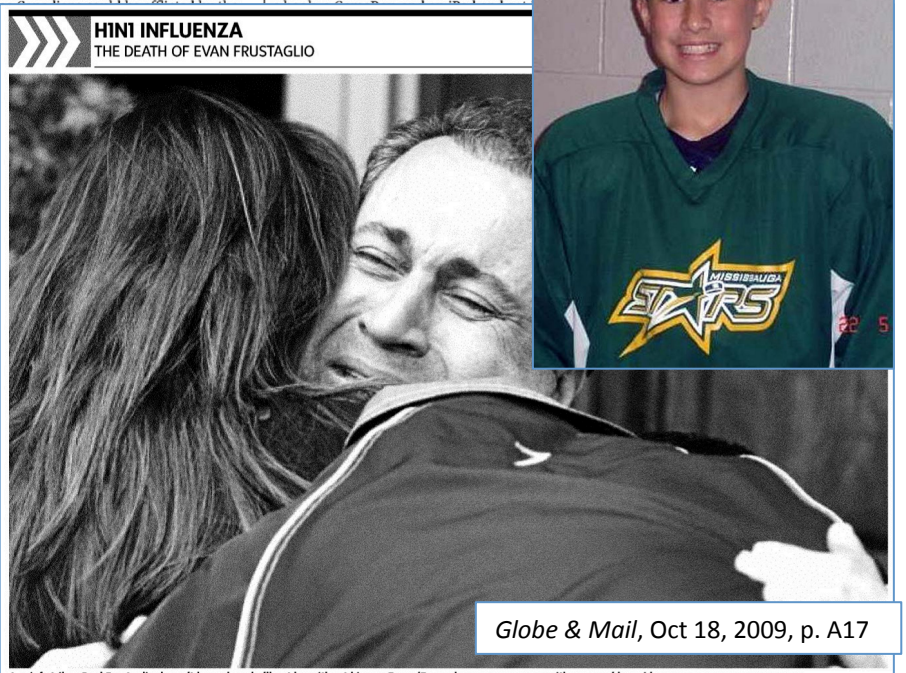
The deaths of two young, previously healthy children are bound to terrify families, and to ramp up the fear related to H1N1 influenza several notches. Many parents are now wondering: Should they keep their kids home from school, should they keep them away from hockey practice and gymnastics and should they – horror of horrors – put the kibosh on Halloween? The answer to those questions is no – an equivocal no.

That doesn't mean that there is no risk, of course. The chances of contracting H1N1 are relatively high, and it is estimated that, by the time all is said and done, as many as one in thr… diseas… seaso… Whi… tion o… requi… die. B… a lot … care i… will b… thous… Stat… death… and p… news… fully … Wha… text s… In 2… famili… peopl… nually… each … age o… ties.) … dren … Death… bly fe… Yet … even … dren. … paign…

lines are frustratingly long.

So, what should parents do?

First and foremost, they should bite the bullet and get their children vaccinated.



A grief-striken Paul Frustaglio doesn't know how he'll get by without his son Evan. 'Every day was a memory with my son,' he said. DEBORAH BAIC/THE GLOBE AND MAIL

Globe & Mail, Oct 18, 2009, p. A17

Grieving father struggles with son's death

He was a healthy young athlete with a touch of asthma, and observers are shocked at how quickly he died

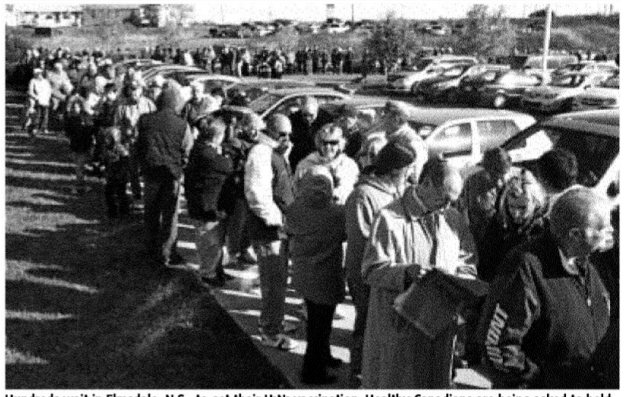
H1N1:
Pandemic Influenza, Again

- **Oct 27** – The timing of Evan' death with the launch of H1N1 immunizations, coupled with recent news of other youth deaths elsewhere in Canada and in the U.S., generated a new level of media intensity
- Of particular concern was that children, ages 6-17, were not included in the priority group

Globe & Mail, Oct 28, 2009, p. A8

8, 2009

FROM PAGE 1 » PANDEMIC



Hundreds wait in Elmsdale, N.S., to get their H1N1 vaccination. Healthy Canadians are being asked to hold off, until priority groups receive their shots. ANDREW VAUGHAN/THE CANADIAN PRESS

Ontario has no plans to expand high-risk group to include teenagers

His fever broke Monday morning. But later that day, his father found him passed out on the bathroom floor.

The tragedy follows the death of 10-year-old Vanetia Warner of Cornwall, Ont., who was sick for several days before her condition rapidly deteriorated. She died Saturday in Ottawa. Pediatric deaths in the United States have also been steadily increasing.

ing in remote communities. Healthy Canadians are being asked to hold off, until priority groups receive their shots.

Despite Evan's death, Ontario has no plans to expand the high-risk group to include teenagers. The province should receive enough vaccine for everyone who wants and needs it by Christmas, officials said.

"The sad news of this boy's death is a reminder that while most flu illness is mild, severe

dren's Hospital of Eastern Ontario saw 320 patients in its emergency ward, a majority of them with suspected H1N1, spokeswoman Marie Belanger said.

In addition to its new visitor restriction, where only parents or legal guardians can see patients, CHEO is also asking that only one parent come with a child to emergency. It is also in the midst of closing three ambulatory care clinics – gastroen-

- The surge in vaccine demand raised questions about inconvenient flu-shot clinics, and why pharmacies weren't giving the shots

THE H1N1 PANDEMIC

Flu-shot clinics struggle to keep up with demand

'We're a victim of our own success,' health official says as Canadians heed advice to get the shot, but the rush raises prospect of shortage

BY CAROLINE ALPHONSO
LISA PRIEST TORONTO
AND ROBERT MATAS VANCOUVER

Flu clinics across the country are facing the prospect of a shortage of the H1N1 pandemic vaccine over the next couple of weeks as Canadians heed the advice of public health officials and line up to get inoculated.

A second wave of the virus, which has killed two children in recent days, has prompted Canadians to queue for hours at flu clinics.

The demand is encouraging to public health officials but it is also causing them to worry that they cannot keep pace as the initial shipments roll in.

Although Canada ordered 50 million doses of vaccine, only six million will be shipped to provinces and territories by the end of the week. Communities in British Columbia, Manitoba and Ontario are concerned overwhelming early demand will outstrip supply.

In Winnipeg, where more than 30,000 residents have been vaccinated, the health authority's president said yesterday that lineups are not fading and the vaccine supply promised for next week "may be a little shy."

"At the rate we're going, if this continues next week, that probably wouldn't be quite enough," said Brian Postl of the Winnipeg Regional Health Authority.

Roland Guasparini, Chief Medical Officer of British Columbia's Fraser region, said clinics are just keeping pace.

"We're a victim of our own success," Dr. Guasparini said.

» SEE 'DEMAND' PAGE 6

MORE COVERAGE

The city that got it right No frustrating lineups and no one turned away: Sault Ste. Marie sees flu-shot success as thousands are vaccinated by appointment PAGE 17

What to do in this state of confusion GLOBE LIFE

What you need to know GLOBEANDMAIL.COM/H1N1

Globe & Mail, Oct 29, 2009, p. A1

H1N1:
Pandemic Influenza, Again

- While Evan's tragic case galvanized demand for vaccine, only about 40% of Canadians received the H1N1 shot; but one of the highest rates in the world
- This unprecedented effort highlighted many issues, particularly related to the pandemic vaccine supply (it would become a shared contract), and also the issue of vaccine hesitancy, especially among young adults

Globe & Mail, Nov 6, 2009, p. A1

THE H1N1 PANDEMIC

Canada needs two vaccine suppliers, Ottawa admits

Official says 'there is no debate' about enlisting more than one flu-shot manufacturer in future pandemics to avoid current delivery delays

BY DANIEL LEBLANC AND PAUL WALDIE

Canada needs more than one vaccine manufacturer to deal with future flu pandemics and to avoid production delays that have affected the fight against the H1N1 virus, federal officials say.

"There is no debate. We all feel that when the time will come to renegotiate, we will go to tenders on a two-part contract to ensure maximum flexibility," said a senior official who has been working directly on the file.

While the Harper government has applauded GlaxoSmithKline Inc. for making more than 6 million doses so far at its facility in Ste-Foy, Que., a number of officials involved in the crisis said Canada deserves a second producer in the future.

Had that been the case this time, one manufacturer could have worked on the production of vaccines with the adjuvant additive, while the other one could have produced non-adjuvanted vaccines for pregnant women.

GSK was forced to make changes to its production line in mid-course, which caused delays in the delivery of vaccines to the provinces.

The official said that a simple stroke of bad luck can endanger thousands of doses of vaccine, and that it's better to "be safe than sorry" when it comes to production matters.

The GSK contract dates back more than a decade when health officials across Canada began planning for a pandemic, and mass inoculations, in the wake of an avian flu scare.

» SEE 'VACCINE' PAGE 8

THE ETHICS OF FLU

Jumping the queue is OK for a few

Employees of Canada's sole vaccine manufacturer got their flu shots along with their spouses and kids - with the nod of medical ethicists. It's part of most pandemic plans to put front-line health workers at the top of the list, but the struggle lies in deciding who gets priority in the first place. Michael Valpy reports.

STORY, PAGE 8

Globe & Mail, Dec 26, 2009, p. A9

H1N1 PANDEMIC

As second H1N1 flu wave passes, a sigh of relief

Fear of the flu wasn't overblown, officials say, but the impact was lessened by a successful public-health campaign

BY GLORIA GALLOWAY OTTAWA

It took the death of a healthy 13-year-old Mississauga boy to turn H1N1 into a full-blown public-health scare. By mid-November, vaccination clinics across the country were jammed.

But now, the second round of the swine flu has come and almost gone. Although it killed 401 Canadians as of Wednesday and sent nearly 1,400 into intensive care, fears of a repeat of the 1918 influenza that claimed an estimated 100 million people worldwide have not been realized.

Most Canadians did not lose a loved one to the H1N1 pandemic virus and did not fall ill themselves. To many, the fear that seemed so palpable in October and November looks now to have been rooted in a virus that was not nearly as threatening as it was made out to be.

Fear of flu, say infectious disease experts and health officials, was anything but overblown. Instead, they say the tapering of the H1N1 virus attests to the success of a massive public-health push to halt the contagion.

It is impossible to estimate how far the disease would have spread had Canadians not par-

per cent have been immunized.

The pandemic also served as a test run that will help health professionals and governments around the world prepare for the pandemic that does turn out to be 'the big one.'

"This is the first time we have actually literally watched a pandemic develop and watched as we were developing a vaccine for it and rolling it out," said David Butler-Jones, Canada's chief medical officer of health. "And I am just really impressed with how well everybody did."

In the early days of the virus, some experts predicted a much smaller proportion of the population would be eager for the vaccine. But the death of Evan Frustaglio, an otherwise healthy and athletic 13-year-old from Mississauga, Ont., was a wake-up call for parents across the country.

Other basic precautions, such as getting people to wash their hands and staying home when they are sick, also likely played a role in containing the spread of swine flu, said Vivek Goel, the president of the Ontario Agency for Health Protection and Promotion.

Even the push to get people to cough and sneeze into their sleeves instead of their hands

More than 40 per cent of Canadians have been vaccinated for H1N1 pandemic flu. PAUL DALY FOR THE GLOBE AND MAIL

The outbreak's progress

FIRST WAVE

- **First cases are confirmed in Canada around April 26**
- **Young people, pregnant women and remote native communities are considered particularly at risk**
- **Ottawa orders 50 million vaccine doses from GlaxoSmithKline**
- **Confirmed deaths: 72 as of Aug. 27, 2009**

SECOND WAVE

- **Begins September, 2009**
- **Canada-wide vaccination campaign is rolled out on Oct. 26**
- **H1N1 flu shot clinics open, with lineups and long waits**
- **Hospitalizations and deaths peak in November**
- **Some provinces begin closing H1N1 clinics in early December as demand wanes**
- **Confirmed deaths: 329 as of Dec. 23, 2009**
- **Cumulative deaths: 401**

» *Beatrice Fantoni*

their hands," he said.

That's something that has changed just this year, he said. "When you think how difficult it is to change behaviours, that's actually a phenomenal thing."

Officials did make some mistakes in their handling of the

ordinating efforts of federal officials and those people at lower levels of government who actually treated patients and delivered immunization, according to Raisa Deber, one of the country's leading public-health experts.

There were times that the

teaches at the University of Toronto. And "you would have David Butler-Jones putting out one thing and the Ontario medical officers saying something different."

On the other hand, she said she believes the level of alarm about the pandemic and the

als assumed that this H1N1 virus was not going to become a catastrophe, said Dr. Deber. "But, at what probability do you still have to act like it might? Take a look at every time we've had a situation in which we've underestimated. People get furious."

Anand Kumar, an associate professor of medical microbiology and pharmacology at the University of Manitoba who has treated some of the sickest H1N1 patients in the country, said he would give governments an A-minus for their handling of the virus.

"I think they actually did surprisingly well, taking into account all of the criticism they got early on," said Dr. Kumar.

It would have been better if the production of the H1N1 vaccine had not been delayed until after the regular seasonal vaccine had been produced, he said. That was a recommendation from the World Health Organization that the government of Canada opted to follow.

On the other hand, said Dr. Kumar, the decision to go with an adjuvant that extended the amount of vaccine available meant more of the population could get immunized faster.

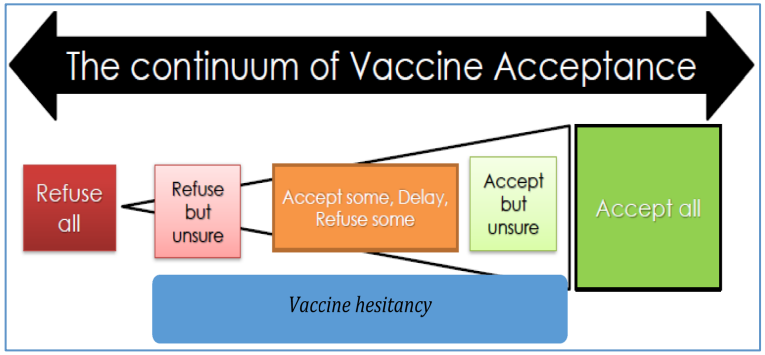
"I think they have done remarkably well," he said, "given

- Between the onset of the pandemic in April, the ordering of vaccine in August, and its ultimate delivery in late October, there was lots of time for personal opinions about the vaccine to develop, harden, sometimes change, and also be publicly expressed, especially through emerging social media channels of the late 2000s

Vaccine Hesitancy:
Post-H1N1 & MMR Autism Link

- **2009-10** – Coinciding with the H1N1 vaccine initiative was the final stages of the investigation into the efforts by Dr. Andrew Wakefield to fraudulently link MMR vaccine (mumps-measles-rubella) with autism in a 1998 *Lancet* medical journal article; it was fully retracted in 2010

- However, the damage had been done, leaving persistent public doubts and fears associated with MMR, and parental anxieties and hesitancy towards other pediatric vaccines, often reinforced on the internet and by social media



Survey raises concern about vaccine 'hesitancy' among Canadian parents, shows some harbour misinformation

Researchers said it is distressing to see how many people still think there is a link between MMR vaccines and autism — a link that has long-since been debunked

Postmedia files

NP

POSTMEDIA NEWS

December 18, 2015
2:08 PM EST
Last Updated
December 18, 2015
10:06 PM EST

More than one in four Canadian parents either believe vaccines cause autism and mental illness, or are not sure whether they do, suggests a national survey of attitudes toward vaccines.

Results of the online randomized survey of 1,000 Canadian parents of children under five indicate that vaccine hesitancy is alive and well in Canada, something that has been a growing concern for public

Making Public Health History Matter

- A novel and effective approach for helping the public overcome vaccine hesitancy is to utilize the history of infectious diseases and the long term use of vaccines to prevent, and even eradicate them, through informative and creative initiatives of public and personal engagement
- Developing and teaching this course for LLiR is the latest of many example of this type of historical public health engagement work I have pursued over the last 20+ years

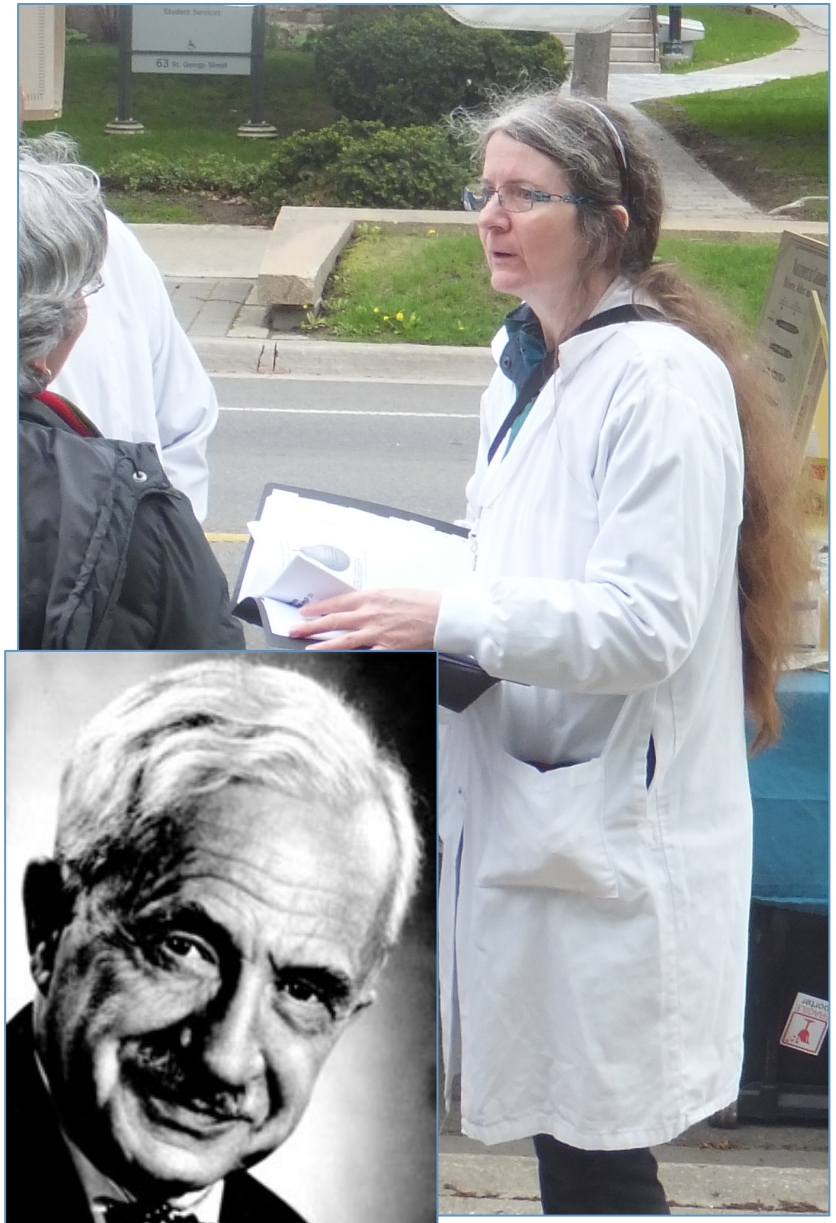
  - **2013-17** – One of the best examples is the co-development and mounting of the "Quarantine Tent" at a variety of public events

Making Public Health History Matter

- **2013** – The Quarantine Tent was conceived by Pippa Wysong, a medical writer whose grandfather was Dr. Gordon Bates, a pioneer in Canadian public health who has been featured in this class

- As Pippa put it, "The inspiration for the Tent grew from the idea of 'wouldn't it be great if people could talk to people from the past who really knew what the diseases are like, and how immunization changed the world'?"

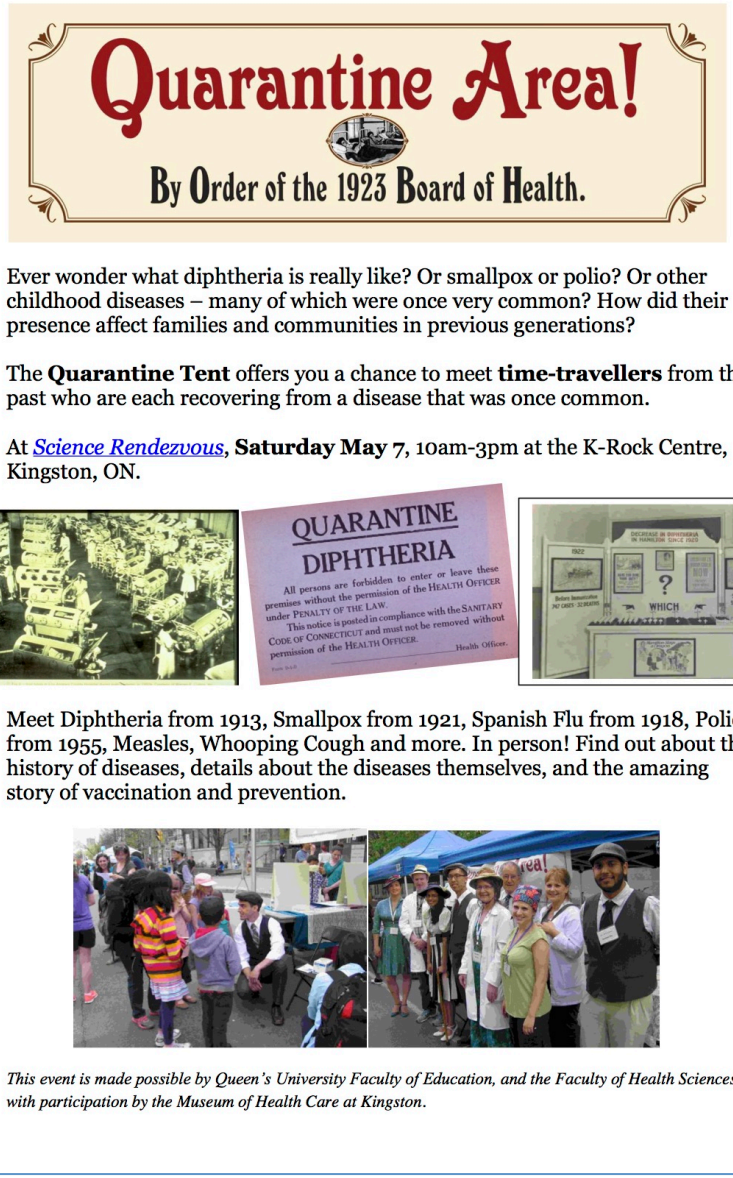
- I've worked with Pippa to help develop the tent and provide the historical basis upon which to develop the personal profiles of our cast of time-travelling disease victims



Making Public Health History Matter

- **2013-17** – The Quarantine Tent has been set up several times at "Science Rendezvous" public science fairs at the University of Toronto and in Kingston

- It was also set up at Sanofi Pasteur's Connaught Campus in 2014 at a employee picnic to celebrate the company's 100th anniversary



Quarantine Area!

By Order of the 1923 Board of Health.

Ever wonder what diphtheria is really like? Or smallpox or polio? Or other childhood diseases – many of which were once very common? How did their presence affect families and communities in previous generations?

The **Quarantine Tent** offers you a chance to meet **time-travellers** from the past who are each recovering from a disease that was once common.

At *Science Rendezvous*, **Saturday May 7**, 10am-3pm at the K-Rock Centre, Kingston, ON.

Meet Diphtheria from 1913, Smallpox from 1921, Spanish Flu from 1918, Polio from 1955, Measles, Whooping Cough and more. In person! Find out about the history of diseases, details about the diseases themselves, and the amazing story of vaccination and prevention.

This event is made possible by Queen's University Faculty of Education, and the Faculty of Health Sciences, with participation by the Museum of Health Care at Kingston.

Making Public Health History Matter

- **April 25, 2017** – This year the Quarantine Tent has been set up 3 times, first at the MaRS Discovery District as part of a Public Health Ontario Immunization Week event

- **July 1** – The Tent was part of Kingston's Canada Day ArtFest event

- **Sept 28** – Most recently, the Tent was invited for RAMA First Nation's Health Fest event

Making Public Health History Matter

- **2013** – The Quarantine Tent's development coincided with the work I did as guest curator of the exhibit, "Vaccines & Immunization: Epidemics, Prevention & Canadian Innovation" at the Museum of Health Care in Kingston
- **2014** – An expanded online version of the exhibit launched a year later and has proven to be a popular and useful resource

http://www.museumofhealthcare.ca/explore/exhibits/vaccinations/

Making Public Health History Matter

- **1995-2017** – The public health engagement work I've been able to develop has grown out of the historical research, writing and consulting I've done with and for Sanofi Pasteur, beginning in 1992-93 with my Ph.D. thesis research on the history of polio

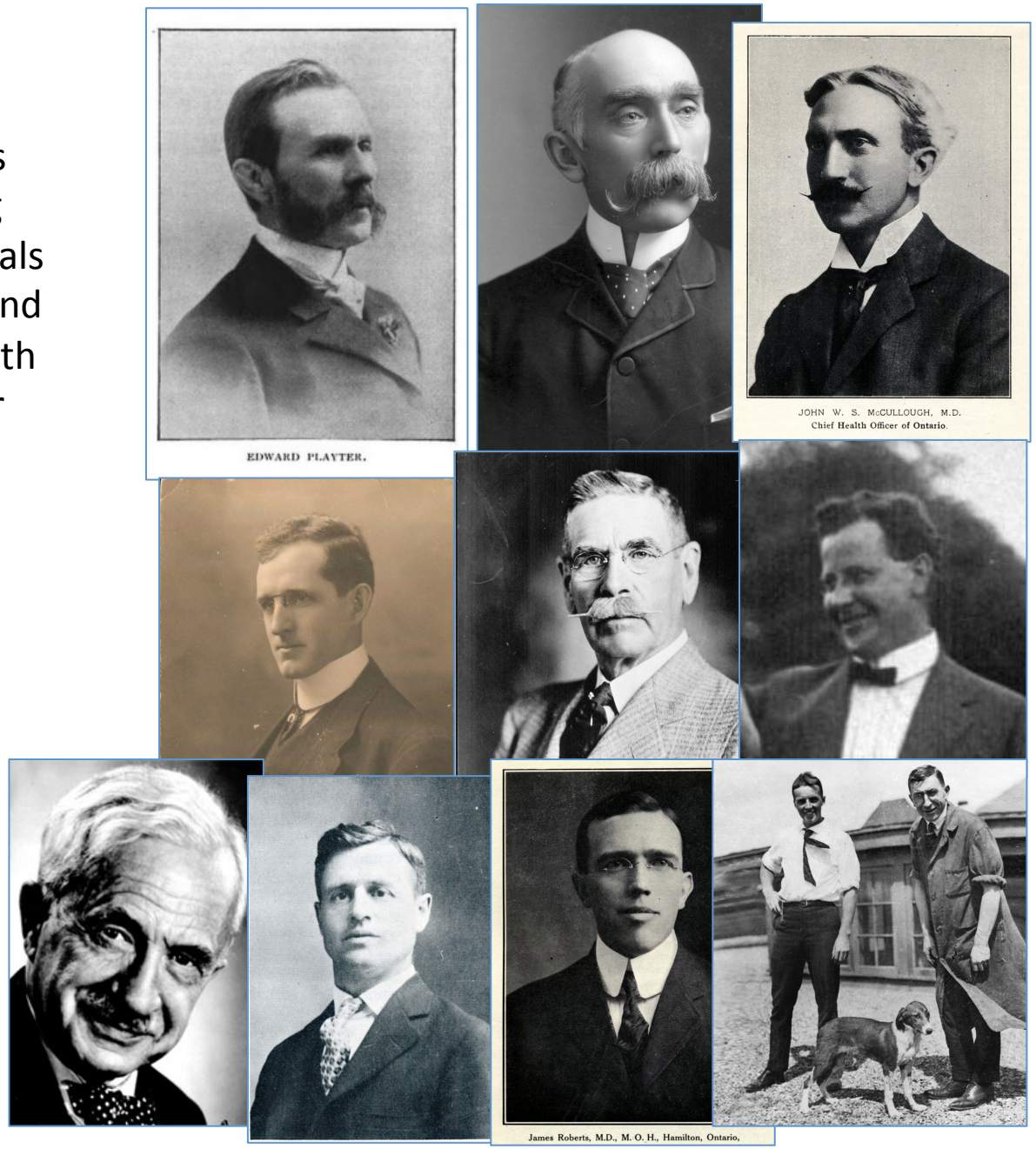
- Its 100+ year legacy, its rich archives, and the respect for and support of history by its leadership and employees have certainly demonstrated how public health history matters

http://thelegacyproject.ca/

Conclusions

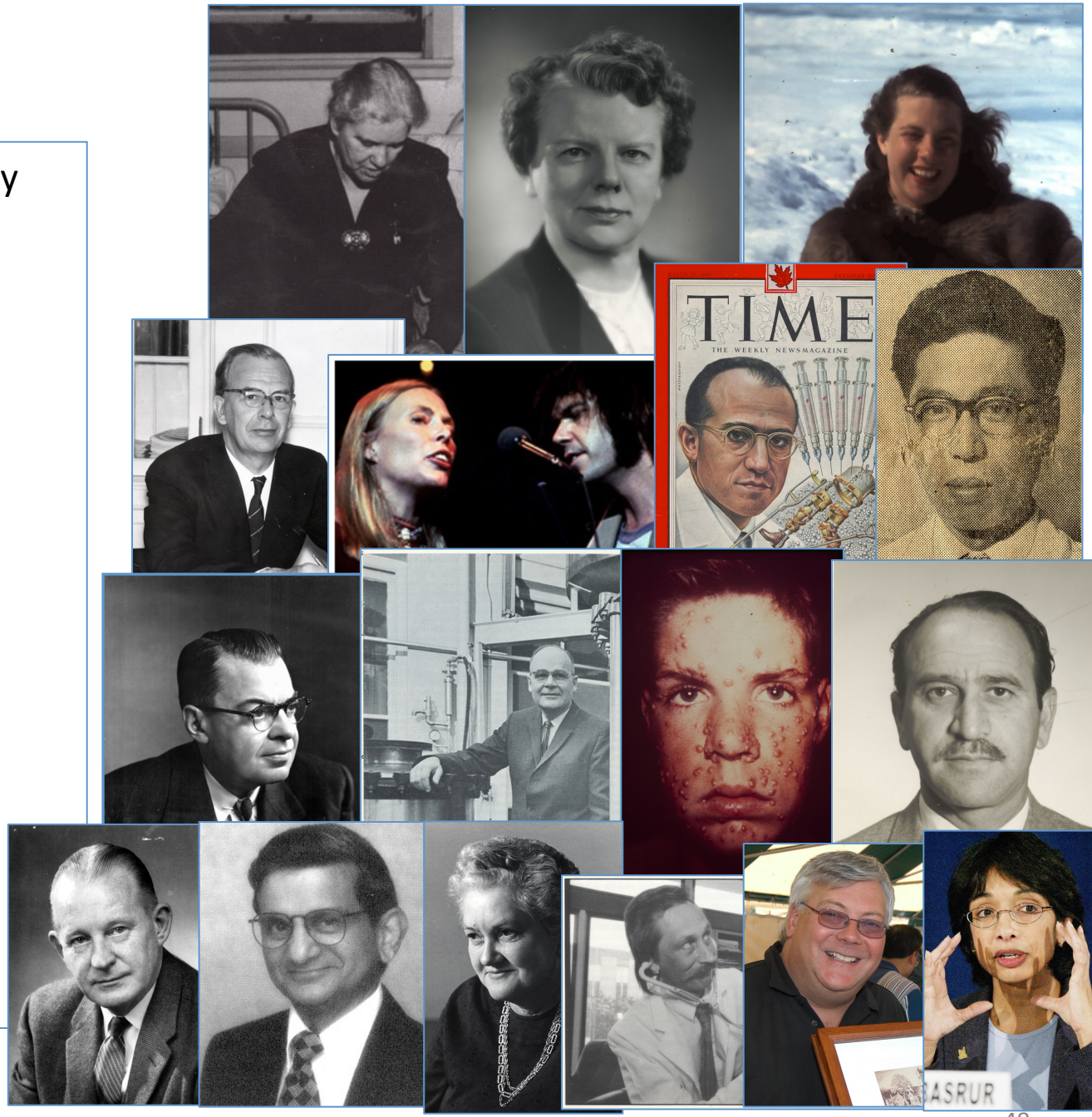
- In considering how to end this course, I couldn't help coming back to the many key individuals that have made a difference and driven the story of public health & biotechnology I've told over the last 10 classes:

  - Edward Playter
  - Peter Bryce
  - John McCullough
  - John FitzGerald
  - Albert Gooderham
  - Robert Defries
  - Gordon Bates
  - Peter Moloney
  - James Roberts
  - Frederick Banting
  - Charles Best



Conclusions

- Sister Elizabeth Kenny
- Leone Farrell
- Connie Beattie
- Andrew Rhodes
- Neil Young
- Joni Mitchell
- Jonas Salk
- Frank Shimada
- Paul Martin
- Ken Ferguson
- Jimmie Orr
- Paul Fenje
- Robert Wilson
- Chandrakant Shah
- Hilda Macmorine
- Rob Van Exan
- Mark Lievonen
- Sheela Basrur



Conclusions

- And then there is the vital role of the individual viruses and bacteria – smallpox, diphtheria, TB, polio, pertussis, influenza, HIV, SARS - that proved to be such valiant adversaries in Canada, spreading and threatening and causing disease and death, and driving at times herculean public health, scientific and vaccination efforts to control their spread, prevent their infection, and even eradicate them from the planet
- And as much as public health remains focused on population health, community medicine and managing the determinants of health, as this course has underscored, the public health system must remain prepared for the unpredictable impact of the individual virus or bacteria and open to the often unpredictable and heroic efforts of individual humans working together to defend the public's health