At first it was just a 'strange' cluster of illnesses in a small Mexican town. Then suddenly *swine flu* was everywhere.

In the early days of April, almost three weeks before the world was first warned about a deadly *flu* outbreak in Mexico, alarm bells were already sounding -- in Washington state, of all places. Veratect Corporation, a small, Seattle-based company that specializes in tracking global diseases, issued an electronic alert to its subscribers, notifying them of a "strange" cluster of respiratory illnesses in the rural town of La Gloria, a farming community in the Gulf Coast state of Veracruz. More than 1,800 people -- 60 per cent of the town's population -- have "been affected," the company wrote.

The troubling reports continued to circulate. On April 13, a 39-year-old woman passed away -- the first of many fatalities. Three days later, Veratect reported "an unspecified number of atypical pneumonia cases" at a hospital in Oaxaca state. Another person was dead, the emergency room was quarantined, and *flu* symptoms were surfacing at an alarming pace. Veratect officials eventually reached out to the U.S. Centers for Disease Control, only to be told that the agency was "already dealing with the crisis."

In fact, the crisis had made its way to Winnipeg by then, to the home of Dr. Frank Plummer, the scientific director of Canada's National Microbiology Laboratory.

It was April 17, a Friday night, and Plummer was watching a playoff hockey game in his living room when the email arrived from Dr. Celia M. Alpuche Aranada, a colleague at the Instituto de Diagnostico y Referencia Epidemiologicos in Mexico. Needless to say, Plummer didn't catch the final score. He hasn't caught much sleep since then, either. Two hours a night, if that much. By early Saturday morning, plans were under way to ship 51 specimen samples from Mexico to Manitoba. After consulting with fellow microbiologists, the decision was made to collect "fluid samples from deep within the lung" (officially known as bronchial alveolar levages). "These were people who were very severely ill -- many of them on respirators," Plummer told Maclean's. His Winnipeg lab activated its "Ops Centre," extra staff was assembled, and senior
officials, including the country's chief public health officer, were promptly notified. Plummer also phoned Ontario to speak to doctors Arlene King and Theresa Tam, both veterans of the 2003 SARS crisis, to let them know "that we'd had this request from Mexico that sounded like a very concerning situation."

His hunch proved correct. The lung swabs arrived on April 22 (at precisely 11:39 a.m.) and by the next day, "we knew this virus was very different than what circulates in humans normally." On April 24, lab technicians officially confirmed what the whole world now knows: 17 of the samples contained a nasty, never-before-seen influenza virus -- part swine, part human, part avian. "It's totally new and therefore one that humans don't have natural immunity to," Plummer says. "The first thing you ask yourself is: 'Is this the start of a pandemic?'"

The answer is still very much unclear. At last count, the virus has killed more than 150 Mexicans, hospitalized 2,000 others, and slinked its way into Canada, the U.S., Europe and New Zealand, among others. Panic is spreading even faster. The World Health Organization increased its pandemic threat level for the first time in four years, travel advisories are in full effect, and the cable news networks are dutifully tracking every minute detail, relevant or not. But is this the big one? Are we staring at the long-overdue pandemic that scientists have been predicting for more than a decade? Maybe so. Maybe not. "It has the potential, and that's enough to cause everybody to sit up and pay attention," says Dr. Fred Aoki, one of Canada's top influenza experts. "But until we get a bit more information, we really don't know." By the time they do know, it may already be too late.

Some of the details -- the where and the when -- are impossible to pin down with absolute certainty. Influenza viruses can spread so quickly, and cover so much ground in so little time, that no right-minded scientist would dare declare, with 100 per cent assurance, that this is where it all began. But in this case, the "how" is fairly conclusive.

Swine influenza has existed for decades, and although one subtype is the most common (A/H1N1), there are others (H1N2, H3N1 and H3N2). Pigs, though, are also susceptible to bird flu and human flu, and in some rare cases, a hog can be infected with more than one virus at a time. When that happens, the genes have a chance to mix together in innumerable ways -- and, in this case, to concoct an entirely new strain that has the power to spread from pig to human to human. "It's a step-by-step process, and eventually you get this mixture," says Dr. Earl Brown, a flu researcher at the University of Ottawa. "It's not lightning striking all at once."

Without that definitive lightning strike, public health investigators will never be able to pinpoint the precise pig responsible for the virus. All they can assume is that the animal was somewhere in Mexico, and that someone -- a peasant farmer, most likely -- had the misfortune of stepping too close.

Even without the evidence, some are already pointing to a prime suspect: La Gloria. The industrial farming town that appeared in those early Veratech reports has been dubbed "Ground Zero" by more than one Mexican newspaper. The community is home to a Confined Animal
Feed Operation (CAFO) that is 50 per cent owned by Smithfield Foods Inc., the largest fresh pork and packaged meat company in the U.S. Residents have long complained that flies swarming over the open-air manure lagoons have caused an alarming number of respiratory infections. Edgar Hernandez, a four-year-old boy who lives in the area, has since tested positive for the new swine flu.

Both the company and the Mexican government deny any link between the outbreak's early days and the La Gloria factory. The government says the illnesses in the region -- Hernandez aside -- were caused by an entirely different flu, and as the company declared in a news release, "it has no reason to believe" that the swine virus "is in any way connected to its operations." But it is still "quite possible" that pig manure spread this infection, says Ellen Silbergeld, an epidemiologist and professor at the Johns Hopkins Bloomberg School of Public Health. "You have a lot of animals -- of hosts -- in a confined area," she says. "This is a textbook situation for driving evolution of bacteria or viruses."

The locals certainly seem to think so. Many are absolutely convinced that the swine flu originated in their backyard. "When we saw it on television, we said to ourselves: 'This is what we had,' " said one resident, recounting the symptoms (fever, coughing, vomiting and diarrhea). "The symptoms they are suffering are the same that we had here." Concepcion Liorente, a first-grade teacher in the town, also doesn't believe the government's explanation. "They said that what we had here was an atypical flu," she told the Associated Press. "But if the boy tested positive for swine flu, where did he get it from?"

All across Mexico, government mistrust is as rampant as the virus itself. Schools are closed, the streets are deserted, and soldiers are handing out surgical masks to the few who still venture outside. Yet, two weeks and counting since the first confirmed death, the bureaucracy still hasn't distributed medication to the families of the deceased -- or even interviewed them. Jose Angel Cordova, the Mexican health secretary, has resorted to deflecting the same tough questions with the same generic response: "We never had this kind of epidemic in the world."

It is no surprise, then, that the Internet is rife with rumours and conspiracy theories. Some Mexicans are openly suggesting that the swine flu was invented by a group of American and German students at the University of Ohio dedicated to bio-genetic research. Others say that many more people have died than the government is saying, or that the medicines prescribed for the flu really don't work. "Many of these rumours or worries stem from the assumption that the government is not telling us everything it knows," wrote television news journalist Denise Maerker in a column in El Universal newspaper. "It's obvious . . . that every day the president and his team evaluate what they tell us and how they tell us."

Indeed. On Monday, April 27, Mexican officials dropped this bombshell: the first fatality of the outbreak -- the 39-year-old woman who died on April 13 -- worked as a door-to-door census taker. In other words, she potentially passed the virus to countless strangers before she ever knew
she was sick.

Influenza's ability to hop between continents throughout human history remains one of its enduring mysteries. But the swine flu epidemic has cast light on at least one modern means of transportation: the globe-trotting high school student. Four teenagers from King’s-Edgehill private school located near Windsor, N.S., counted among the first confirmed instances outside Mexico after they returned from a school trip to the Yucatan Peninsula. Strangely, the virus didn't seem to be hitting them as hard: all exhibited "moderate" symptoms, said Robert Strang, director of the eastern province's health authorities, as did four staff members believed to have contracted the virus from the teenagers.

Same went for 75 students at the St. Francis Preparatory School in the New York City borough of Queens, who had recently returned from spring break. The bug was mild enough that city health officials cast doubt on fears it might be swine flu. But it was hard to ignore the fact many had just arrived back from trips to Mexico, and sure enough, Mayor Michael Bloomberg confirmed Monday that 28 St. Francis students had tested positive for the Mexican strain -- more than half of the total 51 cases confirmed in the U.S. by early Tuesday. "There are no other clusters evident in New York City," said the mayor reassuringly. "We have seen the kind of flu that does not seem to grow and in a few days, the symptoms seem to be going away."

The world could be forgiven, however, if it failed to receive Bloomberg's assessment as the final word. On Saturday, two parties of students who had been in Mexico on language and cultural trips touched down in Auckland, New Zealand, and when some began exhibiting flu symptoms, authorities quarantined 40 students and teachers from both groups. Lab work later confirmed swine flu in three out of 11 cases, with investigators assuming the remaining eight also suffered from the virus. One unnamed student in isolation told Radio New Zealand that the students had finished up their Mexican trip by billeting in the homes of local people. "Some of us were getting coughs and stuff within the last few days of our trip," she said.

In the meantime, the sentinel systems in countries around the world were detecting the tip of what looked to be an epidemiological iceberg. Scotland and Spain followed with announcements of confirmed cases -- two in each country -- while France announced four potential cases. A handful more emerged in Ireland, Scandinavia, Switzerland and Belgium, while German health officials began boarding newly arrived aircraft and examining anyone who felt ill. In Israel -- where Deputy Health Minister Yakov Litzman urged people to refer to the illness as "Mexican" flu to observe pig-related religious sensitivities -- two people who had recently travelled to Mexico were in hospital with confirmed cases. Colombia, Chile, Costa Rica: the list went on. At press time, 218 cases outside of North America were under investigation at the very least, with 82 infections confirmed.

No surprise, then, that some alarmed officials began making drastic moves. In Asia, thermal scanners not used since the 2003 bird flu crisis were set up at airports in Singapore, Thailand, Japan, Indonesia and the Philippines. Japan said it would no longer grant Mexican nationals visas upon arrival. Malaysian health workers took the temperatures of passengers disembarking from a flight originating in Los Angeles. Health Ministry officials in India said travellers from Mexico,
the U.S., Canada, New Zealand, Spain, Britain and France would be inspected individually. Russia, Hong Kong and Taiwan announced they would quarantine travellers arriving from flu-affected countries suffering from fevers, while China, Russia and Ukraine halted imports of pork and pork products from Mexico and several U.S. states -- this despite well-established science showing viruses cannot be transmitted through meat products. Cuba on Tuesday suspended flights to and from Mexico for 48 hours, the most draconian measures taken by a country thus far.

Even in developed countries, soothing words were quickly contradicted by official actions, suggesting the every-country-for-itself mentality is alive and well. In Washington, President Barack Obama described the growing case count on Monday as cause for concern but "not a cause for alarm." Nevertheless, the U.S. government declared a national health emergency and advised Americans to avoid non-essential travel to Mexico -- a move Dr. Richard Besser, head of the U.S. Centers for Disease Control and Prevention, described as having been made "out of an abundance of caution."

In Britain, Health Secretary Alan Johnson said there was no need to close borders or restrict foreign travel. Yet authorities stepped up health checks for all travellers arriving by boat or airplane (those suffering flu-like symptoms were shuttled to hospitals for nose and throat swabs). Hours later, the Foreign Office advised Britons against non-essential travel to Mexico and said consular and visa services at its embassy there would cease until further notice.

Multiple layers of government served to complicate matters: taken as a whole, the U.S. appeared to be doing well, with 45 cases in New York, 13 cases in California, six in Texas, two in Kansas, one in Ohio and another, according to state authorities, in Indiana. Yet health officials in Texas began closing schools starting Monday and even threatened to cancel proms after two students near San Antonio were found to be infected. Authorities also shuttered some schools in New York City, California, South Carolina and Ohio. Mayor Bloomberg said the flu could have spread to infect hundreds of students at New York schools. Gov. Arnold Schwarzenegger declared a state of emergency in California. Still, American officials, including the CDC's Besser, were dismayed when EU health commissioner Androulla Vassiliou on Monday advised Europeans not only to avoid travel to Mexico but also the U.S. Not a single case, after all, appeared life-threatening. Indeed, only a single U.S. patient was said to require hospitalization -- though that number jumped on Tuesday to five.

The World Health Organization, for its part, took refuge in the middle of the road, voting Tuesday to increase its alert level for the swine flu from level 3 to level 4 in recognition of the virus' human-to-human transmission. The change signals a shift from trying to contain the disease to mitigating its effects. But the WHO advised against shutting down borders or putting restrictions on international travel, arguing that trying to contain the virus at this point isn't feasible. "A pandemic is not inevitable," said Dr. Keiji Fukuda, the organization's deputy director general. "The situation is fluid and will continue to evolve."
As scattered and paradoxical as the international response may seem, at least one person watched it unfold with a satisfied smile. As a junior medical officer of health during the summer of 2003, David Fisman got a front row seat to the slow-moving catastrophe known as SARS -- an outbreak that forced a world of change on Canada's hidebound network of public health agencies. The sense of administrative disorganization, backbiting and non-accountability the pandemic exposed gave rise not only to a new spirit of co-operation, he notes, but the public health body for which he now works.

Today, the young epidemiologist lies about as close to the centre of pandemic planning as a doctor can get: he constructs, coordinates and refines mathematical models of disease outbreaks for the Ontario Agency for Health Protection and Promotion, a job that depends on the quick dissemination of comprehensive data. From his point of view, the response to swine flu illustrates how well the system can work. "I'm not normally a big cheerleader," he says. "But when SARS hit, those of us who thought modelling could help disease control interventions were actively discouraged in our efforts. There was so much concern [in Ontario] about the wrong people finding out about disease trends, we weren't allowed to look at the data."

How smoothly is information flowing now? By Wednesday -- the day the Winnipeg lab identified the virus -- Fisman had been alerted, and was in touch with the handful of Canadian academics engaged in the obscure art of computer-aided modelling. By Thursday, his superiors were asking what sort of data he needed, which other experts he might bring in to help. "It was: can you model this? Can you model that?" he says. "It was just marvellous."

Fisman wasn't the only one looking ahead. Hospital officials and chief medical officers across the country have spent the past five days brushing up on Canada's newly updated Pandemic Influenza Plan -- a 550-page battle strategy rewritten in the wake of SARS, which will govern the country's response should swine flu turn deadly. Today, the document seems both prescient and frank. It predicted, for instance, that a virus would originate outside the country; it warned that the pathogen would likely develop in birds or swine; it predicted that international air travel could bring it to our doorstep more quickly than expected (on average, it takes a flu bug three months to make its way from some other part of the globe).

What damage influenza H1N1 will wreak in Canada remains to be seen, of course -- there's still not enough data for Fisman and his modellers. But the pandemic plan doesn't mince words about the potential impacts. A new, untreatable flu virus would infect up to 70 per cent of Canadians, it says, making as much as 35 per cent clinically ill and sending more than a million of those who are ill to hospital. The death toll would hang on a number of variables, from the susceptibility of the new germ to existing remedies to the effectiveness of public health measures. But without interventions in the form of effective antivirals or vaccines, a mild to moderate pandemic would produce a 0.4 per cent fatality rate among those who fall ill. By the plan's own math, that could be as many as 47,000 people.
To be sure, the early signs point away from a worst-case scenario. As of Tuesday, April 28, Canada had just 13 confirmed case of human swine flu -- four in Nova Scotia, four in Ontario, two in Alberta and three in B.C. Each was described by officials as mild, and each involved a person who'd recently returned from travel to Mexico. Better yet, the virus appears to respond to antivirals like Tamiflu, while researchers in the Winnipeg lab and elsewhere around the globe are already working on a vaccine.

Still, say leading experts in infectious disease, no one should fantasize that Canada will be spared in the event of a serious outbreak. Late Monday, the federal government issued its own carefully worded travel advisory, warning citizens of this country to avoid non-essential travel to Mexico. (The following day, federal Health Minister Leona Aglukkaq also announced plans for "enhanced screening measures" on airline passengers arriving from Mexico, without specifying what those would be.) To Dr. Allison McGeer, director of infectious disease control at Toronto's Mount Sinai Hospital, such measures are almost pointless. "If this is going to be the next pandemic," she says, "you're going to be exposed to it somewhere. We know that influenza viruses don't need aircraft. They may find aircraft convenient, like people do. But they don't need them and there have been a whole series of studies showing that closing borders, travel restrictions and screening at borders don't work."

While he didn't say so, the country's chief public health officer seemed to share McGeer's views, adopting a decidedly fatalistic tone in his public statements. "We will likely see more cases. We will likely see more severe illnesses," Dr. David Butler-Jones told reporters Monday. "And we will likely, unfortunately, see some deaths as well. We hope not. But that is a part of an influenza outbreak of any type." Butler-Jones was speaking just a few hours before Canada settled on its travel advisory -- a move of which he was no doubt aware. At the time, though, he seemed to put more stock in small measures Canadians could take to avoid transmitting the flu amongst each other. "Wash your hands," he said simply. "Cough into your sleeves."

Of course, one man's fatalism is another's realism, and it goes without saying that Butler-Jones had one eye on events in Mexico. The news there did not inspire confidence. For each statement of bold action on the part of the Calderon government, some afflicted citizen wondered aloud why the pharmacies had run out of antivirals -- or why no one in the public health apparatus had taken note of their plight. Gerardo Leyva, a 39-year-old, was one of the first Mexicans to die of swine flu, after falling ill two weeks ago. According to his widow, Antonia Cortes Borbolla, no one from the national health secretariat had come by their home to talk to his family or inspect his home. She was not even aware that it was swine flu that took his life on April 20 until a journalist contacted her.

That sense of chaos has prevented experts abroad from determining exactly what has happened, while the many biological mysteries surrounding the pathogen itself has stopped them from getting a full grip on what lies ahead. Will it develop a resistance to antiviral drugs? Why has it killed Mexicans, but no one else? "Either the virus is different or the conditions are different," observes the University of Ottawa's Brown. "Or it's a combination of both."
Allison McGeer foresees three possible scenarios, the least likely of which is the virus mutating into something more deadly. "In my view this is now the same as any new human influenza virus," she says. "In general, if they do anything, they tend to get less severe over time." But even that is rare. The most likely eventuality, she says, would see the germ maintain its current virulence, sickening people just as other flu bugs do, and fading away in the expected two- to three-month period.

Yet even that, she warns, is reason to keep up our guard. Flu bugs can come in waves, and if past experience is any guide, the first wave of swine flu will hit before a vaccine is available -- probably next fall, says McGeer, but possibly as early as mid-summer. A flu we don't treat quickly will rapidly fill up hospitals. It will overwhelm the health care system with patients suffering relatively minor symptoms. It will claim the lives of the frail and elderly, leaving many of us wishing we could have done more. Under the circumstances, coughing into your sleeve won't seem nearly enough.