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Improving Global Health — Margaret Chan at the WHO

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When Dr. Margaret Chan of China was elected director-general of the World Health Organization (WHO) this past November, some observers suspected that the Chinese government had backed her candidacy in hopes of planting a lackey at the United Nations to do its bidding. In contrast, many global health experts have spoken positively about Chan's China connection. "They're hoping she has some sort of a 'red phone' to Beijing that would help WHO and global health," said Kelley Lee, a senior lecturer in global health policy at the London School of Hygiene and Tropical Medicine. But privately, some remain concerned about China's intentions, especially given the country's notorious failure to alert the world to the first cases of severe acute respiratory syndrome (SARS) in 2003. Chan is aware of all these suspicions and has a ready answer.

"I have a strong record of being a straight talker," she says. "I speak the truth to power, because there's only one objective for me: whatever decision I make is based on public health evidence." She underscores her point with stories from her 25 years in public health in Hong Kong, the last 9 as director of health. "When vegetables were coming across from mainland China, when food items or any herbal medicine was coming across that did not meet my standards, I stopped them," she said. "That caused economic loss to China, clearly, but my primary consideration is public health." Similarly, Chan prohibited a U.S. company from shipping ice cream with high bacterial counts. The company said its test results were normal, and Chan replied, "Yes, normal is what I would expect for your tests. But my tests are abnormal." Ultimately, other countries found the same problem with the product. "Science speaks for itself," said Chan.

Born and raised in Hong Kong, Chan worked as a teacher there before moving to Canada to join her future husband. She attended a Catholic women's college in London, Ontario, and then went on to medical school at the University of Western Ontario. After her internship, she went home to Hong Kong and rose quickly in the ranks of the public health service, becoming director of health in 1994.

Three years later, when Hong Kong was officially returned to China, Chan stayed on, although many of her colleagues left, and her mother and other family members now live in Canada. During her tenure as health director, she

Dr. Margaret Chan

handled Hong Kong's avian influenza and SARS outbreaks and built up public health programs, including antitobacco and school-based health programs. Her staff of 7000 generally considered her "extremely supportive" and "stayed with her forever," according to her friend Judith Mackay, coordinator of the World Lung Foundation's project for global tobacco control. In 2003, when Chan joined the WHO as director of the Department for Protection of the Human Environment, "she was very much in demand almost as soon as she got there," said Mackay. "She's just such an organized person . . . she would never leave a meeting without a very clear understanding of what's the conclusion and what's the next step. Everybody wanted her on their committee because she moves things along, she gets things done."

After the sudden death of WHO Director–General Lee Jong-wook midway through his term of office, Chan was backed by the Chinese government to run for the position. The competition was intense, with 12 other health leaders, many with international standing, in the race.[1] She emerged as the winner — and became the first person from China to hold a high-level post at the United Nations. Countries campaigned for their candidates by trading valuable favors, and China was no exception. But Jeffrey Koplan, a former director of the Centers for Disease Control and Prevention, points to another reason Chan may have been favored: she was the only contender who had been tested in global health crises — avian influenza in 1997 and SARS in 2003.

Although she was criticized in Hong Kong during both crises, some experts say the criticisms were undeserved. Her performance during the SARS outbreak showed "personal courage," according to Harvey Fineberg, president of the Institute of Medicine, who served on the SARS expert committee established by Hong Kong to assess its handling of the crisis. Fineberg said the problems attributed to Chan — delay in quarantining patients and a failure to elicit essential information from the Chinese government — actually reflected the structure of Hong Kong's health care system, in which the separation of the hospital authority from the public health authority resulted in problems with data sharing.[2] Moreover, back in 1997, Chan's responses to the initial cases of H5N1 avian influenza in children may have averted a pandemic.

Describing the avian influenza outbreak, Chan said, "Hong Kong is a very open society, very transparent, so I invited experts to come from different countries. . . . They had full access to our reports and records. They went to the field with our scientists, our epidemiologists, and when they came back they told me, 'A certain family with so many members is having this problem.' So I said to them, 'Please help me to see the situation. . . . Take pictures, photographs.' And then, when I looked at the evidence, I said: 'The children in that family were in some way in contact with the chickens.'"

Since children typically don't go to the poultry market, she couldn't understand why they became infected. "Then I realized the children were playing in the car park," she said, "and the car park is where the chicken cages were parked. . . . And the cages were so dirty and filthy. [People] were not in the habit of cleaning them. So children were in contact with infected chicken feces." Nine years later, still proud of that insight, she said, "I have an eye for detail in very difficult situations, so I kept asking them to go back. . . . Eventually, we got the evidence."

She then shocked her government by recommending that it cull all chickens — 1.5 million birds. "Of course the first thing that they said was, 'Are you sure? Do you know the economic impact?'" she recalls. She replied, "'It's a matter of trading off.'" Scientists had been advising her

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that if the chickens were not killed before Hong Kong's usual winter influenza season, the two influenza viruses could mix, creating "an opportunity for the next pandemic to occur."

The birds were culled, the farmers were compensated for their poultry, and Chan instituted a cleaning program so that one day each month, no birds were sold and the market was hosed down. But these were controversial moves. Killing the birds was "seen as unnecessarily radical and draconian," said Bill Steiger, director of the Office of Global Health Affairs at the U.S. Department of Health and Human Services, and Chan "was pilloried in the local press." In the end, it was the correct decision. "She really did seize the initiative to introduce control measures that have proven to be very important," said Harvey Fineberg.

Chan was, however, ridiculed for a media gaffe she made in the early days of the crisis. In an attempt to reassure the public, she said, "I eat chicken every day. Don't worry" — words that came back to haunt her when five people later died. Asked about the remark, she now says, "Scientifically, it is correct in terms of the evidence: no person has come down with the illness because of eating chicken." But in retrospect, she acknowledges that she should have been more sensitive to "the anxiety of the population." Chan notes that she has since learned how best to interact with the media. During the height of the SARS epidemic 6 years later, she held daily press briefings that reporters referred to as her "4:30 club."

The day she was confirmed for her current post, Chan laid out her priorities in a speech: "I want us to be judged by the impact we have on the health of the people of Africa and the health of women." She said later that she intends to make optimal use of the WHO's technical expertise — the data-gathering and analytic capabilities that set it apart from other global health organizations. "Our normative function is so important," she said, "setting the standards, advocating the best practices." As an example, Chan mentioned the WHO's malaria-treatment guidelines, released in January 2006, urging countries to switch from artemisinin monotherapy to artemisinin combination therapy in order to prevent drug resistance.[3] Very few artemisinin manufacturers attended the agency's briefing on the guidelines, but the WHO published the names of companies that were still distributing artemisinin as monotherapy, pressuring them into compliance.

The push for combination therapy was "a bold decision based on very good evidence," said Prabhat Jha, director of the Centre for Global Health Research at St. Michael's Hospital in Toronto, and the issue has momentum. A 2004 report proposed subsidizing the cost of combination therapy, making it available worldwide for about 10 cents a treatment,[4] and in January 2007 representatives from the WHO, the World Bank, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria met in Amsterdam to discuss the idea of such a "global subsidy."

But another side of the story highlights the tensions among global health organizations and the need for leadership. Last May, Arata Kochi, director of the WHO's malaria program, made headlines when he accused the Global Fund of continuing to procure monotherapy.[5] Bernard Nahlen, a senior advisor to the Global Fund, called Kochi's charges "outlandish." "Of course we support [artemisinin combination therapy] — we're the major funder of it," he said. Meanwhile, Kenneth Arrow, the 85-year-old Nobel laureate in economics and Stanford professor emeritus who first championed the idea of subsidizing combination therapy, is "disappointed" that it hasn't happened. "The WHO, the Global Fund — they should have taken a leadership role, which they didn't," he said, after the Amsterdam meeting.

Other experts have also criticized the WHO's response to ma-

laria, noting that it has assumed drug-distribution tasks that are beyond its capacities and that, as a result, hundreds of thousands of doses of combination therapy have gone undelivered in Angola, where more than 11,000 people died of malaria in 2005. At a time when more money than ever is pouring into global health, the WHO's perceived lack of leadership and the rivalries in which it and other organizations are engaged represent major problems; it would behoove Chan to tackle them.

Jha, for one, believes that Chan may be able to take a first step toward coordinating the efforts of all the rivals if she uses "the WHO bully pulpit," a unique asset. And indeed, Chan, who spent several weeks after her election meeting with Bill and Melinda Gates, Global Fund Executive Director Richard Feachem, and high-ranking officials at all the major international health agencies, said she had concluded that the WHO should hold a meeting of all the players "to identify priorities and decide who is doing what." In a January 22, 2007, address, she told the WHO executive board that the organization "has a great responsibility to channel [the] enthusiasm, activity, and money" of myriad global health players into a "cohesive and compelling" public health agenda that brings "clear and measurable benefits to countries and their populations."

As colleagues at the WHO will attest, if Chan is holding a meeting, the other players will come. And that's when her leadership — and her independence — will truly be tested.

Dr. Shuchman is a national correspondent for the *Journal*.

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XDR Tuberculosis — Implications for Global Public Health

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In early 2005, physicians at a rural hospital in KwaZulu-Natal, a province of South Africa, were concerned by a high rate of rapid death among patients infected with the human immunodeficiency virus (HIV) who also had tuberculosis. A study revealed the presence not only of multidrug-resistant (MDR) tuberculosis but also what came to be called extensively drug-resistant (XDR) tuberculosis. XDR tuberculosis is caused by a strain of *Mycobacterium tuberculosis* resistant to isoniazid and rifampin (which defines MDR tuberculosis) in addition to any fluoroquinolone and at least one of the three following injectable drugs: capreomycin, kanamycin, and amikacin. Of 53 patients with XDR tuberculosis, 55% claimed they had never been treated (implying that they had primary infection with an XDR strain of *M. tuberculosis*); two thirds had recently been hospitalized; and all 44 who underwent testing were HIV-positive. All but one of the patients died of tuberculosis, with a median survival period of only 16 days from the time the first sputum specimen was collected. Genotyping analysis revealed that 85% of the 46 isolates tested belonged to the KwaZulu-Natal (KZN) family of tuberculosis strains, which had been recognized in the province for a decade.[1]

These alarming findings attracted much attention at the International AIDS Society conference in Toronto in August 2006. But this was not the first time that XDR tuberculosis had been identified. A March 2006 report by the Centers for Disease Control and Prevention and the World Health Organization (WHO) documented the presence of XDR tuberculosis in at least 17 countries. Though not representative, the data showed that 10% of MDR tuberculosis isolates were in fact XDR tuberculosis. More representative data from the United States, the Republic of Korea, and Latvia showed that 4%, 15%, and 19%, respectively, of MDR tuberculosis isolates were XDR strains.[2]

In the fall of 2006, international experts agreed on the laboratory case definition of XDR tuberculosis; a framework for action on the clinical management of suspected XDR tuberculosis;