

Dispatches from the front line

Bad news travels fastest. Or so the scientists fighting disease hope. Since 1994, ProMED-mail has been reporting outbreaks as soon as they happen. Erika Check meets the team behind the 24-hour service.

Eleven years ago, a small group of scientists met in Geneva, Switzerland, to try to solve a life-or-death problem. They were facing up to a frightening fact: in a race against any outbreak of disease, they would lose. Tiny incidents in remote corners of the world could spread across continents in days or weeks — much faster than the doctors themselves could spread the word about a deadly scourge. The scientists needed a way to communicate quickly, to solicit advice about strange new infections, and to warn colleagues elsewhere to anticipate trouble. They placed a bet on a new, little-known technology: e-mail. And so the ProMED system — the Program for Monitoring Emerging Diseases — was born.

From its first post to a handful of doctors in 1994, ProMED-mail has mushroomed into an e-mail list with more than 30,000 members, who give it eyes and ears around the world. The challenges that confronted the system early on — such as worries about e-mail access in remote locations — have proven less daunting than anticipated. “Now you have Internet cafés in Afghanistan,” says one of ProMED’s three co-founders, Stephen Morse of the Columbia University Mailman School of Public Health in New York. But new challenges, including the threat of bioterrorism, crop up all the time.

ProMED’s grassroots origins and its reliance on volunteers have been vital to its success. Today, it is a worldwide system that has had a huge impact in the halls of power and in the corridors of hospitals. It circulates reports on animal, plant and human diseases and toxins from all corners of the globe. The list posts information from a range of sources: on-the-ground observers, media stories and government reports. And its 26 expert moderators add guidance and context to the reports. As volunteers, they are free to act independently, enabling ProMED to coerce governments and even international bodies into action.

ProMED’s members have helped to diagnose everything from anthrax in Ugandan hippos to severe acute respiratory syndrome (SARS) — which was first publicly reported through a ProMED post last year. Veteran disease fighter Donald Henderson at the University of Pittsburgh confirms ProMED’s influence. When he was advising the US government during the anthrax attacks of 2001,



Henderson says that his team relied on two sources of information: CNN news and ProMED. “We are the CNN of outbreak reporting,” says Jack Woodall, another of the system’s founders.

Spreading the word

Woodall’s own story is closely tied to that of ProMED. Born in China to a family descended from British missionaries, Woodall spent three-and-a-half years of his childhood in a Japanese internment camp during the Second World War. He passed the time there by collecting plants, butterflies and other insects. When Woodall and his parents were released, they moved to England, where Woodall studied entomology. He then got a job in Uganda and retrained as a

virologist. His new work reminded him of his childhood pursuits in the camp. “It was absolutely fascinating to study diseases spread by insects,” Woodall says. “We collected mammals, birds and everything that moved.” After a stint in Puerto Rico, Woodall eventually ended up in Geneva working for the World Health Organization (WHO). That’s where he convened the meeting that laid the foundations for ProMED in 1993.

Woodall’s co-sponsors for the meeting were two leaders from the Federation of American Scientists: Morse and Barbara Hatch Rosenberg, a molecular biologist at the State University of New York at Purchase. Experts at the event were concerned that there was no good way to spread the word about disease outbreaks. E-mail was just gaining a

J. LE FEVRE/REX FEATURES



ProMED-mail's updates on the 1995 outbreak of Ebola in Zaire (left) won it a wider audience and helped alert doctors in the field in Africa (above).



Staying in touch: the architects of ProMED-mail, (from left) Stephen Morse, Jack Woodall and Barbara Hatch Rosenberg, have helped keep the world alert to disease outbreaks.

foothold on the scene, and the group took a gamble that it would eventually become more widespread. A health communications system called SatelLife agreed to host ProMED, and the founders sent out their first e-mail report to 40 people on 19 August 1994.

By that time, Woodall had transferred to New York, where he was heading up the state's arbovirus laboratory. The state was a bit strapped for cash, and it was difficult finding money for all the scientific studies Woodall had planned to do. But rather than being daunted by his low finances, Woodall made good use of his time. His lab had its own computer and an e-mail address, so Woodall became the first director of ProMED-mail.

Morse credits Woodall with guiding ProMED through its early days. Woodall would send media reports out to the list, and he and other volunteers read and posted every report that came into ProMED — a tradition that still holds today. Morse and others filled in for Woodall during vacations. "It was a real mom-and-pop operation," Morse says. Over the first year, the list grew

slowly. "I remember being thrilled when we went from 40 people to 500," Woodall says.

But ProMED didn't truly begin to take off until the following year. In May 1995, an Ebola outbreak erupted in Kikwit in the Democratic Republic of the Congo (then called Zaire). People searching for news of the outbreak on the Internet stumbled across ProMED postings on the disease and signed themselves up to the list. By the end of the year almost 3,000 new members had joined. From there, membership has shot up to today's 30,000 subscribers. "It just grew and began to take on a life of its own," says Larry Madoff, an infectious-disease doctor at Brigham and Women's Hospital in Boston, Massachusetts, who has edited ProMED since 2002.

Early warning

ProMED's mass subscriber base has given it global reach and influence. In May 1996, a ProMED subscriber watching television news in Manila posted a report about a huge cholera outbreak in the Philippines. ProMED disseminated the report more than two weeks before the Philippines allowed the WHO to report the outbreak.

Over the years, ProMED has continued to beat local authorities to the punch in disease reporting. For a case in point, take the SARS outbreak. The first public report of the epidemic appeared on ProMED on 10 February 2003, when a ProMED subscriber passed along news of a mysterious epidemic in Guangzhou, China. "An acquaintance of mine ... reports that the hospitals there have been closed and people are dying," wrote Stephen Cunnion, an epidemiologist retired from the US Navy. The post appeared more than a month before the Chinese government joined the international SARS investigation.

ProMED says that this on-the-ground reporting pushes governments to disclose more information than they would like. At

times, this has caused friction with health authorities and with the WHO. But Woodall thinks that, ultimately, ProMED has helped the WHO more than it has hurt. "The WHO is happy, because it can go to a country and say, look, this has already been on ProMED, you might as well just admit it," says Woodall, who now directs the Nucleus for the Investigation of Emerging Infectious Diseases at the Federal University of Rio de Janeiro in Brazil.

So far, ProMED has managed to survive without paying Woodall or any of its other staff. Since 1999, the service has been officially housed at the International Society for Infectious Diseases in Boston. The software giant Oracle hosts the website, which runs on donations. ProMED also runs an Internet funding drive every year, but there are no subscription fees.

Independent spirit

ProMED's founders don't want to go corporate, or attach the system to a government organization. "We're freer to report what we see than official organizations, which have political constraints on what they can say," says Madoff. But this leaves ProMED in a perpetual state of impending insolvency. "We're always running out of money in 11 months," says Woodall.

Despite these financial difficulties, ProMED hopes to expand its reach during the next decade. To gain more on-the-ground observers, it is planning regional collaborations with organizations in east Africa, the Mekong Basin area of southeast Asia, and with states of the former Soviet Union. ProMED has also set up a project to assign geographical coordinates to each report, enabling editors and users to draw links between scattered reports.

In addition to its expansion, ProMED is navigating a host of new challenges, including

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difficult issues raised by bioterrorism. A report on an Ebola outbreak in a Manhattan hospital, for instance, could incite public panic — and a false alarm could cause psychological and economic damage. Madoff says that ProMED is aware of these issues. Editors weigh several factors before deciding whether or not to post a report, provide moderators' context for the information, and notify users if the news turns out to be wrong. "We take our responsibilities very seriously," Madoff says.

After all, ProMED's reputation has been a key part of its success. During the next ten years, it hopes to widen its net without losing its carefully cultivated accountability and accessibility. ProMED's backers know they are walking a fine line — but they're not the kind to shy away from a challenge. ■

Erika Check is Nature's Washington biomedical correspondent.

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