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The Need for a Global Program To Monitor Emerging Diseases

The FAS project to promote the establishment of a global Program for Monitoring Emerging Diseases (ProMED) was initiated at an international conference in 1993. Since then it has launched a system of worldwide e-mail reporting that now reaches 6000 people in 128 countries with a dozen or more bulletins daily on infectious diseases—not just human diseases, but those of animals and plants as well. Through a partnership with SatelLife, ProMED-mail extends its reach into remote areas via low-earth-orbit satellites. ProMED has also designed a widely praised plan (soon to be published in Health Policy) for a demonstration program of sentinel surveillance centers where new diseases are likely to emerge.

This newsletter report on ProMED's status reveals a major and ingenious FAS effort to head off low-probability—but high risk—pandemics, as well as to provide early warning of the ongoing emergence of infectious diseases that could thwart our efforts to assure global security. ProMED illustrates how NGOs can, in some cases, efficiently accomplish what large, bureaucratically burdened institutions cannot even begin.

The Home Team *(l to r): Stephen S. Morse, Columbia University School of Public Health (ProMED Chair); Dorothy Preslar, FAS (Washington ProMED Officer; Program Officer, ProMED-AHEAD); Jack Woodall, NY State Department of Health (Chair, ProMED-mail Policy Committee); Barbara Hatch Rosenberg, State University of NY, Purchase (Program Coordinator).*

The Growing Threat of Disease

Numerous recent episodes of emerging and reemerging infections, including the global AIDS pandemic, the continuing spread of dengue viruses, the now-frequent appearance of hitherto unrecognized diseases such as the hemorrhagic fevers, the resurgence of old scourges like tuberculosis and cholera in new, more severe forms, and the economic and environmental dangers of similar occurrences in animals and plants, attest to our continuing vulnerability to infectious diseases throughout the world. There is reason to believe that the number and incidence of emerging infectious diseases and the risk of reemerging diseases are all increasing. Factors responsible for the increase include such social factors as mass population movements, rural-to-urban migration and accelerated urbanization, population growth, rapid transport, global trade, new food technologies, and changing life styles, as well as environmental changes, such as climate change, altered land use patterns and irrigation.

These are global problems. A new infection may first come to light in a circumscribed area, but in suitable circumstances the infection can span entire continents within days or weeks, as influenza periodically demonstrates.

Many experts, both within and outside governments, have warned of the need to improve capabilities for dealing with emerging infectious diseases. Invariably, a primary recommendation has been the development of an effective, worldwide infectious disease surveillance system. A global program aimed at recognizing unusual outbreaks at an early stage, in order to prevent their spread, would pay enormous

(Continued on page 3)

1996 Public Service Award

On October 26, 1996, the FAS Public Service Award was presented to Sally Lilienthal, at the FAS annual meeting, for her work in conceiving and creating Ploughshares and guiding its work over 15 years. The plaque read:

Sally Lilienthal

Philanthropist for Peace

Ingenious in the Invention of a Process
Capable in the Creation of an Institution
Resourceful in the Raising of Funds
Statesmanlike in the Supplying of Grants
Acute in the Assessing of Accomplishments

The citation is reprinted on page 12

Stanley Goldberg

We are sorry to report that Stanley Goldberg, a physicist, historian, educator and friend of the Federation died in October after a sudden illness.

Dr. Goldberg was the author of a well regarded text, "Understanding Relativity: Origin and Impact of a Scientific Revolution," among many other publications, and was working on a new biography of General Leslie Groves of the Manhattan Project.

Stanley Goldberg was also a prominent advocate of declassification of Cold War historical records, and helped to motivate and guide declassification efforts at the Department of Energy. His efforts will be missed. We were honored and grateful to learn that Dr. Goldberg's family asked that contributions in his memory be made to the Federation's Secrecy & Government Bulletin.

For more information about FAS, its projects and activities, please visit our web site at:
http://www.fas.org/

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(Continued from page 1)
dividends for the entire world as well as for the immediately affected areas.

There is presently no functional system anywhere for monitoring emerging diseases on a global basis. Current surveillance capabilities are fragmentary, lack coordination, and are geared toward established diseases. Moreover, they have mostly fallen into neglect, both at the national and international levels.

In January 1996, 36 medical journals worldwide devoted their issues to emerging and reemerging global microbial threats. Over 200 articles document the occurrence, causes, and consequences of these diseases, leading the *Journal of the American Medical Association* to conclude that "world health is indivisible, ... we cannot satisfy our most parochial needs without attending to the health conditions of all the globe. ... We have never been more vulnerable; this vulnerability must be matched against the extraordinary sophistication of the science that we are, in principle, able to pit against the threats."

Development of the ProMED Proposal

At its founding conference in 1993, attended by 60 prominent health experts from all parts of the world, ProMED established working groups and began to elaborate plans to promote the establishment of a global Program for Monitoring Emerging Diseases. Planning continued at subsequent meetings, consultations and through mailings. Based on the outcome, a World Bank official encouraged and guided a subgroup of the Steering Committee in the drafting of a design for a demonstration program. The draft was circulated for comment to more than 300 experts around the world, including all those who had participated in ProMED activities.

In a document incorporating many of the suggestions made by the reviewers, ProMED proposes a research program to demonstrate the feasibility of a network of centers to monitor emerging diseases directly through clinical surveillance for selected syndromes, coupled with effective laboratory backup. With financial resources in short supply, a small network of strategically located sentinel centers with capability for surveillance of both endemic and emerging diseases may be the most effective way, in the near term, not only to test the concept but to begin providing early warning of serious epidemics.

The ProMED project has compiled information on medical centers around the world and identified likely candidate centers for the network. Representatives of some of these centers came together in February 1996 in Bellagio to exchange information at an international conference on Enhancing Infectious Disease Monitoring and Response, organized by ProMED members at the request of the Rockefeller Foundation.

Overview of the ProMED Proposal: Outline for a Demonstration Program on Human Diseases

As things now stand, given the current dearth of resources, what can be foreseen is a painfully slow evolution of disparate national and regional elements towards the distant goal of a unified global system for monitoring emerging diseases. For more rapid progress, significant investment will be needed for coordination and development of relevant capabilities in institutions in the developing world, particularly in those environments where diseases are most likely to emerge. In the human disease arena, ProMED recommends making a modest start on the faster track by prioritizing a small number of strategically situated Third World institutions, mainly those least in need of upgrading, for development as sentinel centers. In this way, a functional, although limited, network could be rapidly established at minimal cost. The system would serve as an experimental model program for future expansion.

The centers would start by monitoring the emergence of a limited number of defined syndromes, through broadly-based local clinical outreach from each center. Each center would develop laboratory capabilities for identifying the likely agents for the targeted syndromes, as well as for the well-known cosmopolitan and locally-endemic diseases. In developing countries the latter will generally overshadow emerging diseases and will therefore be the main focus of concern and the incentive for undertaking the program.

The goal would be to achieve full competence at each center within, at most, five years, and then begin to expand the number of syndromes monitored. If successful, the number of centers could be increased, as resources permit, to cover more areas of the world.

Concentration on a small number of strategically located medical facilities in developing countries to create comprehensive centers of excellence would

Infectious Disease Information on the Internet

- **Global Information (current)**

WHO - *Weekly Epidemiological Record -WER*
- WHOnet *

OIE - *Disease Information* (List A animal diseases)

NGO - ProMED-mail
-Travel Medicine Networks-ISTMH/ACCTMT *
- *Outbreak*

Comercial
- MASTA (British Travelers Advisory)
- news wires/media WWW pages

- **Global Information (reviews and updates)**

WHO - Emerging Disease Programme (EMC) Reports

OIE - *HandiStatus* (downloadable animal disease database)

FAO - Threats to food production

CDC - *Emerging Infectious Diseases* (quarterly)

NGO - Yale Univ Emerging Infections Information Network
- FAS ProMED Page

- **Regional Information (current)**

Europe - *Eurosurveillance (on Sentiweb)*
- *Salm-Net* * (Salmonellosis network)
- *EPPO's Reporting Service* (plants)

Americas - PAHO's *Polio and Measles Surveillance*

Asia - Japan's *National Institute of Animal Health Reports*

- **National Information (examples)**

USA - CDC *Morbidity & Mortality Weekly Report*

Canada - *Canadian Communicable Disease Report*

France - *Sentiweb*

Mexico - *Boletin Epidemiologico*

UK - *Communicable Disease Report Weekly*

Spain - *Medicina Preventiva e Saude Public*

* *Not open to the public*

establish regional nuclei in areas critical for monitoring emerging diseases, without waiting for universal progress. The centers would reach out to other institutions in their regions, providing medical information and training.

The plan calls for the formation of a network consisting of, roughly, ten of the most adequately prepared medical facilities in different regions of the developing world. A center might consist of a group of nearby, closely-collaborating institutions. Agreement and cooperation of the government would be essential, in each case. Each center would develop its own local/regional network including existing clinics, hospitals, health care providers, academic centers, government agencies and voluntary organizations with which it would cooperate and exchange information. The centers would collect clinical data and diagnostic samples with the help of these regional networks. The centers and their networks would be assisted in developing expertise in recognition and diagnosis of the specified syndromes, and would have access to designated specialized reference laboratories.

The process would be coordinated by a program office, which could be located at one of the centers or at a separate location. The program office, in collaboration with various programs at WHO, would maintain the network's level of competence through a quality assurance program, and provide diagnostic materials and equipment where needed, as well as training activities and regular meetings. The program office would also solicit and help to raise financial support for individual centers to cover other needs. The centers would be linked to the program office with an electronic communications system, through which surveillance information would be reported in a timely manner and relayed to other centers and interested institutions. The network would coordinate with existing networks such as WHONET (a global reporting system for antibiotic resistance) and other WHO electronic reporting systems that may be established, with the goal of forming a unified global communications system on infectious disease surveillance that will incorporate data from existing and future international, regional, national, and local surveillance efforts.

WHO's international mandate may make it difficult to incorporate a limited, trial program such as this, especially in view of current resource limitations. Alternatively, a demonstration program could perhaps be established outside WHO as a research project which, if successful, would eventually expand and merge with other surveillance activities at WHO.

—Barbara Hatch Rosenberg and Stephen S. Morse

ProMED-mail: Global Communication of Infectious Disease Outbreaks

by Jack Woodall, Ph.D., Chair, ProMED-mail Policy Committee

The Internet and disease surveillance

A truly global system of communications for disease surveillance does not yet exist. But we are getting there, thanks to electronic mail and the Internet. Several initiatives using the Internet for disease surveillance have begun ("What's on the Internet", page 4). Worldwide reporting of emerging diseases is provided by only one service: ProMED-mail. Moreover, this service is publicly accessible and free.

The ProMED-mail Electronic Conference

In August 1994, the FAS ProMED project launched the ProMED-mail electronic conference, with SatelLife providing the technical services. Both organizations are non-profit entities that have their roots in peace and international security issues. ProMED-mail was inaugurated with 40 subscribers from seven countries. Two years later, it has grown to over 6000 participants in 128 countries, with new subscribers joining at the rate of 500 per month.

Many more receive ProMED-mail reports through secondary distribution (e.g., subscribers to HealthNet in 16 countries, physicians subscribing to DocNet in Sweden, and the faculty and students of the Aga Khan University in Karachi, Pakistan), or by selective reposting of ProMED-mail reports on other e-mail lists (e.g., Wildlife Ecology Digest, WildlifeHealth, WildlifeRehab and EpiVet) and by accessing WWW sites set up by FAS, HealthNet, Medscape and David Ornstein's *Outbreak* Page. (See "World Coverage", p. 6).

As an example of ProMED-mail's effectiveness as a tool of international information, the State epidemiologist of Sweden reported a cluster of EHEC (enterohemorrhagic *e. coli*) cases that appeared there in late September 1995, unusually late in the season. They were suspected of having a meat origin, but were also possibly associated with dogs. Within a few days he received replies from health department officials reporting recent unseasonable EHEC outbreaks in Canada and the US (in Idaho, Kansas, Ohio and Utah) —cases probably linked to contaminated salad—and also numerous references to finding the organism in dogs.

Last December, a Chinese parent sent an airmail letter to ProMED-mail's chief moderator describing the symptoms of his daughter, who is suffering from an apparently untreatable disease. He had obviously heard of the successful diagnoses made over the Internet of other Chinese patients, notably one who had suffered from thallium poisoning, and was confident that he could receive help by the same means. It took a matter of minutes to scan the letter into the computer in New York, post it to ProMED-mail, and receive from Tel Aviv, almost by return, a list of differential diagnoses from the developer of the diagnostic software package GIDEON. The results were available to ProMED-mail's subscribers in China within hours of receipt of the letter. If reports of new outbreaks come in from any country, even by ordinary mail, similarly rapid responses could be organized, since ProMED-mail subscribers include WHO and the agencies concerned with disease

Web Addresses for Infectious Disease Information

WHO	http://www.who.ch/
OIE	http://www.oie.org/
FAO	http://www.fao.org/
PAHO	http://paho.org/
US-CDC	http://www.cdc.gov/
Canada	http://hpb1.hwc.ca/hpb/lcdc/
France	http://www.b3e.jussieu.fr/sentiweb/
Mexico	http://cenids.ssa.gob.mx/
UK	http://www.open.gov.uk/cdsc/
Spain	http://mrsplx2.use.es/
ProMED-policy	http://www.fas.org/promed/
ProMED-mail	http://healthnet.org/programs/promed.html/
Outbreak	http:/www.outbreak.org/
CABI	http://www.cabi.org/whatsnew/
Medscape	http://www5.medscape.com/Home/Medscape-ID/Medscape-ID/mhtml/

surveillance and control in many countries (See "Institutions", p. 10).

The greatest potential of ProMED-mail lies in its accessibility by the public. Most official and government electronic conferences are restricted, such as CDC's nationwide Public Health Laboratory Information System (PHLIS) and the 13-state Information Network for Public Health Officials (INPHO). In contrast, anyone can read about a case and follow an outbreak on ProMED-mail, and can research past data by accessing the archives maintained by SatelLife.

Further, almost anyone can post a disease report on ProMED-mail, the restrictions being that the person must provide an e-mail address in case verification is needed, must supply the source of the information and must understand that the report is published at the discretion of the moderators, through whose hands all items must pass. Reports sent to the moderators from official sources sometimes contain requests that the information, considered sensitive, not be posted on ProMED-mail until further notice, and sometimes not be posted at all. While this indicates a considerable degree of confidence in the moderators, it does place them in the same invidious position for which we criticize some governments and international organizations -suppressing information relevant to the public health. And it contradicts experience: ProMED-mail's principal veterinary moderator Dr. Martin Hugh-Jones of Louisiana State University, has observed that those Chief Veterinary Officers who are most transparent about livestock disease outbreaks in their jurisdictions receive the most positive support for remedial action.

There have been remarkably few cases of attempted abuse of ProMED-mail, and only one in which a report has had to be retracted. It concerned an erroneous report of an outbreak of a rash disease on college campuses in the US. In that case, electronic communications demonstrated an important advantage over print media. Whereas in the newspapers a retraction is often relegated to an inside page in small print, an Internet correction gets exactly the same play as the original item, so that it is difficult to miss. And there is usually no more than a few hours delay before someone posts a correction or clarification, so that the system is largely self-correcting.

Two analyses have been made of first reports of disease outbreaks (first reports only and not follow-up items or discussions) that have been posted on ProMED-mail. Results of the most recent of these analyses are presented in "Source of First Reports" on page 9. In contrast to the previous analysis, the number of reports posted by subscribers, rather than ProMED-mail staff and moderators, rose significantly. Thus, ProMED-mail taps a considerable resource—the interested professional who does not otherwise feed into a national or international disease reporting system.

The unique value of ProMED-mail is that it can provide people in remote areas and developing countries who may have only e-mail access, current information of fluid disease situations on a sustainable basis, free of charge. But to reach ProMED-mail's objective of rapidly collecting reliable information about emerging disease outbreaks in human, animal and plant populations from these people, and linking those who need it with sources of further information on diagnosis, control and prevention, will require

World Coverage by ProMED-mail

- Number of countries with email access: 173
- Number of countries reached by ProMED-mail: 128
- Number of subscribers: 5600
  - USA addresses: * 3900
  - Non-USA addresses: 1700
- Number reached directly each day by email: 5600
- Number reached by secondary distribution
  - Regularly: 500+
  - Selectively: 2000+
- Number of accesses to sites on WWW per month
  - SatelLife's **ProMED-mail Archives:** 28,000
  - FAS's **ProMED** page: 300+
  - Medscape's **ProMED-mail digests:** 850
  - Outbreak's **ProMED** links: ?

* some "USA" addresses actually serve overseas locations

financial support over and above what is needed to support an e-mail "list".

Public Participation in Disease Surveillance

Emerging diseases are most likely to emerge in places where disease surveillance is absent or minimal. In countries such as Sierra Leone, Somalia, Sudan and Zaire, the collapse of their central governments, or their inability to control all their territory, means that little or no disease reporting occurs. In Haiti, 90% of the health services are provided by foreign NGOs and religious missions, and there is no centralized disease reporting. Such countries often suffer as well from lack of telecommunications with remote regions within their borders.

Official sources of disease information have limitations. On occasion, WHO has either not been told of an outbreak, or has been asked not to publish the information. For example, for years cholera has been endemic in Egypt and Bangladesh, yet has never been admitted publicly by those governments for fear of adverse effects on their food exports. Saudi Arabia does not want it spread abroad that there is dengue in Jeddah, for fear of affecting the annual pilgrimage to Mecca; yet it bans pilgrims from Nigeria because that country has, very properly, reported a severe epidemic of meningitis. Serbia has apparently asked WHO not to report cases of Congo-Crimean hemorrhagic fever occurring in Kosovo. North Korea is said to have recently suffered a severe cholera epidemic, which it has denied. Episodes of report suppression have occurred in the case of animal and plant disease outbreaks also.

When official support for a surveillance program dries up, the reporting often falls to zero. This happened when WHO could no longer subsidize the monkeypox reporting system in West Africa. Here is a classic case of a potentially emerging disease that has disappeared off the radar screen of global surveillance, yet is certainly still there, and still causing human disease. In most countries, if a disease is not on the list of officially reportable diseases, it does not get reported. This results in a vicious circle; rare diseases are dropped from the list, so there is no longer a mechanism for noting any sudden increase in the number of cases. Even in countries with a comprehensive epidemiological surveillance system on paper, the paper may be left blank or filled out incorrectly, and rarely forwarded to the health ministry in time to be of any use.

Problems With Existing Disease Reporting

COVERAGE

- **Absence of some national systems**
  - government collapse
  - civil war
  - NGOs and religious missions operate health services

(e.g. Haiti, Sierra Leone, Somalia, Sudan, Zaire)

- **Official secrecy - policy or fear of adverse impact on**
  - trade
  - tourism

(e.g. Bangladesh, Egypt, Saudi Arabia, North Korea)

- **Poor communications with interior**

(e.g. Southern Sudan, Zaire)

CONTENT

- **Inadequacy of some national systems**
  - intermittent, incomplete or missing reports
  - incorrect diagnoses
  - inappropriate lists of reportable diseases

The bureaucratic notification process is often slow —not to mention the outright blocking of reports mentioned above—and public health may not be well served by delay. While it is important to avoid harming trade and tourism by making provisional announcements that may have to be retracted later, it is equally important that the public avoid a suspected source of serious infection until a clean bill of health has been given. If people are to be persuaded not to flee an epidemic, as they did in India during the plague episode in 1994, but to stay and take preventive measures, they must have confidence that information on outbreaks will not be withheld. Nowadays the public increasingly demands participation in

matters affecting health and accountability from public health authorities—and not only in the developed countries. The public hates cover-ups. That is why a non-governmental source of disease information has an important place in the system.

It could be argued that the media provide all that is needed in the way of a non-governmental early-warning system of new outbreaks and emerging diseases. Health authorities often hear first about an epidemic from the media. Those stories, however, may appear only in obscure local newspapers, or may be broadcast on local radio and in-country television and never make it to the attention of the major international wire services. Or just the reverse may occur—reports reach Europe and Japan but not the villages in the country of outbreak. Thus, an adequate network needs people who are on the scene or have access to local print and broadcast media, and who are prepared to report what they see and hear to a central clearing place.

It is expensive to set up and equip multiple official disease surveillance centers. But there is already a huge installed base of personal computers in health institutions, universities, homes and offices in the developed areas of the world, used by people who are interested in the subject of emerging diseases and eager to participate as sentinels on the lookout for new outbreaks. Their enthusiasm can be harnessed at minimal expense. The situation is, however, quite different in the developing world. In many countries there are no telephone lines reaching into the interior and no dependable sources of electricity in remote villages.

In June, US Vice President Al Gore announced a new White House policy for combating infectious diseases that includes a $15 million effort, through the US Agency for International Development, to connect 20 African countries to the Internet, and thence to health centers around the world. While this seems a handsome sum, it is likely to cover only the costs of linking major cities in all 20 countries with the US and Europe, far from what it will take to link all areas of these countries with the capitals and each other.

The Challenges Faced by a Global Disease Surveillance Network

Plans for developing global communications for monitoring and responding to infectious disease are being formulated by a number of institutions, including WHO, OIE, CDC, LCDC Canada, and ProMED-mail itself. The European Union-United States Joint Action Plan signed in Madrid in December 1995 envisages an "effective global early warning system and response network for communicable diseases". In

WHY PLANTS ON THE ProMED-mail CONFERENCE?

A significant factor contributing to human illness and death is protein-calorie malnutrition. Malnourished hosts have increased vulnerability to infectious diseases. The Conference on Hunger and Poverty estimates that over 800 million people in the world are chronically hungry. And, in 1994, hunger and diseases related to malnutrition claimed the lives of 10 to 12 million children under five.

The current movement towards production of non-traditional agricultural export crops has dramatically changed agricultural systems in developing countries. Not only are these changes undermining the production of staple food crops, but the pathogen outbreaks that accompany the introduction of new, foreign germplasm are a direct cause of the devastating new and emerging diseases of both export and staple food crops. Emerging plant diseases have led to the abandonment of over 2 million hectares previously planted to traditional food crops in Latin America.

The agricultural changes that have taken place in developing countries have contributed to the global emergence or resurgence of human disease and human epidemics. The loss of crops and the higher production costs that result from increasing disease incidence, and the pesticide use to control new diseases, translates into decreased food availability and increased malnutrition. At the same time, the failure to maintain economically-viable and sustainable agricultural systems in the Tropics, has displaced poor farmers into marginal environments - tropical forests or savannahs or urban slums - where they encounter new pathogens (Ebola, AIDS, VHF, cholera, dengue), and become the initial foci for spread of new and emerging diseases.

— Dr. Pamela Anderson, CIAT Cali, Colombia

response to a call by CDC for the creation of practitioner-based Emerging Infections Sentinel Networks, proposals have been submitted by the Infectious Disease Society of America, a consortium of emergency rooms, and the International Society of Travel Medicine. They propose to collect at a central site key demographic data on potential emerging infections from general infectious disease practices, emergency rooms, and travel clinics worldwide.

All these plans include electronic communications as an integral and essential ingredient. Any effective global plan utilizing electronic communications for disease monitoring, whether official or not, must have two basic components: it must connect with all related initiatives, and it must cater to all means of communication—voice, text and video, mail, telex and fax.

The first component is essential because it is unlikely that any one initiative will be able to provide comprehensive coverage. The global WHO, OIE and EC-US plans, and national systems such as the CDC's for the US and France's sentinel physician network, need to be linked together with regional and sectoral systems as they are developed, and with information from the media, including such resources as the US government's Foreign Broadcast Information Service (FBIS).

When everything is interconnected, the big challenge will be to make sense of the wealth of data that will pour in. Semi-automated, intelligent systems will be needed to help in screening and classifying the reports. Cross-checking for validity and analysis of the results will have to be done by a team of qualified people, and then the results will have to be disseminated in, probably, two different forms—one for the general public, and one with more technical detail for the physicians and public health workers, veterinarians or plant pathologists who will have to deal with the outbreaks.

Finally, there must be a rapid response capability. In the case of serious outbreaks for which external assistance is requested, it is certain that qualified teams will be available, as they were under WHO leadership for the recent Ebola outbreak in Zaire. In addition, ProMED-mail's subscriber base contains hundreds of health professionals with international experience who can advise on possible diagnoses and suggest preventive and control measures. But more people trained in epidemiology, laboratory diagnosis and public health will be needed—in fact, more are needed right now to handle the increasing load of emerging diseases we are already seeing.

The Future of Public Global Disease Monitoring

ProMED-mail's electronic conference will continue to expand in numbers of subscribers and coverage. There are just over 170 countries with e-mail access, but in 30 or so of those, the service is quite expensive and is therefore used mainly by government and commercial interests. Out of the 128 countries now reached by ProMED-mail, a dozen, mostly in Africa, are represented only because the subscribers are served by SatelLife's HealthNet. The numbers of subscribers in a country range from about 3500 in the US downward to less than 20 in even large countries such as the ex-USSR states, India and Indonesia, to only two in China, and to just one in each of 30 or so other countries. Other gaps in our coverage are Francophone Africa, the Arab states and the smaller Caribbean and Pacific islands. We are, however, well aware of the language constraints and are exploring how to offer the service in Spanish, French and Portuguese.

Source of First Reports to ProMED-mail on Infectious Disease Outbreaks

1 January- 18 August 1996

Number of reports analyzed: 115

- Official information from public health agencies 43%
  - Subscribers at these agencies 33%
  - Other reports 10%
- Media and scientific journals 33%
- Health Practioners, Researchers, Epidemiologists 17%
- All other sources 7%

Pro-MED-mail operations are now directed and administered by SatelLife, a non-profit organization based in Boston, which began as an initiative of the International Physicians for the Prevention of Nuclear War, recipient of the 1985 Nobel Peace Prize. SatelLife was originally conceived as a symbolic counterpoint to the "Star Wars" defense system—using space as a platform not for weapons of mass destruction, but for the exchange of life-saving information among health care workers in both the developed nations and the Developed World.

The growing availability of ever-more sophisticated multimedia technology at an ever-decreasing price will have an impact on the monitoring of new diseases. To add to the already immense, installed base of privately-owned computers worldwide, the computer industry is planning to introduce in the near future very inexpensive computers—in the $500 range—dedicated to Internet access. This should lead to a much larger segment of society in industrialized countries logging on, and to more widespread access in developing countries. The reporting base, in terms of general public online, will expand enormously.

Public reporting of outbreaks already potentially exceeds official reporting capacity and at a much lower cost. This is because private and commercial groups such as missionary and charitable organizations, petroleum and mineral exploration outfits, road builders and construction companies reach the most remote areas, taking their own telecommunications with them, long before government installations. The number of people scanning the media, surfing the Internet and accumulating information on matters of health and disease for their own interests far exceeds those who could be deployed by any health agency towards the same goal. Reports from the public are not delayed by the bureaucratic requirement to have everything signed off at several levels; neither are they subject to self-censorship or embargo. And they may be no less reliable than official reports.

Sooner than we might imagine, we will no longer have to wait for a news wire to pick up a report of an outbreak in an obscure corner of the world; the report will appear first on the Internet, and will be seen there simultaneously by the public on their own computers, by the media, and by public health, animal and plant health authorities worldwide. This is the challenge for ProMED-mail.

□

Institutions represented among ProMED-mail subscribers

(selected examples)

WHO
Health Canada
PAHO
LCDC Canada
FAO
Agriculture Canada
OIE
PHLS - United Kingdom
ESCAP
Vanga Hospital, Zaire
IAEA
State Epidemiologist, Russia, Sweden, Zimbabwe
UNICEF
World Bank
Asian Development Bank
NIH Japan
USAID
CSIRO Australia
USDA, APHIS
CVO Australia, New Zealand
EPA
FWS
FIOCRUZ Brazil
FDA
NIV South Africa
CDC
MOH Armenia
NIH, NIAID
MOH P.R.C., Nicaragua, Mozambique
U.S. State Health Depts
NASA
VA Hospitals
Institut Pasteur
US Army, Navy, Air Force and Marines
CAREC Trinidad
IVIC Venezuela
USAMRIID
Universities
Scientific press
NAMRU-2, NAMRU-3, NAMRID
Popular press, TV, radio
American Red Cross
Pharmaceutical companies

In order to sample ProMED-mail:

If you have access to the World Wide Web and want to sample ProMed-mail reports, archives may be found at <http://www.healthnet.org/programs/promed.html>. Daily digests may be viewed at <http://www.medscape.com/Home/Medscape-ID/Medscape-ID.html>, courtesy of MEDSCAPE an on-line resources of SCP Communications.

Even if you do not have access to the World Wide Web, you can still access the archives. To retrieve a report, you will need to know the date of posting. Send an e-mail message to <Majordomo@usa.healthnet.org>, the text of which should read "get promed topics". You will then receive an alphabetical list of the topics for 1996; if you want topics from prior years, your message should read "get promed-1995 topics" or "get promed-1994 topics". From the list(s), select the file(s) you would like to receive and send a second message to Majordomo which reads "get promed (the date)".

For example, to retreive the foloowing archive file listed in "topics":
Alpha-1 Antitrypsin Deficiency: RFI 960809181156

you would type "get promed 960809181156". There is no limit on the number of files you may request, but each file request must appear on a separate line of your message. Do not forget to write "end" at the end of your archives request message.

In order to subscribe:
Send an e-mail message to: Majordomo@usa.healthnet.org

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1996 Public Service Award Citation for Sally Lilienthal

The Bible says, in Matthew 5:9, "Blessed are the peacemakers". How much more blessed, then, must be those who fund great numbers of peacemakers?

And what shall we say of Sally Lilienthal who has created an institution to fund, on an ongoing basis, generations of peacemakers?

In 1981, Sally conceived and created the Ploughshares Fund devoted to the most serious problem of our time: global security in the nuclear age. In 15 years of operation, under her leadership and through her personal indefatigable efforts, Ploughshares raised, and then distributed, $15 million for projects for peace.

Lilienthal receiving plaque from FAS Chairman Carl Kaysen (see page 2 for text of plaque)

At FAS we know the importance of this work in a special existential way, because we know what we have achieved with our own Ploughshares grants. We worked on conventional arms sales, on the anti-ballistic missile system, on biological warfare and the related issue of disease surveillance, on chemical warfare treaties, and on cleaning up the nuclear environment. We got prompt travel grants to go to Argentina and Peru. We received only about 2% of that $15 million. Yet this small fraction made an immense difference both to FAS and to FAS's goals.

So imagine, by extension, how much Sally has achieved overall. Even if the other organizations receiving the rest of the $15 million were one-fifth as effective as FAS—which is about right—Sally still achieved far more than dozens of anti-nuclear activists. And how sweetly she did it, and with such an absence of unnecessary fuss, treating her grantees with great consideration.

Eight hundred years ago, Moses Maimonides ranked nine levels of charitable giving in accordance with the degree of anonymity of the gift, ranging from donations given directly to those given in such anonymity that the giver and recipient are unknown to each other eliminating any direct sense of gratitude. By funding projects on global security, Sally has given a gift of peace anonymously to millions of individuals unknown to her—a giving relationship at the top of the Maimonides scale.

But, in her case, these millions of individuals are not even aware that they have received a precious gift of enhanced prospects for peace and security, so her giving reflects a level of anonymity *above* the Maimonides scale. Moreover, because, in an uncertain world, the results of her work—like ours—can never be assured, she can be described as one who gives *anonymously to individuals unknown to her who are unaware of her gift and she does so in circumstances where she herself cannot be assured that her gifts will be effective.* This is *two* levels above the top of the Maimonides scale. So Sally is some kind of saint.

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