

Improving Global Public Health Leadership Through Training in Epidemiology and Public Health: The Experience of TEPHINET

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Field Epidemiology Training Programs (FETPs) and Public Health Schools Without Walls use the “learning while doing” approach to build public health’s international capacity.^{1–9} Under the auspices of the World Health Organization (WHO) and the late Charles Mérioux, these programs in 1997 established Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET). The network’s mission is to strengthen international public health capacity through initiating, supporting, and networking field-based training programs that enhance competencies in applied epidemiology and public health interventions.

Since its inception, TEPHINET has linked professionals to WHO epidemic response and polio eradication teams and has organized “train-the-trainers” workshops and the first global TEPHINET conference, held in Ottawa in April 2000 and hosted by Canada’s FETP. This conference, attended by 187 participants from 30 countries, featured 93 trainee papers. Five regional conferences were held in 2001.

There are now 30 programs participating in TEPHINET, with 1317 graduates and 428 current fellows, excluding those of the oldest TEPHINET program, the Centers for Disease Control and Prevention’s Epidemic Intelligence Service. TEPHINET programs target midcareer professionals working for public health agencies; 46.7% of participants are women, 64% are medical doctors, and

20.3% hold postgraduate degrees in public health.

There is a growing interest among ministries of health in establishing new TEPHINET programs. These programs are becoming increasingly recognized as catalysts for strengthening the scientific basis of policymaking through the continuous examination of data available from surveillance systems; their systematic field investigations provide opportunities for training and enable ministries of health to better respond to public health problems.

Table 1 shows the range of problems faced in countries served by TEPHINET programs and the methods used to address them. The vast majority of these problems involve communicable diseases (70.5%), and almost half of the projects use the method of outbreak investigation. By responding to pressing public health problems through field projects, the programs usually provide services to the poorest of the poor.

The programs result in improvements in surveillance, disease prevention, and health promotion programs. Consider the following examples. The Mexican and Peruvian programs were central to the response to cholera in the 1990s, which resulted in a 93% decrease in incidence and a remarkably low case-fatality rate (0.7%) through improved surveillance case management, health education, and sanitation. Systematic studies of nosocomial transmission of blood-borne pathogens (*Plasmodium falciparum*, *Klebsiella pneumoniae*) in Saudi Arabia in the 1990s resulted in better infection control practices for preventing catheter-related infections and extrinsic contamination of infusates and led to nationwide recognition of the usefulness of public health surveillance. The Thailand FETP contributed to the establishment of surveillance systems early in the HIV epidemic, which proved critical to characterizing the epidemic and to developing and evaluating interventions. These interventions, in turn, have resulted in a decreasing incidence of HIV since 1994 through increased condom use and through lower rates of sexual intercourse with commercial sex workers among young men.

TEPHINET aims to increase its participation in international epidemic and disaster

TABLE 1—Public Health Problem Topics and Methods Reported in Trainee Papers Submitted for Consideration at Scientific Conferences: TEPHINET Programs, 1995–2000

	No. (%)
A. Public Health Topic Categories^a	
Diarrheal disease	104 (19.4)
[Cholera]	[19]
Vaccine preventable disease ^a	52 (9.7)
[Measles]	[19]
Parasitic disease	40 (7.5)
[Malaria]	[14]
Viral hepatitis	39 (7.3)
[Hepatitis A]	[22]
Injuries	31 (5.8)
[Unintentional]	[16]
HIV/STD	29 (5.4)
[HIV]	[27]
Other infectious diseases	26 (4.9)
Zoonosis	23 (4.3)
[Brucellosis]	[5]
Health Services	21 (3.9)
Tuberculosis	21 (3.9)
Arthropod-borne viral diseases	20 (3.7)
[Dengue]	[11]
Chronic diseases	18 (3.4)
Health situation assessment	17 (3.2)
Nosocomial infections	16 (3.0)
Noninfectious poisoning	16 (3.0)
Reproductive health	13 (2.4)
Environmental/occupational	10 (1.9)
Meningococcal disease	8 (1.5)
Disaster relief	8 (1.5)
Malnutrition	7 (1.3)
Unknown etiology	7 (1.3)
Hysteria	5 (0.9)
Substance abuse	3 (0.6)
Oral health	1 (0.2)
Total	535 (100.0)
B. Public Health Methods Used in Trainee Papers	
Outbreak/cluster investigation	249 (46.5)
Public health surveillance systems design, analysis, or evaluation	129 (24.1)
Disease prevention or health promotion program evaluations	105 (19.6)
Analytic planned studies	35 (6.5)
Surveys	10 (1.9)
Health economics	5 (0.9)
Training/education	2 (0.4)
Total	535 (100.0)

Note. TEPHINET = Training Programs in Epidemiology and Public Health Interventions Network; STD = sexually transmitted disease.
^aMain contributing conditions are shown in brackets.
^bExcluding viral hepatitis and meningococcal disease.

response teams and to collaborate with its partners to train field epidemiologists, which are currently available to only 30% of the world's population. The TEPHINET second global conference, scheduled for June 2–6, 2002 in Madrid, will be hosted by Spain's FETP. ■

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Contributors

All of the authors contributed to data analysis, selection (from survey responses) of the examples of recent TEPHINET accomplishments, and the writing of this brief.

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References

- Langmuir AD. The Epidemic Intelligence Service of the Centers for Disease Control. *Public Health Rep.* 1980;95:470–477.
- Thacker S, Goodman R, Dicker R. Training and service in public health practice, 1951–90—CDC's Epidemic Intelligence Service. *Public Health Rep.* 1990; 105:599–604.
- Brandling-Bennett D, Jatanasen S, Matusosapas W, Kunasol P, Brachman P. A practical way to train epidemiologists. *World Health Forum.* 1983;4:344–347.
- Brachman PS, Music SI. Epidemiology training and public health practice. *Epidemiol Infect.* 1989;102: 199–204.
- Music S, Schultz M. Field epidemiology training programs: new international health resources. *JAMA.* 1990;263:3309–3311.
- Malison M, Dayrit M, Limpakarnjanarat K. The Field Epidemiology Training Programmes. *Int J Epidemiol.* 1989;18:995–996.
- Moren A, Drucker J, Rowland M, Van Loock F. European Program for Intervention Epidemiology Training (EPIET): a training epidemiologic intervention in Europe [in French]. *Rev Epidemiol Sante Publique.* 1998; 46:533–540.
- Cardenas V, Sanchez C, De la Hoz F, et al. Colombian field epidemiology training program. *Am J Public Health.* 1998;88:1404–1405.
- Petersen LR, Ammon A, Hamouda O, et al. Developing national epidemiological capacity to meet the challenges of emerging infections in Germany. *Emerg Infect Dis.* 2000;6:578–584.



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