

indicates frequent local migration. More extensive sampling is necessary to confirm these results and determine a point of origin.

A community outreach program has been developed to inform the public about *Ae. aegypti* breeding and control in Tucson. Public involvement will be a key factor in the control of these urban breeders. Major emphasis will also be placed on programs for children and teachers as both groups can be instrumental in maintaining long-term interest in this problem. As these programs are developed, they can be expanded and amended to meet the needs of other infested communities in southern Arizona. A mosquito control abatement district is under consideration in a central part of Tucson. The primary purpose of this district would be to provide approximately 10,000 homeowners with information on controlling *Ae. aegypti* breeding on their property.

Just how long the *Ae. aegypti* infestation will last is difficult to assess. Records of the city's earlier infestation indicate the mosquito was present for at least a 15-year period (1931 to 1946) (1,3,4). Since their identification in early 1998 summer mosquito samples from Tucson, adult *Ae. aegypti* have been part of the city's local environment for at least 5 consecutive years (1994 to 1998). Their continued presence and the abundant breeding habitat provided by the expansion of Tucson's urban landscape suggest that *Ae. aegypti* could survive for an extended period.

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### References

1. Engelthaler DE, Fink TM, Levy CE, Leslie MJ. The reemergence of *Aedes aegypti* in Arizona. *Emerg Infect Dis* 1997;3:241-2.
2. Reiter P, Amador MA, Colon N. Enhancement of the CDC ovitrap with hay infusions for daily monitoring of *Aedes aegypti* populations. *J Am Mosq Control Assoc* 1991;7:52-5
3. Murphy D. Collection records of some Arizona mosquitoes. *Entomological News* 1953;14:233-8.
4. Bequaert J. *Aedes aegypti*, the yellow fever mosquito, in Arizona. *Bulletin of the Brooklyn Entomological Society* 1946;41:157.

### Can the Military Contribute to Global Surveillance and Control of Infectious Diseases?

**To the Editor:** Numerous networks—both formal (e.g., Ministries of Health and WHO Collaborating Centers and collaborating laboratories) and informal (e.g., nongovernmental and humanitarian organizations, the media, and electronic discussion groups)—contribute to WHO's network of networks for the global surveillance of infectious diseases (1).

A potential source of additional information on infectious diseases is the network of military health facilities and laboratories throughout the world. In addition to health facilities serving populations at high risk for infectious diseases, the military also has laboratories, often among the better-equipped, in developing countries. To evaluate the feasibility and potential usefulness of including military laboratories in the WHO global surveillance network, we conducted three surveys.

The first survey identified military laboratories willing to participate in global surveillance activities and obtained information about their infectious diseases reporting systems. Of the 107 countries surveyed, 76 replied. Among them, 53 (70%) reported having a central military laboratory that coordinates laboratory activities throughout the military, and 62 (82%) reported that military clinical facilities had a reporting system for infectious diseases.

The second survey quantified laboratory capabilities in the 53 laboratories identified in the first survey and obtained details about the 62 reporting systems. Among the 39 (74%) laboratories that replied, all can perform at least one of the following activities: isolating and identifying bacterial, viral, or parasitic agents. Twenty-nine (55%) have the capacity for specialized immunologic or molecular study. In addition, one of these laboratories has a biosafety level 4 facility, six have a biosafety level 3 facility, and 10 have a biosafety level 2 facility. Twenty-seven (51%) of the laboratories perform compulsory screening of new recruits for HIV, 17 (33%) for hepatitis B, 7 (13%) for hepatitis C, 39 (74%) for tuberculosis, 35 (67%) for syphilis, 18 (34%) for intestinal parasites, 13 (25%) for schistosomiasis, 12 (23%) for malaria, and 2 (4%) for Chagas disease.

Among the 54 reporting systems for which further information was obtained, clinical diagnoses (in some countries laboratory confirmed) are reported through the hierarchical chain, normally by mail or facsimile, but in two countries by electronic links. Almost all military reporting systems are parallel to civilian systems. Thirty-four (63%) of 54 systems feed into the civilian system, with a built-in mechanism to avoid duplicate reporting; 16 (30%) systems feeding into the civilian system have no such mechanism in place; and four have no link with the civilian system.

The third survey addressed vaccination policies. Among 52 countries that replied, 47 (90%) have a compulsory military vaccination schedule: 45 (87%) for tetanus, 30 (58%) for diphtheria, 23 (44%) for typhoid, 16 (31%) for bacillus Calmette-Guérin and polio, 12 (23%) for meningococcal meningitis, and 10 (19%) for measles, mumps, and rubella.

These surveys show that military populations are protected against many infectious diseases and that a wealth of information is obtained by military laboratories and health-care facilities on populations at high risk for infectious diseases. While most of the information collected from the health-care facilities is reported through civilian systems as well, incorporating the military network of laboratories into the WHO global surveillance network could ensure broader coverage.

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### Reference

1. Heymann DL, Rodier GG. Global surveillance of Communicable Diseases. *Emerg Infect Dis* 1998;4:362-5.

### Dual Infection with *Ehrlichia chaffeensis* and a Spotted Fever Group Rickettsia: A Case Report

**To the Editor:** In their article, Daniel J. Sexton et al. state, "Well-documented cases of simultaneous human infections with more than one tick-borne pathogen are rare" (1) and mention only two reports of such cases. However, another

report should be mentioned because of its historical interest and the lessons it may teach.

In 1900 to 1905, in the Bitter Root Valley, a tick-borne disease emerged, which became known as Rocky Mountain spotted fever. Although Ricketts et al. later published a report (2), which identified the causative agent, in 1904 L.B. Chowning and W.M. Wilson published Studies on *Pyroplasma hominis* (3). They reported finding *Pyroplasma* (since changed to *Babesia*) in the blood of approximately 20 patients with spotted fever. They studied this organism in detail and even found the reservoir for it in the local rodent species. Wilson et al. thought that the organism was the causative agent of spotted fever. On the basis of their excellent plates and descriptions, it is clear that the organism they were describing was what we later came to know as *Babesia microti*.

The work of Wilson and Chowning was ignored and forgotten for many years. They had incorrectly concluded that spotted fever was caused by a parasite. For many years it was "well known" that *Babesia* infections became apparent in human patients only on removal or inactivation of the spleen. That persons with functional spleens were subject to infection with *B. microti* was finally established by the so-called Nantucket outbreak (4) and subsequent publications.

Therefore, Wilson and Chowning's work reports several cases of simultaneous infections of humans by two tickborne pathogens; i.e., patients had spotted fever and *B. microti* in the blood. More poignant was that an "emerging" disease of humans was missed and not discovered again for some 70 years.

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### References

1. Sexton DJ, Corey GR, Carpenter C, Kong LQ, Gandhi T, Breitschwerdt E, et al. Dual infection with *Ehrlichia chaffeensis* and a spotted fever group rickettsia: a case report. *Emerg Infect Dis* 1998;4:311-6.
2. Ricketts HT. Some aspects of Rocky Mountain spotted fever. *Rev Infect Dis* 1909;1227-40.
3. Wilson LB, Chowning WM. Studies on *Pyroplasma hominis*. *Rev Infect Dis* 1904;1:31-57.
4. Ruebush TK, Juranek DD, Chisholm ES, Snow PC, Healy GR, Sulzer AJ. Human babesiosis on Nantucket Island. *N Engl J Med* 1977;297:825-87.