

Additionally, the high conversion rate (two of five) in those who reported consistent mask use when caring for active TB cases may suggest overreporting of mask use, poor adjustment of the mask, contact with unsuspected active cases (9), or contact with a contaminated environment.

This high TST conversion rate and incidence of TB demonstrate the inadequacy of hospital infection control measures. In Peru, both unsuspected active TB and multidrug-resistant TB are highly prevalent (9). Rapid detection and respiratory isolation of patients with active or suspected TB are rarely practiced.

In conclusion, Peruvian physicians have an extremely high risk of TST conversion and active TB. Hospitals in developing countries need to design and implement effective and appropriate infection control measures such as appropriate mask usage, sputum testing, and rapid reporting of MTB smears of all patients with respiratory symptoms, as well as respiratory control for smear-positive TB cases (10).

#### Acknowledgments

We thank R. Oberhelman, C. Evans, R. Escombe, K. Gutarra, J. Rabke-Verani, E. Santiago, J.B. Phu, and D. Sara for their invaluable contributions.

Funding was provided by U.S. Agency for International Development, National Institutes of Health—Fogarty Foundation, International Training and Research in Emergency Infection Disease grant 5D43-TW00910 and 3T22-TW00016-05S3.

**Nilo Bonifacio,\* Mayuko Saito,††  
Robert H Gilman,††§ Fay Leung,†  
Nancy Cordova Chavez,\*  
Jesús Chacaltana Huarcaya,\*  
and Carlos Vera Quispe\***

\*Hospital Nacional Daniel A. Carrión, Lima, Peru; †Asociación Benéfica Proyectos en Informática, Salud, Medicina y Agricultura (Prisma), Lima, Peru; ‡Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD, USA; and §Universidad Peruana Cayetano Heredia, Lima, Peru

#### References

1. World Health Organization. WHO report 2001: global TB control. Geneva: The Organization; 2001.
2. Sanghavi DM, Gilman RH, Lescano AG, Checkly W, Cabrera LZ, Cardenas V. Hyperendemic pulmonary tuberculosis in a Peruvian shantytown. *Am J Epidemiol* 1998;148:384–9.
3. Harries AD, Maher D, Nunn P. Practical and affordable measures for the protection of health care workers from tuberculosis in low-income countries. *Bull World Health Organ* 1997;75:477–89.
4. American Thoracic Society, Centers for Disease Control and Prevention. Targeted tuberculin testing and treatment of latent tuberculosis infection. *MMWR Morb Mortal Wkly Rep* 2000;49(RR-6):1–54.
5. Blumberg HM, Sotir M, Erwin M, Bachman R, Shulman JA. Risk of house staff tuberculin skin test conversion in an area with a high incidence of tuberculosis. *Clin Infect Dis* 1998;27:826–33.
6. Ministerio de Salud. Tuberculosis en el Peru: informe 2000. Lima: Dirección General de Salud de las Personas; 2001.
7. Sepkowitz KA. Tuberculin skin testing and the health care worker: lessons of the Prophit Survey. *Tuber Lung Dis* 1996;77:81–5.
8. Menzies R. [letter]. Tuberculin booster reactions and conversions. *Ann Intern Med* 1994;121:387–8.
9. Willingham FF, Schmitz TL, Contreras M, Kalangi SE, Vivar AM, Caviedes L, et al. Hospital control and multidrug-resistant pulmonary tuberculosis in female patients, Lima, Peru. *Emerg Infect Dis* 2001;7:123–7.
10. Wenger PN, Otten J, Breeden A, Orfas D, Beck-Sague CM, Jarvis WR. Control of nosocomial transmission of multidrug-resistant *Mycobacterium tuberculosis* among healthcare workers and HIV-infected patients. *Lancet* 1995;345:235–40.

## First Documented Human *Rickettsia* *aeschlimannii* Infection

**To the Editor:** *Rickettsia aeschlimannii*, which was first isolated from *Hyalomma marginatum* ticks collected in Morocco in 1997 (1), has also been found in *H. marginatum* ticks from Zimbabwe, Niger, and Mali (2). For the past 3 years, we have included this species in the panel of rickettsiae for

which sera from patients with suspected tickborne diseases are routinely tested. This procedure allowed us to document, by polymerase chain reaction (PCR) amplification and serologic testing, the first case of *R. aeschlimannii* human infection, which occurred in a patient returning from Morocco.

This 36-year-old man traveled to Morocco in August 2000. On returning to France, he noticed a vesicular lesion of the ankle, which became necrotic and resembled the typical “tâche noire” of Mediterranean spotted fever (3). He became ill with fever of 39.5°C and a generalized maculopapular skin rash. Laboratory tests showed a normal blood cell count but moderately increased transaminases. An early serum specimen was tested to confirm the diagnosis of Mediterranean spotted fever. By microimmunofluorescence, the patient’s serum had immunoglobulin G and M titers of 1:32 and 1:16, respectively, against *R. aeschlimannii*; 0 and 1:16 against *R. conorii*, *R. africae*, *R. slovacca*, *R. helvetica*, and *R. massiliae*; and 0 and 1:8 against “*R. mongolotimonae*.” Western blot results showed that the patient’s serum reacted more intensively with *R. aeschlimannii* proteins than with those of the other tested rickettsiae. Attempted PCR amplification of a 630-nt portion of the rickettsial *ompA* gene (nt 70 to 701) (4) from the early serum specimen yielded a product of the expected size. The sequence of this amplicon allowed the identification of *R. aeschlimannii* with 100% homology. The patient was treated with doxycycline, 200 mg daily for 1 week, and rapidly recovered.

This case is the first documented infection caused by *R. aeschlimannii*, a *Rickettsia* that had been isolated only from *Hyalomma marginatum* ticks from Africa. In our patient, its pathogenic role was demonstrated by PCR, a technique that has also proven useful in identifying other new rickettsial diseases, including infections with

*R. helvetica* (5), *R. slovacica* (6), and *R. felis* (7). The serologic findings indicated antibodies at a higher level to *R. aeschlimannii* than to other tested species. *R. aeschlimannii* is phylogenetically distant from *R. conorii* but is closely related to *R. rhipicephali* and *R. montanensis*, which have never been described as human pathogens. This patient appeared to have a typical case of *R. conorii* infection, with seasonal and geographic characteristics favoring this diagnosis (3). This case was clinically and epidemiologically mistaken for *R. conorii* infection, suggesting that *R. aeschlimannii* may be another cause of Mediterranean spotted fever in Morocco.

The systematic identification of rickettsial species in human infections continues to increase the number of recognized human pathogens (3). This finding has demonstrated once again that more than one species or serotype of tick-transmitted rickettsia may be prevalent in the same area, as observed, for example, with *R. slovacica*, "*R. mongolotimonae*," and *R. conorii* in southern France (3); *R. africae* and *R. conorii* in sub-Saharan Africa (8); and *R. conorii* and Israeli spotted fever rickettsia in Sicily and Portugal (9). *Rickettsia* species first identified in ticks should be considered as potential human pathogens, as all recently described tick-transmitted rickettsiae pathogenic for humans were initially found in ticks and were considered nonpathogenic for several years (3).

**Didier Raoult,\*  
Pierre-Edouard Fournier,\*  
Philippe Abboud,†  
and François Caron†**

\*Unité des Rickettsies, Université de la Méditerranée, Marseille, France; and †Service de Maladies Infectieuses, Centre Hospitalier Universitaire de Rouen, Rouen, France

#### References

1. Beati L, Meskini M, Thiers B, Raoult D. *Rickettsia aeschlimannii* sp. nov., a new spotted fever group rickettsia associated with *Hyalomma marginatum* ticks. *Int J Syst Bacteriol* 1997;47:548–54.
2. Parola P, Raoult D. Ticks and tickborne bacterial diseases in humans: an emerging infectious threat. *Clin Infect Dis* 2001;32:897–928.
3. Raoult D, Roux V. Rickettsioses as paradigms of new or emerging infectious diseases. *Clin Microbiol Rev* 1997;10:694–719.
4. Roux V, Fournier PE, Raoult D. Differentiation of spotted fever group rickettsiae by sequencing and analysis of restriction fragment length polymorphism of PCR amplified DNA of the gene encoding the protein rOmpA. *J Clin Microbiol* 1996;34:2058–65.
5. Nilsson K, Lindquist O, Pahlson C. Association of *Rickettsia helvetica* with chronic perimyocarditis in sudden cardiac death. *Lancet* 1999;354:1169–73.
6. Raoult D, Berbis P, Roux V, Xu W, Maurin M. A new tick-transmitted disease due to *Rickettsia slovacica*. *Lancet* 1997;350:112–3.
7. Raoult D, La Scola B, Enea M, Fournier PE, Roux V, Fenollar F, et al. Isolation and characterization of a flea-associated rickettsia pathogenic for humans. *Emerg Infect Dis* 2001;7:73–81.
8. Raoult D, Fournier PE, Fenollar F, et al. *Rickettsia africae*, a tick-borne pathogen in travelers to sub-Saharan Africa. *N Engl J Med* 2001;344:1504–10.
9. Bacellar F, Beati L, Franca A, Pocas J, Regnery R, Filipe A. Israeli spotted fever rickettsia (*Rickettsia conorii* complex) associated with human disease. *Emerg Infect Dis* 1999;5:835–6.

## Cost-Effective Screening for Trichomoniasis

**To the Editor:** I read with interest a recent article in your journal, "*Trichomonas vaginalis*, HIV, and African Americans" (1), and I commend the authors' suggestion to implement screening and reporting of trichomoniasis for high-risk populations.

In the article, a cost-effective screening approach is mentioned, which includes culturing only for those women whose wet-mount tests are negative. In 1999, my colleagues and I reported on the validity of this method for diagnosing trichomoniasis in women (2). During our study, an additional vaginal swab was collected during the pelvic examination and placed into a glass tube. If the wet

mount was negative, this swab was later added to a culture pouch for *T. vaginalis*. We found no statistically significant difference in the sensitivity of this method compared with that of adding swabs immediately to pouches at bedside. This method of delaying the second test until the results of the first test are known should be considered in screening women for trichomoniasis, especially in high-prevalence populations.

**Jane R. Schwebke**

University of Alabama at Birmingham, Birmingham, Alabama, USA

#### References

1. Sorvillo F, Smith L, Kerndt P, Ash L. *Trichomonas vaginalis*, HIV, and African Americans. *Emerg Infect Dis* 2001;7:927–32.
2. Schwebke JR, Venglarik MF, Morgan SC. Delayed versus immediate bedside inoculation of culture media for diagnosis of vaginal trichomoniasis. *J Clin Microbiol* 1999;37:2369–70.

## Reply to Dr. Schwebke

**To the Editor:** We welcome Dr. Schwebke's thoughtful comments about decreasing the cost of screening for *Trichomonas vaginalis*. Dr. Schwebke and her colleagues have demonstrated that storing a vaginal swab for 15–20 minutes in a glass tube at room temperature does not affect the viability of *T. vaginalis* or reduce the sensitivity of subsequent culture. This finding shows that vaginal swabs may be stored briefly while a wet-mount preparation is made and examined. If the wet mount is negative for *T. vaginalis*, the stored swab can then be processed for culture. If the wet mount is positive for *T. vaginalis*, no further culture of the specimen is needed, thereby reducing unnecessary costs. Given that the prevalence of this infection often exceeds 20% in high-risk populations, this approach can reduce costs substantially without compromising the accuracy of the tests. Any method that reduces the cost of diagnosis will advance further