

Reply to Romoren and Sundby

SIR—We appreciate the comments by Romoren and Sundby [1] and their careful reading of the article by Paz-Bailey et al. [2] and our accompanying editorial [3]. In their comments, Drs. Romoren and Sundby raise 3 issues.

First, they claim that our use of a decimal point in calculating percentage decreases in prevalence between the 2 family planning surveys is “simplifying and misleading.” Although we would not use these words and consider this issue to be a matter of style more than a matter of integrity of data presentation, we understand their point that to use a decimal point might imply more precision than the underlying data justify.

Second, the authors validly note the relatively small sample sizes and potential heterogeneity among the patients practicing family planning who constituted the study groups, data from which led to the observed decreases in prevalences between the 1993 and 2002 surveys. Fair enough. But we would like to make 3 points. First, we calculated percentage decreases only for the patients practicing family planning who participated in the Paz-Bailey study precisely because we believed that, among several varying populations in the article, these were most likely to be homogeneous. Second, we used the word “considerable” to refer to these decreases and deliberately avoided the word “significant” because of the statistical implications this word can have. Third, it is also potentially misleading for researchers to believe that differences with a *P* value of $\leq .05$ are believable and those with a value of $> .05$ are not. Although the 95% CIs for the trichomonas prevalences quoted by Romoren and Sundby do (marginally) overlap, we ourselves would not interpret the differences in prevalences much differently had they not (marginally) overlapped.

Last, the authors indicate that we should not be surprised that there were decreases, given the “massive treatment with multiple antibiotics for more than a

decade” for reproductive tract infections. We appreciate this argument, which seems to indicate support for our view that there were, indeed, decreases. Although we agree that this is likely a reason for the observed decreases in prevalence, our editorial did not ascribe such decreases solely to antibiotic use for treatment of reproductive tract infections; rather, our editorial ascribed such decreases to multifaceted programs and interventions attempting to diminish rates of sexually transmitted infections, including messages to limit the number of sex partners, encouragement for condom use, and special, targeted interventions for high risk populations. Sexually transmitted pathogens, especially bacterial ones, can be controlled when sustained, consistent, standardized prevention and treatment protocols are put in place, as has been shown in a number of developed and developing countries.

Acknowledgments

Potential conflicts of interest. All authors: no conflicts.

George Schmid,¹ Richard Steen,¹ and Francis Ndowa²

Departments of ¹HIV/AIDS and ²Reproductive Health Research, World Health Organization, Geneva, Switzerland

References

1. Romoren M, Sundby J. Where is the humility for the limitations of research [letter]? *Clin Infect Dis* 2005; 42:888–9 (in this issue).
2. Paz-Bailey G, Rahman M, Chen C, et al. Changes in the etiology of sexually transmitted diseases in Botswana between 1993 and 2002: implications for the clinical management of genital ulcer disease. *Clin Infect Dis* 2005; 1304–12.
3. Schmid G, Steen R, Ndowa F. Control of bacterial sexually transmitted diseases in the developing world is possible. *Clin Infect Dis* 2005; 41:1313–5.

Reprints or correspondence: Dr. George Schmid, Dept. of HIV/AIDS, World Health Organization, 20 Ave. Appia, 1211 Geneva 27, Switzerland (schmidg@who.int).

Clinical Infectious Diseases 2006; 42:889

© 2006 by the Infectious Diseases Society of America. All rights reserved. 1058-4838/2006/4206-0028\$15.00

Unusual Pathogens and Multidrug-Resistant Bacteria in Tsunami Survivors

SIR—We read with interest the article by Hiransuthikul et al. [1] describing skin and soft-tissue infections among tsunami survivors. We were surprised by the very low rate of multidrug-resistant pathogens that were isolated.

During the tsunami, hundreds of foreign tourists were wounded. During the following weeks, after they were stabilized and given primary care, often in secondary and tertiary care hospitals, survivors were repatriated. We and others treated these transferred patients, who were highly colonized and infected with multidrug-resistant, gram-negative bacteria [2, 3].

The article by Hiransuthikul et al. [1] could be misleading. Their results could be interpreted to indicate that, in such a situation, wounds were infected with easy-to-treat bacteria. Environmental bacteria, such as *Acinetobacter* or *Pseudomonas* species, could present important antibiotic resistance [4]. Tsunami survivors spent hours or days in water and mold that were at least partially contaminated with sewage. A large proportion of the multidrug-resistant bacteria detected could have been caused by nosocomial acquisition, mainly in patients who were hospitalized for several days [5]. Primary treatment and stabilization were performed in very difficult situations, where nosocomial acquisition was likely to occur [6]. However, details about previous hospitalizations are lacking in the article. Furthermore, the description of the isolates is insufficient. Data on antimicrobial susceptibilities are available only for 78.7% of bacteria, but most wounds presented polymicrobial infections. The article also has a high risk of having been biased by the economical situation of the patients. Only patients treated in private clinics are discussed, and 93% of those were foreign tourists. This population is not representative of the local victims.

In conclusion, we think that, in a similar emergency situation, the presence of diffi-

cult-to-treat, multidrug-resistant, gram-negative bacteria should be assumed until antimicrobial susceptibility tests are available for 2 reasons: (1) to choose the right empirical treatment and (2) to set up a strict infection-control policy for the prevention of the spread of imported nosocomial infections [2, 3].

The article describes infections that were detected some days after the tsunami; we want to warn about atypical infections, which are difficult to diagnose and treat, that could appear after several weeks. Unusual pathogens should be suspected, given the particular situation: very high inocula, long exposure to the microorganisms, and multiple broken barriers (e.g., wounds, near-drowning events, and fractures). We and our colleagues recently described 2 patients who developed uncommon infections, such as cutaneous nocardiosis, atypical *Mycobacterium* species soft tissue infection, *Spedosporium apiospermium* brain abscess, and spondylodiskitis [2]. Several reports have described other rare soft-tissue cutaneous fungal infections [5, 7]. We should all be aware that, in similar situations, a high degree of suspicion should be maintained, and a search for atypical pathogens should be performed.

Acknowledgments

Potential conflicts of interest. J.G. and C.G.: no conflicts.

Jorge Garbino and Christian Garzoni

Division of Infectious Diseases,
University Hospitals of Geneva, Switzerland

References

1. Hiransuthikul N, Tantisirawat W, Lertutsahakul K, Vibhagool A, Boonma P. Skin and soft-tissue infections among tsunami survivors in southern Thailand. *Clin Infect Dis* 2005;41:e93–6.
2. Garzoni C, Emonet S, Legout L, et al. Atypical infections in tsunami survivors. *Emerg Infect Dis* 2005;11:1591–3.
3. Maegele M, Gregor S, Steinhausen E, et al. The long-distance tertiary air transfer and care of tsunami victims: injury pattern and microbiological and psychological aspects. *Crit Care Med* 2005;33:1136–40.
4. Masur H, Murray P. Tsunami disaster and infection: beware what pathogens the transport

delivers to your intensive care unit! *Crit Care Med* 2005;33:1179–80.

5. Kao AY, Munandar R, Ferrara SL, et al. Case records of the Massachusetts General Hospital. Case 19–2005: a 17-year-old girl with respiratory distress and hemiparesis after surviving a tsunami. *N Engl J Med* 2005;352:2628–36.
6. Wattanawaitunechai C, Peacock SJ, Jitpratoom P. Tsunami in Thailand—disaster management in a district hospital. *N Engl J Med* 2005;352:962–4.
7. Andresen D, Donaldson A, Choo L, et al. Multifocal cutaneous mucormycosis complicating polymicrobial wound infections in a tsunami survivor from Sri Lanka. *Lancet* 2005;365:876–8.

Reprints or correspondence: Dr. Jorge Garbino, Div. of Infectious Diseases, University Hospitals of Geneva, 24 Rue Micheli-du-Crest, CH-1211 Geneva 14, Switzerland (jorge.garbino@hcuge.ch).

Clinical Infectious Diseases 2006;42:889–90

© 2006 by the Infectious Diseases Society of America. All rights reserved. 1058-4838/2006/4206-0029\$15.00

Reply to Garbino and Garzoni

STR—In accordance with the letter by Garbino and Garzoni [1], we agree that multidrug-resistant bacteria were not uncommon as the causative pathogen of infected wounds among tsunami survivors. However, we did find a large proportion of tsunami survivors in southern Thailand who had skin and soft-tissue infections caused by relatively susceptible bacteria. Our results were similar to data from local hospitals in Phuket province. Among 47 patients with skin and soft-tissue infections whose pus or tissue samples were cultured, 95 causative bacterial isolates were found. The most common pathogens were *Klebsiella pneumoniae* (23 cases), *Escherichia coli* (18 cases), *Proteus* species (15 cases), and *Aeromonas* species (13 cases). More than 90% of these organisms (except for *Aeromonas* species, for which antimicrobial susceptibility was not tested) were susceptible to cefuroxime, ceftriaxone, imipenem, ciprofloxacin, netilmicin, and gentamicin. However, only 38%–60% of *E. coli* and *Proteus* species were susceptible to amoxicillin-clavulanic acid (unpublished data). We think that the frequency of multidrug-resistant bacteria was dependent on the duration of time from

injury to culture, particularly among hospitalized patients. The longer the duration, the more-frequently multidrug-resistant, hospital-acquired bacteria were found. In our study, the mean duration from injury until specimens were sent for culture (which was similar to that for the local hospital) was 3 days. This was probably because most patients were foreigners, and they were rapidly transferred from local hospitals to Bangkok and, subsequently, to their home countries, so we had relatively few patients with a longer hospital stay. This probably accounts for the relatively few multidrug-resistant, hospital-acquired bacteria found.

We accept that our study might have had some selection bias and limited generalization, because the subjects enrolled in private hospitals in Bangkok were mostly foreigners and might not have been representative of local victims. However, the selection of patients from private hospitals instead of local hospitals allowed us to enroll more patients in the study whose clinical specimens were sent for culture, which resulted in more-accurate bacterial isolation and antimicrobial susceptibility testing. The local hospitals, which had huge casualties after the disaster, had limited facilities for proper specimen collection and testing, and they usually administered empirical antibiotic therapy without culture. Finally, because most tsunami victims who were foreigners were usually transferred to their home countries soon after the disaster, organisms with a long incubation period that cause invasive infection, such as fungi, might have not been detected in our study. Therefore, we think that our results are not misleading, but the decision to select appropriate empirical antimicrobial treatment should be based on the circumstances in which the injuries occur, including the duration from injury to culture and the clinical setting of patients (community- vs. hospital-acquired infection). If possible, the narrowest spectrum antibiotics should be used for treatment [2].