

Reply

SIR—We read with interest the letter by Tattevin et al. [1] questioning the validity of studies of candidemia epidemiology conducted without the use of selective blood culture bottles for fungus detection.

We fully agree that the detection of fungemia—as performed in most institutions today—is not optimal, and that the use of special methods would certainly improve both the time to and the rate of detection. In vitro and in vivo studies have indeed demonstrated an advantage of special media in favoring yeast growth (particularly that of *Candida glabrata*) or inhibiting concomitant bacteria in blood [2–5]. However, the systematic use of such media is expensive. Their selective use for patients at risk for candidemia is attractive, but this population is difficult to identify. In our institution, the majority of cases of fungemia were detected among patients for whom there was no special request for fungal blood cultures.

Tattevin et al. [1] claim that not using special fungal blood culture media could impede or delay the detection of some non-*albicans* species of *Candida*, such as *C. glabrata*. We have conducted a further analysis of the data published in our 10-year Swiss survey [6] to assess differences in the proportions of *Candida albicans* and non-*albicans* species of *Candida* (particularly *C. glabrata*) reported by the 7 laboratories using special fungal media and the 9 others using standard automated-monitoring blood culture systems. No difference was observed between the 2 groups of institutions nor in the ranking of *Candida* species among the most frequent bloodstream isolates. In addition, in one of the major hospitals participating in our study, use of special fungal blood culture bottles was introduced mid-survey with-

out leading to a higher detection of non-*albicans* species of *Candida* [7].

Time to detection, although very pertinent for patient management, has no influence on studies such as ours, which require only that the incubation time for blood culture is long enough (5–7 days) to allow the detection of almost all *Candida* isolates from blood cultures. In this type of study, the emphasis is on the number of cases of candidemia and not on the number of bottles that yield an isolate nor on the time to detection.

In this respect, it is interesting to note that, as in our report, none of the candidemia studies mentioned in the letter by Tattevin et al. [1] or referenced in our article [6] specify the type of blood culture bottle or system used or the duration of incubation. Moreover, even population-based prospective surveillance studies such as those of Kao et al. [8] and Trick et al. [9] do not mention how candidemia episodes were diagnosed, beyond the basic definition of 1 or more blood culture(s) positive for *Candida* species.

Thus, within the imperfections and variations in current laboratory practices, as well as patient selection, studies of the epidemiology of candidemia do offer useful information and can be compared. Interesting—and intriguing—differences in the incidence of candidemia and the distribution of *Candida* species are reported within and between continents, which should trigger further research regarding their origin.

Acknowledgment

Conflict of interest. J.B. has an unrestricted grant from Pfizer, Switzerland.

J. Bille,^{1,2} O. Marchetti,² and D. Pittet,³ for the Fungal Infection Network of Switzerland (FUNGINOS)

¹Institute of Microbiology and ²Infectious Diseases Service, University Hospital, Lausanne, and

³Infection Control Program, University of Geneva Hospitals, Geneva, Switzerland

References

1. Tattevin P, Chevrier S, Gangneux J-P. Can we describe the epidemiology of candidemia without using selective blood cultures bottles for fungus detection? [letter] *Clin Infect Dis* 2004;39:598–9 (in this issue).
2. Fricker-Hidalgo H, Chazot F, Lebeau B, Pelloux H, Ambroise-Thomas P, Gillot R. Use of simulated blood cultures to compare a specific fungal medium with a standard microorganism medium for yeast detection. *Eur J Clin Microbiol Infect Dis* 1998;17:113–6.
3. Horvath LL, Hospenthal DR, Murray CK, Dooley DP. Detection of simulated candidemia by the Bactec 9240 system with Plus Aerobic/F and Anaerobic/F blood culture bottles. *J Clin Microbiol* 2003;41:4714–7.
4. Meyer MH, Letscher-Bru V, Jaulhac B, Waller J, Candolfi E. Comparison of Mycosis IC/F and Plus Aerobic/F media for diagnosis of fungemia by the Bactec 9240 system. *J Clin Microbiol* 2004;42:773–7.
5. Horvath LL, George BJ, Murray CK, Harrison LS, Hospenthal DR. Direct comparison of the Bactec 9240 and BacT/Alert 3D automated blood culture systems for *Candida* growth detection. *J Clin Microbiol* 2004;42:115–8.
6. Marchetti O, Bille J, Fluckiger U, Eggimann P, Ruef C, Garbino J, Calandra T, Glauser MP, Täuber MG, Pittet D, for the Fungal Infection Network of Switzerland (FUNGINOS). Epidemiology of candidemia in Swiss tertiary care hospitals: secular trends, 1991–2000. *Clin Infect Dis* 2004;38:311–20.
7. Garbino J, Kolarova L, Rohner P, Lew D, Pichna P, Pittet D. Secular trends of candidemia over 12 years in adult patients at a tertiary care hospital. *Medicine* 2002;81:425–33.
8. Kao AS, Brandt ME, Pruitt WR, et al. The epidemiology of candidemia in two United States cities: results of a population-based active surveillance. *Clin Infect Dis* 1999;29:1164–70.
9. Trick WE, Fridkin SK, Edwards JR, Hajjeh RA, Gaynes RP, and the National Nosocomial Infections Surveillance System Hospitals. Secular trend of hospital-acquired candidemia among intensive care unit patients in the United States during 1989–1999. *Clin Infect Dis* 2002;35:627–30.

Reprints or correspondence: Jacques Bille, Institute of Microbiology, University Hospital, CH-1011 Lausanne, Switzerland (Jacques.Bille@chuv.hospvd.ch).

Clinical Infectious Diseases 2004;39:599

© 2004 by the Infectious Diseases Society of America. All rights reserved. 1058-4838/2004/3904-0033\$15.00

Risk Factors for Extrapulmonary Tuberculosis

SIR—We were surprised by the findings of Yang et al. [1] suggesting that female sex and non-Hispanic black race are risk fac-