



Figure 1. Positive likelihood ratio (LR), according to bronchoalveolar lavage galactomannan test results.

References

- Rijnders BJA, Slobbe L. Bronchoalveolar lavage fluid galactomannan for diagnosis of invasive pulmonary aspergillosis [letter]. *Clin Infect Dis* 2010; 50:1070 (in this issue).
- Cordonnier C, Botterel F, Ben Amor R, et al. Correlation between galactomannan antigen levels in serum and neutrophil counts in haematological patients with invasive aspergillosis. *Clin Microbiol Infect* 2009; 15: 81–86.
- Meersseman W, Lagrou K, Maertens J, et al. Galactomannan in bronchoalveolar lavage fluid: a tool for diagnosing aspergillosis in intensive care unit patients. *Am J Respir Crit Care Med* 2008; 177:27–34.
- Maertens J, Maertens V, Theunissen K, et al. Bronchoalveolar lavage fluid galactomannan for the diagnosis of invasive pulmonary aspergillosis in patients with hematologic diseases. *Clin Infect Dis* 2009; 49:1688–1693.
- Lagrou K, De Vleeschouwer J, Meersseman W, et al. Triazole resistance among clinical *Aspergillus fumigatus* isolates. In: Program and abstracts of the 3rd Advances Against Aspergillosis Meeting (Miami Beach, FL). 2008. Abstract 33.
- Donnelly JP, Leeftang MM. Galactomannan detection and diagnosis invasive aspergillosis [letter]. *Clin Infect Dis* 2010; 50:1070–1071 (in this issue).

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The Endangered White Coat

TO THE EDITOR—In June of 2009, the American Medical Association (AMA) House of Delegates passed a resolution to encourage the “adoption of hospital guidelines for dress codes that minimize transmission of nosocomial infections (NI)” [1, p. 15]. So began publication of editorials and news stories questioning whether white coats cause harm to patients [2]. This debate is not new—for example, changes in dress codes for hospital personnel have been implemented in the United Kingdom [3–5]—but renewed interest has again brought this issue to the

forefront [2, 6, 7]. Hospital personnel in the United Kingdom now abide by a “bare below the elbows” policy when in patient care areas, in hopes that this will decrease the incidence of NI. Although the United Kingdom has implemented these changes, no studies have looked at the effect of physician’s white coats or the bare below the elbows policy on NI rates.

The British Department of Health issued guidelines to help prevent NI [8]. They cite Wilson et al [9] and Loveday et al [10] as the evidence base for their recommendations. They acknowledge that the study by Wilson and colleagues offers “no conclusive evidence that uniforms (or other work clothes) pose a significant hazard in terms of spreading infection” [8, p. 6]. However, they still recommend a bare below the elbows policy [8]. Loveday and colleagues attempted to gauge the public’s perception of health care worker uniforms in relationship to infections and concluded that “the general public’s perception is that uniforms pose an infection risk when worn inside and outside clinical settings” [10]. In addition, *EPIC2: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England* also concluded that “none of these studies established an association between contaminated uniforms and HCAI (healthcare associated infections)” [11].

Although little clinical evidence exists regarding the impact of these potential fomites on NI, some data seem to give credence to the thought that clothing may play a role in transferring pathogens. Several studies have shown that physicians’ white coat sleeves and pockets are frequently colonized with bacteria associated with NI [12–15]. Mackintosh et al [16] also showed that several pathogens transferred well from fabrics to hands. Scott et al [17] showed that several types of pathogens can be transferred from contaminated soiled cloth and surfaces to fingertips in detectable numbers. In a cost-benefit analysis, Puzniak et al [18] showed that gown and glove use together lowered

the incidence of vancomycin-resistant enterococci infection in a medical intensive care unit, which would seem to support the claim that clothes are a potential fomite for NI.

NI accounted for 1.7 million infections in 2002, which resulted in 99,000 deaths in the United States, and it is estimated to cost \$6.7 billion per year [19, 20]. With such a significant impact from NIs, it is understandable that preventing them is a desirable outcome; however, the AMA took the appropriate position in recommending more research before implementing resolutions or guidelines on the removal of white coats or implementing a bare below the elbows policy in the United States.

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References

1. American Medical Association (AMA). Resolution 720: hospital dress codes for the reduction of nosocomial transmission of disease. In: American Medical Association House of Delegates. Chicago, IL: AMA, 2009.
2. Slife E. Coat of harms? AMA considers ban on doctors' signature white garment. Chicago Tribune, 6 July 2009. <http://www.chicagotribune.com/topic/chi-coat-of-harms-jul06,0,1802810.story>. Accessed 14 July 2009.
3. Murphy C. End for traditional doctor's coat. BBC News. 17 September 2007. <http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/6998195.stm>. Accessed 19 June 2008.
4. Kerr C. Ditch that white coat. CMAJ 2008; 178(9):1127.
5. Gray S. Superbug fears kill off doctors' white coats. The Times. 17 September 2007. <http://www.timesonline.co.uk/tol/news/uk/health/article2470379.ece>. Accessed 19 June 2008.
6. Magos A, Maclean A, Baker D, Goddard N, Ogunbiyi O. Bare below the elbows: a cheap soundbite. BMJ 2007; 335(7622):684.
7. Henderson J, McCracken S. Bare below the elbows: Clinical value of a wristwatch. BMJ 2008; 336(7634):10.
8. Jacob G. Uniforms and workwear: an evidence

base for developing local policy. UK Department of Health 2007:10. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/Publicationspolicyandguidance/DH_078433. Accessed 7 September 2008.

9. Wilson JA, Loveday HP, Hoffman PN, Pratt RJ. Uniform: an evidence review of the microbiological significance of uniforms and uniform policy in the prevention and control of healthcare-associated infections. Report to the Department of Health (England). J Hosp Infect 2007; 66(4):301–307.
10. Loveday HP, Wilson JA, Hoffman PN, Pratt RJ. Public perception and the social and microbiological significance of uniforms in the prevention and control of healthcare-associated infections: an evidence review. Brit J Infect Cont 2007; 8(4):10–21.
11. Pratt RJ, Pellowe CM, Wilson JA, et al. Epic2: national evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. J Hosp Infect 2007; 65(Suppl 1):S1–64.
12. Varghese D, Patel H. Hand washing, stethoscopes and white coats are sources of nosocomial infection. BMJ 1999; 319(7208):519.
13. Loh W, Ng VV, Holton J. Bacterial flora on the white coats of medical students. J Hosp Infect 2000; 45(1):65–68.
14. Wong D, Nye K, Hollis P. Microbial flora on doctors' white coats. BMJ 1991; 303(6817): 1602–1604.
15. Amy MT, Kerri AT, Jon PF, Sandra MS, Anthony DH, Eli NP. Bacterial contamination of health care workers' white coats. Am J Infect Control 2008; 37(2):101–105.
16. Mackintosh CA, Hoffman PN. An extended model for transfer of micro-organisms via the hands: differences between organisms and the effect of alcohol disinfection. J Hyg (Lond) 1984; 92(3):345–355.
17. Scott E, Bloomfield SF. The survival and transfer of microbial contamination via cloths, hands and utensils. J Appl Bacteriol 1990; 68(3):271–278.
18. Puzniak LA, Gillespie KN, Leet T, Kollef M, Mundy LM. A cost-benefit analysis of gown use in controlling vancomycin-resistant *Enterococcus* transmission: is it worth the price? Infect Control Hosp Epidemiol 2004; 25(5): 418–424.
19. Monina R, Klevens D, Jonathan R, et al. Estimates of healthcare-associated infections. Public Health Reports 2007; 122:160–166.
20. Graves N. Economics and preventing hospital-acquired infection. Emerg Infect Dis 2004; 10(4):561–566.

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Mixed Cryoglobulinemia: A Role for Parvovirus B19 Infection

TO THE EDITOR—The association of parvovirus B19 with autoimmune conditions has been reported with increasing frequency, including in patients with vasculitis (mainly polyarteritis nodosa). Here, we describe a patient with mixed cryoglobulinemia that followed acute B19 infection.

A 37-year-old white woman was admitted to our hospital because of new-onset symmetrical and febrile polyarthralgia, which affected her wrists, elbows, knees, and ankles, without joint swelling. She had no notable medical history and was taking no medications. The onset of symptoms occurred just after she had visited the mountains, 2 weeks before admission. Although these symptoms resolved rapidly and spontaneously, she presented with severe myalgia and weakness of lower limbs.

Physical examination revealed a painful infiltration of the calves that predominated on the right. There was no associated cutaneous manifestation, and neurological examination and muscular strength were normal. Laboratory data at hospital admission included a mild increase in the C-reactive protein level (to 0.34 mg/dL) and normocytic aregenerative anemia (hemoglobin level, 109 g/L). The serum level of creatine phosphokinase was normal. Magnetic resonance imaging revealed hypersignal (T2STIR) related to an inflammatory diffuse muscular infiltration of lower limbs (Figure 1). Immunological analysis revealed no antinuclear or antineutrophil cytoplasmic antibodies but did reveal rheumatoid factor (320 UI/mL; normal level, <15 UI/mL), complement consumption of the C4 fraction (0.05 g/L; normal range, 0.2–0.4 g/L), and abundant mixed cryoglobulin (type II with monoclonal immunoglobulin [Ig] M κ component). Serologic tests for hepatitis viruses A–C, human immunodeficiency virus, cyto-