

## Letters to the Editor

### Disinfection of Medical Waste

#### To the Editor:

Dr. Daschner's opinion concerning medical waste is rather naive ("Disinfection of Medical Waste --A Totally Wrong Approach," 1993;14:64). He appears to approach medical waste as if it possessed a level of infectivity much greater than recognized in the United States. Evidence strongly supports that exposure to medical waste is an occupational rather than generic risk. Therefore, in order to properly reduce the potential of exposure to healthcare workers, medical waste should be treated at the point of generation or as close as possible to this site.

Further, Dr. Daschner adamantly states that medical waste should not be chemically treated. He bases his opinion on Germany's ban of chemical treatment, a Canadian test using a Medical SafeTec chemical treatment device, some known microbiological parameters concerning chemical disinfections, and physical assumptions concerning flow dynamics of the chemicals.

As indicated in the literature, untreated medical waste is more an occupational than generic risk and appears to pose no greater risk of infection than residential waste outside the generator's premises. Furthermore, the microenvironment of the landfill is inhospitable to most pathogenic microorganisms. Based on this concept, medium- to high-level disinfection, both achievable using chemical disinfectants, should be the required

standard, not sterilization. In fact, sterilization of medical waste does not appear to be achievable with autoclaves because of load variances, packaging, and autoclave loading parameters.

In addition, we know of nothing short of complete incineration that will completely and consistently inactivate the spores that

concern Dr. Daschner. Incinerator operation requirements will be tightened under the new "Clean Air Regulations," bringing about a dramatic reduction in the number of permitted incinerators. This is creating a demand for new, innovative treatment technologies, such as low-concentration chemical, microwave, and thermal methods

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of disinfection.

To provide optimum safety for staff, patients, and the environment, safe and effective chemicals (eg, phenolic derivatives) can play a major role in an overall safety regimen. These disinfectants are used extensively in operating rooms, other treatment areas, and for general cleaning and decontamination. They facilitate on-site treatment of liquid waste and, in certain instances, are appropriate for the treatment of solid infectious waste. Disinfecting waste in the treatment area substantially reduces exposure to staff, patients and waste haulers downline from the point of generation.

Dr. Daschner is to be commended for taking an environmental stand against certain chemical disinfectants. Some chlorine-based disinfectants are prone to misuse and may create environmental and occupational safety problems. The optimum waste management program will use a combination of safe chemicals for on-site treatment along with the use of other technologies, (eg, incineration, autoclaving, microwave, etc.) to decontaminate materials that must be processed outside the facility.

**Travis W. Honeycutt**  
Vice President of Scientific Affairs  
Isolyser Company  
Norcross, Georgia

#### **The author replies:**

I may be naive, but certainly not stupid. I love to discuss medical waste issues, but I hate the consequences of the medical waste hysteria of the public, some politicians, and environmentalists.

I never recommended sterilization of hospital waste; perhaps Mr. Honeycutt confuses sterilization and disinfection. Whether chemicals or heat are used for disinfection, the microbiological result is the same. Chemicals, however, pollute the environment; heat

does not. Very simple! Mr. Honeycutt states correctly that "untreated medical waste is more an occupational than generic risk and appears to pose no greater risk of infection than residential waste outside the generator's premises." Then why use any toxic chemicals to treat medical waste? Mr. Honeycutt says, "Some chlorine-based disinfectants may create environmental problems"; I would say, "All of them do!"

And how about the strong inactivation of all chlorine-based disinfectants by organic material, such as blood, secretions, etc.? Is transatlantic medical waste ever free of organic material? I must admit that German waste is loaded with it. How would Mr. Honeycutt get disinfectants into long but small-lumen tubes partially filled with blood in order to disinfect them from the inside? Heat gets everywhere.

Finally, I recommend that Mr. Honeycutt read two articles: the chapter on environmental issues that I wrote for R.P. Wenzel's new book, *Prevention and Control of Nosocomial Infections* (Williams and Wilkins, 1993), and the Society for Hospital Epidemiology in America (SHEA) position paper on medical waste.<sup>1</sup> I agree with the scientifically sound opinion of my American friends and colleagues, who have worked on the SHEA paper. Once again: Forget chemical treatment of medical waste!

**F.D. Daschner, MD**

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#### **REFERENCE**

1. Rutala WA, Mayhall CG, Society for Hospital Epidemiology of America. Medical waste (SHEA Position Paper). *Infect Control Hosp Epidemiol* 1992;13:38-48.

## **Corrections**

In "*Mycobacterium tuberculosis* Transmission in Healthcare Settings: Is It Influenced by Coinfection with Human Immunodeficiency Virus?" (1993;14:66), the second sentence of the first full paragraph on page 66 should read: "When the rate of active tuberculosis is calculated based on the total number of healthcare workers among those caring for HIV-infected patients (7/135) versus non-HIV-infected patients (2/106), the difference is not statistically significant (relative risk = 2.75; 95% confidence interval = 0.58 to 12.96.)"

In "Chemical Disinfection of Medical Waste-A Totally Wrong Approach" (1993;14:64), the first sentence of the last paragraph in the second column should read: "A 5 log<sub>10</sub> reduction will never be sufficient for safe disinfection of medical waste, which often contains much higher concentrations of microorganisms." At the end of the same letter, the correct title for the author is "F.D. Daschner, MD."

In "Bacteriological Side Effects of Gut Decontamination with Polymyxin E, Gentamicin, and Amphotericin B" (1993;14:63), the last sentence in the second column should read: "Moreover, biliary concentrations of cefotaxime are usually <2 µg/ml after intravenous injections of 1 g every 6 hours,<sup>7</sup> and the increase of fecal levels obtained with intravenous tobramycin should be negligible with regard to those obtained with enteral tobramycin."

In the December 1992 issue, Table 2 for "Two Outbreaks of Primarily Noninvasive Group A Streptococcal Disease in the Same Nursing Home, New York, 1991" (1992;13:750) contained several errors. The table should read as follows: