

nation of the digestive tract may be ecologically unsafe, and we recommend careful monitoring of the fecal colonization of patients undergoing selective decontamination of the digestive tract in order to detect the fecal carriage of gram-positive and multiresistant gram-negative bacteria.

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REFERENCES

1. Stoutenbeek CP, Van Saene HKF, Miranda DR, Zandstra DE. The effect of selective decontamination of the digestive tract on colonization and infection in multiple trauma patients. *Intensive Care Med.* 1984;10:185-192.
2. Ledingham IMcA, Eastaway AT, McKey IC, Alcock SR, McDonald JC, Ramsay G. Triple regimen of selective decontamination of the intestine tract, systemic cefotaxime, and microbiological surveillance for prevention of acquired infection in intensive care. *Lancet.* 1988;9:785-790.
3. Gastinne H, Wolff M, Delatour F, Faurisson F, Chevret S. A controlled trial in intensive care units of selective decontamination of the digestive tract with nonabsorbable antibiotics. *N Engl J Med.* 1992;326:594-599.
4. Abu Zidan FMA, McAteer E, Elhag KM. Selective decontamination of the digestive tract in Kuwait. *Crit Care Med.* 1989;17:1364.
5. Loirat P, Bauernfeind A, Binslev L, et al. Selective decontamination of the digestive tract in intensive care unit patients. First European Consensus Conference in Intensive Care Medicine. *Intensive Care Med.* 1992;18:182-188.
6. Le Gall JR, Loirat P, Alperovitch A, et al. A simplified acute physiology score for ICU patients. *Crit Care Med.* 1984;12:975-977.
7. Soussy CJ, Deforges LP, Le Van Thoi J, Feghali W, Duval JR. Cefotaxime concentration in the bile and wall of the gallbladder. *J Antimicrob Chemother.* 1980;6(suppl A):125-130.

Chemical Disinfection of Medical Waste— A Totally Wrong Approach

To the Editor:

I have read with great interest the excellent study and careful evaluation of a mechanical/chemical infectious waste disposal system published in *Infection Control and Hospital Epidemiology* (1992;13:387-393).

The Canadian researchers concluded that under the study conditions, the mechanical/chemical infectious waste disposal system, model Z-5000 HC (Medical SafeTEC Inc., Indianapolis, Indiana), reduced the microbial populations tested by a factor of $5 \log^{10}$ except for certain tests with bacteriophage f2. The machine produced a bacterial aerosol, a problem that remains to be solved, and highly toxic chemical by-products that will require further investigation.

I consider chemical disinfection of medical waste a totally wrong approach to solve the medical waste problem, which all of us have internationally:

1. Chemical disinfection will never be safe. Chemicals, unless used in extremely high concentrations, will never kill spores and many resistant viruses. This has already been demonstrated with the bacteriophage f2, which is much less resistant to chemicals than to many other bacteria and viruses.

2. A $95 \log^{10}$ reduction will never be sufficient for safe disinfection of medical waste, which often contains much higher concentrations of microorganisms.

Many organisms, whose concentrations have been reduced by the machine from 10^7 to 10^2 /g, will be able to continue to grow in medical waste (e.g., on the transport in a warm climate). Waste very often contains organic material that provides optimal conditions for bacterial growth.

3. Chemicals can never kill microorganisms in difficult to clean objects, such as connections between needles and syringes, or microorganisms inside small tubes. No chemical disinfection machine will ever be able to get rid of small air bubbles in tubings, which constitute a large part of any medical waste.

4. It is quite clear that chemicals, when used in great amounts as is necessary for the disinfection of medical waste, largely increase the pollution of the environment. This is especially true for sodium hypochlorite, which was the chemical used by the model Z-5000 HC. Sodium hypochlorite is also highly inactivated by organic material, which is part of any medical waste. Furthermore, sodium hypochlorite is one of the most toxic disinfectants for the environment. Hyperchlorination of the sewage system should certainly be avoided.

5. It is irresponsible to use a chemical disinfectant that produces toxic and cancerogenic by-products, such as Trihalomethanes.

In Germany, chemical disinfection of waste is forbidden by law.

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