

The Stethoscope— A Vector of Infection?

To the Editor:

In the course of investigating a hospital-wide outbreak of methicillin resistant *Staphylococcus aureus*, 67 physicians' stethoscopes were cultured. Both the bell and the diaphragm were sampled with a sterile cotton swab, and this was immediately streaked onto Columbia Nutrient Agar (BBL), a selective medium for gram-positive organisms. The catalase test was used to identify *Staphylococcus*, and a tube coagulation test served to distinguish between *S. aureus* and *S. epidermidis*. *Staphylococci* were isolated from 63 stethoscopes, and all but one were coagulase negative. The single *S. aureus* isolate was methicillin sensitive. Gram-negative bacteria were not sought in our study.

Somewhat surprised by the absence of *S. aureus* from stethoscope cultures, we then pried into physicians' cleaning habits of their stethoscopes. Of 53 physicians surveyed, 34 claimed to clean their stethoscopes with 70% isopropyl alcohol pads. Two physicians also used betadine pads. The frequency of this procedure varied greatly from twice a day to once every six months, but only four physicians cleaned their stethoscopes on a daily basis. Once a month was the preferred interval, followed by once every one or two weeks. Some physicians cleaned their stethoscopes only after examining an unkempt patient or one

overtly infected. Nineteen physicians had never cleaned their stethoscopes. There was no difference in the gram-positive flora of regularly cleaned stethoscopes and those never cleaned.

This pervasive colonization of stethoscopes by *S. epidermidis* was also demonstrated in a study from Amsterdam.¹ Other reports help to place this finding in perspective. Not only is *S. epidermidis* capable of producing serious infections in hospitalized patients,² but it may serve as a reservoir for antibiotic resistance in *S. aureus*.^{3,4}

The stethoscope is usually ignored as a carrier of bacteria, but *S. aureus*, *Serratia* and *Pseudomonas* were recovered from 8% of stethoscopes in one study.¹ Although stethoscopes are provided in most isolation rooms, many physicians will bring in their own, in effect wearing an eleventh ungloved finger. This practice could be minimized by furnishing better quality stethoscopes in isolation rooms. Whether stethoscopes may be incriminated as fomites still remains to be seen, but an awareness of their potential to harbor pathogenic organisms should be maintained.

REFERENCES

1. Steinberg PJ, de Hoop D: De stethoscoop als drager van pathogene micro-organismen in het ziekenhuis. *Ned Tijdschr Geneesk* 1978; 122:303-305.
2. Christensen GD, Bisno AL, Parisi JT, et al: Nosocomial septicemia due to multiple antibiotic-resistant *Staphylococcus epidermidis*. *Ann Intern Med* 1982; 96:1-10.

3. Weinstein RA, Kabins S, Nathan C, et al: Gentamicin-resistant staphylococci as hospital flora: Epidemiology and resistance plasmids. *J Infect Dis* 1982; 145:374-382.
4. Cohen ML, Wong ES, Falkow S: Common R-plasmids in *Staphylococcus aureus* and *Staphylococcus epidermidis* during a nosocomial *Staphylococcus aureus* outbreak. *Antimicrob Agents Chemother* 1982; 21:210-215.

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Disinfection Processes of Respiratory Therapy Tubing

To the Editor:

We were very interested in Dr. Spaulding's letter to the Editor (*Infect Control* 1983; 4(1):8-9) regarding the article by Dr. Townsend on "An Efficacy Evaluation of Synergized Glutaraldehyde-Phenate Solution in Disinfection Respiratory Therapy Equipment During Patient Use."

We also investigated the disinfection processes of respiratory therapy tubing. Our study compared the efficacy of machine-assisted chemical disinfection using a Glutaraldehyde pro-

duct and machine-assisted disinfection using hot water (170°F for 30 minutes). Both types of machines had a wash cycle built into the process, followed by the disinfection cycle. The chemically-assisted machine also had a rinse cycle. Our study differed from previously published studies in that we inoculated the tubing with a known inoculum of *Pseudomonas* species and *Acinetobacter* species. We found that in our study the machine-assisted chemical disinfection was more efficient in killing the organism we had introduced than the hot water disinfection alone.

Our study will be published shortly in the *Journal of Hospital Infection* (British).

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Sterilization of Surgical Instruments

To the Editor:

A question regarding proper sterilization of surgical instruments has arisen for us, and we are hoping you may be able to help us with the solution. For some time we have been aware that instruments must be left unclamped and open in surgical packs to enable the autoclave steam to penetrate to all surfaces in order to assure sterility.

The surgery crew is afraid to do this with sharp instruments such as towel clips and tenaculums, however, because of the danger to the staff in opening the packs. Most of the staff claim they have had unfortunate accidents of this nature in the past. We know that hooking them into a towel is not a suitable solution because of the potential problems with "holy" surgical linen.

We are hoping you have encountered dilemmas such as this before and can "shed some light" on our problem.

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The preceding letter was referred to Carole Van Antwerpen, R.N., and Peter A. Gross, M.D., for a reply.

Safe packaging for sterilization is a common problem with sharp instruments such as towel clips and tenaculums.

In our operating room, after the cleaning process towel clips and tenaculums are autoclaved in baskets in the unlocked position. We define unlocked as keeping the edges touching while the instrument is not locked completely. In this position you can imagine that the tips of the towel clips or tenaculums are just touching or are slightly separated. The use of this technique has virtually eliminated unfortunate accidents.

In our central sterile processing area towel clips and tenaculums are usually packaged in procedure trays or heat-sealed pouches. Again the unlocked position rather than the completely open position is preferred. For the trays, a towel is placed over the sharp objects to prevent unnecessary puncture wounds when opening the trays. For the peel-back pouches, a square piece of gauze (3x3 or 4x4) is placed over the sharp points. This method will prevent the tips from piercing the pouch. So this method will not only keep the instrument sterile while it is in the pouch but, also prevent puncture wounds when the instrument is being removed from the pouch. Whatever preventive measures are used, in-service education on a continuing basis is necessary to minimize the hazards of sharp instruments for the staff.

REFERENCES

1. Perkins J: Processing of surgical instruments, in *Principles and Methods of Sterilization in Health Sciences*, ed 2. Springfield, Illinois, Charles C Thomas Pub, 1976, p 257.
2. *Principles and procedures of asepsis*, in Rhodes MJ, Gruendeman BJ, Ballinger W (eds): *Alexander's Care of the Patient in Surgery*, ed 6. St Louis, CV Mosby Co, 1978, p 67.

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