

Medical News

EDITED BY GINA PUGLIESE, RN, MS; MARTIN S. FAVERO, PHD

Hospital Outbreak of *Salmonella*

Salmonella senftenberg most commonly is isolated from poultry, particularly turkey, but is an uncommon human pathogen that rarely has been implicated in outbreaks of human salmonellosis. When two hospitalized patients were identified as being infected within a 4-day period, an epidemiologic investigation was initiated. Twenty-two cases of infection due to *S senftenberg* were detected between March 1993 and November 1994, involving 18 patients and 4 healthy employees. The isolates had identical antibiograms and pulsed-field gel electrophoretic patterns. A case-control study indicated that consumption of turkey prepared in the hospital's kitchen was a significant risk factor. Because of the uniqueness of the isolate, the prolonged nature of the outbreak, the epidemic curve, and multiple negative cultures of specimens from employees, the food, and environmental surfaces and devices, the investigators concluded the source of the outbreak was introduced into the hospital's kitchen during or before March 1993 and that this initial contamination was followed by a secondary low-level contamination of a kitchen source, which continued through November 1994.

This outbreak has several implications for infection control. Significant outbreaks of salmonellosis remain unrecognized by many hospitals and health departments for substantial periods of time despite maintenance of rigorous surveillance systems. The computerized microbiology surveillance system used by this hospital proved useful, and information on the two sentinel cases triggered the investigation. In addition, outbreak investigations and observations of complex processes (eg, food production) often are time consuming. However, they provide opportunities to reinforce good food handling practices, regardless if deviations are related to the outbreak. Several deficiencies were noted that required correction. These included erratic labeling and dating of food, raw eggs used in several dishes, eggs and produce handled on the same counter (at different times) by the same employee, color-coded cutting boards used for wrong type of food, and inconsistent handwashing by employees following food preparation. On follow-up inspections, the deficiencies had been corrected, but the authors concluded that long-term follow-up is needed to effect optimal behavior modification.

FROM: L'Ecuyer PB, Diego J, Murphy D, et al. Nosocomial outbreak of gastroenteritis due to *Salmonella senftenberg*. *Clin Infect Dis* 1996;23:734-742.

S epidermidis Resistant to Vancomycin

Dr. J. Johnston and colleagues from Reston (Virginia) Hospital Center and the CDC recently reported what may

be the first clinically significant isolate of *Staphylococcus epidermidis* to demonstrate decreased susceptibility to vancomycin. Two strains of gram-positive cocci were isolated from two positive blood cultures drawn from the same patient 5 days apart. The strains were tested in a MicroScan Walkaway System on Dried-Overnight Gram-Positive Panels (Dade Microscan Inc, West Sacramento, CA). Both strains were identified as *S epidermidis* and gave vancomycin minimum inhibitory concentrations of 8 or 16, both of which are intermediate interpretations. Repeat testing produced the same results.

Because of the interest in emergence of resistance to vancomycin in staphylococci, the isolates were sent to the CDC. Both the vancomycin sensitivity results of intermediate and the identification of the isolate were confirmed by the CDC. The antibiogram of the two isolates differed only in that one strain was susceptible to clindamycin and erythromycin, and the other strain was resistant to both. The two strains were resistant to penicillin, oxacillin, ciprofloxacin, and trimethoprim-sulfamethoxazole and were susceptible to rifampin, tetracycline, and chloramphenicol. This report of what may be the first clinically significant isolate of *S epidermidis* with resistance to vancomycin raises serious concerns because of the possibility of transference of resistance to *Staphylococcus aureus*.

FROM: Johnston J, Honea N, Van de Weghe M, et al. Emerging vancomycin resistance detected in staphylococci detected by MicroScan Dried Overnight Panels. Presented at the 36th Interscience Conference on Antimicrobial Agents and Chemotherapy; November 15-18, 1996; New Orleans, LA. Late Breaker Abstract No. LB15.

Semi-Quantitative and Sonication Cultures of IV Catheters Comparable

Dr. Dennis Maki and colleagues recently reported the results of a prospective study comparing the sensitivity, specificity, and predictive values of semi-quantitative cultures of central venous catheter (CVC) segments with sonication culture. All possible sources of CVC-related bloodstream infection were cultured prospectively: skin, infusate, and hub of each CVC lumen and CVC segments. CVC causation of bloodstream infection (BSI) was confirmed by pulsed-field gel electrophoresis and restriction fragment-length polymorphism subtyping. The two quantitative culture methods correlated remarkably well overall ($P < .001$); for CVC-related BSI, semi-quantitative cultures >10 colony-forming units (CFUs) detected 10 of 11 BSIs (sensitivity 91%, specificity 76%, positive predictive value 10%), and sonication $>10^3$ CFUs detected 8 BSIs (sensitivity

ty 73%, specificity 83%, positive predictive value 11%). The researchers concluded that these two culture methods are comparable in reliability for diagnosis of CVC-related BSIs. Either will give results superior to nonquantitative (broth) cultures of CVC segments.

FROM: Maki DG, Mermel L, Martin M, Berry D. A prospective comparison of semi-quantitative and sonication cultures of catheter segments for diagnosis of CVC-related bloodstream infection. Presented at the 36th Interscience Conference on Antimicrobial Agents and Chemotherapy; November 15-18, 1996; New Orleans, LA. Abstract J53.

Automated Flexible Endoscope Reprocessors

The seemingly endless debate on the benefits and limitations of automated systems for the cleaning and disinfection or sterilization of flexible fiberoptic endoscopes has been reviewed crisply by Dr. L. Muscarella in the August issue of the *American Journal of Infection Control*. He points out that manual cleaning of these devices tends to be inadequate, because there are no standard reprocessing protocols; there is a limited supply of endoscopes and a limited number of trained staff dedicated to reprocessing; and the internal channels are designed such that, in many cases, cleaning prior to disinfection is difficult.

There are different types of automated endoscope reprocessors. Some wash only; some wash and disinfect; and some wash and sterilize endoscopes. Some of the advantages of the automated systems include (1) increased patient safety by automating and standardizing reprocessing steps; (2) minimized staff exposure to liquid chemical germicides; (3) documented reprocessing parameters; (4) ability to rinse endoscope with large volumes of fresh water, which often is filtered; (5) ability to maintain and record temperature of germicide solution; and (6) ability to reprocess more than one endoscope at a time. The limitations of the automated systems include inability to (1) automate all steps; (2) replace manual precleaning of lumens with a brush; (3) reprocess every channel or allow for rapid drying of channels; and (4) monitor concentration of liquid chemical germicide.

Clearly, there is no perfect automated endoscope reprocessor, and one of the key elements present in manual cleaning that must be designed into any effective automated system is brushing or an equivalent feature.

FROM: Muscarella LF. Advantages and limitations of automatic flexible endoscope reprocessors. *Am J Infect Control* 1996;24:304-309.

Transmission Events in Mother-to-Child Transmission of HIV

The transmission of HIV infection from mother to infant during breast-feeding is not the result of a single event, but rather encompasses transmission events that occur during three time periods: gestation, labor and delivery, and postnatally by breast-feeding. Investigators from

the CDC, NIH, and Project SIDA in Kinshasa, Zaire, analyzed data from a prospective study of HIV-infected mothers and their children in Kinshasa. Breast-fed infants and infants born to HIV-infected mothers were monitored a mean of 18 months. HIV infection in infants was determined by polymerase chain reaction (PCR), HIV culture, or enzyme-linked immunosorbent assay. PCR test results for HIV DNA on venous blood drawn from children ages 0-2 days and 3-5 months were used to estimate proportions of mother-to-child transmission and transmission risks during the intrauterine, intrapartum-early postpartum, and late postpartum periods. Among 69 HIV-infected children (26% of the cohort), 23% were estimated to have had intrauterine transmission, 65% intrapartum-early postpartum transmission, and 12% late postpartum transmission. This late postpartum transmission is primarily through breast-feeding and occurred after 3-5 months of age. The estimated risks for intrauterine, intrapartum-early postpartum, and late postpartum infection, respectively, were 6%, 18%, and 4%. These results show, as do earlier studies, that most mother-to-child transmission of HIV occurs during labor and delivery or in the early postpartum period and that the risk of transmission through breast-feeding during the postpartum period is substantial. The authors note that their findings of a significant risk of HIV transmission through breast-feeding after age 3-5 months provides support for early weaning or formula feeding. However, any recommendations should take into consideration the risk of transmission and the risk of mortality if breast milk is withheld.

FROM: Bertolli J, St Louis ME, Simonds RJ, et al. Estimating the timing of mother-to-child transmission of human immunodeficiency virus in a breast-feeding population in Kinshasa, Zaire. *J Infect Dis* 1996;174:722-726.

Breach in Confidential AIDS Patient Information

The largest security breach of AIDS patient information in the United States occurred recently in Florida in the Pinellas County Health Department. An investigation began when the *Tampa Tribune*, the *St Petersburg Times*, and the Pinellas County Health Department received computer disks containing approximately 4,000 names of Pinellas and Pasco county residents with AIDS. The newspapers also received an anonymous letter claiming that a health department employee was circulating the list in public. Following an investigation, the accused public health worker admitted that he used the confidential AIDS list in dating, but denies releasing any confidential information to the press. Florida is one of the few states that lets workers take laptop computers containing confidential information with them into the field. Workers need two passwords to use the laptop computers. If someone tries to break into the system, the computers are designed to destroy the data. However, neither the state nor Pinellas policies specifically mention the use of easy-to-copy disks. Following the leak, the CDC froze \$500,000 it sent Florida for use in its AIDS-HIV reporting program and explained that the money can-