

Medical News

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Additional news items in this issue: *Infection Control Measures Reduce Transmission of VRE*, page 730; *Pesticide-Resistant Lice Found in US*, page 735; *Candida glabrata Fungemia*, page 735; *Quinolone-Resistant Strains of Escherichia coli*, page 740; *Elucidating the Origins of Candida albicans in an ICU*, page 745; *Longitudinal Analysis of MRSA at a Teaching Hospital in Taiwan*, page 745; *Alcohol Gel as an Antimicrobial Sanitizing Agent*, page 751; *Sterilization of HIV With Irradiation: Relevance to Infected Bone Allografts*, page 751; *Effectiveness of a Manual Disinfection Procedure in Eliminating HCV From Experimentally Contaminated Endoscopes*, page 769; *Mycobacterium tuberculosis From Whirlpools*, page 777; *VRE Colonization in Berlin*, page 777; *Outbreak of Clostridium perfringens Associated with Pureed Food*, page 780; *Use of Avoparcin as a Growth Promoter and the Occurrence of VRE in Norwegian Poultry and Swine*, page 780.

Nosocomial Bacteremia in ICU

Edgeworth and colleagues from St Thomas' Hospital, London, United Kingdom, conducted a prospective observational study to identify bacterial pathogens, their antibiotic susceptibility, and the associated focus on infection-causing nosocomial bacteremia in patients in an adult intensive care unit (ICU) between 1971 and 1995. The setting was a 12-bed general adult ICU in a 1,000-bed tertiary referral teaching hospital. Included in the study were 486 episodes of bacteremia involving 570 organisms in 425 patients.

Between 1971 and 1990, the number of bacteremias and the relative frequency of isolation of individual organisms changed little, with *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Klebsiella* species predominating. During 1991 to 1995, the number of bacteremias increased twofold, largely attributable to increased isolation of *Enterococcus* species, coagulase-negative staphylococci, intrinsically antibiotic-resistant gram-negative organisms (particularly *P. aeruginosa*), and *Candida* species. The most commonly used antibiotics for the treatment of bacteremic patients throughout the 1970s were amoxicillin and gentamicin. After the introduction of cephalosporins in the early 1980s, their use increased progressively to equal that of gentamicin in the 1990s, whereas amoxicillin use decreased. Since the introduction of cephalosporins, increases in the antibiotic resistance of gram-negative organisms have been largely confined to an outbreak of gentamicin- and ceftazidime-resistant organisms caused by contaminated arterial pressure monitors during 1992 and 1993 and a twofold increase in ceftazidime resistance of the *Pseudomonas* species. Gentamicin resistance of gram-negative aerobes remained unchanged (excluding the arterial pressure monitor outbreak), despite gentamicin being one of the most frequently prescribed antibiotics throughout the 25-year period. Between 1986 and 1995, two thirds of all bacteremic organisms were grown from intravascular catheters, which were designated as the focus of infection; 7% were secondary to gastrointestinal pathology, but only approximately 3% were

secondary to wound, respiratory tract, or urinary tract infections.

The authors concluded that bacteremias have become more frequent in the ICU, probably because of the increased use of intravascular catheters, which are the most frequent foci for bacteremic infection. The spectrum of organisms has changed, and this can be temporally related to the changes in the antibiotics prescribed. Gentamicin resistance of gram-negative organisms has not increased during a 25-year period, despite being one of the most frequently prescribed antibiotics in the ICU.

FROM: Edgeworth JD, Treacher DF, Eykyn SJ. A 25-year study of nosocomial bacteremia in an adult intensive care unit. *Crit Care Med* 1999;27:1421-1428.

Vaginal Disinfection With Chlorhexidine During Childbirth

Stray-Pedersen and colleagues from Aker Hospital, University of Oslo, Norway, studied whether chlorhexidine vaginal douching, applied by a squeeze bottle intrapartum, reduced mother-to-child transmission of vaginal microorganisms including *Streptococcus agalactiae* (*Streptococcus* serogroup B=GBS) and hence infectious morbidity in both mother and child. During the first 4 months (reference phase), the vaginal flora of women in labor was recorded and the newborns monitored. During the next 5 months (intervention phase), a trial of randomized, blinded, placebo-controlled douching with either 0.2% chlorhexidine or sterile saline was performed on 1,130 women in vaginal labor.

During childbirth, bacteria were isolated from 78% of the women. Vertical transmission of microbes occurred in 43% of the reference deliveries. In the double-blind study, vaginal douching with chlorhexidine significantly reduced the vertical transmission rate from 35% (saline) to 18% (chlorhexidine; $P < .0001$). The lower rate of bacteria isolated from the latter group was accompanied by a significantly reduced early infectious morbidity in the neonates, par-