Medical News

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Additional news items in this issue: *European Glycopeptide Susceptibility Survey of Gram-Positive Bacteria,* page 890; *Antimicrobial Threat Discussed,* page 914; *Glycopeptide-Resistant* Enterococcus faecium, page 928.

CDC to Take Over FDA's Evaluation of Bacterial Identification Methods

For years, the Diagnostic Microbiology Section of the CDC's Hospital Environment Laboratory Branch has tested and published extensively on the accuracy and utility of commercially available instruments and methods used to identify bacterial agents of infectious disease. Until this year, the FDA evaluated these instruments prior to their introduction to the marketplace and subsequently cleared them for use through the 510 application process. However, Congress recently passed legislation preventing the FDA from "clearing" instruments and methods for the phenotypic identification of organisms before they could be marketed. As a result, the role of the Diagnostic Microbiology Section in evaluating commercially available instruments and methods will expand substantially and will work closely with the FDA in providing the laboratory community with critical information about available bacterial identification methods.

Nosocomial Infections in CCUs

Richards and colleagues from the CDC's Hospital Infection Program have described the epidemiology of nosocomial infections in coronary-care units (CCUs) in the United States. They analyzed data collected between 1992 and 1997, using the standard protocols of the NNIS intensive-care unit (ICU) surveillance component. Data on 227,451 patients with 6,698 nosocomial infections were analyzed.

Urinary tract infections (35%), pneumonia (24%), and primary bloodstream infections (17%) almost always were associated with use of an invasive device (93% with a urinary catheter, 82% with a ventilator, and 82% with a central line, respectively). The distribution of pathogens differed from that reported from other types of ICUs. *Staphylococcus aureus* (21%) was the most common species reported from pneumonia and *Escherichia coli* (27%) from urine. Only 10% of reported urine isolates were *Candida albicans. S aureus* (24%) was a more common bloodstream isolate than enterococci (10%). The mean overall patient infection rate was 2.7 infections per 100 patients. Device-associated infection rates for bloodstream infections, pneumonia, and urinary tract infections did not correlate with length of stay, number of hospital beds, number of CCU beds, or the hospital teaching affiliation, and were the best rates for comparisons between units. Use of invasive devices was lower than in other types of ICUs. Overall patient infection rates were lower than in other types of ICUs, which is explained largely by lower rates of invasive device use.

From: Richards MJ, Edwards JR, Culver DH, Gaynes RP. Nosocomial infections in coronary care units in the United States. National Nosocomial Infections Surveillance System. *Am J Cardiol* 1998;82:789-793.

Selective Screening for Control of MRSA

Screening for methicillin-resistant *Staphylococcus aureus* (MRSA) carriage in patients at risk was evaluated as part of a control program in a 26-bed medical intensive-care unit (ICU) of a university hospital with a high level of endemic MRSA by investigators from the Unite d'Hygiene et Prevention de l'Infection, Hopital Henri Mondor, Creteil, France. Control measures included isolation and barrier precautions, skin decolonization with chlorhexidine of patients from whom MRSA was recovered, and mupirocin treatment of nasal carriers of MRSA. Of 3,686 patients admitted during a 4-year period, 44% were screened, which occurred during admission for 38%; MRSA was recovered from 293 patients (8%). There were 150 imported cases and 143 ICU-acquired cases, of which 51% and 45%, respectively, first were identified through screening.

Nasal swab cultures identified 84% of MRSA carriers. The incidence of all ICU-acquired cases and of acquired colonization or infection decreased from 5.8% and 5.6% to 2.6% and 1.4% (P=.002 and P<.001), respectively, whereas that of imported cases remained unchanged (range, 3.8%-4.3%; P=.8). Selective screening for nasal carriage during admission to high-risk areas may contribute to identification of a substantial proportion of cases of MRSA and to early implementation of effective control measures.

From: Girou E, Pujade G, Legrand P, Cizeau F, Brun-Buisson C. Selective screening of carriers for control of methicillin-resistant *Staphylococcus aureus* (MRSA) in high-risk hospital areas with a high level of endemic MRSA. *Clin Infect Dis* 1998;27:543-550.

Biofilms: New Research at CDC

Many pathogenic microorganisms can produce protective coatings, called biofilms, that encase the organisms and help them adhere to internal surfaces of catheters, water pipes, medical devices, and even some body tissues. These protective coatings (similar to tooth plaque) may enable the

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organisms to withstand sterilization and disinfection efforts and increase the risk of infectious disease during many medical procedures. The CDC's Hospital Infections Program (HIP) has initiated a new field of research into biofilms, with potentially great impact in public health and medicine. The HIP Biofilm Laboratory, established in the Hospital Environment Laboratory Branch (HELB) in September 1998, will focus on the role of biofilms in facilitating infections associated with indwelling medical devices, the effect of biofilms on the emergence of resistance, and the role of biofilms in the environmental survival of clinically relevant microorganisms. Rodney Donlan, an internationally known biofilm microbiologist, has joined HELB and will direct the biofilm laboratory's activities.

Prevention and Control of HCV Infection and Chronic Disease

The CDC recently published broad recommendations for the prevention of transmission of hepatitis C virus (HCV); the identification, counseling, and testing of persons at risk of HCV infection; and the appropriate medical evaluation and management of HCV-infected persons. The report, authored by Dr. Miriam Alter and colleagues, is based on currently available knowledge and consultation with experts from academia and the public health community. Among the major subjects the report covers are epidemiology, screening tests, clinical management, prevention and control, blood and plasma derivatives, high-risk practices, percutaneous exposures in the healthcare setting, and testing for HCV.

This report is intended to serve as a resource for healthcare professionals, public health officials, and organizations involved in the development, delivery, and evaluation of prevention and clinical services. The report points out that HCV infection is the most common chronic bloodborne infection in the United States. CDC staff estimate that, during the 1980s, an average of 230,000 new infections occurred each year. Since 1989, the annual number of new infections has declined by >80%, to 36,000 by 1996. Data from the Third National Health and Nutrition Examination Survey, conducted from 1988 through 1994, have indicated that an estimated 3.9 million Americans (1.8%) have been infected with HCV. Most of these persons are chronically infected and might not be aware of their infection because they are not clinically ill.

Infected persons serve as a source of transmission to others and are at risk for chronic liver disease or other HCV-related chronic diseases during the first 2 or more decades following initial infection. Chronic liver disease is the 10th leading cause of death among adults in the United States and accounts for approximately 25,000 deaths annually, or approximately 1% of all deaths. Population-based studies indicate that 40% of chronic liver disease is HCV-related, resulting in an estimated 8,000 to 10,000 deaths each year. Current estimates of medical and work-loss costs of HCV-related acute and chronic liver disease are >$600 million annually, and HCV-associated end-stage liver disease is the most frequent indication for liver transplantation among adults. Because most HCV-infected persons are aged 30 to 49 years, the number of deaths attributable to HCV-related chronic liver disease could increase substantially during the next 10 to 20 years as this group of infected persons reaches ages at which complications from chronic liver disease typically occur.

HCV is transmitted primarily through large or repeated direct percutaneous exposures to blood. In the United States, the relative importance of the two most common exposures associated with transmission of HCV, blood transfusion and injecting-drug use, has changed over time. Blood transfusion, which accounted for a substantial proportion of HCV infections acquired >10 years ago, rarely accounts for recently acquired infections. Since 1994, risk for transfusion-transmitted HCV infection has been so low that the CDC's sentinel counties viral hepatitis surveillance system has been unable to detect any transfusion-associated cases of acute hepatitis C, although the risk is not zero. In contrast, injecting-drug use consistently has accounted for a substantial proportion of HCV infections and currently accounts for 60% of HCV transmission in the United States. A high proportion of infections continues to be associated with injecting-drug use, but, for reasons that are unclear, the dramatic decline in incidence of acute hepatitis C since 1989 correlates with a decrease in cases among injecting-drug users.

Reducing the burden of HCV infection and HCV-related disease in the United States requires implementation of primary prevention activities to reduce the risk for contracting HCV infection and secondary prevention activities to reduce the risk for liver and other chronic diseases in HCV-infected persons.

To prevent chronic HCV infection and its sequelae, prevention of new HCV infections should be the primary objective of public-health activities. Achieving this objective will require the integration of HCV prevention and surveillance activities into current public health infrastructure. In addition, several questions concerning the epidemiology of HCV infection remain, and the answers to those questions could change or modify primary prevention activities. These questions primarily concern the magnitude of the risk attributable to sexual transmission of HCV and to illegal noninjecting-drug use. Identification of the large numbers of persons in the United States with chronic HCV infection is resource-intensive. The most efficient means to achieve this identification is unknown, because the prevention effectiveness of various implementation strategies has not been evaluated. However, widespread programs to identify, counsel, and treat HCV-infected persons, combined with improvements in the efficacy of treatment, are expected to lower the morbidity and mortality from HCV-related chronic liver disease substantially. Monitoring the progress of these activities to determine their effectiveness in achieving a reduction in HCV-related chronic disease is important.

Single copies of this document are available from the CDC National Prevention Information Network (NPIN; operators of the National AIDS Clearinghouse), PO Box 6003, Rockville, MD 20850; telephone, 800-458-5231.

From: Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. *Morbidity and Mortality Recommendations and Reports* October 16, 1998;47(no. RR-19).