

Medical News

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

New Anaerobic Identification System Evaluated

Microbiologists at the Hospital Infections Program at the CDC tested the BBL Crystal Anaerobe identification system against 322 clinically significant anaerobic bacteria. The system correctly identified 286 (88.8%) of the anaerobic bacteria. Of these, 263 (82%) were identified correctly on initial testing, 49 (15%) were identified correctly only to the genus level, and 10 (3%) were not identified; on repeat testing, 23 (47%) of 49 were identified correctly to both the genus and the species levels. Performance characteristics for individual strains varied. The system correctly identified all tested strains of *Campylobacter*, *Desulfomonas*, *Desulfovibrio*, *Leptotrichia*, *Mobiluncus*, *Peptostreptococcus*, *Porphyromonas*, *Provetella*, *Propionibacterium*, *Tisierella*, and *Veillonella*; 36 (97%) of 37 *Actinomyces* strains, 42 (91%) of 46 *Bacteroides fragilis* group strains, 8 (53%) of 15 *Bacteroides* strains, and 79 (76.7%) of 103 *Clostridium* strains; but failed to identify any of the 7 *Clostridium innocuum* and 9 *Clostridium tetani* strains tested.

This system was found to be easy to use, did not involve the addition of reagents, and was faster than conventional anaerobic procedures. It was concluded that it would be a useful addition to the anaerobe laboratory of most hospitals.

FROM: Cavallaro JJ, Wiggs LS, Miller JM. Evaluation of the BBL crystal anaerobe identification system. *J Clin Microbiol* 1997;35:3186-3191.

New Strain of Influenza Type A in Hong Kong

A strain of influenza virus that previously was known to infect only birds has been associated with infection and illness in humans in Hong Kong. The first known case of influenza type A (H5N1) occurred in a 3-year-old child who died from respiratory failure in May 1997. Since this initial case was identified, seven confirmed cases and two possible cases have been identified in Hong Kong. Three of the cases had contact with each other, as well as with common exposures.

These cases represent the first documented human infections with avian influenza A (H5N1) virus. One of the most important aspects of the ongoing investigation is to determine the source of the infection and mode of transmission. However, this effort is complicated by the high prevalence of exposure to live poultry among residents of Hong Kong.

Although the spectrum of illness caused by human influenza virus infection can range from asymptomatic to fatal, most human influenza infections cause acute febrile respiratory illnesses that resolve without complications.

Many of the cases of human infection with type A (H5N1) identified so far in Hong Kong have been unusually severe.

Infection with this influenza strain, which is new to humans, prompts consideration about whether this virus has the potential to spread globally and cause a pandemic. For an influenza pandemic to occur, a novel human influenza strain, against which all or most of the human population has no antibody, must be capable of sustained person-to-person transmission, causing widespread illness. As of December 17, 1997, acute respiratory illness among the population of Hong Kong apparently has not increased.

Although the potential for widespread transmission of this strain is presently unknown, as a precautionary measure, laboratory studies have been initiated to identify a candidate A (H5N1) vaccine strain. At this time, there are no plans for commercial vaccine production. The influenza A (H5N1) isolates from Hong Kong that have been tested are sensitive to amantadine and rimantadine. The World Health Organization does not recommend any restrictions of travel to Hong Kong or elsewhere.

FROM: Reeves K, World Health Organization. A new case of influenza A (H5N1) was confirmed. December 19, 1997; ProMED Internet mail post.

RAPD: A New Analytical Tool for MRSA

Scientists at Guy's and St. Thomas's Hospitals, London, reported a cluster of methicillin-resistant *Staphylococcus aureus* (MRSA) infections among patients on an intensive-care unit (ICU) that was detected by routine infection control surveillance. From January 5 to June 22, 1995, 10 patients on the ICU and a further 6 patients (5 on a ward that had received colonized patients transferred from the ICU) were affected by MRSA strains with the same antibiotic susceptibility patterns. Seven (44%) of these 16 colonized patients developed MRSA bacteremia. MRSA isolates with the same characteristics also were found on the hands of one member of the ICU staff. The isolates were untypeable by phage typing, but 15 of 17 outbreak strains analyzed genetically had identical randomly amplified polymorphic DNA (RAPD) and pulsed-field gel electrophoresis (PFGE) profiles.

A single strain of MRSA, nontypeable by phage typing and isolated on the ICU on January 1, and six nontypeable and epidemiologically unrelated MRSA isolates all had RAPD profiles distinct from that of the outbreak strain. Implementation of strict infection control measures stopped the further spread of MRSA on the ICU, the affected general ward, and seven other wards that received MRSA carriers from the ICU. Although nontypeable by phage typing and not previously recognized as an epidemic strain, this strain of MRSA was readily transmissible and

highly virulent. RAPD typing was found to be a simple, rapid, and effective method for the epidemiological investigation of this outbreak, and performance of typing by this method was simpler and less time-consuming than that of typing by PFGE. RAPD typing may have more general application for the study of *S aureus* infections in hospitals.

FROM: Tambic A, Power EG, Talsania H, Anthony RM, French GL. Analysis of an outbreak of non-phage-typeable methicillin-resistant *Staphylococcus aureus* by using a randomly amplified polymorphic DNA assay. *J Clin Microbiol* 1997;35:3092-3097.

Reuse of Angioplasty Catheters

Investigators from a Florida clinic have evaluated the reuse of percutaneous transluminal coronary angioplasty (PTCA) balloon catheters, restored under a strict manufacturing process, in patients with coronary artery disease. Most countries outside the United States routinely reuse disposable medical equipment, resulting in substantial cost savings. Because of quality and legal concerns, reuse in the United States has been limited.

The catheters were restored by a process strictly controlled for bioburden and sterility. Used PTCA balloon catheters were shipped to a central facility and were decontaminated, cleaned, and tested for endotoxin using the limulus amebocyte lysate gel-clot method. Physical testing and quality assurance were performed. The products were packaged and sterilized with ethylene oxide. Catheter performance was assessed in a pilot study powered ($\beta=0.8$) to detect a 5% difference in the angiographic failure rates of new and reused balloons.

Of the 107 patients enrolled, 106 had a successful laboratory outcome, and 1 required coronary artery bypass graft surgery after failed rescue stenting. Stenting was performed in 37 patients (29 planned, 8 rescue). The angiographic failure rate was 7% (95% confidence interval, 2%-12%), comparable to the 10% rate seen with new balloons in other studies.

The investigators concluded that the restoration of disposable coronary angioplasty catheters using a highly controlled process appears to be safe and effective, with success rates similar to those of new products and no detectable sacrifice in performance. Cost analysis suggests that implementation of reuse technology for expensive disposable equipment may offer cost savings for US hospitals.

FROM: Browne KF, Maldonado R, Telatnik M, Vlietstra RE, Brenner AS. Initial experience with reuse of coronary angioplasty catheters in the United States. *J Am Coll Cardiol* 1997;30:1735-1740.

Outbreak of Adenovirus in Psychiatric Facility

Outbreaks of acute respiratory disease caused by adenovirus rarely are documented in civilian populations, and adenovirus 35 is an uncommon serotype best recognized as a cause of serious disease in immunocompromised patients. The CDC recently investigated an outbreak of adenovirus 35 pneumonia among residents and staff of a

chronic-care psychiatric facility. Fourteen (26%) of 53 residents and 4 (2%) of approximately 200 staff had radiographically confirmed pneumonia. Thirteen (93%) of 14 residents with pneumonia were hospitalized; 5 (36%) required mechanical ventilation, and 1 (7%) died. One staff member was hospitalized. Adenovirus infection was diagnosed in 17 of 18 persons with pneumonia by culture or serology and was confirmed as adenovirus 35 infection in 8 persons. Residents with pneumonia had resided at the facility longer than other residents. Chronic illness was not a risk factor for severe disease.

The researchers concluded that crowding and poor hygienic behaviors probably facilitated transmission among residents.

FROM: Sanchez MP, Erdman DD, Torok TJ, Freeman CJ, Matyas BT. Outbreak of adenovirus 35 pneumonia among adult residents and staff of a chronic care psychiatric facility. *J Infect Dis* 1997;176:760-763.

Nosocomial *Fusarium* Infections

Despite increasing reports of life-threatening *Fusarium* infections, little is known about its pathogenesis and management. Researchers from the University of Texas MD Anderson Cancer Center, Houston, conducted a retrospective study of invasive fusarial infections over a 10-year period (1986-1995) in patients with hematologic malignancy. Forty patients with disseminated infection and three patients with invasive lung infection were included in the analysis; all were immunocompromised and were diagnosed antemortem.

Thirteen patients responded to therapy, but two relapsed. Response was associated with granulocyte transfusions, amphotericin B lipid formulations (four patients each), and an investigational triazole (two patients). Resolution of infection was seen only in patients who ultimately recovered from myelosuppression. Portal of entry was the skin (33%), the sinopulmonary tree (30%), and unknown (37%). *Fusarium* causes serious morbidity and mortality, and may mimic aspergillosis.

The authors note that these infections seem to respond to newer therapeutic approaches, but only in patients with ultimate recovery from myelosuppression, and may relapse if neutropenia recurs.

FROM: Boutati EI, Anaissie EJ. *Fusarium*, a significant emerging pathogen in patients with hematologic malignancy: ten years' experience at a cancer center and implications for management. *Blood* 1997;90:999-1008.

CJD Update

In 1997, a nongovernmental surveillance group for Creutzfeldt-Jakob disease (CJD) in Japan reported to the Ministry of Health and Welfare its analysis of a 1996 mail questionnaire survey of neurological, psychiatric, and neuropathologic institutions throughout Japan. This analysis identified 829 patients with CJD diagnosed by physicians during January 1979 to May 1996, including a large number (43 patients) who had received a cadaveric dura mater graft during a neurosurgical (42 patients) or orthopedic (1