

## Most Surgical Infections Not Detected

Surgical site infections (SSIs) that occur after hospital discharge cause substantial morbidity, but their epidemiology is not well understood, and methods for routine post-discharge surveillance have not been validated. Dr. Kenneth Sands and colleagues from Brigham and Women's Hospital, Harvard Medical School, and Harvard Pilgrim Healthcare recently conducted a surveillance study of SSIs occurring before and after discharge among members of a health maintenance organization (HMO) for whom detailed information was available for all postdischarge medical encounters and prescriptions through extensive automated records that are completed for every patient encounter. In addition, the researchers evaluated the performance of mailed patient and surgeon questionnaires for detecting SSIs in the same cohort and estimated the resource utilization associated with these infections.

Inpatient and outpatient surveillance was conducted on 5,572 non-obstetric surgical procedures among members of the HMO. Using a computerized search, these records were screened for coded diagnoses, testing, treatment codes, and antibiotic prescriptions that were indicative of an SSI. The full text of the records of all patients identified in the search was reviewed by a physician. In addition, questionnaires regarding the occurrence of an SSI were sent to the study patients and their surgeons.

There were 132 SSIs meeting CDC criteria, of which 84% occurred after hospital discharge, and 63% were managed outside the surgical facility. Postdischarge SSIs led to an average of 4.6 additional ambulatory encounters. Patient and surgeon questionnaires had a sensitivity of 28% and 15%, respectively.

These results suggest that most SSIs occur after hospital discharge and are not detectable by conventional surveillance, and that they cause substantial resource utilization. An estimated 325,000 postoperative SSIs occur each year in the United States and generate additional medical costs in the range of \$1 to \$2 billion. Routine surveillance for SSIs is recommended by the CDC and the Surgical Infections Society as a mechanism for reducing these infections, by providing feedback to surgeons.

Given decreasing lengths of stay and increasing use of ambulatory surgery, identification of SSIs will require that hospitals, managed-care organizations, and insurers perform some form of postdischarge surveillance. However, direct wound surveillance among outpatients is extremely resource-intensive, and thus many hospitals doing postdischarge surveillance have relied on responses to questionnaires mailed to either the patients or surgeons. The authors of this study point out the considerable disadvantage of mailed questionnaires to patients and surgeons, which are less accurate (lower sensitivity and lower specificity) and more resource intensive than use of automated administrative and patient-care data, which are becoming increasingly available. Further research is needed to define better the risk factors for postdischarge SSIs that might allow for a surveillance strategy that focuses on high-risk groups.

FROM: Sands K, Vineyard G, Platt R. Surgical site infections occurring after hospital discharge. *J Infect Dis* 1996;173:963-970.

## Used Syringes Provide Estimate of Hepatitis Prevalence

Studies to determine prevalence of hepatitis B virus (HBV) and hepatitis C virus (HCV) among injection drug users often are hampered because of the users' reluctance to be tested. Dr. R. Heimer and coinvestigators from Yale University and Abbott Laboratories recently conducted preliminary studies to evaluate the usefulness of testing used syringes for HBV and HCV, using both enzyme immunoassay (EIA) and polymerase chain reaction (PCR) techniques, using the results to estimate the prevalence of HBV and HCV infection among injection drug users.

The researchers found that assays of HBV DNA and HCV RNA using PCR were orders of magnitude more sensitive than testing for antibodies to HBV and HCV using standard EIA techniques. The authors concluded that testing syringes can help estimate the prevalence and incidence of hepatitis virus infections when standard seroepidemiologic analysis cannot be applied.

FROM: Heimer R, Khoshnood K, Jariwala-Freeman B, et al. Hepatitis in used syringes: the limits of sensitivity of techniques to detect hepatitis B virus (HBV) DNA, hepatitis C virus (HCV) RNA, and antibodies to HBV core and HCV antigens. *J Infect Dis* 1996;173:997-1000.

## Ebola Virus Infects Monkeys in Texas

A monkey imported from the Philippines and being held in a government animal quarantine facility in Texas died on March 30, 1996, following a 3-day illness. Ebola virus infection was confirmed as the cause of death on April 11, 1996, based on antigen detection from a liver specimen. On April 9, a second monkey that had been held in the same room had an onset of similar symptoms, was euthanized, and also was found to have Ebola infection. Sequence analysis of the gene of the Ebola virus from the first monkey indicated a 98.9% nucleotide identity with the original 1989 Ebola-Reston virus associated with an outbreak of hemorrhagic fever in a research facility in Reston, Virginia. This outbreak was made famous by Richard Preston in his best-selling book *The Hot Zone*.

The other 48 monkeys housed in the same quarantined room as the two infected monkeys were euthanized to minimize the potential exposure of employees and to prevent additional transmission within the room.

Ebola virus was discovered in 1976. Since its discovery, four distinct subtypes have been identified: Zaire, Sudan, Ivory Coast, and Reston. The 1989 outbreak of Ebola-Reston subtype also involved monkeys imported from the Philippines. Although infection with the Ebola-Reston virus subtype can be fatal in monkeys, the only four infections confirmed in humans were asymptomatic. In