secured by a clockwise turn and opened by a counterclockwise turn.

The general compatibility and safety features of this system should make it ideal for clinical use.

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Hepatitis B and Dialysis Patients

To the Editor:

Should dialysis patients who are HBSAg negative receive hepatitis B vaccine prior to therapy or on initiation of therapy? Are "booster" injections indicated during the ongoing therapy if they remain negative?

Harry J. Silver, MD
Los Angeles, California

Bruce Hamory, MD, FACP responds to Dr. Silver's questions:

Hepatitis B remains a problem for both patients and staff in dialysis units. Additional evidence from a statewide study of hepatitis B in Minnesota suggested that the presence of a dialysis unit in a hospital also carried an increased rate of hepatitis B for the entire hospital as compared with hospitals without hemodialysis units.[1] Patients who lack antibody to surface antigen (anti-Hb,) are susceptible to hepatitis B and should be vaccinated.'

Because patients on dialysis respond less well to vaccine than do otherwise healthy persons, vaccination with twice the usual antigen dose (40 µg per injection) is strongly recommended for this group. Several studies have examined the relative schedules of vaccination for patients on hemodialysis and have found that the length of time on dialysis did not influence the rate of seroconversion.[3,4] These studies suggested that patients who produced low-level antibody responses to vaccine could have their antibody levels increased by booster doses, but that patients who did not produce any antibody in response to the first three doses of vaccine failed to make antibody even following two additional doses.

Hamilton et al[5] have examined the relative efficiencies of plasma-derived and recombinant vaccines as well as the effect of serum creatinine upon vaccine response. Patients not yet on dialysis appeared to respond to vaccines with higher titers of antibody than did patients on dialysis. Plasma-derived vaccine provided a stronger antibody response than did recombinant vaccine in this study.

Therefore, I suggest that patients be offered vaccination with one of the available hepatitis B vaccines as soon as it can be determined that they will clearly require hemodialysis. My own preference in this situation would be to use the plasma-derived vaccine because of the larger amount of antigen contained in it. Since the duration of antibody sufficient to protect against viral hepatitis is related to the height of the initial antibody response, a recheck of the titer six weeks after vaccination, and at some interval such as yearly thereafter, should be enough to assess the timing of any booster dose needed.

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Universal Precautions "Clarified"?

To the Editor:

'The Centers for Disease Control (CDC) has recently published an update on universal precautions' with the stated purpose of "clarifying" its definition of universal precautions in health care settings. Unfortunately, however, I find several points in the update particularly disturbing and potentially counter-productive to the establishment of sound infection control practices.

1. Blood is considered the single most important source of blood-borne pathogens, and body fluids such as feces, nasal secretions, sputum, sweat, tears, urine, and vomitus are exempt from universal precautions except in the presence of "visible blood." The practicality of such a recommendation should be questioned. Blood that is visible to one person may not be visible to another, depending on how closely the body fluid is examined, the visual acuity of the observer, and available lighting. Moreover, devising a new category of "body fluids to which universal precautions do not apply" may imply that it is safe to touch such fluids unless contaminated by visible blood. Aside from downplaying the potential risk of acquiring other unsuspected nonblood-borne pathogens, (eg, Herpes simplex, *Salmonella,* hepatitis A), this recommendation also seems to ignore the possibility that, as in the case of hepatitis B,[2] blood may be diluted until it is no longer visible while still containing infectious particles.

2. The CDC also describes "body fluids to which universal precautions apply" regardless of the presence or absence of blood (eg, cerebral spinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid and amniotic fluid), since the risk of transmission of HIV and hepatitis B from these fluids is unknown.

Practically speaking, how can infection control practitioners ask health care workers to remember body fluids to which universal precautions apply regardless of the presence or absence of visible blood and those to which such precautions do not apply except in the presence of visible blood, when