Persons using assistive technology might not be able to fully access information in this file. For assistance, please send e-mail to: mmwrq@cdc.gov. Type 508 Accommodation and the title of the report in the subject line of e-mail. Introduction The purpose of this report is to clarify and supplement the CDC publication entitled "Recommendations for Prevention of HIV Transmission in Health-Care Settings" (1).* In 1983, CDC published a document entitled "Guideline for Isolation Precautions in Hospitals" (2) that contained a section entitled "Blood and Body Fluid Precautions." The recommendations in this section called for blood and body fluid precautions when a patient was known or suspected to be infected with bloodborne pathogens. In August 1987, CDC published a document entitled "Recommendations for Prevention of HIV Transmission in Health-Care Settings" (1). In contrast to the 1983 document, the 1987 document recommended that blood and body fluid precautions be consistently used for all patients regardless of their bloodborne infection status. This extension of blood and body fluid precautions to all patients is referred to as "Universal Blood and Body Fluid Precautions" or "Universal Precautions." Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B

virus (HBV), and other bloodborne pathogens. Universal precautions are intended to prevent parenteral, mucous membrane, and nonintact skin exposures of health-care workers to bloodborne pathogens. In addition, immunization with HBV vaccine is recommended as an important adjunct to universal precautions for health-care workers who have exposures to blood (3,4). Since the recommendations for universal precautions were published in August 1987, CDC and the Food and Drug Administration (FDA) have received requests for clarification of the following issues: 1) body fluids to which universal precautions apply, 2) use of protective barriers, 3) use of gloves for phlebotomy, 4) selection of gloves for use while observing universal precautions, and 5) need for making changes in waste management programs as a result of adopting universal precautions. Body Fluids to Which Universal Precautions Apply Universal precautions apply to blood and to other body fluids containing visible blood. Occupational transmission of HIV and HBV to health-care workers by blood is documented (4,5). Blood is the single

most important source of HIV, HBV, and other bloodborne pathogens in the occupational setting. Infection control efforts for HIV, HBV, and other bloodborne pathogens must focus on preventing exposures to blood as well as on delivery of HBV immunization. Universal precautions also apply to semen and vaginal secretions.

Although both of these fluids have been implicated in the sexual transmission of HIV and HBV, they have not been implicated in occupational transmission from patient to health-care worker. This observation is not unexpected, since exposure to semen in the usual health-care setting is limited, and the routine practice of wearing gloves for performing vaginal examinations protects health-care workers from exposure to potentially infectious vaginal secretions. Universal precautions also apply to tissues and to the following fluids: cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid. The risk of transmission of HIV and HBV from these fluids is unknown; epidemiologic studies in the health-care and community setting are

currently inadequate to assess the potential risk to health-care workers from occupational exposures to them. However, HIV has been isolated from CSF, synovial, and amniotic fluid (6-8), and HBsAg has been detected in synovial fluid, amniotic fluid, and peritoneal fluid (9-11). One case of HIV transmission was reported after a percutaneous exposure to bloody pleural fluid obtained by needle aspiration (12).

Whereas aseptic procedures used to obtain these fluids for diagnostic or therapeutic purposes protect health-care workers from skin exposures, they cannot prevent penetrating injuries due to contaminated needles or other sharp instruments.

Body Fluids to Which Universal Precautions Do Not Apply

Universal precautions do not apply to feces, nasal secretions, sputum, sweat, tears, urine, and vomitus unless they contain visible blood. The risk of transmission of HIV and HBV from these fluids and materials is extremely low or nonexistent. HIV has been isolated and HBsAg has been demonstrated in some of these fluids; however, epidemiologic studies in the health-care and community setting

have
not implicated these fluids or materials in the transmission of
HIV
and HBV infections (13,14). Some of the above fluids and
excretions
represent a potential source for nosocomial and community-acquired

infections with other pathogens, and recommendations for
preventing
the transmission of nonbloodborne pathogens have been published
(2). Precautions for Other Body Fluids in Special Settings Human breast milk has been implicated in perinatal
transmission of
HIV, and HBsAg has been found in the milk of mothers infected with
HBV
(10,13). However, occupational exposure to human breast milk has
not
been implicated in the transmission of HIV nor HBV infection to
health-care workers. Moreover, the health-care worker will not
have
the same type of intensive exposure to breast milk as the nursing
neonate. Whereas universal precautions do not apply to human
breast
milk, gloves may be worn by health-care workers in situations
where
exposures to breast milk might be frequent, for example, in breast

milk banking. Saliva of some persons infected with HBV has been shown to contain HBV-DNA at concentrations 1/1,000 to 1/10,000 of that found in the infected person's serum (15). HBsAg-positive saliva has been shown to be infectious when injected into experimental animals and in human bite exposures (16-18). However, HBsAg-positive saliva has not been shown to be infectious when applied to oral mucous membranes in experimental primate studies (18) or through contamination of musical instruments or cardiopulmonary resuscitation dummies used by HBV carriers (19,20). Epidemiologic studies of nonsexual household contacts of HIV-infected patients, including several small series in which HIV transmission failed to occur after bites or after percutaneous inoculation or contamination of cuts and open wounds with saliva from HIV-infected patients, suggest that the potential for salivary transmission of HIV is remote (5,13,14,21,22). One case report from Germany has suggested the possibility of transmission of HIV in a household setting from an infected child to a sibling through a human bite (23). The bite did not break the skin or result in

bleeding. Since the date of seroconversion to HIV was not known for either child in this case, evidence for the role of saliva in the transmission of virus is unclear (23). Another case report suggested the possibility of transmission of HIV from husband to wife by contact with saliva during kissing (24). However, follow-up studies did not confirm HIV infection in the wife (21). Universal precautions do not apply to saliva. General infection control practices already in existence -- including the use of gloves for digital examination of mucous membranes and endotracheal suctioning, and handwashing after exposure to saliva -- should further minimize the minute risk, if any, for salivary transmission of HIV and HBV (1,25). Gloves need not be worn when feeding patients and when

wiping saliva from skin. Special precautions, however, are recommended for dentistry (1).

Occupationally acquired infection with HBV in dental workers has been documented (4), and two possible cases of occupationally acquired HIV

infection involving dentists have been reported (5,26). During dental procedures, contamination of saliva with blood is predictable, trauma to health-care workers' hands is common, and blood spattering may occur. Infection control precautions for dentistry minimize the potential for nonintact skin and mucous membrane contact of dental

health-care workers to blood-contaminated saliva of patients. In addition, the use of gloves for oral examinations and treatment in the dental setting may also protect the patient's oral mucous membranes from exposures to blood, which may occur from breaks in the skin of dental workers' hands.  Use of Protective Barriers  Protective barriers reduce the risk of exposure of the health-care worker's skin or mucous membranes to potentially infective materials.

For universal precautions, protective barriers reduce the risk of exposure to blood, body fluids containing visible blood, and other

fluids to which universal precautions apply. Examples of protective barriers include gloves, gowns, masks, and protective eyewear. Gloves

should reduce the incidence of contamination of hands, but they cannot prevent penetrating injuries due to needles or other sharp instruments. Masks and protective eyewear or face shields should reduce the incidence of contamination of mucous membranes of the mouth, nose, and eyes. Universal precautions are intended to supplement rather than replace recommendations for routine infection control, such as handwashing and using gloves to prevent gross microbial contamination of hands (27). Because specifying the types of barriers needed for every possible clinical situation is impractical, some judgment must be exercised. The risk of nosocomial transmission of HIV, HBV, and other bloodborne pathogens can be minimized if health-care workers use the following general guidelines:**

- Take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles. Do not recap used needles by hand; do not remove used needles from disposable syringes by hand; and do not bend, break, or otherwise manipulate used needles by

hand.

Place used disposable syringes and needles, scalpel blades, and other sharp items in puncture-resistant containers for disposal.

Locate the puncture-resistant containers as close to the use area as is practical.

Use protective barriers to prevent exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. The type of protective barrier(s) should be appropriate for the procedure being performed and the type of exposure anticipated.

Immediately and thoroughly wash hands and other skin surfaces that are contaminated with blood, body fluids containing visible blood, or other body fluids to which universal precautions apply.

Glove Use for Phlebotomy Gloves should reduce the incidence of blood contamination of hands during phlebotomy (drawing blood samples), but they cannot prevent penetrating injuries caused by needles or other sharp instruments. The

likelihood of hand contamination with blood containing HIV, HBV, or other bloodborne pathogens during phlebotomy depends on several factors: 1) the skill and technique of the health-care worker, 2) the frequency with which the health-care worker performs the procedure (other factors being equal, the cumulative risk of blood exposure is higher for a health-care worker who performs more procedures), 3) whether the procedure occurs in a routine or emergency situation (where blood contact may be more likely), and 4) the prevalence of infection with bloodborne pathogens in the patient population. The likelihood of infection after skin exposure to blood containing HIV or HBV will depend on the concentration of virus (viral concentration is much higher for hepatitis B than for HIV), the duration of contact, the presence of skin lesions on the hands of the health-care worker, and -- for HBV -- the immune status of the health-care worker. Although not accurately quantified, the risk of HIV infection following intact skin contact with infective blood is certainly much

less than the 0.5% risk following percutaneous needlestick exposures (5). In universal precautions, all blood is assumed to be potentially infective for bloodborne pathogens, but in certain settings (e.g., volunteer blood-donation centers) the prevalence of infection with some bloodborne pathogens (e.g., HIV, HBV) is known to be very low.

Some institutions have relaxed recommendations for using gloves for phlebotomy procedures by skilled phlebotomists in settings where the prevalence of bloodborne pathogens is known to be very low. Institutions that judge that routine gloving for all phlebotomies is not necessary should periodically reevaluate their policy. Gloves should always be available to health-care workers who wish to use them for phlebotomy. In addition, the following general guidelines apply:

Use gloves for performing phlebotomy when the health-care worker has cuts, scratches, or other breaks in his/her skin.

Use gloves in situations where the health-care worker judges

that

hand contamination with blood may occur, for example, when

performing phlebotomy on an uncooperative patient.

Use gloves for performing finger and/or heel sticks on infants

and

children.

Use gloves when persons are receiving training in phlebotomy.

Selection of Gloves  The Center for Devices and Radiological Health, FDA, has

responsibility for regulating the medical glove industry. Medical

gloves include those marketed as sterile surgical or nonsterile

examination gloves made of vinyl or latex. General purpose utility

("rubber") gloves are also used in the health-care setting, but

they

are not regulated by FDA since they are not promoted for medical

use.

There are no reported differences in barrier effectiveness between

intact latex and intact vinyl used to manufacture gloves. Thus,

the

type of gloves selected should be appropriate for the task being

performed.  The following general guidelines are recommended:

Use sterile gloves for procedures involving contact with

normally

sterile areas of the body.

Use examination gloves for procedures involving contact with

mucous membranes, unless otherwise indicated, and for other

patient care or diagnostic procedures that do not require the use of sterile gloves.

Change gloves between patient contacts.

Do not wash or disinfect surgical or examination gloves for reuse.

Washing with surfactants may cause "wicking," i.e., the enhanced penetration of liquids through undetected holes in the glove.

Disinfecting agents may cause deterioration.

Use general-purpose utility gloves (e.g., rubber household gloves) for housekeeping chores involving potential blood contact and for instrument cleaning and decontamination procedures. Utility gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored, or if they have punctures, tears, or other evidence of deterioration.

Waste Management Universal precautions are not intended to change waste management programs previously recommended by CDC for health-care settings (1).

Policies for defining, collecting, storing, decontaminating, and disposing of infective waste are generally determined by institutions in accordance with state and local regulations. Information regarding waste management regulations in health-care settings may be obtained

from state or local health departments or agencies responsible for

waste management.

Reported by: Center for Devices and Radiological Health, Food and Drug

Administration. Hospital Infections Program, AIDS Program, and

Hepatitis Br, Div of Viral Diseases, Center for Infectious Diseases,

National Institute for Occupational Safety and Health, CDC.

Editorial Note: Implementation of universal precautions does not

eliminate the need for other category- or disease-specific isolation

precautions, such as enteric precautions for infectious diarrhea or

isolation for pulmonary tuberculosis (1,2). In addition to universal

precautions, detailed precautions have been developed for the

following procedures and/or settings in which prolonged or intensive

exposures to blood occur: invasive procedures, dentistry, autopsies or

morticians' services, dialysis, and the clinical laboratory. These

detailed precautions are found in the August 21, 1987,

"Recommendations for Prevention of HIV Transmission in Health-Care

Settings" (1). In addition, specific precautions have been developed for research laboratories (28).

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*The August 1987 publication should be consulted for general information and specific recommendations not addressed in this update. **The August 1987 publication should be consulted for general information and specific recommendations not addressed in this update. Copies of this report and of the MMWR supplement entitled Recommendations for Prevention of HIV Transmission in Health-Care Settings published in August 1987 are available through the National AIDS Information Clearinghouse, P.O. Box 6003, Rockville, MD 20850.

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1600 Clifton Rd, MailStop E-90, Atlanta, GA

30333, U.S.A

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