INFECTION CONTROL INFORMATION

January 2004

DENTAL INFECTION CONTROL AND OCCUPATIONAL HEALTH/SAFETY COURSE

CO-SPONSORED BY: OSAP AND THE FEDERAL DENTAL SERVICES

DIS has received several questions about registration deadlines for the upcoming dental infection control/safety course being held Tuesday, 27 January–Friday, 30 January 2004 in Atlanta, Ga. All attendees (**regardless of funding source—local, command, AFIT**) must register for the course, and make their own travel and hotel reservations. Course attendance is limited and reservations (course and hotel) should be made immediately. Online registration is available at www.osap.org. Please call the Atlanta, Georgia Sheraton Colony Square Hotel directly at (404) 892-6000 to receive the government rate of $112.00.

Miscellaneous information:

- For questions about the course not addressed on the OSAP Web site or at www.brooks.af.mil/dis/ANNOUNCEMENTS/osapupdate04.htm, please contact Lt Col Jennifer Harte at DSN 792-7668, commercial at (847) 688-7668 or jennifer.harte@ndri.med.navy.mil .
- The course is not scheduled to end until 1615 on Friday, 30 January 2004; travel arrangements should be made accordingly.
- The uniform of the day is Class A service dress (service coat optional).

CDC DENTAL INFECTION CONTROL GUIDELINES

The CDC *Guidelines for Infection Control in Dental Health-Care Settings, 2003* are now available at www.cdc.gov/oralhealth/infectioncontrol. DIS will be mailing a copy to every USAF dental clinic in January.

NEW FORMAT FOR DENTAL INFECTION CONTROL INFORMATION

The USAF Dental Investigation Service recently updated its Web site. To take advantage of the "real-time" concept of the Internet, DIS now provides newsletter information on a continual basis. Periodically infection control items are posted to the following areas: *New Products on the Market*, *Literature Reviews*, *Frequently Asked Questions*, and *Product Evaluations*. Monthly infection control summary reports (in PDF format) will be posted in an attempt to consolidate this infection control information. This will allow individuals who do not wish to review all the items on the DIS Web site to click on the **Infection Control** button on the main DIS page (www.brooks.af.mil/dis) and then print the PDF summary report. Links are also provided to the main areas of the DIS Web site that include infection control information. In addition, *InControl* will be published more frequently and in a slightly different format. *InControl Fact Sheets* focusing on various topics of interest will be posted on the site. Many will offer the opportunity for federal dental service personnel to obtain continuing education credit. I hope these changes help with disseminating infection control information to USAF dental clinics. If you have any suggestions or would like to contribute to the DIS Web site, please do not hesitate to contact me. As always I am available to answer your individual calls, e-mails, or letters.

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NEW INFECTION CONTROL PRODUCTS

New and innovative products are marketed each month and DIS is unable to evaluate all of them. Because DIS has not had the opportunity to evaluate these products, **we cannot confirm manufacturers' claims** about them. If you would like additional information about the products or are interested in evaluating them please visit http://www.brooks.af.mil/dis/newproducts.htm or the manufacturer's Web site for more information on the following products.

- **Safety Saliva Ejector** (Crosstex International, www.crosstex.com)

- **Pro•Portion General Purpose Cleaning Solution** (Sultan Chemists, www.sultanchemists.com)

- **Pro•Portion Enzymatic Cleaning Solution** (Sultan Chemists, www.sultanchemists.com)

- **PUREVAC AUTO WALKABOUT™** (Sultan Chemists, www.sultanchemists.com)

- **PRO•SONIC Tabletop Ultrasonic Cleaners** (Sultan Chemists, www.sultanchemists.com)

FREQUENTLY ASKED QUESTIONS

EYEWASH UNIT TESTING

How frequently should eyewash units be tested? (1/04)

According to Air Force Occupational Safety and Health Standard 91-501 (available at http://www.e-publishing.af.mil) permanently installed eyewash units shall be activated weekly to verify proper operation. Documentation may be kept in a log, computerized, or affixed to the equipment by tag or label. The unit only needs to be activated long enough to ensure there is adequate pressure and volume of water available and all orifices are free of obstructions. AFOSH 91-501 also states that permanently installed eyewash units provide the best emergency protection for personnel whose eyes have been exposed to hazardous materials. Self-contained units and eyewash bottles at best, offer minimum protection and they can only be used when approved by the installation ground safety manager and the bioenvironmental engineer (BEE). If used, self-contained units shall be tested and inspected according to the manufacturer's instructions. When tap water is used, fluid should be replaced at least monthly. Less frequent intervals of fluid change, as recommended by the manufacturer, are acceptable where a solution or water additive is used. Fluid level will be checked monthly.

OSHA AND ALCOHOL-BASED HANDRUBS

Is the use of alcohol-based hand rubs consistent with the requirements for handwashing established in OSHA's Bloodborne Pathogen Standard? (1/04)

OSHA recently posted an interpretation letter on their Web site addressing this issue. OSHA states that when an employee is removing gloves and has had contact, meaning occupational exposure to blood or other potentially infectious materials (OPIM), hands must be washed with an appropriate soap and running water. If there has been no occupational exposure to blood or OPIM, antiseptic hand cleansers may be used as an appropriate "handwashing" practice. The key is occupational exposure to or potential exposure to blood or OPIM. If gloves are intact upon removal, the use of an alcohol-based hand rub product for hand hygiene is acceptable. If your gloves become torn during the procedure, washing your hands with soap and water after removing the torn gloves and before donning new gloves is indicated. Additionally, if you notice a hole in your gloves upon removal, washing your hands with soap and water is indicated.

The 03/31/2003 OSHA interpretation letter—*Acceptable use of antiseptic-hand cleansers for bloodborne pathogen decontamination and as an appropriate handwashing practice*—can be found by visiting http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24389).

FROM THE LITERATURE

Cross-Contamination and Paper-Towel Dispensers

Bacterial transfer and cross-contamination potential associated with paper-towel dispensing. Harrison WA, Griffith CJ, Ayers T, Michaels, B. Am J Infect Control 2003;31:387–391.

Paper towels, exits, and dispensing mechanisms (e.g., levers, mount location) have been identified as potential sources of contamination, especially for paper towels hanging in sink splash zones. The aim of this study was to evaluate the transfer and cross-contamination potential between hands, towels, and dispenser exits if one or more is contaminated using bacteria representative of the skin's flora. The study used a generic folded paper-towel dispenser in conjunction with different brands of paper towels. **The results indicate that zig-zag transfer of bacteria between paper-towel dispensers and hands can take place if either one is contaminated. This potential should be considered in the design, construction, and use of paper-towel dispensers.**

DIS Comment: Contamination of hand-contact surfaces could be implicated in the spread of infections, could act as a reservoir for microorganisms, and could contribute to hand contamination during or after handwashing. Faucet handles have long been identified as a possible site for cross-contamination because they are touched early in the hand-hygiene process with contaminated hands and are more likely to be wet. It is frequently suggested to use automatic faucets or to use a paper towel to turn off the faucet after drying your hands. The importance of hand drying as the critical last step in the handwashing process is frequently overlooked. Paper towels are recognized as the most hygienic method of hand drying; multiple-use cloth towels of the hanging or roll type are not recommended for use in health-care settings. Paper-towel dispenser exits are a source of potential cross-contamination as they are the final surface that may be touched. Paper towels should be dispensed from holders that require the user to remove them one at a time without hand or paper towel contact with other surfaces. Lever-operated towel dispensers should be activated before beginning handwashing. Users reaching into the dispenser cabinet with wet, contaminated hands and touching the paper slot or other paper towels could increase the risk of other people contaminating their hands. This is frequently the case when dispensers malfunction and towels become jammed. All hand-drying materials should be placed near the sink in an area that will not become contaminated by splash. This article highlights the need for educating personnel on the potential spread of pathogens from paper-towel dispensers and the need for careful selection of paper towel types and their dispensers on the basis of functionality.

Dental Tissues and Variant CJD

Investigation of PrP^{res} in dental tissues in variant CJD. Head MW, Ritchie D, Mcloughlin V, Ironside JW. Br Dent J 2003;195:339–343.

The transmissible spongiform encephalopathies (TSEs) or prion disease are a group of rare fatal neurodegenerative disorders, which occur as sporadic, familial and acquired diseases. In humans, TSEs include Creutzfeldt-Jakob Disease (CJD), Gerstmann-Straussler-Scheinker syndrome, fatal familial insomnia, kuru, and variant CJD (vCJD). Prions are isoforms of a normal protein, capable of self-propagation although they lack nucleic acid. Prion diseases have an incubation period of years and are usually fatal within one year of diagnosis. In order to determine whether vCJD might pose a greater risk of secondary transmission by dental procedures than other forms of CJD, oral and dental tissues taken at autopsy from patients with variant vCJD were evaluated using a combination of immunohistochemistry and a sensitive Western blot assay for the presence of the abnormal form of the prion protein. **Abnormal prion protein was detected in the trigeminal ganglia, tonsil, and lymph nodes in vCJD but not in**

sporadic CJD cases. Alveolar nerves, gingiva, dental pulp, and salivary gland tissue were negative in all cases. Lymphoid tissues (including tonsil) were negative in sporadic CJD.

DIS Comment:
The estimated annual incidence of CJD, worldwide, including the United States, has been reported to be about one case per million population per year. Variant CJD is distinguishable clinically and neuropathologically from classic CJD, and strong epidemiologic and laboratory evidence indicates a causal relationship with bovine spongiform encephalopathy (BSE), a progressive neurological disorder of cattle commonly known as mad cow disease. Variant CJD, was reported first in the United Kingdom in 1996 and subsequently in other European countries. Only one case of vCJD has been reported in the United States, in an immigrant from the United Kingdom. CJD and vCJD are transmissible diseases, but not through the air or casual contact. All known cases of iatrogenic CJD have resulted from exposure to infected central nervous tissue (e.g., brain and dura mater), pituitary, or eye tissue. Studies in experimental animals have determined that other tissues have low or no detectable infectivity.

Limited experimental studies have demonstrated that scrapie (a TSE in sheep) can be transmitted to healthy hamsters and mice by exposing oral tissues to infectious homogenate. These animal models and experimental designs might not be directly applicable to human transmission and clinical dentistry, but they indicate a theoretical risk of transmitting prion diseases through perioral exposures.

Multiple case-control studies determined no evidence that dental procedures increase the risk of iatrogenic transmission of TSEs among humans. In these studies, CJD or vCJD transmission was not associated with dental procedures (e.g., root canals or extractions), with convincing evidence of prion detection in human blood, saliva, or oral tissues, or with DHCP becoming occupationally infected with CJD. In 2000, prions were not found in the dental pulps of eight patients with neuropathologically confirmed sporadic CJD by using electrophoresis and a Western blot technique. Although the numbers of cases studied in this publication is small, the results of the present study indicate that the involvement of dental tissues in vCJD may not differ from sporadic CJD.

Prions exhibit unusual resistance to conventional chemical and physical decontamination procedures. Considering this resistance and the invariably fatal outcome of CJD, procedures for disinfecting and sterilizing instruments potentially contaminated with the CJD prion have been controversial for years. Scientific data indicate the risk, if any, of sporadic CJD transmission during dental and oral surgical procedures is low to nil. Until additional information exists regarding the transmissibility of CJD or vCJD, the Centers for Disease Control and Prevention recommends that special precautions in addition to standard precautions might be indicated when treating known CJD or vCJD patients. The World Health Organization (WHO) has developed CJD infection control guidelines that can be a valuable guide to infection control personnel and other health care personnel involved in the care of CJD patients.

Selected References:
Blanquet-Grossard F, Sazdovitch V, Jean A, et al. Prion protein is not detectable in dental pulp from patients with Creutzfeldt-Jakob disease. J Dent Res 2000;79:700.

CDC. Bovine Spongiform Encephalopathy and Creutzfeldt-Jakob Disease Information and Resources. Available at: http://www.cdc.gov/ncidod/diseases/cjd/cjd.htm. Accessed January 2004.

CDC. Probable Variant Creutzfeldt-Jakob disease in a U.S. Resident—Florida, 2002. MMWR 2002;51:927–9.

Collins S, Law MG, Fletcher A, Boyd A, Kaldor J, Masters CL. Surgical treatment and risk of sporadic Creutzfeldt-Jakob disease: a case-control study. Lancet 1999;353:693–7.

Kondo K, Kuroiwa Y. A case control study of Creutzfeldt-Jakob disease: association with physical injuries. Ann Neurol 1982;11:377–81.

Van Duijn CM, Delasnerie-Laupretre N, Masullo C, et al. Case-control study of risk factors of Creutzfeldt-Jakob disease in Europe during 1993–95. European Union (EU) Collaborative Study Group of Creutzfeldt-Jacob disease (CJD). Lancet 1998;351:1081–5.

World Health Organization. Infection control guidelines for transmissible spongiform encephalopathies: report of a WHO consultation, Geneva, Switzerland, 23-26 March 1999. Available at www.who.int/emc-documents/tse/whocdscsraph2003c.html. Accessed January 2004.