



HEALTH-CARE-ASSOCIATED INFECTIONS

The goal of a dental infection control program is to provide a safe working environment that will reduce the risk of health-care-associated infections (HAI) among patients and occupational exposures among dental health-care personnel (DHCP). Surveillance for HAIs is one method to assess the effectiveness of a dental infection control program. For example, data obtained from surveillance can be used to inform patients of the risk of infection following oral surgical procedures at your facility or to provide feedback to DHCP. In addition, an increase in the rate of HAIs may signal a potential problem in your clinic requiring further investigation. HAIs can be acquired with any care, treatment or service setting, and transferred between settings, or brought in from the community. Therefore, prevention remains one of the major safety initiatives that a health-care organization can undertake.

If USAF dental clinics are not routinely performing surveillance for HAIs and reporting their findings to their MTF Infection Control Committee (ICC) or Infection Control Review Function (ICRF), a program should be established. This *InControl Fact Sheet* can be used along with the *USAF Guidelines for Infection Control in Dentistry* when developing the program.

What is a “health-care-associated infection”?

A HAI is a localized or symptomatic condition resulting from an adverse reaction to the presence of an infectious agent or its toxins not present or incubating at the time of the initial appointment (e.g., medical, dental, surgical). The term “health-care-associated infection” includes both nosocomial (i.e., hospital associated) and clinic acquired (i.e., clinic or outpatient associated) infections.

What is “surveillance”?

Surveillance is a comprehensive method of measuring outcomes and related processes of care, collecting and analyzing data, and providing timely feedback to the staff to assist in improving those outcomes. Surveillance is an essential component of infection control programs to reduce the frequency of adverse events such as infection or injury. Surveillance for HAIs provides data useful for identifying infected patients, determining the site of infection, and identifying the factors that contribute to HAIs.

Information containing patient identifiers or patient care staff should be carefully handled. Data should not be used for punitive purposes, but should be viewed as an opportunity to improve the patient/employee/process outcome.

What type of surveillance methods should dental clinics use to identify health-care-associated infections?

Development of surveillance systems should be based on evaluation of the populations of interest. Such assessment is critical so that resources can be targeted at populations who are at risk for the outcomes of greatest importance. This, in turn, enables dentists to use surveillance information to enhance and improve care provided to those targeted populations. Most dental clinics have implemented a surveillance approach that relies on dentists completing a report each time a potential HAI is detected. Thoroughness or intensity of self-reported surveillance must be maintained at the same level over time. Problems with this method appear to be misclassification, underreporting, and lack of timeliness of data. For these reasons, dental clinics must not rely on self-reporting as the sole means of their HAI surveillance; self-reporting should only be used in combination with another surveillance activity. Active surveillance is the process of looking for HAIs by using various data sources to accumulate information and decide whether or not a HAI has occurred. Use standardized written case definitions to ensure precise surveillance. Active retrospective surveillance using chart review or performing an antibiotic usage audit are two additional means to improve accurate identification of HAIs. Assessing unscheduled post-operative patient return visits either prospectively through sick call visits or retrospectively via CPA & I chart reviews is an example of targeted surveillance to a specified population at risk.

Generally, a combination of the above surveillance methods should be used. Rates may have to be calculated quarterly, semiannually, or annually, depending on the size of the denominator. The dental infection control officer should coordinate their program with the local MTF ICC/ICRF to establish which HAI surveillance methods are appropriate based on the type of services they provide.

Examples of Surveillance Methods for Dental Health-Care-Associated Infections

Chart Review

- Generally, more invasive procedures are targeted (e.g., extractions of impacted third molars/periodontal surgeries using conscious sedation vs. single tooth extractions with local anesthesia) during chart reviews.
- Using the dental service report, identify patients who had the specific type of procedure performed that you are targeting (e.g., extraction of third molars, patients receiving conscious sedation, periodontal surgeries) during a specified time period (e.g., 60 days prior).
- Review the records for conditions meeting the HAI criteria.
- Complete the HAI work sheet if a possible infection is found. The medical infection control officer may be consulted for final determination before reporting the infection to the ICC.

Antibiotic Usage Audit

- Request a printout from the pharmacy for antibiotic prescriptions written for dental patients during a specified time period (e.g., 60 days prior).
- Review the records for conditions meeting the HAI criteria.
- During this review, appropriateness of antibiotic use can also be reviewed.
- Complete the HAI work sheet if a possible infection is found. The medical infection control officer may be consulted for final determination before reporting the infection to the ICC.

Unscheduled Post-Operative/Surgical Return Visits

- Have the HAI work sheet available in the sick call area for staff members to complete when they identify a potential HAI during an unscheduled post-operative/surgical return visit.
- The form is given to the dental infection control officer for further investigation. The medical infection control officer may be consulted for final determination before reporting the infection to the ICC.

Self-Reporting

- Staff members should complete the HAI work sheet for every patient with a potential HAI.
- The form is given to the dental infection control officer for further investigation. The medical infection control officer may be consulted for final determination before reporting the infection to the ICC.

Are there any conditions that are NOT considered health-care-associated infections?

Conditions that are not considered infections include the following:

- colonization, which is the presence of microorganisms (on skin, mucous membranes, in open wounds, or in excretions or secretions) that are not causing adverse clinical signs or symptoms,
- inflammation, which is a condition that results from tissue response to injury or stimulation by noninfectious agents, such as chemicals,
- post extraction alveolar osteitis,
- suture abscesses,
- periapical inflammation flare-ups, and
- recurrent herpes infections.

What criteria can be used to determine health-care-associated infections?

The following criteria (slightly modified from CDC/NHSN* definitions) can be used to make the determination of a HAI following either oral surgical[†] or non-surgical dental procedures.

Oral Surgical Procedures	Non-surgical dental procedures
<p>1. Infection occurs within 30 days (or within one year if an implant is in place) after the procedure and the infection appears to be related to the procedure (i.e., the patient was not exhibiting signs/symptoms at the time of the initial appointment) AND at least one of the following:</p> <ul style="list-style-type: none"> - purulent drainage/discharge from the surgical site. - at least one of the following signs or symptoms: fever (>38°C or 100.4°F) or localized pain or tenderness. - an abscess or other evidence of infection that is found on direct examination, during reoperation, or by histopathologic or radiologic examination. - physician/dentist diagnosis of infection with or without treatment with antibiotic therapy. 	<p>Must meet at least one of the following criteria:</p> <ol style="list-style-type: none"> 1. Organisms cultured from purulent material from tissues or the oral cavity. 2. Abscess or other evidence of infection on direct exam, during re-operation, histologic exam or radiographic exam. 3. At least one of the following: (with no other recognized cause) abscess, ulceration, raised white patches on inflamed mucosa or plaques on oral mucosa AND at least one of the following: <ul style="list-style-type: none"> - organisms seen on a Gram Stain. - positive fungal potassium hydroxide stain. - multinucleated giant cells seen on microscopic exam. - positive antigen test on oral fluid/material. - diagnostic single antibody tier (IgM) or fourfold increase in a paired sera (IgG) for pathogen. - physician/dentist diagnosis of infection with or without topical/oral antifungal therapy or with or without antibiotic therapy.

* The National Healthcare Safety Network (NHSN) is a secure, Internet-based surveillance system that integrates patient and healthcare personnel safety surveillance systems managed by the Division of Healthcare Quality Promotion (DHQP) at CDC. CDC initially opened NHSN enrollment to a limited number of facilities in 2005, followed by a national open enrollment for hospitals and outpatient hemodialysis centers in 2007. NHSN provides analysis tools that generate reports using the aggregated data (reports about infection rates, national and local comparisons, etc). NHSN enables healthcare facilities to participate in a voluntary national surveillance system and to make use of recent advances in information technology.

† Oral surgical procedures involve the incision, excision, or reflection of tissue that exposes the normally sterile areas of the oral cavity. Examples include biopsy, periodontal surgery, apical surgery, implant surgery, and surgical extractions of teeth (e.g., removal of erupted or nonerupted tooth, requiring elevation of mucoperiosteal flap, removal of bone and/or section of tooth, and suturing if needed).

How are wounds classified?

Invasive procedures (e.g., surgical procedures) can be categorized using a scheme adopted by the CDC.

CDC Surgical Wound Classification:

Class I/Clean. Uninfected operative wounds in which no inflammation is encountered and not involving the oral cavity. (*definition not applicable to dentistry*)

Class II/Clean-Contaminated. Operative wounds in which oral cavity (oropharynx) is entered under controlled conditions and without unusual contamination, provided no evidence of infection or major break in technique is encountered. (*applies to most oral surgical procedures*)

Class III/Contaminated. Open, fresh, accidental wounds, operations with major breaks in sterile technique, and incisions in which acute, nonpurulent inflammation is encountered.

Class IV/Dirty-Infected. Old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

What information should be included in the report to the MTF ICC/ICRF?

The MTF ICC/ICRF usually has established reporting criteria; however, in the absence of MTF guidance, at a minimum the following documentation should be included in the report:

- date of initial appointment and type of procedure;
- date of onset of infection;
- type of infection;
- wound classification (if applicable);
- related culture/sensitivity data (if applicable);
- antibiotic(s) administered; and
- date infection was resolved.

Selected References (Updated October 2010)

Air Force Instruction 44-108, Infection Control Program. Available at www.e-publishing.af.mil/. Accessed October 2010.

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Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. Guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings, 2007:1–219.

USAF Guidelines for Infection Control in Dentistry.

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This is a sample form and should be modified as necessary.

HEALTH-CARE-ASSOCIATED INFECTION WORKSHEET

PATIENT NAME: _____ **RANK/STATUS:** _____

SOCIAL SECURITY #: _____ **PHONE #:** _____

ORGANIZATION/ADDRESS: _____

PATIENT AGE: _____

DATE OF PROCEDURE: _____

TYPE OF PROCEDURE: _____

WOUND CLASSIFICATION: _____

PROVIDER(S): _____

DATE INFECTION DIAGNOSED: _____

DESCRIPTION OF THE INFECTION: _____

CULTURE OBTAINED: Yes or No

CULTURE RESULTS (if applicable): _____

TREATMENT RENDERED (including any antibiotic prescriptions):

REPORTED BY: _____ **DATE REPORTED:** _____

FOLLOW-UP: _____

A Medical QA Document. Do Not Disclose Without Approval of the MTF Commander.