



# STAPHYLOCOCCAL INFECTIONS

(See also **FOODBORNE ILLNESS** and **STAPHYLOCOCCAL TOXIC SHOCK SYNDROME** for primarily toxin-mediated staphylococcal diseases)

1. **Agent:** Various strains of *Staphylococcus aureus*; coagulase-negative strains, most commonly *S. epidermidis*, are increasingly important as a cause of bloodstream infections in hospitalized patients. Staphylococci cause a variety of infections ranging from localized to invasive disease.

## 2. Identification:

a. **Symptoms:** Clinical manifestations and epidemiologic patterns differ in the general community, in newborns, and among hospitalized patients.

**Community:** The most common staphylococcal infections include impetigo, boils, carbuncles, abscesses, and infected wounds. Constitutional symptoms are generally mild.

**Hospital Nurseries:** Staphylococcal scalded skin syndrome and other purulent skin manifestations are the most frequent staphylococcal infections of newborns. Lesions typically occur in the diaper area, the umbilicus, and circumcision sites. Staphylococci may also cause conjunctivitis in newborns.

**Health Care Facilities:** Staphylococci may cause stitch abscesses, infected bedsores, surgical wound infections, septic phlebitis, chronic osteomyelitis, fulminant pneumonia, endocarditis, and septicemia in hospitalized patients. Methicillin-resistant *S. aureus* (MRSA) is an important nosocomial pathogen. Coagulase-negative staphylococci, especially *S. epidermidis*, may cause sepsis and endocarditis, and are increasingly associated with infections of intravascular catheters, artificial heart valves and prosthetic joint replacements.

b. **Differential Diagnosis:** Miliaria (heat rash), erythema toxicum, diaper dermatitis, chemical conjunctivitis, mammary hyperplasia of newborn, and

abscesses due to other pyogenic organisms.

c. **Diagnosis:** Culture of organism from involved site.

3. **Incubation:** Variable and indefinite; commonly 4 to 10 days.

4. **Reservoir:** Human.

5. **Source:** Nares, perineum, and any purulent lesion. Thirty to forty percent of the general population carries coagulase-positive staphylococci in their anterior nares and moist body areas.

6. **Transmission:** Usually by contaminated hands, contact with infected or colonized site, or fomites; airborne droplet spread is rare.

7. **Communicability:** As long as viable organisms exist in lesion or the carrier state persists. Autoinfection may continue as long as skin or nasal colonization or active lesion persists.

## 8. Specific Treatment:

**Case:** Therapy should consider the drug sensitivity pattern of the organism. Infections due to MRSA are increasing in frequency.

**Carriers:** May be treated when involved in hospital outbreaks.

9. **Immunity:** None.

## REPORTING PROCEDURES

1. Outbreaks are reportable. *California Code of Regulations*, Section 2500.

2. **Report Form:** For non-health facility outbreaks: **OUTBREAK / UNUSUAL DISEASE REPORT (DHS 8554)**.

For health care facility outbreaks:



### CD OUTBREAK NOTICE--HEALTH CARE FACILITY (H-1163)

### CD OUTBREAK INVESTIGATION--HEALTH CARE FACILITY (H-1164)

#### 3. Epidemiologic Data:

- a. In newborn cases, date of birth, date of discharge, name and hospital number, and mother's name.
- b. Onset date.
- c. Location and description of lesions.
- d. If recent surgery or hospitalization, name of hospital, date of admission and discharge, and hospital number.
- e. Culture and antibiotic sensitivity reports.
- f. Occupation and volunteer activities (baby sitting, hospital volunteer, etc.).
- g. Prematurity, chronic illness, use of steroids, antimetabolites, antibiotics.
- h. Evaluate aseptic technique in health care facilities.

#### CONTROL OF CASE, CONTACTS & CARRIERS

Investigate institutional outbreaks only; evaluate within 24 hours.

#### CASE:

#### Precautions:

1. **Home:** thorough hand washing should be emphasized.
2. **Health care facilities:**
  - a. If case is a patient, use standard and contact isolation precautions.
  - b. If case is a health care worker, remove from patient contact. Discontinue food handling until lesions are healed.
  - c. Refer to ACDC MRSA Management Guidelines.

#### CONTACTS:

**Health care facilities:** contacts are persons in close contact with patient with any staphylococcal disease and infants in affected nursery.

1. Emphasize standard precautions.
2. In nursery, cohort infants until discharge and observe for symptoms.

#### CARRIERS:

It is rarely worthwhile to search for nasal carriers or perform environmental sampling.

#### PREVENTION-EDUCATION

1. Refer infants, mothers, and others with infection for medical care and prompt treatment.
2. Stress importance of personal hygiene. Emphasize hand washing and proper use of gloves for all persons caring for case or susceptibles, especially in health care facility outbreaks.
3. Do not share personal care articles.
4. Emphasize proper disposal of discharges and disinfection of fomites.

#### DIAGNOSTIC PROCEDURES

##### 1. Culture

**Container:** Culturette; follow package instructions.

**Laboratory Form: BACTERIOLOGY CULTURE & SENSITIVITY (H-2553).**

**Examination Requested:** Staphylococcus.

**Material:** Exudate or discharge from infected site, nares, pharynx.

**Storage:** Room temperature.

**Remarks:** If onset within neonatal period (for either infant or mother), or part of an outbreak, request antibiogram.



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2. Molecular typing of outbreak strains by pulsed-field gel electrophoresis is available in consultation with Acute Communicable Disease Control.