

# **Toxic Shock Syndrome (TSS) and Streptococcal Toxic Shock Syndrome (STSS) Investigation Guideline**

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# Toxic Shock Syndrome (TSS) including Streptococcal Toxic-Shock Syndrome (STSS)

## Disease Management and Investigative Guidelines

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### CASE DEFINITION (TSS)

#### A. Clinical Description for Public Health Surveillance:

An illness with the following clinical manifestations:

- Fever: Temperature greater than or equal to 102.0°F (greater than or equal to 38.9°C).
- Rash: Diffuse macular erythroderma.
- Desquamation: 1-2 weeks after onset of illness, particularly on the palms and soles.
- Hypotension: Systolic blood pressure less than or equal to 90 mm Hg for adults or less than fifth percentile by age for children aged less than 16 years; orthostatic drop in diastolic blood pressure greater than or equal to 15 mm Hg from lying to sitting, orthostatic syncope, or orthostatic dizziness.
- Multi-system involvement (three [3] or more of the following):
  - Gastrointestinal: Vomiting or diarrhea at onset of illness
  - Muscular: Severe myalgia or creatine phosphokinase level at least twice the upper limit of normal
  - Mucous membrane: Vaginal, oropharyngeal, or conjunctival hyperemia
  - Renal: Blood urea nitrogen or creatinine at least twice the upper limit of normal for laboratory or urinary sediment with pyuria (greater than or equal to 5 leukocytes per high-power field) in the absence of urinary tract infection
  - Hepatic: Total bilirubin, alanine aminotransferase enzyme, or aspartate aminotransferase enzyme levels at least twice the upper limit of normal for laboratory
  - Hematologic: Platelets less than 100,000/mm<sup>3</sup>
  - Central nervous system: Disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent

#### B. Laboratory Criteria for Diagnosis:

Negative results on the following tests, if obtained:

- Blood, throat, or cerebrospinal fluid cultures (blood culture may be positive for *Staphylococcus aureus*).
- Rise in titer to Rocky Mountain spotted fever, leptospirosis, or measles.

#### C. Case Classification:

- Confirmed: A case which meets the laboratory criteria and in which all 5 of the clinical findings described above are present, including desquamation, unless the patient dies before desquamation occurs.

- Probable: A case that meets the laboratory criteria and in which 4 of the 5 clinical findings described above are present.

## **CASE DEFINITION (STSS)**

### **A. Clinical Description for Public Health Surveillance:**

An illness with the following clinical manifestations occurring within the first 48 hours of hospitalization or, for a nosocomial case, within the first 48 hours of illness:

- Hypotension defined by a systolic blood pressure less than or equal to 90 mm Hg for adults or less than the fifth percentile by age for children aged less than 16 years.
- Multi-organ involvement characterized by two (2) or more of the following:
  - Renal impairment: Creatinine greater than or equal to 2 mg/dL (greater than or equal to 177  $\mu\text{mol/L}$ ) for adults or greater than or equal to twice the upper limit of normal for age. In patients with preexisting renal disease, a greater than twofold elevation over the baseline level.
  - Coagulopathy: Platelets less than or equal to 100,000/ $\text{mm}^3$  (less than or equal to  $100 \times 10^6/\text{L}$ ) or disseminated intravascular coagulation, defined by prolonged clotting times, low fibrinogen level, and the presence of fibrin degradation products.
  - Liver involvement: Alanine aminotransferase, aspartate aminotransferase, or total bilirubin levels greater than or equal to twice the upper limit of normal for the patient's age. In patients with preexisting liver disease, a greater than twofold increase over the baseline level.
  - Acute respiratory distress syndrome: defined by acute onset of diffuse pulmonary infiltrates and hypoxemia in the absence of cardiac failure or by evidence of diffuse capillary leak manifested by acute onset of generalized edema, or pleural or peritoneal effusions with hypoalbuminemia.
  - A generalized erythematous macular rash that may desquamate.
  - Soft-tissue necrosis, including necrotizing fasciitis or myositis, or gangrene.

### **B. Laboratory Criteria for Diagnosis:**

Isolation of group A *Streptococcus*.

### **C. Case Classification:**

- Confirmed: a case that meets the clinical case definition and with isolation of group A *Streptococcus* from a normally sterile site (e.g., blood or cerebrospinal fluid or, less commonly, joint, pleural, or pericardial fluid).
- Probable: a case that meets the clinical case definition in the absence of another identified etiology for the illness and with isolation of group A *Streptococcus* from a nonsterile site.

#### **D. Laboratory Tests (TSS & STSS):**

Isolates are not required to be sent to the State Public Health Laboratory; however, they are equipped to test for *Staphylococcus aureus* and group A *Streptococcus* if requested.

- Laboratory Kit: Miscellaneous – Infectious Substance
- Specimen: Blood or CSF
- Remarks: For additional information and/or questions concerning isolate collection, sample transport and laboratory kits call (785) 296-1620. An online manual of laboratory tests is also available at <http://www.kdhe.state.ks.us/labs/links.html>.

#### **E. Bioterrorism Potential:**

None.

#### **F. Outbreak Definition:**

There are no formal outbreak definitions; however, the investigator may consider the possibility of an outbreak when there is an unusual clustering of cases in time and/or space.

### **INVESTIGATOR RESPONSIBILITIES**

#### **A. Investigation Tasks and Activities:**

- Conduct an epidemiological investigation to identify the possible source of infection and/or the presence of additional cases in the community.
- No specific public health interventions are necessary as TSS & STSS are not transmissible person-to-person.
- Report all confirmed and probable cases to the Bureau of Epidemiology & Disease Prevention, using established methods.

#### **B. Notifications:**

- There are no special notifications or additional reporting requirements.
- Mail or deliver notification letter and/or disease fact sheet to case, contacts and other appropriate individuals or groups (if appropriate and/or requested).

### **EPIDEMIOLOGY**

Approximately 50% of all reported cases of Toxic Shock Syndrome (TSS) are associated with menstruation and tampon usage. Non-menstrual TSS cases are often linked to surgical infections, use of diaphragms or contraceptive sponges and focal staphylococcal infections. STSS may occur with infection at any site but most often occurs in association with infection of a cutaneous lesion and varicella is the most commonly identified risk factor in children.

## DISEASE OVERVIEW

### A. Agent:

TSS is caused by specific strains of *Staphylococcus aureus*. STSS is caused by *Streptococcus pyogenes* (group A streptococci [GAS]).

### B. Clinical Description:

TSS and STSS are both an acute illness characterized by the sudden onset of a high fever (> 102°F [38.9°C]), myalgia, weakness, vomiting, diarrhea, hypotension, diffuse macular erythroderma, and multi-organ system disorders. During the acute phase of TSS a “sunburn-like” rash is present; 1-2 weeks later, desquamation of the skin occurs, especially on the soles and palms. The STSS case-fatality rate may exceed 50%.

- **Differential Diagnosis:** Rocky Mountain Spotted Fever, Leptospirosis, Kawasaki syndrome, Scarlet fever and Measles.

### C. Reservoirs:

Humans.

### D. Mode(s) of Transmission:

TSS and STSS both represent a constellation of symptoms that are the result of specific agents; as such, they are not communicable person-to-person but the causative agent (if still present) may be.

- TSS is not communicable person-to-person. It is often associated with menstruation and tampon use in females. Non-menstrual TSS cases have been associated with surgical wound infections, use of diaphragms or contraceptive sponges and staphylococcal infections.
- STSS is not communicable person-to-person and is most often associated with an infection of a cutaneous lesion.

### E. Incubation Period:

The incubation period ranges from 1-10 days.

- The medium incubation period for post-surgical TSS is 2 days.
- Menses-related cases usually occur on day 3-4 of menses.
- STSS caused GAS usually occurs on day 1-3, rarely later.

### F. Period of Communicability:

Person-to-person transmission does not occur.

### G. Susceptibility and Resistance:

- Susceptibility to both *S. aureus* and *S. pyogenes* is universal. Immunity develops only against specific strains or exotoxins.

#### **H. Treatment:**

Treatment includes aggressive fluid replacement therapy and strict management of the respiratory and cardiac systems. Antimicrobial therapy may also be initiated.

### **STANDARD CASE INVESTIGATION AND CONTROL METHODS**

Standard investigation activities include the following: 1) Confirmation of the diagnoses (*i.e.*, case definition), 2) Collection of relevant demographic and clinical data (*e.g.*, age, sex, disease syndromes and/or symptoms), 3) Determination of the setting (*e.g.*, community, hospital, daycare or other facility), and 4) Investigation of possible epidemiologic links among cases (*e.g.*, cluster, family, co-workers). This can be accomplished by completing the appropriate sections of the TSS investigation form. Most of the information can be obtained from the case person, healthcare provider and/or the medical record. The investigator may want to also review previously reported cases in the region and/or state. Additional investigation activities include:

#### **A. Identify Potential Source of Infection:**

To help identify the source of the infection, the investigator should focus their investigation within the incubation period of 1-10 days (depending upon causative agent) and focus on the following potential source(s) of infection.

- Use of tampon; list date of use and type(s).
- Non-surgical cutaneous or subcutaneous lesions.
- Childbirth or abortion; list name of hospital or clinic and date of services
- Surgical infection; list name of hospital or clinic, surgical procedure and date of services.

#### **B. Identify Potential Exposed Individuals / Populations (Contacts):**

Contacts are defined as household members of a confirmed case if GAS is involved.

#### **C. Isolation, Work and Daycare Restrictions:**

Standard isolation precautions of hospitalized cases; if STSS (caused by GAS), then droplet and contact precautions should also be implemented.

#### **D. Follow-up of Cases:**

None.

#### **E. Protection of Contacts:**

If STSS (caused by GAS), consider throat cultures for all symptomatic household contacts, with subsequent antibiotic treatment of those found to be culture positive. Consult with the KDHE Bureau of Epidemiology & Disease Prevention for assistance.

## **F. Environmental Measures:**

None.

## **G. Education:**

To reduce the risk of TSS, advise women who are using vaginal tampons, contraceptive diaphragms or vaginal contraceptive sponges need to:

- Use the lowest absorbency tampon and change frequently. Discontinue tampon use immediately and call their healthcare provider if they develop a high fever and vomiting or diarrhea during menstruation.
- Follow directions for use of diaphragms or contraceptive sponges and do not leave the device in place for more than 30 hours.
- Complete the full course of treatment if prescribed antibiotics for *staphylococcus* or *streptococcus* infections.

## **MANAGING SPECIAL SITUATIONS**

### **A. Case Occurs at Daycare Center:**

If STSS (caused by GAS), consider throat cultures for all symptomatic childcare attendees and staff, with subsequent antibiotic treatment of those found to be culture positive. Consult with the KDHE Bureau of Epidemiology & Disease Prevention for assistance.

### **B. Outbreak:**

If you suspect an outbreak, investigate to determine the potential source of infection and a common mode of transmission. Consult with the KDHE Bureau of Epidemiology & Disease Prevention for assistance.

## **ADDITIONAL INFORMATION / REFERENCES**

- American Academy of Pediatrics. 2003 *Red Book: Report of the Committee on Infectious Disease, 26<sup>th</sup> Edition*. Illinois, Academy of Pediatrics, 2003.
- Heymann. D., ed., *Control of Communicable Diseases Manual, 18<sup>th</sup> Edition*. Washington, DC, American Public Health Association, 2004.
- Case definitions for Infectious Conditions Under Public Health Surveillance, Division of Public Health Surveillance and Informatics, Nationally Notifiable Infectious Diseases, United States 2005. Available at: <http://www.cdc.gov/epo/dphsi/PHS/infdis2005.htm>
- Kansas Department of Health and Environment, Bureau of Epidemiology. *Disease Protocols*, 2001.
- County of Los Angeles, Department of Health, Public Health Programs and Services, *Communicable Diseases Manual*, June 2003.
- Oklahoma State Department of Health, Communicable Diseases Division. *The Epidemiologic Follow-up of Communicable Diseases in Oklahoma*, 2001.

- Missouri Department of Health and Senior Services, Section of Communicable Disease Control & Veterinary Public Health, *Communicable Disease Investigation Reference Manual*. 2001.
- Oregon Health Services Website. Available at <http://www.ohd.hr.state.or.us>
- Commonwealth of Massachusetts, Department of Public Health Website. Available at <http://www.state.ma.us/dph/>
- CDC Website. Available at <http://www.cdc.gov/health/default.htm>

# Toxic Shock Syndrome

Case # \_\_\_\_\_

- Confirmed  
 Probable  
 Suspect

## Report Source

Lab  Hospital  Physician / HCP  Other \_\_\_\_\_

Reporter Name \_\_\_\_\_

Primary M.D. / HCP \_\_\_\_\_

County \_\_\_\_\_

Report Date / / Phone (  )  - Phone (  )  - 

## Case Identification

Name: \_\_\_\_\_  
Last First InitialAddress: \_\_\_\_\_  
Street CityZip:  -  Phone: (  )  - Alternative Contact:  Parent  Spouse  Other \_\_\_\_\_Name: \_\_\_\_\_  
Last First InitialPhone: (  )  - 

Workplace / School / Daycare: \_\_\_\_\_

Occupation / Grade: \_\_\_\_\_

## Demographics

Gender:  Male  FemaleBirth Date: / / Or if unknown, Age: 

Race: (check all that apply)

 White  Black  Asian American Indian / Alaska Native Native Hawaiian / Pacific Islander UnknownHispanic / Latino:  Yes  No

## Clinical Information

Clinical Data Onset date / /  Diagnosis date / / Illness duration:  days

### Signs and Symptoms

Y N UNK N/A

- Fever
- Wound associated    F / C
- Fever Temperature   .  F / C
- Syncope
- Orthostatic dizziness
- Rash
- Desquamation
- Vomiting
- Diarrhea
- Other, Specify \_\_\_\_\_
- Other, Specify \_\_\_\_\_

Y N UNK N/A

- Abdominal pain
- Myalgia
- Sore Throat
- Conjunctival hyperemia
- Oropharyngeal hyperemia
- Injected tongue
- Vaginal hyperemia
- Vaginal discharge
- Vaginal ulceration
- Disorientation
- Seizures
- Cardiac Arrhythmia

### Hospitalization

Y N UNK N/A

    Hospitalized for this illness

Hospital name \_\_\_\_\_

Admit date / / Discharge date / / 

Y N UNK N/A

    Died from illness Death date / /     Autopsy

**Laboratory Data**

WBC \_\_\_\_\_ Collection Date / /   Not Done

Neutrophils % \_\_\_\_\_ Bands % \_\_\_\_\_ Metamyelocytes % \_\_\_\_\_ Myelocytes % \_\_\_\_\_ Myelocytes % \_\_\_\_\_ Platelets \_\_\_\_\_

LFT \_\_\_\_\_ Collection Date / /   Not Done

SGOT \_\_\_\_\_ SGPT \_\_\_\_\_ Alkaline phosphatase \_\_\_\_\_ Bilirubin \_\_\_\_\_ Amylase \_\_\_\_\_

BUN \_\_\_\_\_ Creatinine \_\_\_\_\_ Calcium \_\_\_\_\_ Phosphorus \_\_\_\_\_

EKG \_\_\_\_\_ Date / /   Not Done Results \_\_\_\_\_

Chest X-ray \_\_\_\_\_ Date / /   Not Done Results \_\_\_\_\_

Cultures Blood \_\_\_\_\_ Collection Date / /   Pos.  Neg.  Not Done Results \_\_\_\_\_

Urine \_\_\_\_\_ Collection Date / /   Pos.  Neg.  Not Done Results \_\_\_\_\_

Throat \_\_\_\_\_ Collection Date / /   Pos.  Neg.  Not Done Results \_\_\_\_\_

Nares \_\_\_\_\_ Collection Date / /   Pos.  Neg.  Not Done Results \_\_\_\_\_

Vagina \_\_\_\_\_ Collection Date / /   Pos.  Neg.  Not Done Results \_\_\_\_\_

Was Staphylococcus aureus present?  Yes  No  Unknown

If S.aureus present in vagina, is it resistant to penicillin and ampicillin only?  Yes  No  Unknown

Other culture positive sites \_\_\_\_\_  Yes  No  Unknown Specify: \_\_\_\_\_

Was case taking antibiotics when culture preformed?  Yes  No  Unknown

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

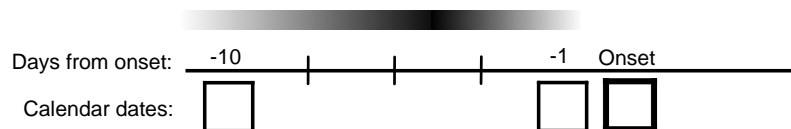
**Medication, Treatment, and/or Medical Procedures**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Infection Timeline**

Enter onset date in heavy box.  
Count forward and backward to  
calculate probable exposure  
and contagious periods.

**EXPOSURE PERIOD**



**Exposure**

Y N UNK N/A

- Menstruation associated
- Case had similar illness in past during menstrual period
- Type of menstrual product used:
  - Tampon only  Napkin only  Minipad only
  - Tampon & Napkin  Tampon & Minipad
  - Napkin & Minipad  Tampon, Napkin & Minipad
  - Sea sponge  Unknown
  - Other: \_\_\_\_\_
- Napkin Brand \_\_\_\_\_
- Minipad Brand \_\_\_\_\_
- Style Absorbency:
  - Super Plus  Super  Regular
  - Junior  Unknown

Y N UNK N/A

- If only one brand was used before onset of symptoms, circle only that brand:
  - Assure
  - Kotex
    - Plastic Inserter  Stick Inserter
    - Inserter Unknown
  - O.B.
  - Playtex
    - Deodorized  Non Deodorized
    - Deodorant unknown
  - Pursettes
  - Rely
  - Tampax
  - Other, specify: \_\_\_\_\_
  - Unknown

Notes: \_\_\_\_\_

**Epi-Linkage**

During the exposure period, was the case...

Y N UNK N/A

- Associated with a known outbreak?

Has the initial case been reported?  Yes  No

Specify nature of contact:  Household  Sexual

Daycare  Other \_\_\_\_\_

If yes to any question, specify relevant names days, places, etc:

Notes: \_\_\_\_\_

- Case could not be interviewed
- No risk factors or exposures could be identified

**Public Health Issues**

Y N UNK N/A

- Outbreak related
- Other, specify: \_\_\_\_\_

**Public Health Actions**

- Other, specify: \_\_\_\_\_
- Other, specify: \_\_\_\_\_

**Additional Comments**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Administration**

Estimated investigation time (hrs)  .

Investigator name \_\_\_\_\_ Phone (  )  -

Signature \_\_\_\_\_ Investigation complete date  /  /

## Toxic Shock Syndrome Investigation and Documentation Checklist

TASK	DATE	INITIALS
Report Received:	___/___/___	_____
Assigned to Investigator:	___/___/___	_____
Reported to State Surveillance System:	___/___/___	_____
Met Case Definition: <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___	_____
Case Interviewed: MOGE: <input type="checkbox"/> Yes <input type="checkbox"/> No Reason: _____	___/___/___	_____
Letter and Information Sheet Sent:	___/___/___	_____
Completed Investigation Worksheet:	___/___/___	_____
Case Closed and Filed:	___/___/___	_____
Comments: _____		
_____		
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**Case Name:** \_\_\_\_\_ **Number:** \_\_\_\_\_

**Principal Investigator:** \_\_\_\_\_ **Date:** \_\_\_/\_\_\_/\_\_\_

**Case Reviewed By:** \_\_\_\_\_ **Date:** \_\_\_/\_\_\_/\_\_\_

**KANSAS NOTIFIABLE DISEASE FORM**

Today's Date: \_\_\_ / \_\_\_ / \_\_\_

Patient's Name: \_\_\_\_\_  
Last First Middle

Day Phone: \_\_\_\_\_ Evening Phone: \_\_\_\_\_

Residential Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_ County: \_\_\_\_\_

Ethnicity: Hispanic or Latino Not Hispanic or Latino Unknown

Race: American Indian/Alaska Native Asian Black or African American  
Native Hawaiian or Other Pacific Islander White Unknown  
(Circle all that apply)

Sex: M F Date of Birth: \_\_\_ / \_\_\_ / \_\_\_ Age if DOB unknown: \_\_\_\_\_

Disease Name: \_\_\_\_\_

Symptoms:  
Onset: \_\_\_ / \_\_\_ / \_\_\_ State the 3 most prominent symptoms:

Symptom 1: \_\_\_\_\_ Symptom 2: \_\_\_\_\_ Symptom 3: \_\_\_\_\_

Outbreak associated? Y N Died? Y N

Institutional Residence? None Nursing Home Correctional Residential Hospital Psych

Physician Name: \_\_\_\_\_ Physician Phone: \_\_\_\_\_

**Laboratory Information:**

Specimen Collection Date: \_\_\_ / \_\_\_ / \_\_\_ Date Reported To You: \_\_\_ / \_\_\_ / \_\_\_

Name of Test Performed: \_\_\_\_\_ Results of Test: \_\_\_\_\_

Name of Laboratory: \_\_\_\_\_ Laboratory Results Attached? Y N

**Treatment Information:**

Date of Treatment: \_\_\_ / \_\_\_ / \_\_\_ Treatment Type and Dosage: \_\_\_\_\_  
Treatment Status: Complete On-going Discontinued

Name of person reporting: \_\_\_\_\_ Phone: \_\_\_\_\_

Comments: \_\_\_\_\_

Mail reports to your local health department or to: BEDP – Disease Surveillance, 1000 SW Jackson, Suite 210, Topeka, KS 66612-1274. Reports can also be *faxed toll free* to: 1-877-427-7318. (Rev. 04/2004)

Date: \_\_\_\_\_

Dear: \_\_\_\_\_,

I am writing in regards to some recent laboratory test results that you should have received. I work with the Local Health Department and as part of my job I provide information and answer questions about certain diseases that are reported to us.\* I would like to speak to you about your laboratory tests and provide information to you as well as to obtain some additional information about your results. Everything we receive from you or your healthcare provider is **STRICTLY CONFIDENTIAL**. The purpose for collecting this information is to educate patients and to collect information for public health planning and support our disease prevention activities.

Please contact me at your earliest convenience so that we may discuss this matter further. If your healthcare provider has not yet discussed this with you, I would encourage you to make an appointment or call them as soon as possible.

I look forward to discussing this matter with you and will be happy to answer any questions that you may have regarding this investigation at that time. My telephone number is \_\_\_\_\_. Thank you in advance for your assistance.

Sincerely,

Investigator Name, Title

Phone #

Address Line 1

Address Line 2

City, State Zip Code

\*The Kansas Department of Health and Environment (KDHE) has the authority to define what diseases are of public health importance and to require the reporting of such diseases. Under this authority KDHE has established regulations making certain diseases reportable (K.S.A. 65-118 and K.S.A. 65-128, and amendments thereto). These regulations outline reporting requirements and control measures that apply to both confirmed cases of such diseases and contacts of confirmed cases. Local health departments are required to collect information for the KDHE and implement control measures.

Date: \_\_\_\_\_

Dr: \_\_\_\_\_,

I am writing to you in regards to your patient, \_\_\_\_\_. The Health Department recently received notice that this patient may have been diagnosed with \_\_\_\_\_, which is a reportable disease under State rules and regulations. The Health Department routinely contacts patients with reportable diseases to gain more information, provide education, and make necessary referrals and support. In order to do this, I would like to speak to you regarding the laboratory results and risk history of this patient.

Please contact me at your earliest convenience so that we may obtain the information required for this report. If it is more convenient for you to fill out the report form on your own and mail or fax it to me, please feel free to do so. I have enclosed a copy of it with this letter. I would also like to remind you that during our investigation we may be contacting your patient directly, it is strongly recommended that you contact your patient to discuss this diagnosis and inform them of our investigation. All of the information that we obtain from either you or your patient is **STRICTLY CONFIDENTIAL**.

I look forward to discussing this matter with you and will be happy to answer any questions that you may have regarding this investigation at that time. My telephone number is \_\_\_\_\_. Thank you in advance for your assistance.

Sincerely,

Investigator Name, Title  
Phone #  
Fax #  
Address Line 1  
Address Line 2  
City, State Zip Code

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	<b>Public Health Fact Sheet Toxic Shock Syndrome</b>
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**What is Toxic Shock Syndrome (TSS)?**

Toxic shock syndrome (TSS) is a serious illness that sometimes occurs in people who are infected with specific types of the bacteria including, *Staphylococcus aureus* or *Streptococcus pyogenes*. These bacteria can produce a potent toxin if certain conditions in the body are met. The illness became widely recognized in 1980 among women who used tampons. Since then, cases associated with menstruation have decreased to about 50% of all cases, while other risk factors have been identified, including using diaphragms and vaginal contraceptive sponges and infection following childbirth, abortion, and surgery.

**What are the symptoms?**

The symptoms of TSS occur suddenly and include: high fever (>102° F), chills, vomiting, diarrhea, muscle pains and headache. A “sunburn-like” rash may also occur; 1-2 weeks later, peeling of the skin occurs, especially on the soles and palms of the hands and feet.

**How is TSS spread?**

Toxic shock syndrome is not spread from person-to-person.

**Who gets TSS?**

While extremely rare, anyone can develop TSS. However, women are at greatest risk, including: those who use vaginal tampons, contraceptive diaphragms or vaginal contraceptive sponges, and women who have recently given birth or had an abortion. Although rare, men and women who have an infection with *S. aureus* may also be at risk for developing TSS.

**How is it diagnosed?**

A physician is needed to properly diagnose TSS.

**How is TSS treated?**

TSS is a serious illness that requires immediate medical attention. Specific treatments depend on the severity of illness and/or complications. Doctors will also prescribe antibiotics to treat the infection.

**How can you prevent TSS?**

Women who are using vaginal tampons, contraceptive diaphragms or vaginal contraceptive sponges need to read and follow the manufacturer's instructions as far as how long to leave the products in place. If you suspect you have TSS, you should seek medical care immediately.

**Where can I get more information?**

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section (877) 427-7317
- <http://www.cdc.gov/health/default.htm>
- Your doctor, nurse, or local health center

*This fact sheet is for information only and is not intended for self-diagnosis or as a substitute for consultation. If you have any questions about the disease described above or think that you may have an infection, consult with your healthcare provider. This fact sheet is based on the Centers for Disease Control and Prevention's Health and Safety topic fact sheets.*