



TYPHOID FEVER, CARRIER

(See also TYPHOID FEVER, ACUTE and SALMONELLOSIS.)

1. **Agent:** *Salmonella typhi*, a Gram-negative bacillus.
2. **Identification:**
 - a. **Symptoms:** None.
 - b. **Differential Diagnosis:** Not applicable.
 - c. **Diagnosis:** A carrier is an asymptomatic person who sheds typhoid bacteria from stool or urine, occasionally from wound, tissues, and organs. There is a higher incidence in older women.
 - d. **Definitions:**
 - **Convalescent Carrier:** Sheds typhoid bacilli for 3 or more months after onset of acute illness.
 - **Chronic Carrier:**
 - ▶ Sheds typhoid bacilli for more than 12 months after onset of acute illness; or
 - ▶ Has no history of typhoid fever or had the disease more than 1 year previously, but has two feces or urine cultures positive for *S. typhi* separated by 48 hours.
 - **Other Carrier:** Typhoid bacilli have been isolated from surgically removed tissues, organs, or from draining lesions.
3. **Incubation period:** Not applicable.
4. **Reservoir:** Human (intestine, possibly gallbladder, kidney or wound).
5. **Source:** Feces and urine of infected person.
6. **Transmission:** Direct or indirect contact with contaminated feces or urine.
7. **Communicability:** As long as patient sheds typhoid bacilli.
8. **Specific Treatment:** Current therapy for

chronic carrier is not 100% effective. Contact ACDC for suggested treatment protocol of chronic carrier.

9. **Immunity:** Not applicable to carrier. Immunization of contacts may be offered selectively. Consult with ACDC.

REPORTING PROCEDURES

1. **Reportable.** *California Code of Regulations*, Sections 2500 and 2628.

2. Report Form:

When case is first identified:

- **TYPHOID CARRIER CASE REPORT (DHS 8566, 3/00 fillable).**
- **TYPHOID CARRIER AGREEMENT, English (DHS 8563, 5/99 fillable) or TYPHOID CARRIER AGREEMENT, Spanish (DHS 8563 - SP, 5/99, fillable)** when case is first identified.

To remove case:

- **LAC DHS RELEASE OF CHRONIC TYPHOID CARRIER (acd-typhoid carrier release, 7/02 fillable)** (formerly H-538).

To monitor cases:

- **LAC DHS TYPHOID CARRIER SEMI-ANNUAL REPORT (acd-typhoid semi-rep, 7/02 fillable)** (formerly H-481).

Note: Based on information from above forms, ACDC will complete and submit **TYPHOID CARRIER REGISTER—SEMI-ANNUAL UPDATE (DHS 8466, 5/99 fillable)**. This form should not be completed by staff outside ACDC.

3. Epidemiologic Data:

- a. Occupation and volunteer activities related to health care, childcare, and food preparation.
- b. History of typhoid fever, with date and place of residence at time diagnosed.
- c. History of typhoid fever in family, relatives,



friends and neighbors, with place of residence and time of illness.

- d. Name and address of case(s) traced to carrier. Identify probable method and time of transmission.
- e. Place of birth of carrier, reason for obtaining first positive culture.

CONTROL OF CASE, CONTACTS & CARRIERS

For definition of sensitive occupation or situation (SOS), see B-73, **Part I**, Section 12. Individuals living in a group setting, including a skilled nursing or intermediate care facility, are considered to be in a sensitive situation.

Carriers cannot be released from supervision until cleared according to public health law.

Prior written approval from the Area Medical Director after consultation with ACDC is required before any admission to a skilled nursing or intermediate care facility (B-73, **Part II**, Section 2A).

1. RESTRICTIONS FOR ALL CARRIERS:

- a. Enteric precautions, as long as feces and/or urine remain positive for bacilli.
- b. Exclude from SOS.
- c. Must sign "**Carrier Agreement**" and adhere to it. If in violation, consult ACDC.
- d. May not be admitted to skilled nursing facility without prior approval of ACDC.

2. CONVALESCENT CARRIERS:

- a. Release when 3 consecutive feces and urine cultures, taken at intervals of 1 month, and beginning 1 week after completion of specific therapy, are negative. Releases may be given 3-12 months after onset.
- b. If unable to obtain release 1 year after onset, report and follow as chronic carrier.
- c. Specimens must be submitted to the Public Health Laboratory.

3. CHRONIC CARRIERS:

- a. Visit at least twice yearly and offer to repeat cultures every 6 months. Repeating cultures is voluntary. If surveillance specimen is negative, proceed with attempt to clear. Verify address and adherence to "**Carrier Agreement**."
- b. **Release:** Request release from State Department of Health Services through ACDC when:
 - **Fecal or gallbladder carrier:** 6 consecutive negative feces and urine specimens submitted at 1-month or greater intervals beginning at least 7 days after completion of therapy.
 - **Urinary or kidney carrier:** 6 consecutive negative urine specimens submitted at 1-month or greater intervals beginning at least 7 days after completion of therapy.

NOTE: All specimens must be submitted to the Public Health Laboratory.

4. OTHER CARRIERS:

- a. Visit at least twice yearly and offer to repeat cultures every 6 months. If the surveillance specimen is negative, proceed with attempt to clear. Verify address and adherence to "**Carrier Agreement**".
- b. Official release is not effective until the local Health District receives a notice in writing from ACDC and/or the State Health Department.

CONTACTS: Household members or frequent contacts to the carriers.

1. Sensitive Occupation or Situations:

- a. **Symptomatic:** Confirm diagnosis. Remove from work. If positive, follow as a case. If negative, remain removed from work until 2 consecutive feces and urine cultures, taken at least 24 hours apart, are negative. Then, negative specimens of both feces and urine each week until case released or contact with case broken. If contact to carrier, consult ACDC.



b. **Asymptomatic:** Remove from work until 2 consecutive feces and urine cultures, taken at least 24 hours apart, are negative. Then, may return to work with weekly negative specimens of both feces and urine until case released or contact with case broken. If contact to carrier, consult ACDC.

2. **Non-sensitive Occupations:** May continue to work. Obtain 2 consecutive feces and urine cultures at least 24 hours apart for additional case finding or identification of carriers.

PREVENTION-EDUCATION

1. Supervise and educate the typhoid carrier. During semi-annual visits, review contents of "**Carrier Agreement**" with patient. Document responses.
2. Stress hand washing, personal hygiene and the need to keep fingernails short and clean.
3. Dispose of urine, feces, and fomites in a safe manner.
4. Offer to immunize contacts (as defined in this section) where hygiene is questionable and/or contacts are in SOS.
5. Prepare, store and refrigerate foods properly.
6. Inform private physician of carrier status, if patient does not do so, to assure that enteric precautions will be taken during care of patient. If applicable, inform private physician that patient may not be admitted to a skilled nursing facility without prior health department approval.
7. If patient is mentally or physically disabled, identify and educate a responsible person about disease prevention. Obtain signed agreement from a responsible person.

DIAGNOSTIC PROCEDURES

Culture:

Container: Enterics.

Laboratory Form: Test Requisition and Report Form H-3021 or online request if electronically linked to the Public Health Laboratory.

Examination Requested: *Salmonella typhi* (indicate if acute case or suspected carrier).

Material: Feces and urine; follow instructions provided with the container.

Storage: Protect from excessive heat. Maintain at room temperature.

Remarks: Other body fluid cultures available. Consult the Public Health Laboratory, Bacteriology Section.