

**DEPARTMENT OF HUMAN SERVICES**  
**Public Health Division**  
**Office of Disease Prevention & Epidemiology**

**Standing Order for**  
**Leptospirosis Prophylaxis**

**I. ORDER**

1. Assess whether the person was exposed to *Leptospira*.
2. Inform patient about leptospirosis and preventive doxycycline, answering any questions.
3. Ask the screening questions in §III below; refer to Health Officer or the patient's personal physician as indicated.
4. Prescribe or dispense doxycycline in accordance with guidelines (Table 1).

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Public Health Physician, ODPE

Date

**II. Persons for whom prophylaxis may be ordered**

1. Persons who have a confirmed or highly suspect exposure to *Leptospira*, as determined by the local Health Officer.

### **III. Screening for doxycycline contraindications**

Anyone answering “yes” to any of the following questions should discuss the issue with the Health Officer or with their personal physician.

**1. Has the patient ever had an allergic reaction to any medication in the tetracycline class?**

Allergic reactions may include: hives, redness of the skin, rash, difficulty breathing, or worsening of lupus after taking one of the tetracycline class drugs, including demeclocycline (Declomycin); doxycycline (Adoxa, Bio-Tab, Doryx, Doxy, Monodox, Periostat, Vibra-Tabs, Vibramycin); minocycline (Arestin, Dynacin, Minocin, Vectrin); oxytetracycline (Terak, Terra-Cortril, Terramycin, Urobiotic-250); tetracycline (Achromycin V, Sumycin, Topicycline, Helidac)

**2. Does the patient weight less than 100 pounds?**

Patients weighing less than 100 pounds (45 kilograms) should be weighed. They should take a single dose of doxycycline, 1 mg/lb, by mouth.

**3. Is the patient pregnant or breastfeeding?**

The tetracycline class of antibiotics has been associated with fetal toxicity including retarded skeletal growth. However, a large case-control study of congenital abnormalities showed that doxycycline use in pregnancy presented little teratogenic risk to the fetus. Liver toxicity has been reported in pregnant women following large doses of intravenous tetracycline (no longer sold in the United States), but it has also been reported following oral administration of tetracycline to non-pregnant individuals. The risks of leptospirosis need to be balanced against those associated with doxycycline use in pregnancy.

**4. Is the patient taking any prescription medications or over-the-counter medication, including antacids, Pepto-Bismol®, laxatives, or iron?**

Divalent cations, present in over-the-counter antacids, laxatives, iron supplements, and milk, bind doxycycline and interfere with its absorption. See Table 2 for drug interactions with doxycycline.

**Exposed patients answering “no” to all of the above questions should receive a single dose of doxycycline.**

### ***Leptospira* Post-exposure Prophylaxis**

Leptospirosis is a systemic bacterial infection contracted through abraded skin or mucous membranes following contact with infected animals (especially with their urine) or through swimming in or swallowing water contaminated with any of a number of species of *Leptospira*. Common features of the illness include headache, chills, myalgias, and conjunctival suffusion. A rash may be present. More severe cases may involve meningitis, hemolytic anemia, hemorrhage into skin and mucous membranes, hepatorenal failure, jaundice, mental confusion, myocarditis, and pulmonary hemorrhage. The duration of the illness varies from a few days to several weeks; recovery of untreated cases can take several months.

Doxycycline in a single dose (or weekly, in cases of prolonged exposure) may be effective in preventing leptospirosis in exposed persons.

**Table 1**

<b>Recommendations for Prophylaxis of Patients Exposed to <i>Leptospira</i></b>	
<b>Adults</b>	Doxycycline, 200 mg orally once
<b>Children</b>	Doxycycline, If $\geq 100$ lbs., give adult dosage If $< 100$ lbs., give 2 mg/lb orally once

### **Reference**

1. Leptospirosis. In: Heymann DL, ed. *Control of Communicable Diseases Manual*. 18<sup>th</sup> ed. Washington, DC: American Public Health Association, 2005, p. 308.

**Table 2. Doxycycline Drug Interactions<sup>1</sup>**

<b>Other Drug</b>	<b>Effect</b>	<b>Recommendation</b>
Antacids (containing aluminum, calcium or magnesium salts) Iron salts Zinc salts	Tetracyclines administered with aluminum, calcium, magnesium, iron or zinc salts form an insoluble chelate, thereby decreasing the absorption and serum levels of the tetracycline.	Administer tetracyclines 1 hour before or 2 hours after these agents
Barbiturates – Phenobarbital, amobarbital, aprobarbital, butabarbital, secobarbital (various brand names)	Barbiturates increase the hepatic metabolism of doxycycline, thereby decreasing doxycycline's half-life and serum levels.	Adjust doxycycline dose as needed. Consider using an alternative tetracycline.
Bismuth salts	Coadministration of bismuth salts in liquid formulations may decrease the serum levels of tetracyclines.	Give the bismuth salt 2 hours after the tetracycline.
Carbamazepine (Atretol <sup>®</sup> , Epitol <sup>®</sup> , Tegretol <sup>®</sup> , Carbatrol <sup>®</sup> ) anticonvulsant	Carbamazepine may decrease the half-life and serum levels of doxycycline due to increased hepatic metabolism.	Adjust doxycycline dose as needed. Consider using an alternative tetracycline.
Cholestyramine (LoCHOLEST <sup>®</sup> , Questran <sup>®</sup> , Prevalite <sup>®</sup> ) Colestipol (Colestid <sup>®</sup> ) treatment for hyperlipidemia	Coadministration may decrease or delay the absorption of tetracyclines, therefore decreasing the serum concentrations.	Adjust the tetracycline dose if needed.
Phenytoin (Dilantin <sup>®</sup> ) anticonvulsant	Phenytoin appears to induce the metabolism of doxycycline causing the half-life to be significantly decreased.	Increased doxycycline dosage may be needed.

<sup>1</sup> Adapted from Drug Facts and Comparison, 2004 Edition.

Other Drug	Effect	Recommendation
Rifamycins – Rifampin, rifabutin, rifapentin	Rifamycins appear to induce the metabolism of doxycycline causing the half-life to be significantly decreased.	Increased doxycycline dosage may be needed.
Urinary alkalinizers (e.g., sodium lactate, potassium citrate)	Coadministration may result in increased excretion of the tetracyclines and decreased serum levels.	Separate administration by 3 to 4 hours; however, this may not be effective, and an increase in tetracycline dose may be necessary if the pH of the urine remains increased.
Warfarin, (Coumadin <sup>®</sup> ) anticoagulants	The action of oral anticoagulants may be increased because of the elimination of vitamin K-producing gut bacteria by tetracyclines.	Monitor coagulation parameters and adjust anticoagulant dose as needed.
Contraceptives, oral	Tetracyclines may interfere with the enterohepatic recirculation of certain contraceptive steroids, leading to reduced efficacy. Although infrequently reported, contraceptive failure is possible.	Counsel patient regarding use of alternative contraceptives while taking tetracyclines.
Digoxin (Lanoxin <sup>®</sup> , Lanoxicaps <sup>®</sup> ) cardiac glycoside	Coadministration may result in increased serum levels of digoxin in a small subset of patients (~10%).	Monitor digoxin levels and signs of toxicity.
Insulin	The ability of insulin to produce hypoglycemia may be potentiated.	In diabetic patients, monitor blood glucose concentrations closely and tailor the insulin regimen as needed.
Isotretinoin (Accutane <sup>®</sup> , Claravis <sup>®</sup> ) acne treatment	Isotretinoin use has been associated with a number of cases of pseudotumor cerebri, some of which involved coadministration of tetracyclines.	Avoid concomitant use.

<b>Other Drug</b>	<b>Effect</b>	<b>Recommendation</b>
Methoxyflurane (Penthrane <sup>®</sup> ) general anesthetic	Coadministration may enhance the risk for renal toxicity; deaths have been reported.	Do not coadminister.
Penicillins (various brand names)	The bacteriostatic action of tetracyclines may interfere with the bactericidal activity of penicillins.	Consider avoiding this combination, if at all possible.
Theophylline (various brand names) bronchodilator	The incidence of adverse reactions to theophyllines may be increased.	Monitor theophylline levels and adjust dose as needed.