



Republic of the Philippines
Department of Health DOH-10-19-1
OFFICE OF THE SECRETARY

16 October 2009

DEPARTMENT MEMORANDUM

No. 2009-0250

To: DOH Bureaus, Services, Centers for Health Development (CHDs) Directors, Hospitals and Attached Agencies, All Services, Units and Teams, Designated to Work for the Prevention and Control of Leptospirosis in all Flooded Areas and All Others Concerned

Subject: Interim Guidelines on the Prevention of Leptospirosis through the Use of Prophylaxis in Areas affected By Floods

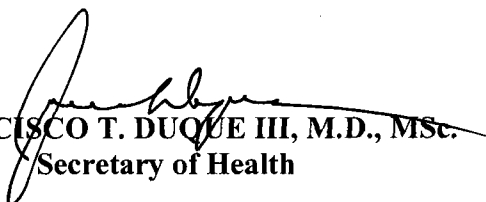
WHEREAS, cities and municipalities in different regions of the country had experienced torrential rains resulting in floods;

WHEREAS, various local government units have already reported an increasing number of cases of leptospirosis from different evacuation areas and affected communities with members of the community admitted and managed in various hospitals;

WHEREAS, both the DOH and the local government units have agreed to work closely together in preventing and controlling any disease outbreak that may occur in evacuation areas and in the affected communities;

The DOH hereby issues these **Interim Guidelines on the Prevention of Leptospirosis through the Use of Prophylaxis in Areas Affected By Floods** dated October 16, 2009.

For strict compliance.


FRANCISCO T. DUQUE III, M.D., MSc.
Secretary of Health



**Republic of the Philippines
Department of Health
OFFICE OF THE SECRETARY**

16 October 2009

**INTERIM GUIDELINES ON THE PREVENTION OF LEPTOSPIROSIS
THROUGH THE USE OF PROPHYLAXIS IN AREAS
AFFECTED BY FLOODS**

Leptospirosis is a bacterial disease affecting both humans and animals. The early stages of the disease may include high fever, severe headache, muscle pain, chills, redness in the eyes, abdominal pain, jaundice, haemorrhages in skin and mucous membranes (including pulmonary bleeding), vomiting, diarrhoea and a rash.

Caused by pathogenic *Leptospira* species bacteria, human infection occurs through direct contact with the urine of infected animals or by contact with a urine-contaminated environment, such as surface water, soil and plants. Resulting in an epidemic-prone zoonotic bacterial disease that can be transmitted by direct contact with contaminated water, the causative organisms have been found in a variety of both wild and domestic animals, including rodents, insectivores, dogs, cattle, pigs and horses. Leptospire can gain entry through cuts and abrasions in the skin and through mucous membranes of the eyes, nose and mouth.

Leptospirosis occurs worldwide, in both rural and urban areas and in temperate and tropical climates. It is an occupational hazard for people who work outdoors or with animals, such as rice and sugar-cane field workers, farmers, sewer workers, veterinarians, dairy workers and military personnel. It is also a recreational hazard to those who swim or wade in contaminated waters. Rodents shed large amounts of leptospire in their urine, and transmission occurs through contact of the skin and mucous membranes with water, damp soil or vegetation (such as sugar cane), or mud contaminated with rodent urine. In endemic areas, the number of leptospirosis cases may peak during the rainy season and even may reach epidemic proportions in case of flooding. Flooding facilitates spread of the organism because of the proliferation of rodents and the proximity of rodents to humans on shared high ground.

Poor sanitation, an increase in informal settlers in urban areas and frequent typhoons and expansion of flooding areas in the country have exacerbated the risk of leptospirosis infection in the Philippines. Having been included as a notifiable disease by the DOH, leptospirosis has resulted in outbreaks due to flooding in many parts of the country.

This document is intended to be used by physicians and health workers in the prevention of leptospirosis through the use of prophylaxis in communities that had experienced flooding.

Antibiotic prophylaxis

Doxycycline is reported to give some degree of protection to exposed individuals from non-endemic areas. Identified cases of human infection must be confirmed, or a large number of cases suspected, before the general population is issued prophylactic medication.

Some researchers conclude that doxycycline may be effective in preventing leptospirosis in exposed persons in areas of high exposure. It is critical that good surveillance data should show where there is a high risk of transmission in order to guide public health officials in determining the need for prophylaxis. When this is decided upon, the recommended administration of doxycycline for adults and for children is as follows:

| Adult ^{1,2} | Pedia ^{3,4} | |
|----------------------------------------------------------------------------------------------------|-----------------------|----------------------------|
| 200 mg capsules taken orally OD once a week (i.e. two 100 mg capsules taken as a single oral dose) | > 45 kg | < 45 kg |
| | 100 mg OD once a week | 4 mg/kg/day OD once a week |

NOTE: OD: once a day

1 - For all adults including children 12 years of age

2 - Excluding pregnant and breastfeeding mothers

3 - For children between 8 to 12 years old

4 - Doxycycline is contraindicated for children < 8 years old

Prophylaxis is begun 1–2 days before and continuing through the period of exposure. A full prophylactic course of treatment is required if exposure is known to have occurred. Prophylaxis for leptospirosis may be achieved by administration of doxycycline to frontline responders (e.g. rescue personnel, military personnel, health workers, etc) in areas with a high risk of exposure to leptospirosis.

As indications for prophylactic doxycycline use for children have not been established, prophylaxis for children below 8 years old should be provided **ONLY UPON MEDICAL ADVICE AND SUPERVISION**. Physicians and health workers are also

directed to strictly monitor patients for any adverse events associated with the intake of doxycycline (refer to the attached guidelines).

The risk of infection whether low, moderate or high is assessed by determining the presence or absence of wounds, cuts or other skin lesions and the frequency of exposure of wading in flooded areas (whether single exposure or continuous exposure). Antibiotic prophylaxis of leptospirosis may be achieved by administration of doxycycline depending on the risk category of exposure (*PSMID Interim Statements on the Role of Antibiotic Chemoprophylaxis in Leptospirosis, Oct. 2009*):

- a. **LOW RISK** will be defined as those individuals with a single history of wading in flood or contaminated water and absence of wounds, cuts or open lesions of the skin.

Doxycycline (hydrochloride or hyclate) at 2 capsules of 100 mg single dose within 24 to 72 hours

- b. **MODERATE RISK** will be defined as those individuals with a single history of wading in flood or contaminated water and the presence of wounds, cuts, or open lesions of the skin, OR accidental ingestion of contaminated water.

Doxycycline (hydrochloride or hyclate) at 2 capsules of 100 mg OD for 3-5 days to be started immediately within 24 to 72 hours from exposure.

- c. **HIGH RISK** will be defined as those individuals with continuous exposure (defined as those having more than a single exposure or several days such as those residing in flooded areas, rescuers and relief workers) of wading in flood or contaminated water **with or without** wounds, cuts or open lesions of the skin. Swimming in flooded water and ingestion of contaminated water are also considered high risk.

Doxycycline (hydrochloride or hyclate) at 2 capsules of 100 mg once weekly until the end of exposure

For guidance in the administration of prophylaxis for leptospirosis, attached are interim statements and an algorithm in the use of doxycycline in flooded areas obtained from the *Task Force on Leptospirosis of the Philippine Society for Microbiology and Infectious Diseases (PSMID)*.

ANNEX:

Philippine Society for Microbiology and Infectious Diseases (PSMID) Interim Statements on the Role of Antibiotic Chemoprophylaxis in Leptospirosis:

A. Pre-exposure Measures

1. The most effective preventive measure is the avoidance of high-risk exposure (i.e. wading in floods and contaminated water, contact with animal's body fluid).
2. If high risk exposure is unavoidable, appropriate protective measures include wearing boots, goggles, overalls, and rubber gloves. (Mandell 2009 Lepto Prevention)
3. Pre-exposure antibiotic prophylaxis is NOT ROUTINELY RECOMMENDED. However, in those individuals who intend to visit highly endemic areas AND get exposed, pre-exposure prophylaxis may be considered.

Pre-exposure prophylaxis for non-pregnant, non-lactating adult regimen:

Doxycycline (hydrochloride and hyclate) 2 capsules of 100 mg once weekly, to begin 1 to 2 days before exposure and continuing through the period of exposure

Currently, there is NO recommended pre-exposure prophylaxis that is safe for pregnant and lactating women.

B. Post-Exposure Measures

2. Antibiotic prophylaxis in the prevention of leptospirosis is NOT 100% effective.
3. Factors that may affect prophylactic effectiveness include the quality of the drug, timing of intake of prophylaxis, drug interaction, the presence or absence of skin wounds, and degree and extent of exposure.
4. Antibiotic prophylaxis of leptospirosis may be achieved by administration of doxycycline depending on the risk category of exposure.
 - a. **LOW RISK** will be defined as those individuals with a single history of wading in flood or contaminated water and absence of wounds, cuts or open lesions of the skin.

Doxycycline (hydrochloride or hyclate) at 2 capsules of 100 mg single dose within 24 to 72 hours

- b. **MODERATE RISK** will be defined as those individuals with a single history of wading in flood or contaminated water and the presence of wounds, cuts, or open lesions of the skin, OR accidental ingestion of contaminated water.

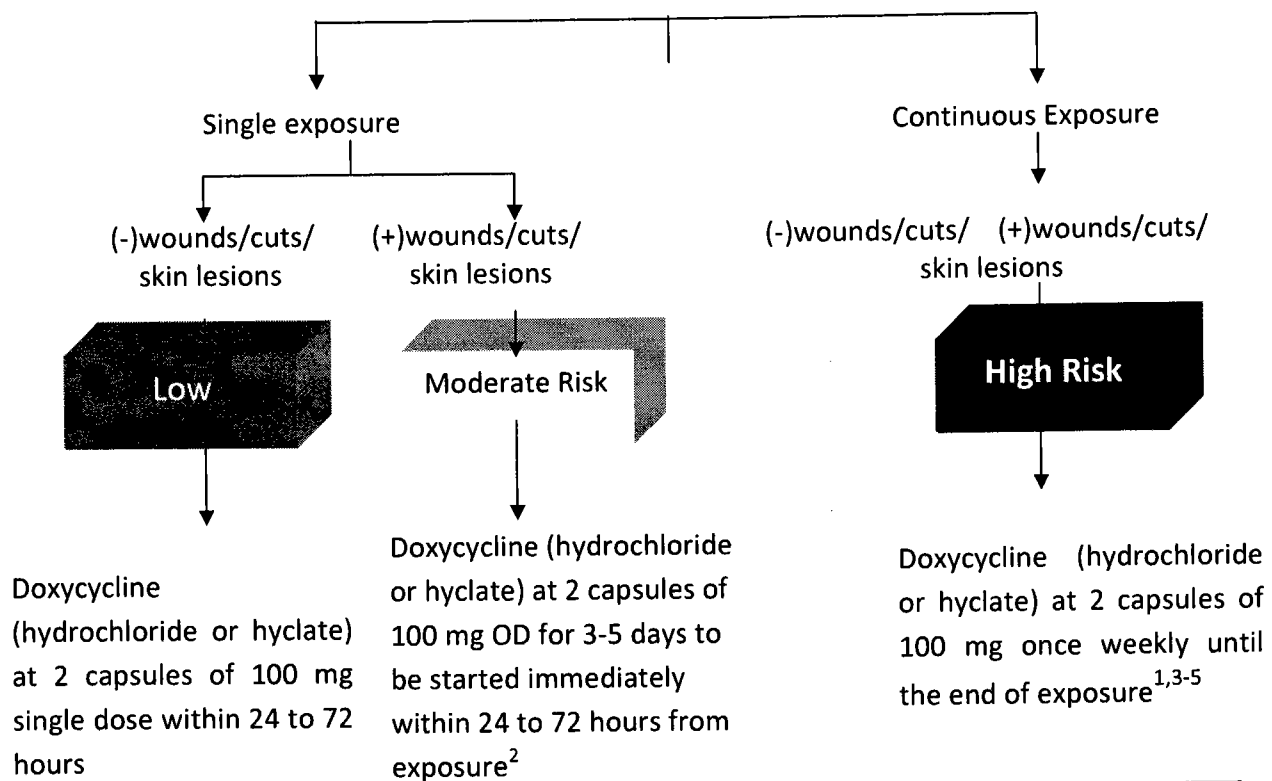
Doxycycline (hydrochloride or hyclate) at 2 capsules of 100 mg OD for 3-5 days to be started immediately within 24 to 72 hours from exposure.

- c. **HIGH RISK** will be defined as those individuals with continuous exposure (defined as those having more than a single exposure or several days such as those residing in flooded areas, rescuers and relief workers) of wading in flood or contaminated water **with or without** wounds, cuts or open lesions of the skin. Swimming in flooded water and ingestion of contaminated water are also considered high risk.

Doxycycline (hydrochloride or hyclate) at 2 capsules of 100 mg once weekly until the end of exposure

- 5. The use of such prophylaxis **REQUIRES PRIOR CONSULT WITH A PHYSICIAN**. It should not be taken unless prescribed and fully explained by a physician, including common side-effects and contraindications.
- 6. **SINCE ANTIBIOTIC PROPHYLAXIS IS NOT 100% EFFECTIVE, INDIVIDUALS SHOULD CONTINUE TO MONITOR THEMSELVES FOR FEVER AND OTHER FLU-LIKE SYMPTOMS.**

HISTORY OF WADING IN FLOOD*



*MODIFIED from San Lazaro Hospital's Guideline on Prophylaxis for Leptospirosis 2009

¹Mandell, 2005

²DOH- HEMS Manual on Treatment Protocols of Common Communicable Diseases and other Ailments During Emergencies and Disasters

³New England Journal of Medicine Feb 23, 1984 Volume 310 (8):497-500

⁴Int J Antimicrob Agents 2000 Feb; 13 (4): 249-55. Randomized controlled trial of doxycycline prophylaxis against leptospirosis in an endemic area

⁵Revista do Instituto de Medicina Tropical de Sao Paulo 1998; 40: 59-61. Use of doxycycline for leptospirosis after high-risk exposure in Sao Paulo, Brazil

Drug Information on Doxycycline

Contraindications

- **Do not** use this medication if you are **pregnant**. It could cause harm to the unborn baby, including permanent discoloration of the teeth later in life.
- **Do not** take this medication without telling your doctor if you are breast-feeding a baby. Doxycycline passes into breast milk and may affect bone and tooth development in a nursing baby.
- **Do not** give doxycycline to a child younger than 8 years old. Doxycycline can cause permanent yellowing or graying of the teeth, and it can affect a child's growth
- **Do not** use this medication if you are allergic to doxycycline, or to similar medicines such as demeclocycline, minocycline, or tetracycline.

Precautions

- Before taking doxycycline, tell your doctor if you have liver or kidney disease. You may not be able to take doxycycline, or you may need a dose adjustment or special tests during treatment
- **Doxycycline can make birth control pills less effective.** Use a second method of birth control while you are taking doxycycline to keep from getting pregnant.
- **Avoid exposure to sunlight or artificial UV rays** (sunlamps or tanning beds). Doxycycline can make your skin more sensitive to sunlight and sunburn may result. Use a sunscreen (minimum SPF 15) and wear protective clothing if you must be out in the sun.
- **Do not** take iron supplements, multivitamins, calcium supplements, antacids, or laxatives within 2 hours before or after taking doxycycline
- **Store** this medication at room temperature away from moisture and heat
- Throw away any unused doxycycline when it expires or when it is no longer needed. Do not take any doxycycline after the expiration date printed on the bottle. Expired doxycycline can cause a dangerous syndrome resulting in damage to the kidneys.

Drug Interactions

- **Drug interactions:** antacids; minerals such as iron, zinc, calcium, magnesium, and over-the-counter vitamin and mineral supplements cholesterol-lowering medications such as cholestyramine or colestipol; isotretinoin; tretinoin; product

that contains bismuth subsalicylate; warfarin ; penicillin antibiotic such as amoxicillin, penicillin, dicloxacillin, oxacillin (Bactocill), and others.

Adverse Reactions

- Get emergency medical help if you have any of these **signs of an allergic reaction**: hives; difficulty breathing; swelling of your face, lips, tongue, or throat.
- Antibiotic medicines can cause diarrhea, which may be a sign of a new infection. If you have diarrhea that is watery or has blood in it, call your doctor. Do not use any medicine to stop the diarrhea unless your doctor has told you to

Other alarming side effects:

- severe headache, dizziness, blurred vision; fever, chills, body aches, flu symptoms; severe blistering, peeling, and red skin rash; urinating less than usual or not at all; pale or yellowed skin, dark colored urine, fever, confusion or weakness; severe pain in your upper stomach spreading to your back, nausea and vomiting, fast heart rate; loss of appetite, jaundice (yellowing of the skin or eyes); or easy bruising or bleeding, unusual weakness.

Less serious side effects may include:

- swollen tongue, trouble swallowing; mild nausea, vomiting, diarrhea, or stomach upset; white patches or sores inside your mouth or on your lips; sores or swelling in your rectal or genital area; or vaginal itching or discharge.

How to Reduce Doxycycline Side Effects

- Ensure that your physician is aware of all medications and over-the-counter vitamin supplements or herbal remedies that you are taking. Antacids and certain vitamins and minerals are known to interfere with doxycycline absorption.
- Take doxycycline with food or following a meal. If you have taken doxycycline on an empty stomach before and gotten away with it, the next time may be different. Doxycycline induced nausea is quite unpleasant and more serious stomach irritation can occur.
- Don't lie down for an hour following doxycycline intake to prevent one of the most formidable doxycycline side effects, esophageal damage. If reclined, the medication may dissolve in the esophagus instead of the stomach. If this doxycycline side effect occurs, a patient may gag on something as innocuous as sips of water. Treatment may take days for this condition to abate, depending on the extent of the irritation or damage.

- Avoid, if possible, taking doxycycline along with other medications that are known to bother the stomach. Space out the medications accordingly and add more food intake if needed. Pain medications and NSAIDs (e.g., ibuprofen) combined with doxycycline may cause significant stomach distress.
- Talk to your physician about the benefits of acid reducers, rather than antacids, as these may be helpful in reducing or eliminating some doxycycline side effects.
- Discuss any recommended treatments for yeast infection should these occur. Some patients find lactobacillus helpful in preventing yeast infections. This healthy bacteria is found in some foods, including yogurt and cheese. It is also available as a supplement in capsule form.
- Take doxycycline 100 mg capsule BID if 200 mg OD is not tolerated.

<http://health.yahoo.com/infectiousdisease-medications/doxycycline/healthwised00037a1.html#d00037a1-drugs>

<http://www.drugs.com/pro/doxycycline.html>

http://www.ehow.com/how_2165217_avoid-doxycycline-side-effects.html?ref=fuel&utm_source=yahoo&utm_medium=ssp&utm_campaign=yssp_art