



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
Ministry of Health

231, de Saram Place, Colombo 01000, Sri Lanka  
Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@slt.net.lk  
Epidemiologist: +94 11 2681548, E mail: chepid@slt.net.lk  
Web: <http://www.epid.gov.lk>

Vol. 42 No.11

07<sup>th</sup> – 13<sup>th</sup> March 2015

## Anthrax (Part I)

This is the first in a series of two articles on Anthrax

### Background

Anthrax is a serious non contagious infectious disease caused by gram-positive, rod-shaped bacteria known as *Bacillus anthracis*. Anthrax can be found naturally in soil and commonly affects domestic and wild animals around the world. Although it is rare, people can get sick with anthrax if they come in contact with infected animals or contaminated animal products.

### Transmission

Domestic and wild animals such as cattle, sheep, goats, antelope and deer can become infected when they breathe in or ingest spores in contaminated soil, plants or water. In areas where domestic animals have had anthrax in the past, routine vaccination can help prevent outbreaks.

People get infected with anthrax when spores get into the body in the following ways;

- Working with infected animals or animal products.
- Eating raw or undercooked meat from infected animals.
- Injecting heroin.

When anthrax spores get inside the body, they can get “activated.” When they become active, the bacteria can multiply, spread out in the body, produce toxins (poisons) and cause severe illness.

### Types of Anthrax

- Inhalation
- Gastrointestinal
- Injection
- Cutaneous

### People at risk

Anyone who has come in contact with anthrax spores could be at risk of getting sick. Most people will never be exposed to anthrax. However, there are activities that can put some people at greater risk of exposure than others.

- Veterinarians
- Laboratory professionals
- Livestock producers
- People who handle animal products

Mail handlers, military personnel and response workers who may be exposed during a bioterrorism event involving anthrax spores.

Visitors to countries where anthrax is common can get sick with anthrax if they have contact with infected animal carcasses or eat meat from animals that were sick when slaughtered. They can also get sick if they handle animal parts, such as hides or products made from those animal parts, such as animal hide drums. Anthrax is most common in agricultural regions of

- Central and South America
- Sub-Saharan Africa
- Central and Southwestern Asia

### Contents

### Page

|   |   |
|---|---|
| 1. <i>Leading Article – Anthrax –(Part I)</i>   | 1 |
| 2. <i>Summary of selected notifiable diseases reported - (28<sup>th</sup> – 06<sup>th</sup> March 2015)</i>       | 3 |
| 3. <i>Surveillance of vaccine preventable diseases &amp; AFP - (28<sup>th</sup> – 06<sup>th</sup> March 2015)</i> | 4 |

WEEKLY SRI LANKA - 2015

- Southern and Eastern Europe
- The Caribbean.

In addition, Anthrax can affect people who make or play animal hide drums

**Symptoms**

The symptoms of anthrax depend on the type of infection and can take anywhere from 1 day to more than 2 months to appear. All types of anthrax have the potential, if untreated, to spread throughout the body and cause severe illness and even death.

If a person is exposed to anthrax accidentally, treatment should be obtained as soon as possible mentioning that the person may be having Anthrax. Antibiotics can be prescribed prophylactically to prevent the occurrence of Anthrax. If one is already having symptoms of anthrax, it's important to get medical care as quickly as possible to have the best chances for full recovery

**History**

Anthrax is thought to have originated in Egypt and Mesopotamia. Many scholars think that in Moses' time, during the 10 plagues of Egypt, anthrax may have caused what was known as the fifth plague, described as a sickness affecting horses, cattle, sheep, camels and oxen.

**Epidemiology**

Anthrax was not reported in Sri Lanka even though it was reported in many other countries. There were outbreaks of Anthrax from time to time including American Anthrax outbreak of 2001, Anthrax outbreaks in Bangladesh, 2009-2010.

**Diagnosis**

Bacillus anthracis is present in high numbers in the ulcer/eschar of cutaneous anthrax, in bloody pleural fluid in inhalational anthrax, in the cerebrospinal fluid (CSF) in anthrax meningitis, and in the blood in septicaemic anthrax. Specimens may be stained or cultured to demonstrate the organism. Culture is performed on sheep blood or peptone agar. In persons exposed to antibiotics, immunohistochemical examination of the suspected fluid (e.g. pleural fluid, CSF, cutaneous biopsy) is performed using antibodies to *B. anthracis* cell wall and capsule.

The diagnosis of cutaneous anthrax is usually suggested by the characteristic appearance of skin lesions. As spore germination occurs within macrophages at the site of inoculation, anthrax bacilli are isolated easily from the vesicular lesions and can be observed on Gram stain. If prior treatment with antibiot-

**Table-1 CDC field investigations of suspected anthrax in humans and animals, and reported cases of anthrax in humans, United States, 1950-2001 .**

| Years                | Field investigations               |                    |              |       | No. of cases of anthrax in humans reported nationally <sup>c</sup> |
|----------------------|------------------------------------|--------------------|--------------|-------|--|
|                      | No. of investigations <sup>b</sup> | No. of human cases |              |       |  |
|                      |                                    | Cutaneous          | Inhalational | Total |  |
| 1950-54              | 2                                  | 1                  | 0            | 1     | 223  |
| 1955-59              | 11                                 | 16                 | 6            | 22    | 131  |
| 1960-64              | 4                                  | 5                  | 1            | 6     | 54   |
| 1965-69              | 7                                  | 5                  | 1            | 6     | 21   |
| 1970-74              | 8                                  | 4                  | 0            | 4     | 13   |
| 1975-79              | 6                                  | 5                  | 1            | 6     | 10   |
| 1980-84              | 0                                  | 0                  | 0            | 0     | 2  |
| 1985-89              | 1                                  | 1                  | 0            | 1     | 3  |
| 1990-94              | 1                                  | 0                  | 0            | 0     | 1  |
| 1995-99              | 2                                  | 0                  | 0            | 0     | 0  |
| 2000-01 <sup>d</sup> | 2                                  | 2                  | 0            | 2     | Not available  |
| Total                | 44                                 | 39                 | 9            | 48    | 458  |

ics has occurred, the best way to determine infection is to perform serologic testing and punch biopsy at the edge of the lesion and examine by silver staining and immunohistochemical testing.

In patients with inhalational anthrax, a chest radiograph typically shows widening of the mediastinum and pleural effusions, whereas the parenchyma may appear normal. In a review of the 11 patients infected by anthrax in October 2001, chest radiographs from the initial examination showed mediastinal widening, paratracheal and hilar fullness, and pleural effusions or infiltrates. In some patients, the initial findings were subtle and not detected immediately.

**Treatment**

**Antibiotics**-All types of anthrax infection can be treated with antibiotics, including intravenous antibiotics

**Antitoxin**-After anthrax toxins have been released in the body, one possible treatment is antitoxin. Antitoxins target anthrax toxins in the body. Doctors must use antitoxin together with other treatment options.

**Sources**

Anthrax, available at <http://www.cdc.gov/anthrax/>  
 Epidemiologic Response to Anthrax Outbreaks: Field Investigations, 1950-2001, available at <http://www.medscape.com/viewarticle/442951>

**Compiled by Dr. C U D Gunasekara of the Epidemiology Unit**

**Table 1: Selected notifiable diseases reported by Medical Officers of Health 28<sup>th</sup> - 06<sup>th</sup> March 2015 (10<sup>th</sup> Week)**

| RDHS Division    | Dengue Fever |              | Dysentery |            | Encephalitis |           | Enteric Fever |            | Food Poisoning |            | Leptospirosis |            | Typhus Fever |            | Viral Hepatitis |            | Human Rabies |          | Chickenpox |            | Meningitis |            | Leishmaniasis |            | WRCD      |           |
|------------------|--------------|--------------|-----------|------------|--------------|-----------|---------------|------------|----------------|------------|---------------|------------|--------------|------------|-----------------|------------|--------------|----------|------------|------------|------------|------------|---------------|------------|-----------|-----------|
|                  | A            | B            | A         | B          | A            | B         | A             | B          | A              | B          | A             | B          | A            | B          | A               | B          | A            | B        | A          | B          | A          | B          | A             | B          | T*        | C**       |
| Colombo          | 123          | 2989         | 6         | 47         | 0            | 3         | 3             | 18         | 0              | 13         | 6             | 46         | 0            | 1          | 0               | 13         | 0            | 1        | 10         | 81         | 3          | 6          | 0             | 0          | 81        | 19        |
| Gampaha          | 26           | 1316         | 0         | 19         | 0            | 2         | 0             | 5          | 6              | 9          | 10            | 79         | 1            | 3          | 2               | 42         | 0            | 0        | 1          | 35         | 0          | 3          | 0             | 0          | 60        | 40        |
| Kalutara         | 26           | 481          | 2         | 24         | 0            | 2         | 0             | 12         | 3              | 12         | 7             | 67         | 0            | 0          | 1               | 8          | 0            | 1        | 7          | 59         | 2          | 9          | 0             | 0          | 92        | 8         |
| Kandy            | 6            | 393          | 0         | 34         | 0            | 0         | 0             | 9          | 0              | 1          | 0             | 14         | 0            | 17         | 0               | 49         | 0            | 0        | 0          | 62         | 0          | 3          | 0             | 1          | 13        | 87        |
| Matale           | 9            | 267          | 0         | 17         | 0            | 0         | 0             | 3          | 0              | 2          | 1             | 16         | 1            | 2          | 2               | 11         | 0            | 0        | 0          | 3          | 0          | 2          | 0             | 3          | 69        | 31        |
| NuwaraEliya      | 4            | 64           | 3         | 55         | 0            | 1         | 1             | 5          | 0              | 0          | 1             | 7          | 2            | 15         | 4               | 27         | 0            | 0        | 2          | 15         | 0          | 13         | 0             | 0          | 77        | 23        |
| Galle            | 19           | 279          | 4         | 23         | 0            | 0         | 0             | 2          | 0              | 6          | 3             | 54         | 5            | 22         | 0               | 4          | 0            | 0        | 2          | 59         | 0          | 13         | 0             | 0          | 85        | 15        |
| Hambantota       | 3            | 100          | 1         | 8          | 0            | 0         | 0             | 4          | 0              | 0          | 0             | 18         | 0            | 10         | 2               | 13         | 0            | 0        | 1          | 18         | 0          | 2          | 13            | 59         | 67        | 33        |
| Matara           | 14           | 141          | 4         | 19         | 0            | 0         | 0             | 2          | 25             | 44         | 4             | 38         | 0            | 11         | 1               | 8          | 0            | 0        | 9          | 63         | 0          | 7          | 0             | 16         | 100       | 0         |
| Jaffna           | 29           | 861          | 17        | 161        | 0            | 7         | 12            | 98         | 0              | 11         | 0             | 7          | 26           | 402        | 0               | 6          | 0            | 0        | 5          | 41         | 2          | 4          | 0             | 0          | 100       | 0         |
| Kilinochchi      | 1            | 30           | 4         | 25         | 0            | 0         | 0             | 3          | 0              | 25         | 1             | 1          | 0            | 4          | 0               | 0          | 0            | 0        | 3          | 8          | 0          | 0          | 0             | 0          | 75        | 25        |
| Mannar           | 0            | 66           | 0         | 2          | 0            | 0         | 0             | 4          | 0              | 1          | 0             | 8          | 0            | 11         | 0               | 0          | 0            | 0        | 0          | 0          | 0          | 0          | 0             | 0          | 80        | 20        |
| Vavuniya         | 2            | 49           | 2         | 8          | 0            | 4         | 0             | 7          | 0              | 2          | 0             | 8          | 1            | 9          | 0               | 1          | 0            | 0        | 0          | 4          | 1          | 1          | 0             | 0          | 100       | 0         |
| Mullaitivu       | 2            | 50           | 0         | 7          | 0            | 1         | 0             | 1          | 0              | 1          | 0             | 2          | 0            | 5          | 1               | 1          | 0            | 0        | 0          | 1          | 0          | 1          | 0             | 2          | 60        | 40        |
| Batticaloa       | 28           | 698          | 5         | 44         | 0            | 2         | 2             | 3          | 0              | 0          | 0             | 1          | 0            | 0          | 0               | 0          | 0            | 0        | 0          | 9          | 2          | 8          | 0             | 0          | 64        | 36        |
| Ampara           | 1            | 16           | 0         | 14         | 0            | 0         | 0             | 0          | 0              | 0          | 0             | 3          | 0            | 0          | 0               | 0          | 0            | 0        | 2          | 48         | 0          | 3          | 0             | 0          | 71        | 29        |
| Trincomalee      | 12           | 233          | 0         | 8          | 0            | 0         | 1             | 11         | 0              | 22         | 0             | 4          | 2            | 5          | 0               | 1          | 0            | 0        | 5          | 13         | 1          | 2          | 0             | 0          | 83        | 17        |
| Kurunegala       | 30           | 526          | 5         | 44         | 0            | 2         | 0             | 3          | 1              | 1          | 8             | 75         | 0            | 11         | 1               | 11         | 0            | 0        | 12         | 102        | 1          | 5          | 1             | 21         | 100       | 0         |
| Puttalam         | 5            | 337          | 0         | 11         | 1            | 1         | 0             | 1          | 5              | 6          | 0             | 16         | 0            | 6          | 0               | 1          | 0            | 0        | 1          | 14         | 1          | 6          | 0             | 0          | 38        | 62        |
| Anuradhapura     | 9            | 208          | 0         | 17         | 0            | 0         | 0             | 0          | 3              | 33         | 6             | 83         | 2            | 8          | 0               | 5          | 0            | 0        | 4          | 34         | 0          | 10         | 12            | 52         | 68        | 32        |
| Polonnaruwa      | 2            | 96           | 1         | 13         | 0            | 1         | 0             | 4          | 0              | 0          | 0             | 32         | 0            | 1          | 0               | 2          | 0            | 0        | 3          | 34         | 0          | 10         | 2             | 20         | 71        | 29        |
| Badulla          | 6            | 261          | 1         | 40         | 0            | 1         | 0             | 2          | 0              | 4          | 2             | 14         | 5            | 25         | 4               | 33         | 0            | 1        | 2          | 28         | 1          | 12         | 0             | 3          | 71        | 29        |
| Monaragala       | 5            | 77           | 0         | 33         | 0            | 1         | 2             | 7          | 0              | 2          | 6             | 67         | 2            | 20         | 2               | 12         | 0            | 0        | 1          | 21         | 0          | 4          | 0             | 6          | 82        | 18        |
| Ratnapura        | 18           | 303          | 3         | 81         | 0            | 3         | 0             | 9          | 0              | 1          | 10            | 78         | 1            | 17         | 12              | 109        | 0            | 0        | 0          | 16         | 2          | 11         | 0             | 3          | 94        | 6         |
| Kegalle          | 5            | 166          | 1         | 20         | 0            | 2         | 0             | 21         | 0              | 0          | 6             | 55         | 2            | 10         | 2               | 29         | 0            | 0        | 7          | 48         | 0          | 9          | 0             | 0          | 91        | 9         |
| Kalmune          | 10           | 316          | 1         | 32         | 0            | 0         | 0             | 0          | 0              | 11         | 0             | 1          | 0            | 0          | 0               | 0          | 0            | 0        | 0          | 32         | 0          | 2          | 0             | 0          | 69        | 31        |
| <b>SRI LANKA</b> | <b>395</b>   | <b>10323</b> | <b>60</b> | <b>806</b> | <b>1</b>     | <b>33</b> | <b>21</b>     | <b>234</b> | <b>43</b>      | <b>207</b> | <b>71</b>     | <b>794</b> | <b>50</b>    | <b>615</b> | <b>34</b>       | <b>386</b> | <b>0</b>     | <b>3</b> | <b>77</b>  | <b>848</b> | <b>16</b>  | <b>146</b> | <b>28</b>     | <b>186</b> | <b>75</b> | <b>25</b> |

Source: Weekly Returns of Communicable Diseases (WRCD).

\*T=Timeliness refers to returns received on or before 06<sup>th</sup> March, 2015 Total number of reporting units 337 Number of reporting units data provided for the current week: 255 C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

**28<sup>th</sup> - 06<sup>th</sup> March 2015 (10<sup>th</sup> Week)**

| Disease               | No. of Cases by Province |    |    |    |    |    |    |    |     | Number of cases during current week in 2015 | Number of cases during same week in 2014 | Total number of cases to date in 2015 | Total number of cases to date in 2014 | Difference between the number of cases to date in 2014 & 2015 |
|-----------------------|--------------------------|----|----|----|----|----|----|----|-----|---|--|---------------------------------------|---------------------------------------|---|
|                       | W                        | C  | S  | N  | E  | NW | NC | U  | Sab |   |  |                                       |                                       |   |
| AFP*                  | 00                       | 02 | 01 | 00 | 00 | 00 | 00 | 00 | 00  | 03  | 01                                       | 13                                    | 17                                    | -24.6%  |
| Diphtheria            | 00                       | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00  | 00  | 00                                       | 00                                    | 00                                    | %   |
| Mumps                 | 00                       | 00 | 00 | 00 | 00 | 01 | 02 | 01 | 02  | 06  | 09                                       | 76                                    | 162                                   | -53.0%  |
| Measles               | 20                       | 00 | 02 | 00 | 00 | 06 | 02 | 02 | 06  | 38  | 83                                       | 322                                   | 920                                   | -65%  |
| Rubella               | 00                       | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00  | 00  | 00                                       | 04                                    | 01                                    | +300%   |
| CRS**                 | 00                       | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00  | 00  | 01                                       | 00                                    | 01                                    | %   |
| Tetanus               | 00                       | 00 | 00 | 00 | 00 | 00 | 01 | 00 | 00  | 01  | 01                                       | 03                                    | 03                                    | %   |
| Neonatal Tetanus      | 00                       | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00  | 00  | 00                                       | 00                                    | 00                                    | %   |
| Japanese Encephalitis | 00                       | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00  | 00  | 00                                       | 03                                    | 16                                    | -81.2% <sup>9</sup>   |
| Whooping Cough        | 01                       | 00 | 00 | 01 | 00 | 00 | 01 | 00 | 00  | 03  | 00                                       | 19                                    | 10                                    | +90%  |
| Tuberculosis          | 48                       | 18 | 19 | 16 | 05 | 00 | 18 | 02 | 12  | 138   | 134                                      | 1837                                  | 2186                                  | -16.1%  |

**Key to Table 1 & 2**

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.  
 RDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

**Data Sources:**

**Weekly Return of Communicable Diseases:** Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

**Special Surveillance:** AFP\* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS\*\* =Congenital Rubella Syndrome

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

**Dengue Prevention and Control Health Messages**

**Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them**

**PRINTING OF THIS PUBLICATION IS FUNDED BY THE WORLD HEALTH ORGANIZATION (WHO).**

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to [chepid@slt.net.lk](mailto:chepid@slt.net.lk). Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication

**ON STATE SERVICE**

**Dr. P. PALIHAWADANA**  
 CHIEF EPIDEMIOLOGIST  
 EPIDEMIOLOGY UNIT  
 231, DE SARAM PLACE  
 COLOMBO 10