



# 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. 38 No.51

17<sup>th</sup> – 23<sup>rd</sup> December 2011

## Melioidosis (Part I)

**Four (4) cases of Melioidosis were reported from Kandy recently. Two out of four who got the disease died.**

This is the first in a series of two articles on Melioidosis and this article describes the causative agent, distribution and transmission of the disease. The next article will describe the clinical features, diagnosis, treatment, prevention and public health importance of the disease.

### Introduction

Melioidosis is a bacterial disease that affects humans and many species of animals. While some infections are subclinical, others result in localized acute or chronic disease or fatal septicemia. Because it can affect almost any organ, Melioidosis can mimic many other diseases; it is sometimes called “the great imitator.” A misdiagnosis may be fatal; In endemic areas, Melioidosis is an important cause of illness and death in humans and animals. It is also a serious concern in imported animals.

In addition, there are fears that the causative organism might be used as a biological weapon.

### Pathogen

Melioidosis results from infection by *Burkholderia pseudomallei*, a Gram negative bacillus in the family Burkholderiaceae. This organism was formerly known as *Pseudomonas pseudomallei*. It is closely related to *Burkholderia mallei*, the agent of glanders, as well as to *B. thailandensis* and *B. oklahomensis*. *B. pseudomallei* is a saprophytic bacterium that is widespread in soil and muddy water in endemic areas. It is particularly common in moist clay soils. Shed organisms can survive for months or

years in soil and water. In one report, *B. pseudomallei* remained viable in triple distilled water for more than three years. Other laboratories have reported that *B. pseudomallei* can survive in room temperature water for as long as eight weeks, in muddy water for up to seven months and in soil for up to 30 months. This organism can also survive in some antiseptic and detergent solutions and resists pH 4.5 for up to 70 days. One outbreak was associated with a contaminated container of commercial hand-washing detergent. *B. pseudomallei* is also relatively resistant to desiccation in soil and can survive soil water content of less than 10% for up to 70 days. In addition, it can enter the cells of protozoa (*Acanthamoeba* or the dinoflagellate *Alexandrium minutum*) or the mycorrhizal fungus *Gigaspora decipiens*. This characteristic may help it survive environmental stresses.

*B. pseudomallei* seems to be capable of existing in a viable but non-cultivable state in the environment; although these organisms cannot be cultured, they can still cause disease. This phenomenon occurs in acid pH, as well as under other conditions. *B. pseudomallei* has an optimal pH range of 5-8. Below pH 4.5, there is a rapid reduction in the number of cells able to produce colonies, but a parallel increase in viable but non-cultivable organisms, which appear as Gram-positive, coccoid organisms. These organisms revert to conventional Gram negative-bacilli if the acidic medium is replaced with fresh medium with a neutral pH.

### Distribution

Melioidosis is endemic in Southeast Asia, China, Indian subcontinent and parts of Australia. It has also been reported from the

Contents	Page
1. Leading Article – Melioidosis (part1)	1
2. Surveillance of vaccine preventable diseases & AFP (10 <sup>th</sup> – 16 <sup>th</sup> December 2011)	3
3. Summary of newly introduced notifiable diseases (10 <sup>th</sup> – 16 <sup>th</sup> December 2011)	3
4. Summary of selected notifiable diseases reported (10 <sup>th</sup> – 16 <sup>th</sup> December 2011)	4

Caribbean, Middle East, South America, Singapore and Taiwan. The situation in Africa is uncertain. Although isolated cases were reported from some African countries in the past, Melioidosis is not a commonly reported disease in Africa. However, laboratory support is absent or weak in some countries and this disease may be under diagnosed. Only non-indigenous cases of melioidosis have been reported in the U.S.

**Transmission**

Animals and humans usually acquire Melioidosis from organisms in the environment. Infections can occur by ingestion, by inhalation or through wounds and abrasions. All three routes are thought to occur in animals. Infected animals can shed the organism in wound exudates and depending on the site of the infection, from other sources including nasal secretions, milk, faeces and urine. There have been a few reports of zoonotic transmission, often after contamination of skin lesions by exposure to infected animals, meat or milk.

However, most people become infected directly from the environment. Inoculation through skin wounds is thought to be the major route of transmission to humans. Inhalation, which usually leads to the pneumonic form of the disease, may be particularly important during periods of heavy rainfall and strong winds. The importance of ingestion is controversial. Person-to-person transmission has been described rarely, generally to family members in close contact (e.g. family members who nursed patients). Sexual transmission has also been suggested in some cases. Vertical transmission has rarely been proven, but a few cases have been described in newborns. In non-endemic areas, contamination of the environment from infected animals or humans is a cause for concern.

**Disinfection**

*B. pseudomallei* is stated to be susceptible to numerous disinfectants including 1% sodium hypochlorite, 70% ethanol, glutaraldehyde and formaldehyde. However, unpublished experiments suggest that it can remain viable for some time in 0.3% chlorhexidine. Disinfectants may not completely eliminate this organism from drinking water, particularly when it is protected within protozoa or found in biofilms. Chlorination reduces the number of *B. pseudomallei* in water, but small numbers of bacteria have been isolated from water containing up to 1000 ppm. free chlorine.

There is little information on the susceptibility of this organism to sunlight or other sources of UV irradiation. Although one report suggested that *B. pseudomallei* is more resistant to UV light than most bacteria, several authors feel that its resistance is probably similar to other soil bacteria. Moist heat of 121°C (249°F) for at least 15 min or dry heat of 160-170°C (320-338°F) for at least one hour can also kill this organism.

**Incubation Period in man**

In naturally acquired infections, the incubation period varies from less than a day (after very high exposure) to several months or years. Incubation periods of more than two months are common. A few cases have remained subclinical for up to 29 years and one infection apparently became symptomatic after 62 years. Infections from aerosolized forms in biological weapons are expected to have an incubation period of 10 to 14 days.

**Source**

Melioidosis, available from

[www.cfsph.iastate.edu/Factsheets/pdfs/melioidosis.pdf](http://www.cfsph.iastate.edu/Factsheets/pdfs/melioidosis.pdf)

Compiled by Dr. Madhava Gunasekera of the Epidemiology Unit

Table 3 : Water Quality Surveillance Number of microbiological water samples - November / 2011			
District	MOH areas	No: Expected *	No: Received
Colombo	12	72	52
Gampaha	15	90	NR
Kalutara	12	72	NR
NHIS	2	12	NR
Kandy	23	138	12
Matale	12	72	NR
Nuwara Eliya	13	78	0
Galle	19	114	NR
Matara	17	102	12
Hambantota	12	72	0
Jaffna	11	66	17
Kilinochchi	4	24	0
Manner	5	30	30
Vavuniya	4	24	NR
Mullatvu	4	24	12
Batticaloa	14	84	NR
Ampara	7	42	NR
Trincomalee	11	66	NR
Kurunegala	23	138	NR
Puttalam	9	84	NR
Anuradhapura	19	114	04
Polonnaruwa	7	42	NR
Badulla	15	90	NR
Moneragala	11	66	110
Rathnapura	18	108	NR
Kegalle	11	66	NR
Kalmunai	13	78	NR

\* No of samples expected (6 / MOH area / Month)  
NR = Return not received

**Table 1: Vaccine-preventable Diseases & AFP**

10<sup>th</sup> – 16<sup>th</sup> December 2011 (50<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2011	Number of cases during same week in 2010	Total number of cases to date in 2011	Total number of cases to date in 2010	Difference between the number of cases to date in 2011 & 2010
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	02	00	00	00	00	00	00	00	00	01	85	78	+ 08.9 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	00	00	00	01	00	00	01	02	00	129	88	+ 46.6 %
Tetanus	00	00	00	00	00	00	01	00	00	01	01	25	23	+ 08.7 %
Whooping Cough	00	00	00	00	00	00	00	01	00	01	00	53	30	+ 76.7 %
Tuberculosis	19	04	20	01	03	11	13	08	00	79	86	9186	9822	- 06.5 %

**Table 2: Newly Introduced Notifiable Disease**

10<sup>th</sup> – 16<sup>th</sup> December 2011 (50<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2011	Number of cases during same week in 2010	Total number of cases to date in 2011	Total number of cases to date in 2010	Difference between the number of cases to date in 2011 & 2010
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	09	04	00	01	06	09	03	01	07	40	42	4107	3280	+ 25.2 %
Meningitis	06 GM=1 KL=5	00	01 GL=1	02 JF=1 KN=1	00	02 KR=2	05 AP=5	01 MO=1	01 RP=1	18	19	865	1530	- 37.9 %
Mumps	05	04	03	00	15	03	07	01	09	47	21	3286	1205	+ 172.69 %
Leishmaniasis	00	00	08 MT=8	00	00	03 KR=3	10 AP=6 PO=4	00	00	21	05	905	396	+ 128.5 %

**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.  
**DPDHS 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, Whooping Cough, Chickenpox, Meningitis, Mumps.

**Special Surveillance:** Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008. .

**Dengue Prevention and Control Health Messages**

**To prevent dengue, remove mosquito breeding places in and around your home, workplace or school once a week.**

**Table 4: Selected notifiable diseases reported by Medical Officers of Health**  
10<sup>th</sup> - 16<sup>th</sup> December 2011 (50<sup>th</sup> Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	168	9443	0	182	1	8	5	334	1	64	10	499	0	8	2	71	0	2	85
Gampaha	60	3963	3	133	0	19	2	102	0	84	1	530	0	26	3	388	0	6	60
Kalutara	38	1333	3	162	0	10	1	87	0	26	8	390	0	4	0	22	0	1	67
Kandy	57	1489	3	395	0	7	0	41	0	40	8	188	1	104	3	59	0	0	87
Matale	14	345	5	213	0	4	0	37	0	27	0	165	0	17	0	13	0	0	100
Nuwara	10	247	2	328	0	4	1	61	0	154	1	53	0	69	10	34	0	1	77
Galle	9	824	3	111	1	8	1	34	0	28	5	232	2	46	0	11	0	5	63
Hambantota	6	400	4	76	0	4	0	5	1	31	2	503	1	65	1	17	0	2	83
Matara	11	711	0	101	0	3	0	23	0	33	8	379	0	92	0	30	0	1	88
Jaffna	13	372	18	438	0	4	19	34	0	92	0	3	25	250	0	37	0	1	91
Kilinochchi	1	60	1	41	0	3	2	18	0	14	0	2	0	13	0	3	0	0	75
Mannar	19	71	11	47	0	1	1	37	0	83	0	14	2	37	0	2	0	0	100
Vavuniya	0	76	0	45	0	16	1	13	0	60	3	51	0	2	0	3	0	0	50
Mullaitivu	0	19	0	70	0	1	0	7	0	9	1	8	0	2	0	3	0	0	50
Batticaloa	134	1336	3	592	0	5	0	7	0	32	0	28	0	3	0	2	0	9	79
Ampara	1	172	4	259	0	1	1	13	0	55	2	65	0	2	0	12	0	0	57
Trincomalee	1	169	9	697	0	2	1	12	0	13	2	104	0	9	0	9	0	1	75
Kurunegala	18	968	4	380	1	15	0	99	3	94	5	1565	1	78	1	77	0	4	83
Puttalam	18	518	4	197	0	2	0	36	0	51	0	122	0	19	0	12	0	2	75
Anuradhapu	4	283	2	159	0	2	0	8	1	36	2	250	0	17	0	30	0	1	63
Polonnaruw	3	296	1	126	0	1	0	17	0	22	0	86	0	2	0	26	0	0	86
Badulla	7	616	6	399	0	6	1	60	0	24	2	82	0	90	2	69	0	0	86
Monaragala	7	292	1	149	0	5	0	48	0	14	5	189	0	77	0	97	0	0	88
Ratnapura	29	1063	3	495	0	9	1	61	0	44	8	618	0	30	1	86	0	2	91
Kegalle	21	1011	1	119	0	14	1	83	0	25	3	358	0	37	16	346	0	0	72
Kalmune	4	53	6	635	0	2	0	6	0	108	0	7	0	2	0	6	0	1	91
<b>SRI LANKA</b>	<b>653</b>	<b>26130</b>	<b>97</b>	<b>6549</b>	<b>03</b>	<b>156</b>	<b>38</b>	<b>1592</b>	<b>06</b>	<b>1263</b>	<b>76</b>	<b>6491</b>	<b>32</b>	<b>1101</b>	<b>30</b>	<b>1465</b>	<b>00</b>	<b>39</b>	<b>46</b>

Source: Weekly Returns of Communicable Diseases WRCD).

\*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

\*\*Timely refers to returns received on or before 16<sup>th</sup> December, 2011 Total number of reporting units =329. Number of reporting units data provided for the current week: 253

A = Cases reported during the current week. B = Cumulative cases for the year.

**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@sltnet.lk](mailto:chepid@sltnet.lk).

**ON STATE SERVICE**

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