WEEKLY EPIDEMIOLOGICAL REPORT

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Anthrax (Part II)

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

Updated Interim Recommendations for Antimicrobial Prophylaxis for Children and Breastfeeding Mothers and Treatment of Children with Anthrax

Ciprofloxacin or Doxycycline is recommended for antimicrobial prophylaxis and treatment of adults and children with *Bacillus anthracis* infection associated with the recent bioterrorist attacks in the United States. Amoxicillin is an option for antimicrobial prophylaxis for children and pregnant women and to complete treatment of cutaneous disease when *B. anthracis* is susceptible to penicillin, as is the case in the recent attacks .Use of ciprofloxacin or doxycycline might be associated with adverse effects in children and liquid formulations of these drugs are not widely available. This article provides further information on prophylaxis and treatment of children and breastfeeding mothers, including the use of amoxicillin.

Ciprofloxacin, doxycycline, and penicillin G procaine have been effective as antimicrobial prophylaxis for inhalational *B. anthracis* infection in nonhuman primates and are approved for this use in humans by the Food and Drug Administration (FDA) of USA. Amoxicillin has not been studied in animal models and is not approved by FDA for the prophylaxis or treatment of anthrax. Other data indicate that *B. anthracis* strains produce a cephalosporinase and suggest that the strains contain an inducible beta-lactamase that might decrease the effectiveness of penicillins, especially when a large number of organisms is present. In addition, penicillin achieves low intracellular concentrations that might be detrimental to its ability to kill germinating spores in macrophages.

Because of these concerns, penicillins (including amoxicillin) are not recommended for initial treatment of anthrax, but are likely to be effective for antimicrobial prophylaxis following exposure to *B. anthracis*, in a setting where relatively few organisms are expected to be present. Therefore, amoxicillin may be used for the 60-day antimicrobial prophylaxis in infants and children when the isolate involved in the exposure is determined to be susceptible to penicillin. Isolates of *B. anthracis* implicated in the recent bioterrorist attacks are susceptible to ciprofloxacin, doxycycline and penicillin.

Initial treatment of infants and children with inhalational or systemic (including gastrointestinal or oropharyngeal) anthrax should consist of intravenous ciprofloxacin or doxycycline, plus one or two additional antimicrobial agents. If meningitis is suspected, ciprofloxacin might be more effective than doxycycline because of better central nervous system penetration. Experience with fluoroquinolones other than ciprofloxacin in children is limited.

Ciprofloxacin or doxycycline should be the initial treatment of localized cutaneous anthrax in infants and children. Intravenous therapy with multiple antimicrobial agents is recommended

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for cutaneous anthrax with systemic involvement, extensive oedema, or lesions on the head or neck. Whether infants and young children are at increased risk for systemic dissemination of cutaneous infection is not known; a 7-month-old patient infected during the recent bioterrorism attacks developed systemic illness after onset of cutaneous anthrax. For young children (e.g. aged <2 years), initial therapy of cutaneous anthrax should be intravenous, and combination therapy with additional antimicrobials should be considered.

After clinical improvement following intravenous treatment for inhalational or cutaneous anthrax, oral therapy with one or two antimicrobial agents (including either ciprofloxacin or doxycycline) may be used to complete the first 14-21 days of treatment for inhalational anthrax or the first 7-10 days for uncomplicated cutaneous anthrax. The optimal oral treatment regimen is unknown; some adults with inhalational anthrax as a result of the recent bioterrorist attacks are receiving ciprofloxacin and rifampin. For both inhalational and cutaneous anthrax in the setting of this bioterrorist attack, antimicrobial therapy should be continued for 60 days because of the likelihood of exposure to aerosolized *B. anthracis* and the need to protect against persistent spores that might germinate in the respiratory tract. Because of potential adverse effects of prolonged use of ciprofloxacin or doxycycline in children, amoxicillin is an option for completion of the remaining 60 days of therapy for persons infected in these bioterrorist attacks.

Because of its known safety for infants, amoxicillin is an option for antimicrobial prophylaxis in breastfeeding mothers when *B. anthracis* is known to be penicillin-susceptible and no contraindication to maternal amoxicillin use is indicated. The American Academy of Pediatrics also considers ciprofloxacin and tetracyclines (which include doxycycline) to be usually compatible with breastfeeding because the amount of either drug absorbed by infants is small, but little is known about the safety of long-term use. If the Mother is concerned about the use of ciprofloxacin or doxycycline for antimicrobial prophylaxis, expressing and then discarding breast milk should be done so that breastfeeding can be resumed when antimicrobial prophylaxis is completed. Decisions about antimicrobial choice and continuation of breastfeeding should be made by the mother and her and the infant's health-care providers. Consideration should be given to antimicrobial efficacy, safety for the infant, and the benefits of breastfeeding.

Sources

Healthcare Providers Guidance and recommendations, available at *http://www.cdc.gov/anthrax/healthcareproviders/index.html*

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

Table 1 : Water Quality Surveillance
Number of microbiological water samples February/ 2015

District	MOH areas	No: Expected *	No: Received
Colombo	12	72	82
Gampaha	15	90	NR
Kalutara	12	72	71
Kalutara NIHS	2	12	10
Kandy	23	138	NR
Matale	12	72	3
Nuwara Eliya	13	78	0
Galle	19	114	NR
Matara	17	102	10
Hambantota	12	72	9
Jaffna	11	66	0
Kilinochchi	4	24	1
Manner	5	30	29
Vavuniya	4	24	0
Mullatvu	4	24	6
Batticaloa	14	84	0
Ampara	7	42	34
Trincomalee	11	66	NR
Kurunegala	23	138	76
Puttalam	9	54	60
Anuradhapura	19	114	NR
Polonnaruwa	7	42	0
Badulla	15	90	78
Moneragala	11	66	104
Rathnapura	18	108	54
Kegalle	11	66	70
Kalmunai	13	78	NR

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

Table 1: Selected notifiable diseases reported by Medical Officers of Health 07th – 13th March 2015 (11th 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	124	3154	2	51	1	4	1	19	6	19	10	56	0	1	0	14	0	1	12	102	1	7	0	0	**81**	**19**
Gampaha	58	1384	1	20	0	2	2	7	1	10	26	109	0	3	1	43	0	0	8	43	0	4	0	0	**93**	**7**
Kalutara	39	521	3	27	0	2	2	14	0	13	12	79	0	0	1	9	0	1	11	72	1	10	0	0	**69**	**31**
Kandy	1	394	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	3	270	0	17	0	0	0	3	0	3	0	16	0	3	0	11	0	0	1	4	0	2	0	3	**100**	**0**
NuwaraEliya	3	68	6	68	0	1	0	5	0	0	0	8	6	21	3	30	0	0	0	16	2	16	0	0	**92**	**8**
Galle	2	282	0	23	0	0	0	2	0	6	0	54	0	22	0	4	0	0	0	59	0	13	0	0	**15**	**85**
Hambantota	6	108	0	8	0	0	0	4	0	4	1	19	3	13	2	15	0	0	3	22	1	4	5	64	**92**	**8**
Matara	5	146	0	19	0	0	1	3	0	44	11	49	4	15	2	10	0	0	5	68	1	8	1	17	**100**	**0**
Jaffna	32	893	8	169	0	7	5	103	1	12	0	7	14	416	1	7	0	0	3	44	0	4	0	0	**92**	**8**
Kilinochchi	0	30	2	27	0	0	0	3	0	25	0	1	0	4	0	0	0	0	0	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	**60**	**40**
Vavuniya	1	50	0	8	0	4	7	14	0	2	1	9	1	10	0	1	0	0	0	4	1	2	0	0	**75**	**25**
Mullaitivu	3	59	0	8	0	1	1	2	0	1	0	2	0	5	0	1	0	0	0	1	0	2	0	2	**80**	**20**
Batticaloa	51	771	9	54	0	2	2	5	0	0	1	2	0	0	0	0	0	0	1	10	1	9	0	0	**64**	**36**
Ampara	3	19	2	16	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8	56	0	3	0	0	**71**	**29**
Trincomalee	21	254	2	10	0	0	0	11	0	22	1	5	0	5	0	1	0	0	7	20	0	2	0	0	**75**	**25**
Kurunegala	26	554	4	48	0	2	0	3	6	7	4	79	0	11	1	12	0	0	11	113	0	5	0	21	**89**	**11**
Puttalam	11	351	0	12	0	2	0	1	0	6	0	16	0	7	0	1	0	0	3	22	0	6	0	0	**69**	**31**
Anuradhapura	2	213	1	18	0	0	0	0	0	33	4	88	0	8	0	6	0	0	3	41	0	10	7	60	**68**	**32**
Polonnaruwa	5	102	3	16	0	1	1	5	0	0	1	33	0	1	1	3	0	0	3	37	21	11	8	28	**71**	**29**
Badulla	7	269	1	42	0	1	1	3	0	4	4	18	1	26	3	36	0	1	3	32	1	13	0	3	**65**	**35**
Monaragala	5	82	0	33	0	1	1	8	0	2	6	73	3	23	3	15	0	0	6	28	0	4	1	8	**100**	**0**
Ratnapura	9	314	5	86	0	3	0	9	0	1	7	86	0	17	3	112	0	0	4	20	0	11	0	3	**78**	**22**
Kegalle	9	176	2	22	0	2	2	23	0	0	7	62	2	12	8	37	0	0	4	53	0	9	0	0	**91**	**9**
Kalmune	4	321	2	34	0	0	0	0	1	12	1	2	0	0	0	0	0	0	4	36	0	2	0	0	**69**	**31**
SRILANKA	**430**	**10851**	**53**	**872**	**1**	**35**	**26**	**260**	**15**	**228**	**97**	**898**	**34**	**651**	**29**	**417**	**0**	**3**	**100**	**973**	**10**	**160**	**22**	**210**	**73**	**27**

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 13th March, 2015 Total number of reporting units 337 Number of reporting units data provided for the current week: 248 C**-Completeness

Table 2: Vaccine-Preventable Diseases & AFP

07th – 13th March 2015 (11th 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*	01	00	00	00	00	00	00	00	01	02	02	15	19	-21.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	%
Mumps	01	00	00	01	00	01	00	00	00	03	13	79	181	-57.1%
Measles	23	02	06	01	01	07	03	03	06	52	64	386	1018	-62.1%
Rubella	00	00	00	00	00	00	00	00	00	00	03	04	04	%
CRS**	00	00	00	00	00	00	00	00	00	00	01	00	02	%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	03	04	-25%
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	%
Japanese Encephalitis	00	00	00	00	00	00	01	00	00	01	00	04	16	-75%
Whooping Cough	00	00	00	00	00	00	01	01	01	03	01	22	12	+83.3%
Tuberculosis	52	04	04	03	14	46	00	01	17	141	172	1978	2358	-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

Influenza Surveillance in Sentinel Hospitals - ILI & SARI								
Month	Human					Animal		
	No Received	ILI	SARI	Infl A	Infl B	Pooled samples	Serum Samples	Positives
February	1465	56	9	5	9	1203	798	0

Source: Medical Research Institute & Veterinary Research Institute

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ON STATE SERVICE

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