

SEA-HLM-357
Distribution: Limited

Finalization of Guidelines for Laboratory Diagnosis of Anthrax

*Report of an Informal Consultation
Bangkok, Thailand, 20-22 August 2002*

Project No.ICP DDP 002



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1. INTRODUCTION

An Informal Consultation to finalize the Manual on Laboratory Diagnosis of Anthrax was organized at Bangkok, Thailand, from 20 to 22 August 2002. It was attended by microbiologists from all the countries of the South East Asia Region of WHO except Myanmar and the Democratic People's Republic of Korea. Experts from the United Kingdom, the Regional Office for South-East Asia and WHO/Headquarters facilitated this consultation. The list of participants is at Annex 1 and the detailed programme of work at Annex 2.

2. OBJECTIVE

The objective of the consultation was to finalize the Manual on Laboratory Diagnosis of Anthrax.

3. INAUGURAL PROGRAMME

The inaugural programme was attended by all the participants, experts and some scientists from the Department of Medical Sciences, Ministry of Public Health, Thailand. Dr Rajesh Bhatia WHO Short-term Professional, SEARO welcomed the participants and briefed them about the activities undertaken by the Regional Office in the recent past to provide technical support to Member Countries in strengthening their capabilities for the management

of anthrax. He also described the objectives and mechanism of the consultation.

Mr Narintr Tima, Monitoring and Evaluation Officer, WHO country office in Thailand read out the address on behalf of Dr Uton Muchtar Rafei, WHO Regional Director, South-East Asia Region. In his address, Dr Uton emphasized the need for efficient laboratory support for the diagnosis of anthrax. He stated that Member Countries of the Region already possessed considerable infrastructure in the form of institutions of public health and excellent laboratories that had been created over the past few decades. Most of these institutions were, in one form or another, undertaking activities related to the control of communicable diseases. However, the handling of anthrax as well as many other such organisms with high communicability, required specialized infrastructure and requisite expertise. Laboratory skills for anthrax were specialized and vital. These must be maintained and kept in a state of readiness to provide diagnostic services when needed. In view of the recent importance of anthrax as an agent that can be deliberately used to harm health, it was imperative to have a good laboratory infrastructure, skilled manpower and comprehensive guidelines to help bacteriologists in undertaking their tasks efficiently. This consultation had been designed to fulfil the need of a Manual on Laboratory Diagnosis of Anthrax that could be adapted by Member Countries.

4. CONSULTATION

Dr O. Cosivi (WHO/HQ) gave a global overview of the threat of deliberate use of micro-organisms to harm human health, with

special reference to anthrax. Among hundreds of possible micro-organisms, only a few are considered as having the potential of being used deliberately to harm humans. Dr Cosivi elaborated upon WHO's role in containing known infections, responding to unexpected health situations and enhancing the preparedness of the Member Countries. He also briefed the participants about the global networks that WHO utilizes in meeting its mandate. The process of publication of the weekly Outbreak Verification List and support to Member Countries in the investigation and containment of outbreaks was also described by him. He informed the meeting that the second edition of the WHO publication "Public Health Response to Biological and Chemical Weapons: WHO Guidance" prepared in collaboration with more than 90 experts from all WHO regions, other international organizations, academia and NGOs was going to be published soon. Key information on agents which can be deliberately used to damage health was available on the WHO web site http://www.who.int/emc/deliberate_epi.html. WHO was also working with the UN Disaster Management Training Programme in developing a training module on the management of preparedness and response programmes on chemical and biological incidents. He welcomed the initiative of the Regional Office in developing a manual on laboratory diagnosis of anthrax which was very relevant in the context of the global efforts planned by WHO Headquarters for improving the state of preparedness of Member Countries, particularly in regard to the ongoing work on selected biological agents in order to strengthen networks on disease experts and laboratory and developing/reviewing standards (e.g. guidelines), information and training material on these agents.

Dr Peter Turnbull (UK) traced the history of potential biological weapons with special reference to anthrax. According to available data, during the period 1900 to 2001, there had been 271 events wherein deliberate use of biological agents to cause harm to health was attempted. Of these, evidence in regard to the use of anthrax could be gathered in only seven instances. Dr Turnbull emphasized that though it was difficult to deliberately use anthrax bacilli to cause damage to human health because of numerous technical and logistical issues, it would be prudent for all to maintain a state of preparedness. He described the alertness and response mechanism that was currently in place in the United Kingdom and suggested that the same could be adapted by other countries. He informed the meeting that the revised version of WHO Guidelines for the Surveillance and Control of Anthrax in Humans and Animals (earlier version is of 1998) incorporating new techniques and knowledge might be available by mid-2003.

4.1 Regional Status

The status of infrastructure and expertise available in regard to anthrax in the Member Countries of the Region is given in Table 1.

Table 1: Anthrax capabilities in the countries of the SEA Region

Description	BAN	BHU	INO	IND	MAV	NEP	SRL	THA
Occurrence of human cases of anthrax	No	Yes	Yes	Yes	No	No	No	Yes
Number of human cases in 2002	0	0	NA	5	0	No	No	NA
Occurrence of anthrax in animals	Yes	Yes	Yes	Yes	No	No	Yes	Yes

Description	BAN	BHU	INO	IND	MAV	NEP	SRL	THA
Outbreak of anthrax in animals	Yes	NA	Yes	Yes	No	No	Yes	Yes
Containment level of lab: P3/P2/None	0	0	P2	P3/P2	P2	P2	P3	P3
Number of clinical samples processed for anthrax in 2002	NA	0	NA	8	0	0	1	7
Number of environmental samples tested for anthrax in 2002	0	0	NA	50+	0	0	4	242
Isolation of anthrax bacilli	0	No	Yes	Yes	No	No	No	Yes
Tests employed for diagnosis <ul style="list-style-type: none"> • Presumptive diagnosis (P) • Confirmatory diagnosis © 	Nil	P	C	C	P	P	P	C
Professionals trained in anthrax	No	No	Yes	Yes	No	No	No	Yes
Availability of SOP for anthrax outbreak or handling of post having suspected contaminated material	No	No	Yes	No	No	No	Yes	Yes
Nationally coordinated disaster management program exists	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

Description	BAN	BHU	INO	IND	MAV	NEP	SRL	THA
Stock of anthrax specific antimicrobial agents	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
National guidelines for anthrax available	No	No	Yes	Yes	Yes	No	Yes	Yes

The above Table shows gross inadequacies in the technical capabilities and infrastructure required to diagnose anthrax in the countries of the Region.

The draft manual on laboratory diagnosis of anthrax was thoroughly discussed by the participants and changes, as agreed upon by all, were incorporated in the draft to finalize it.

5. RECOMMENDATIONS

The consultation highlighted the inadequacies that exist in the state of preparedness in Member Countries in the laboratory diagnosis of anthrax. It appreciated the efforts made by WHO at the global and regional levels to enhance the capabilities of Member Countries in meeting the challenge of various biological agents that have the potential for deliberate use to cause damage to human health, especially anthrax.

It was also observed that, as compared to many other communicable diseases of public health importance, anthrax may not have considerable magnitude. However, the impact of possible use or threat to use anthrax as deliberate infection has

implications in terms of panic and fear of the public, adverse effect on trade and commerce and loss of credibility of health services. To respond effectively to such a complex threat, encompassing national security and public health, priority should be given to upgrade the infrastructure and skills in all the countries. With this background, the meeting made the following recommendations:

5.1 To Member Countries

- (1) Member Countries should create a suitable infrastructure and maintain it for efficient public health laboratory services to meet the challenge of various biological agents that can be deliberately used. Countries should also maintain a state of preparedness to effectively mount a rapid response to any occurrence of harm due to deliberate use of anthrax bacilli and other agents. Appropriate resources for achieving this recommendation should be allocated. The upgraded infrastructure and skills should also be beneficial in responding to outbreaks of other communicable diseases.
- (2) Member Countries should adopt the Manual on Laboratory Diagnosis of Anthrax which shall provide practical steps for laboratory aspects that can be implemented at various levels of laboratories
- (3) Handling and processing of material suspected to be having anthrax bacilli, especially environmental material requires a high level of containment in microbiology laboratory. Member Countries must have at least one such reference laboratory with biological safety level 3 (BSL-3) to handle such material and to prevent inhalation anthrax. This laboratory should also be useful in processing many other important pathogens that require BSL-3 level containment. Handling of clinical material

may be done at BSL-2 level if BSL-3 facilities are not available using a class III safety cabinet.

- (4) Networking of laboratories in the Region should be established. One regional reference laboratory should be identified. Each country should have at least one reference laboratory for establishing confirmatory diagnosis and providing technical support to other laboratories in the country.
- (5) Public health microbiologists and clinical epidemiologists should be trained in each Member Country to improve their skills in the diagnosis and management of anthrax.

5.2 To WHO

- (1) WHO should publish the Manual on Laboratory Diagnosis of Anthrax and make it available to all the Member Countries as soon as possible.
- (2) A hands-on training course of five days' duration, should be organized for national trainers, in various laboratory techniques for diagnosis of anthrax and isolation of anthrax bacilli from environmental specimens.
- (3) WHO should facilitate exchange of information and support networking of laboratories in the Region as well as establish linkages of regional network with the proposed global network.
- (4) A workshop should be organized to orient Member Countries on the establishment of containment laboratories.
- (5) WHO should conduct a training course for national trainers on efficient use of containment facilities, once these are established.

Annex 1

LIST OF PARTICIPANTS

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Annex 2

PROGRAMME

Date/Time	Topic	Principal Speaker
20 August 2002		
0900	Registration	
0900	Inauguration Objectives RD's address Introduction Election of chair and rapporteur	
1030	WHO/HQ CSR initiatives in anthrax	Dr Cosivi
1100	Global experience in handling suspected anthrax	Dr Turnbull
1130	WHO/SEARO initiatives in anthrax	Dr Rajesh Bhatia
1145	Overview of draft guidelines on anthrax	Prof Lalitha
1330	Discussions on draft document on laboratory diagnosis of	

	anthrax	
1515	Discussion contd	
21 August 2002		
0900	Rapid dot ELISA technique in anthrax	Dr Harsh Batra
0930	Discussion on draft document	
1045	Discussion on draft document	
1300	Discussion on draft document	
1515	Discussion on draft document	
22 August 2002		
0900	Status of laboratories in SEAR countries for diagnosis of anthrax – Existing infrastructure in terms of man, machine, material and methodology	Country representatives
1045	Status contd...	
1300	Outline of final document	Prof Lalitha

1400	Recommendations for use of documents	Rapporteur
1515	Concluding session	Chairman