

A Field Guide for Detection, Management and Surveillance of Arsenicosis Cases

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WORLD HEALTH ORGANIZATION
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Preface

Globally, arsenicosis, also referred to as arsenism, is an important non-communicable disease resulting from the ingestion of groundwater containing an unsafe level of arsenic. Groundwater contamination, in excess of the WHO guideline value, has been observed in some countries of the South-East Asia Region. The affected countries are Bangladesh, India, Myanmar, Nepal and Thailand. Over 10 million tubewells are in use in the Region, potentially exposing between 40 and 50 million persons to unsafe levels of arsenic.

To mitigate the health effects of arsenic in the South-East Asia Region, in 2003, WHO prepared this Field Guide for Detection, Management and Surveillance of Arsenicosis Cases. The materials were developed and field-tested in regional and national workshops in Bangladesh, India and Thailand.

This guide is primarily for human resource development in the area of arsenic mitigation in the Region.

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Section 1. Introduction

1.01 BACKGROUND AND PURPOSE OF THE MODULE

Drinking water contaminated with an unsafe level of arsenic is known to result in adverse health outcomes. In many parts of the world, the source of drinking water is groundwater. While groundwater is relatively safe as regards bacterial contamination and other impurities, it is prone to chemical contamination such as arsenic. Arsenic contamination of groundwater may occur in two ways: drawing of water from aquifers that naturally contain arsenic or contamination from anthropogenic activities such as mining. Groundwater contamination in excess of the World Health Organization guideline value of 0.01 mg/L has been observed in parts of USA, Canada, Argentina, Chile, Mexico, Hungary and many countries of the South-East Asia Region. The most affected countries in the South-East Asia Region are in the river basins of the Ganga-Brahmaputra or the Mekong Delta. Affected countries include India, Bangladesh, Nepal, Myanmar, Vietnam, Cambodia, Laos and China.

Until now there have been no internationally accepted criteria for the diagnosis and management of arsenicosis or diseases associated with arsenic exposure. The purpose of this document is to serve as a guideline for the diagnosis, surveillance and management of arsenicosis. It is recognized that arsenicosis may manifest with or without skin manifestation. However, generally skin manifestation is the primary condition leading a patient to seek medical care. Therefore, the emphasis in this document is the diagnosis of arsenicosis based on dermal manifestations.

The use of this document will ensure consistency in the diagnosis and management of arsenicosis cases, training of health workers and provide a set of objective criteria for the evaluation of any intervention measures. The ultimate aims are to set the norm, standards and guidelines for a harmonized protocol on case detection, management and surveillance. These criteria were developed by an expert group working in the field of arsenic taking into account the best available evidence for action that is currently available. It is envisaged that national authorities, sister agencies and development partners will use this document to manage arsenic

contamination in their respective countries and may further translate it into the local language.

1.2 ROLE OF WHO IN ARSENIC MITIGATION

WHO first assessed the risk of arsenic in drinking water in 1958 by producing the International Standards for Drinking Water. In 1981, in collaboration with other UN agencies, WHO published the “Environmental Health Criteria on Arsenic” to evaluate the health risks to humans from exposure to arsenic. The Environmental Health Criteria on arsenic was updated in 2001. Globally, the WHO Guidelines for Drinking Water Quality, published in 1993, have been used as the basis for the development of national standards for arsenic.

Realizing the serious health impact of arsenic contamination in the South-East Asia Region of WHO, the Regional Office for South-East Asia, since 1996, has provided policy and technical support to national governments of the affected countries. In 1997, the Regional Office held a regional consultation of experts and made 20 key recommendations for arsenic mitigation. These recommendations have been used as the basis for designing projects and implementing programmes by national governments, donor agencies and NGOs alike. However, on reviewing the progress of

implementation, it was evident that critical gaps in case reporting and case management remained to be remedied. In 2002, the Regional Office launched an arsenic mitigation initiative which was founded on policy support stemming from the recommendations of the High-Level Task Force, the Regional Committee and the Advisory Committee on Health Research.

1.3 PROGRAMME STRATEGY

The programme strategy focuses on WHO’s normative role in applying the health risk assessment paradigm for the mitigation of the health impact of arsenic exposure. As shown in *Figure 1*, the arsenic mitigation initiative is implemented through a strategic plan focusing on three main goals, namely:

- (1) responding to arsenic hazard through consistent application of health risk paradigm of exposure assessment, risk characterization and risk management,
- (2) strengthening infrastructure for arsenic mitigation through promotion of a network of centres of excellence, and
- (3) building capacity through human resource development.

Figure 1
STRATEGIC GOALS FOR ARSENIC MITIGATION

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