



# MULTIDRUG RESISTANT TUBERCULOSIS

DISEASE DEBRIEF

# Multidrug Resistant Tuberculosis

**World Health Organization**

## **Multidrug Resistant Tuberculosis:**

### **Multidrug Resistant Tuberculosis (MDR-TB): New Insights for the Healthcare Professional: 2011 Edition**

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**Facing the Reality of Drug-Resistant Tuberculosis in India** Institute of Medicine,Board on Health Sciences Policy,Forum on Drug Discovery, Development, and Translation,2012-07-20 An estimated 8.8 million people fell ill with tuberculosis TB in 2010 and 1.4 million died from the disease Although antibiotics to treat TB were developed in the 1950s and are effective against a majority of TB cases resistance to these antibiotics has emerged over the years resulting in the growing spread of multidrug resistant MDR TB Due to challenges in timely and accurate diagnosis of drug resistant TB length and tolerability of treatment regimens and expense of second line anti TB drugs effectively controlling the disease requires complex public health interventions The IOM Forum on Drug Discovery Development and Translation held three international workshops to gather information from local experts around the world on the threat of drug resistant TB and how the challenges it presents can be met Workshops were held in South Africa and Russia in 2010 The third workshop was held April 18-19 2011 in New Delhi India in collaboration with the Indian National Science Academy and the Indian Council of Medical Research The aim of the workshop was to highlight key challenges to controlling the spread of drug resistant strains of TB in India and to discuss strategies for advancing and integrating local and international efforts to prevent and treat drug resistant TB This document summarizes the workshop

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**Management of MDR-TB** World Health Organization,2009 Multidrug resistant tuberculosis MDR TB and extensively drug resistant tuberculosis XDR TB are increasingly encountered in resource limited settings In the context of a national response to MDR and XDR TB health workers in TB clinics in district hospitals and some accredited health centers will need to diagnose MDR TB initiate second line anti TB drugs and monitor MDR TB treatment This Field Guide was created to help health workers carry out these tasks It is a job aid that medical officers and TB nurses are meant to use frequently during the day for quick reference It is based on the Emergency Update 2008 of Guidelines for Programmatic Management of Drug resistant Tuberculosis and may be considered a companion document to these guidelines It also draws on the experience of the international health NGO Partners In Health PIH in many countries This module should be introduced to health workers in the context of a training course with a strong emphasis on TB HIV co management

**Multidrug-resistant Tuberculosis** Ivan Bastian,F.

Portaels,2000 The emergence of multidrug resistant tuberculosis MDRTB threatens TB control programs worldwide Outbreaks of MDRTB in the United States grabbed the attention of the medical community and the general public and subsequent surveys have found hot spots of MDRTB in low and middle income countries on four continents Contributions from experts provide detailed descriptions causes molecular biology laboratory diagnosis treatment prevention and public health aspects of this disease It gives an authoritative overview of MDRTB and should be a useful reference book for clinicians scientists and other health personnel involved in the care of TB and MDRTB patients in industrialized and developing countries

*WHO consolidated guidelines on tuberculosis. Module 4* World Health Organization,2022-04-30 Between 2011 and 2019 WHO has developed and issued evidence based policy recommendations on the treatment and care of patients with DR TB These policy recommendations have been presented in several WHO documents and their associated annexes including the WHO Consolidated Guidelines on Drug Resistant Tuberculosis Treatment issued by WHO in March 2019 The policy recommendations in each of these guidelines have been developed by WHO convened Guideline Development Groups using the GRADE Grading of Recommendations Assessment Development and Evaluation approach to summarize the evidence and formulate policy recommendations and accompanying remarks The present WHO Consolidated Guidelines on Tuberculosis Module 4 Treatment Drug Resistant Tuberculosis Treatment includes a comprehensive set of WHO

recommendations for the treatment and care of DR TB The document includes two new recommendations one on the composition of shorter regimens and one on the use of the BPaL regimen i e bedaquiline pretomanid and linezolid In addition the consolidated guidelines include existing recommendations on treatment regimens for isoniazid resistant TB and MDR RR TB including longer regimens culture monitoring of patients on treatment the timing of antiretroviral therapy ART in MDR RR TB patients infected with the human immunodeficiency virus HIV the use of surgery for patients receiving MDR TB treatment and optimal models of patient support and care The guidelines are to be used primarily in national TB programmes or their equivalents in Ministries of Health and for other policy makers and technical organizations working on TB and infectious diseases in public and private sectors and in the community *Multidrug-resistant Tuberculosis ,2012*

Tuberculosis TB is a disease caused by bacteria that are spread from person to person through the air TB usually affects the lungs but it can also affect other parts of the body such as the brain the kidneys or the spine In most cases TB is treatable and curable however persons with TB can die if they do not get proper treatment Multidrug resistant TB MDR TB is caused by an organism that is resistant to at least isoniazid and rifampin the two most potent TB drugs These drugs are used to treat all persons with TB disease **Addressing the Threat of Drug-Resistant Tuberculosis** Institute of Medicine,2010-01-07

Tuberculosis is one of the leading causes of death in the world today with 4 500 people dying from the disease every day Many cases of TB can be cured by available antibiotics but some TB is resistant to multiple drugs a major and growing threat worldwide The Institute of Medicine s Forum on Drug Discovery Development and Translation hosted a workshop on November 5 2008 to address the mounting concern of drug resistant TB The session brought together a wide range of international experts to discuss what is known and not known about this growing threat and to explore possible solutions

**Developing and Strengthening the Global Supply Chain for Second-Line Drugs for Multidrug-Resistant Tuberculosis**  
Institute of Medicine,Board on Health Sciences Policy,Forum on Drug Discovery, Development, and Translation,2013-02-06  
To effectively treat patients diagnosed with drug resistant DR tuberculosis TB and protect the population from further transmission of this infectious disease an uninterrupted supply of quality assured QA second line anti TB drugs SLDs is necessary Patients diagnosed with multidrug resistant tuberculosis MDR TB a disease caused by strains of *Mycobacterium tuberculosis* M tb resistant to two primary TB drugs isoniazid and rifampicin face lengthy treatment regimens of 2 years or more with daily directly observed treatment DOT with SLDs that are less potent more toxic and more expensive than those used to treat drug susceptible TB From 2000 to 2009 only 0 2 0 5 percent of the estimated 5 million MDR TB cases globally were treated with drugs of known quality and in programs capable of delivering appropriate care Keshavjee 2012 The vast majority of MDR TB patients either died from lack of treatment or contributed to the spread of MDR TB in their communities A strengthened global supply chain for SLDs could save lives by consistently delivering high quality medicines to more of the people who need them This public workshop explored innovative solutions to the problem of how to get the right SLDs for

MDR TB to people who critically need them More specifically the workshop examined current problems and potential opportunities for coordinated international efforts to ensure that a reliable and affordable supply of high quality SLDs is available Developing and Strengthening the Global Supply Chain for Second Line Drugs for Multidrug Resistant Tuberculosis Workshop Summary covers the objectives of the workshop which were to review To what extent and in what ways current mechanisms are or are not effectively accomplishing what is needed including consideration of bottlenecks The advantages and disadvantages of centralization in the management of the global drug supply chain and potential decentralized approaches to improve operations of the supply chain What can be learned from case studies and examples from other diseases e g the Affordable Medicines Facility malaria AMFm and the U S President s Emergency Plan for AIDS Relief PEPFAR The current allocation of responsibilities and roles of the private including industry and nonprofit public health organizations and public sectors and examination of opportunities for enhancing and optimizing collaboration Identification of potential innovative solutions to the problem

**Drug Resistant Tuberculosis** Rafael Laniado-Laborín,2015-06-04

This book is a concise straightforward practical guide to the clinical management of patients having drug resistant tuberculosis infections It covers every aspect of drug resistant tuberculosis starting from epidemiology and bacteriology to a description of the latest diagnostic tests and a list of tuberculosis drugs Readers will find clear guidelines for selection and administration of treatment regimens for the different types of drug resistant infections as well as instructions on follow up procedures for such cases The book also includes a series of clinical cases illustrating some of the most frequent problems encountered by doctors while treating drug resistant tuberculosis in a clinical setting Drug Resistant Tuberculosis Practical guide for clinical management is a useful handbook for general practitioners and medical students interested in learning about multi drug resistant tuberculosis and pulmonary care of patients having advanced infections

**The New Profile of**

**Drug-Resistant Tuberculosis in Russia** Russian Academy of Medical Sciences,Institute of Medicine,Board on Health Sciences Policy,Forum on Drug Discovery, Development, and Translation,2011-07-07 An estimated 2 billion people one third of the global population are infected with *Mycobacterium tuberculosis* the bacterium that causes tuberculosis Spread through the air this infectious disease killed 1.7 million in 2009 and is the leading killer of people with HIV Tuberculosis TB is also a disease of poverty the vast majority of tuberculosis deaths occur in the developing world Exacerbating the devastation caused by TB is the growing threat of drug resistant forms of the disease in many parts of the world Drug resistant tuberculosis presents a number of significant challenges in terms of controlling its spread diagnosing patients quickly and accurately and using drugs to treat patients effectively In Russia in recent decades the rise of these strains of TB resistant to standard antibiotic treatment has been exacerbated by the occurrence of social political and economic upheavals The Institute of Medicine IOM Forum on Drug Discovery Development and Translation in conjunction with the Russian Academy of Medical Sciences held a workshop to discuss ways to fight the growing threat of drug resistant TB The New Profile of Drug

Resistant Tuberculosis in Russia A Global and Local Perspective Summary of a Joint Workshop presents information from experts on the nature of this threat and how it can be addressed by exploring various treatment and diagnostic options

*National Action Plan for Combating Multidrug-Resistant Tuberculosis* White House, 2016-02-17 Tuberculosis TB kills almost 30 000 people each week The disease is caused by *Mycobacterium tuberculosis* Mtb which is transmitted through the air from person to person Currently more than two billion people nearly one third of the world's population are estimated to be infected with Mtb latent TB and are at risk of developing the disease TB is curable but inappropriate treatment can lead to multidrug resistant TB MDR TB which is resistant to the two most effective anti TB drugs and extensively drug resistant TB XDR TB which is resistant to many anti TB drugs The goals of this National Action Plan are to 1 Strengthen domestic capacity to combat MDR TB 2 Improve international capacity and collaboration to combat MDR TB and 3 Accelerate basic and applied R D to combat MDR TB Figures This is a print on demand report

**Timebomb: The Global Epidemic of Multi-Drug Resistant Tuberculosis** Lee Reichman, Janice Hopkins Tanne, 2001-11-05 This is an excellent book It should be read by all who are interested in any aspect of Tuberculosis including the growing problem of Multi Drug Resistant Tuberculosis Journal of American Medical Association The book serves an important function relaying statistics and TB hot spots proposing funding and international standardized treatments Government officials researchers and nonprofit health organizations will likely cast this as the authoritative book on the subject Publishers Weekly Like other recent works on the threat of infectious diseases such as Laurie Garrett's *The Coming Plague* Timebomb has the power of fiction and it is sometimes easy to forget that it is not Unlike the Garrett book which is more a collection of short dramatic stories collectively telling a big picture about our coexistence and evolution with microbes Reichman selects one story and presents it in novel form with better material than most science fiction The book is organized in a clear and riveting manner Within the narrative style the book is rich with up to the minute details and references that add to its depth An incredible account of politics and disease dynamics occurring at all levels Timebomb helps us realize that controlling or eradicating TB is not just about science and facts likely if it were TB would have long been relegated to the history books Nature Medicine Magazine Tuberculosis supposedly defeated by antibiotics half a century ago has returned in a highly contagious and fatal new form that cannot be treated with conventional drugs Multidrug resistant TB MDR TB could cause some 10 million deaths over the next decade and is thriving in the overcrowded prisons of the former Soviet Union As Timebomb explains in unnerving detail the virtual collapse of the world's borders means that refugees tourists immigrants business travelers and others can spread the TB bacillus very efficiently London for example has experienced a 100% increase in reported cases in the past 10 years Written by the world's preeminent TB expert and an award winning medical and health writer Timebomb details the evolution and the current state of the MDR TB epidemic interweaving the science of MDR TB with personal stories of people whose lives have been threatened by the deadly bacteria

Guidelines for the Programmatic Management of Drug-resistant Tuberculosis World

Health Organization, 2008 The emergence of extensively drug resistant strains of tuberculosis especially in countries with a high prevalence of human immunodeficiency virus is a serious threat to global public health and jeopardizes efforts to effectively control the disease This publication offers updated recommendations for the diagnosis and management of drug resistant tuberculosis in a variety of geographical economic and social settings and the recording of data that enables the monitoring and evaluation of programs Publisher's description [Multidrug Resistant Tuberculosis \(MDR-TB\): New Insights for the Healthcare Professional: 2013 Edition](#), 2013-07-22 Multidrug Resistant Tuberculosis MDR TB New Insights for the Healthcare Professional 2013 Edition is a ScholarlyPaper that delivers timely authoritative and intensively focused information about Additional Research in a compact format The editors have built Multidrug Resistant Tuberculosis MDR TB New Insights for the Healthcare Professional 2013 Edition on the vast information databases of ScholarlyNews You can expect the information about Additional Research in this book to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant The content of Multidrug Resistant Tuberculosis MDR TB New Insights for the Healthcare Professional 2013 Edition has been produced by the world's leading scientists engineers analysts research institutions and companies All of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at ScholarlyEditions and available exclusively from us You now have a source you can cite with authority confidence and credibility More information is available at <http://www.ScholarlyEditions.com>

**The Global Crisis of Drug-Resistant Tuberculosis and Leadership of China and the BRICS** Institute of Medicine, Board on Health Sciences Policy, Forum on Drug Discovery, Development, and Translation, 2014-02-28 Multidrug resistant tuberculosis TB is caused by bacteria resistant to isoniazid and rifampicin the two most effective first line anti TB drugs originally developed and introduced in the 1950 and 1960s Since 2008 the Forum on Drug Discovery Development and Translation of the Institute of Medicine has hosted or co hosted six domestic and international workshops addressing the global crisis of drug resistant TB with special attention to the BRICS countries Brazil Russia India China and South Africa The Global Crisis of Drug Resistant Tuberculosis and Leadership of China and the BRICS is the summary of a workshop convened to address the current status of drug resistant TB globally and in China This report considers lessons learned from high burden countries highlights global challenges to controlling the spread of drug resistant strains and discusses innovative strategies to advance and harmonize local and international efforts to prevent and treat drug resistant TB Additionally the report examines the problem of MDR TB and emergent TB strains that are potentially untreatable with drugs available and considers the critical leadership role of the BRICS countries in addressing the threats and opportunities in drug resistant TB

[Extensively Drug-resistant Tuberculosis](#), 2013 Extensively drug resistant TB XDR TB is a rare type of multidrug resistant tuberculosis MDR TB that is resistant to isoniazid and rifampin plus any fluoroquinolone and at least one of three injectable second line drugs i e amikacin kanamycin or capreomycin MDR TB is caused by an organism that is resistant to at least isoniazid and rifampin the two most

potent TB drugs     **Tuberculosis and Multidrug-Resistant Tuberculosis** Suhail Ahmad,Eiman Mokaddas,2013-01-01  
Tuberculosis TB causing nine million active disease cases and 1 5 million deaths every year is a formidable public health challenge particularly in poor and developing countries around the world Major reasons for global burden of TB include association of active disease with human immunodeficiency virus HIV coinfection or other underlying immunosuppressive conditions such as diabetes and increasing incidence of drug resistant multidrug resistant MDR resistant at least to rifampicin and isoniazid and extensively drug resistant XDR additionally resistant to a fluoroquinolone plus kanamycin amikacin capreomycin strains of M tuberculosis While treatment of drug susceptible TB is effective in 95 percent of disease cases supervised therapy for 6 months is challenging Inadequate inappropriate therapy due to inability of poor patients to pay for drugs and non adherence to treatment regimen and duration often results in much lower cure rates and evolution of drug resistant strains of M tuberculosis due to mutations occurring at a predictable rate in genes encoding drug targets Sequential accumulation of mutations results in evolution of MDR and XDR strains of M tuberculosis Today drug resistant TB and MDR TB have become prevalent in many parts of the world and XDR TB strains are emerging rapidly While MDR TB is difficult to treat XDR TB is untreatable in most developing countries

### **Epidemiology of Multidrug Resistant**

**Tuberculosis (MDR-TB).** Dhammadika Nayoma Magana-Arachchi,2013     Drug-resistant Tuberculosis Shui Nguy,2010  
Tuberculosis TB is a major public health problem of global proportions It is the second leading cause of death from an infectious agent killing nearly two million people each year mostly in developing countries This book outlines the recent advances in the development of new multidrug resistant tuberculosis MDR TB drugs The emergence of resistance to antituberculosis drugs particularly of MDR TB and newly XDR TB has become a major health problem This book provides some glimpses into the current drugs including their mechanism of action side effects and mechanism of resistance The desirable features of new drugs is also discussed as well as different targets for effective TB treatment and approaches that are being made in the development of potential drugs for resistant tuberculosis The effectiveness of levofloxacin and ofloxacin in the treatment of multi drug resistant tuberculosis is also comparatively assessed to determine the immunological effects of certain treatment regimens Finally this book expands upon the spectrum of potential resistance related mutations in MTB clinical isolates to help consolidate the framework for the development of molecular methods for delineating the drug susceptibility profiles in clinical laboratories

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## **Table of Contents Multidrug Resistant Tuberculosis**

1. Understanding the eBook Multidrug Resistant Tuberculosis
  - The Rise of Digital Reading Multidrug Resistant Tuberculosis
  - Advantages of eBooks Over Traditional Books
2. Identifying Multidrug Resistant Tuberculosis
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Multidrug Resistant Tuberculosis
  - User-Friendly Interface
4. Exploring eBook Recommendations from Multidrug Resistant Tuberculosis
  - Personalized Recommendations

- Multidrug Resistant Tuberculosis User Reviews and Ratings
- Multidrug Resistant Tuberculosis and Bestseller Lists

5. Accessing Multidrug Resistant Tuberculosis Free and Paid eBooks

- Multidrug Resistant Tuberculosis Public Domain eBooks
- Multidrug Resistant Tuberculosis eBook Subscription Services
- Multidrug Resistant Tuberculosis Budget-Friendly Options

6. Navigating Multidrug Resistant Tuberculosis eBook Formats

- ePUB, PDF, MOBI, and More
- Multidrug Resistant Tuberculosis Compatibility with Devices
- Multidrug Resistant Tuberculosis Enhanced eBook Features

7. Enhancing Your Reading Experience

- Adjustable Fonts and Text Sizes of Multidrug Resistant Tuberculosis
- Highlighting and Note-Taking Multidrug Resistant Tuberculosis
- Interactive Elements Multidrug Resistant Tuberculosis

8. Staying Engaged with Multidrug Resistant Tuberculosis

- Joining Online Reading Communities
- Participating in Virtual Book Clubs
- Following Authors and Publishers Multidrug Resistant Tuberculosis

9. Balancing eBooks and Physical Books Multidrug Resistant Tuberculosis

- Benefits of a Digital Library
- Creating a Diverse Reading Collection Multidrug Resistant Tuberculosis

10. Overcoming Reading Challenges

- Dealing with Digital Eye Strain
- Minimizing Distractions
- Managing Screen Time

11. Cultivating a Reading Routine Multidrug Resistant Tuberculosis

- Setting Reading Goals Multidrug Resistant Tuberculosis
- Carving Out Dedicated Reading Time

12. Sourcing Reliable Information of Multidrug Resistant Tuberculosis

- Fact-Checking eBook Content of Multidrug Resistant Tuberculosis

- Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
  - Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
- 14. Embracing eBook Trends
  - Integration of Multimedia Elements
  - Interactive and Gamified eBooks

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