

ROADMAP FOR CHILDHOOD TUBERCULOSIS











International Union Against Tuberculosis and Lung Disease





Key facts about children and tuberculosis (TB)

TB exposure

• Any child living or spending time in a setting where there are people with infectious TB may be exposed to *Mycobacterium tuberculosis*.

TB infection

- Infection with *M. tuberculosis* usually follows exposure to a person with TB who is coughing; infection occurs when TB bacilli are inhaled into the respiratory system.
- The likelihood of becoming infected following exposure is greatest when there has been close contact with an infected person (for example, in a household) and if the infected person has sputum smear-positive pulmonary TB. However, transmission can also occur from persons with smear-negative, culture-positive pulmonary disease.
- When infection occurs, the TB bacilli multiply and drain to regional lymph nodes where cell-mediated immunity is activated to contain the infection. The tuberculin skin test is an indicator of this immune response to infection, and will usually become positive within 8–12 weeks of infection. Around 90% of children infected with *M. tuberculosis* will contain the infection and remain well.

Progressing from infection to disease

- Any child infected with *M. tuberculosis* may develop TB.
- Most children develop TB disease within one year of becoming infected. This is why taking a contact history is relevant, and why the burden of TB in children reflects continuing transmission within a population.
- Risk factors for developing disease following infection include young age (that is, being less than three years old) and immunodeficiency (such as that caused by HIV infection, measles or severe malnutrition). Adolescence is another period during which there is an increased risk of developing disease.
- Progression from infection to disease is indicated by the onset of symptoms.

TB disease

- The most common type of TB disease in children is pulmonary TB, of which sputum smear-negative disease is most frequent. Cases in which sputum cannot be obtained for smear microscopy are also considered to be and reported as sputum smear-negative.
- Extrapulmonary TB occurs in approximately 20–30% of all cases in children; TB adenitis and TB pleural effusion are the most common forms.
- The presentation of TB disease in children is age-related and dependent on immune response. Infants and young children are at particular risk of developing severe, disseminated and often lethal disease, which may present as TB meningitis or miliary TB. Adolescents are at particular risk of developing adult-type disease (that is, they are often sputum smear-positive and highly infectious).
- Diagnosing TB in HIV-positive children is similar to diagnosing HIV-negative children of a similar age.

ROADMAP FOR CHILDHOOD TUBERCULOSIS

TOWARDS ZERO DEATHS









International Union Against Tuberculosis and Lung Disease





WHO Library Cataloguing-in-Publication Data

Roadmap for childhood tuberculosis: towards zero deaths.

1. Tuberculosis, Pulmonary – prevention and control. 2. Tuberculosis. 3. Child. 4. National health programs. 5. Health policy. I. World Health Organization. II. UNICEF. III. Center for Disease Control (U.S.). IV. International Union Against TB and Lung Disease. V. Stop TB Partnership. VI. USAID.

ISBN 978 92 4 150613 7 (NLM classification: WF 300)

© World Health Organization 2013

All rights reserved. Publications of the World Health Organization are available on the WHO web site (www.who.int) or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int).

Requests for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – should be addressed to WHO Press through the WHO web site (www.who. int/about/licensing/copyright_form/en/index.html). The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization or contributing agencies concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization or contributing agencies, in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization or contributing agencies be liable for damages arising from its use.

Printed by the WHO Document Production Services, Geneva, Switzerland.

WHO/HTM/TB/2013.12

Design by Inís Communication - www.iniscommunication.com

Cover photo credits:

- Top right: WHO/Damien Schumann
- Caption: For Zanele and Lilathi, the fight is not over. They will have to stick to their clinic appointments and keep taking their medication. But thanks to the integrated TB and HIV services provided in Nyanga they both have the chance to lead fulfilling lives. Without these services, Zanele's TB could have been ignored in the shadow of HIV.
- Top left: WHO/HM.Dias Caption: Jerome has multidrug-resistant TB, he has been undergoing treatment for over a month at the East Avenue Medical Center, Philippines.
- Bottom right: ECDC/Tobias Hofsäss

Acknowledgements

The writing and overall coordination of this document was led by members of the Childhood TB Subgroup of the Stop TB Partnership. Feedback was sought from all members of the subgroup and from partners within the broader field of international child health. WHO is grateful to all who contributed to the document, especially to Hannah Monica Yesudian Dias who coordinated the final editing and publication of the document.

Core writing team

Anne Detjen, Marianne Gale, Ines Garcia Baena, Steve Graham, Malgorzata Grzemska, Coco Jervis, Heather Menzies (leader), Charalambos Sismanidis, Jeffrey Starke, Soumya Swaminathan.

Contributors

Lisa Adams, Farhana Amanullah, Annemieke Brands, Dick Chamla, Dennis Cherian, Colleen Daniels, Danielle Doughman, Gunta Dravniece, Vijay Edward, Anthony Enimil, Robert Gie, Walter Haas, Barbara Hauer, Anneke Hesseling, Anna Mandalakas, David McNeeley, Gloria E. Oramasionwu, Alfonso Rosales, Clemax Sant'Anna, Alan Talens, Renee Van de Weerdt, Clara van Gulik, Christine Whalen, and all who participated in the annual meeting of the Childhood TB Subgroup held in Kuala Lumpur, Malaysia in 2012.



Contents

Acknowledgements			
Abbreviations	4		
Preface			
Executive summary			
Childhood TB: identifying the challenges			
Tackling childhood TB: a progress update			
The roadmap towards a TB-free future for children and adolescents			
 Include the needs of children and adolescents in research, policy development and clinical practices 	21		
2. Collect and report better data, including data on prevention			

TOWARDS ZERO DEATHS



;	3.	Develop policy guidance, training and reference materials for bealth care workers	22
		Treattri care workers	3
4	4.	Foster local expertise and leadership	.24
į	5.	Do not miss critical opportunities for intervention	
(З.	Engage key stakeholders	27
-	7.	Develop integrated family-centred and community-centred strategies	
8	3.	Address research gaps	
ę	9.	Meet funding needs for childhood TB	32
	10	Form coalitions and partnerships to improve tools for diagnosis and treatment	33
Achieving zero deaths			.35
Resources			

Abbreviations

AIDS	acquired immunodeficiency syndrome
BCG	bacille Calmette-Guérin
DOTS	basic package of interventions for TB control that underpins the <i>Stop TB strategy</i>
GDP	gross domestic product
HIV	human immunodeficiency virus
iCCM	integrated community case management
IMCI	integrated management of childhood illness
IMPAACT	International Maternal Pediatric Adolescent AIDS Clinical Trials Group
MDR-TB	multidrug-resistant tuberculosis
ТВ	tuberculosis
WHO	World Health Organization





https://www.yunbaogao.cn/report/index/report?reportId=5_28242