Warning: This report is out-of-date. In particular, entire time-series of TB disease burden estimates are updated every year. For the latest data and analysis, please see the most recent edition of the global TB report.

Global Tuberculosis Report 2012



GLOBAL TUBERCULOSIS REPORT 2012



WHO Library Cataloguing-in-Publication Data

Global tuberculosis report 2012.

1.Tuberculosis – epidemiology. 2.Tuberculosis, Pulmonary – prevention and control.

3.Tuberculosis – economics. 4.Directly observed therapy. 5.Treatment outcome. 6.National health programs – organization and administration. 7.Statistics. I.World Health Organization.

ISBN 978 92 4 156450 2 (NLM classification: WF 300)

© World Health Organization 2012

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 (http://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 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 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 be liable for damages arising from its use.

Cover design by Tom Hiatt, Western Pacific Regional Office, WHO. The front cover illustrates the contribution of different sources of funding to TB care and control in low-income countries, highlighting the importance of international donor funding (coloured blocks) compared with domestic contributions (grey band) as well as the role of the Global Fund (red line) that is the leading source of international donor funding globally; see Figure 5.5. The back cover illustrates the impressive reduction in TB prevalence in Cambodia, a low-income and high-burden country, between 2002 (when a baseline national TB prevalence survey was implemented) and 2011 (when a repeat national TB prevalence survey was implemented); see Box 2.7 in Chapter 2.

Designed by minimum graphics Printed in France

WHO/HTM/TB/2012.6

Contents

Abbreviations	iv	
Acknowledgements	V	
Executive summary	1	
Chapter 1. Introduction	3	
Chapter 2. The burden of disease caused by TB	8	
Chapter 3. TB case notifications and treatment outcomes	29	
Chapter 4. Drug-resistant TB	41	
Chapter 5. Financing TB care and control	52	
Chapter 6. Diagnostics and laboratory strengthening	66	
Chapter 7. Addressing the co-epidemics of TB and HIV	74	
Chapter 8. Research and development	82	
Annexes		
1. Methods used to estimate the global burden of disease caused by TB	91	
2. Country profiles	105	
3. Regional profiles	129	
4. Global, regional and country-specific data for key indicators		

Abbreviations

AFB	acid-fast bacilli	IGRA	interferon-gamma release assay	
AFR	WHO African Region	IPT	isoniazid preventive therapy	
AIDS	acquired immunodeficiency syndrome	IRR	incidence rate ratio	
AMR	WHO Region of the Americas	LED	Light-emitting diode	
ARI	annual risk of infection	LPA	Line-probe assay	
ART	antiretroviral therapy	MDG	Millennium Development Goal	
BCG	Bacille-Calmette-Guérin	MDR-TB multidrug-resistant tuberculos	multidrug-resistant tuberculosis	
BRICS	Brazil, Russian Federation, India, China, South Africa		(resistance to, at least, isoniazid and rifampicin)	
CDR	case detection rate	NGO	nongovernmental organization	
CPT	co-trimoxazole preventive therapy	NTP	1 0	
CBC	community-based TB care	DEDEA D	or equivalent	
DOT	directly observed treatment	PEPFAR US President's Emergency Plan for Relief		
DOTS	the basic package that underpins the	POC	point-of-care	
D.D. W.D.	Stop TB Strategy	PPM	Public–Private Mix	
DR-TB	drug-resistant tuberculosis drug resistance surveillance or survey	SEAR	WHO South-East Asia Region	
DRS DST		SRL	supranational reference laboratory	
	drug susceptibility testing	TB	tuberculosis	
ECDC European Centre for and Control	European Centre for Disease Prevention and Control	TB-TEAM	Tuberculosis Technical Assistance Mechanism	
EMR	WHO Eastern Mediterranean Region	TST	tuberculin skin test	
EQA	External quality assurance	UNAIDS	Joint United Nations Programme on HIV/	
ERR	Electronic recording and reporting		AIDS	
EU	European Union	UNITAID	UNITAID international facility for the purchase of diagnostics and drugs for diagnosis and treatment of HIV/AIDS, malaria and TB	
EUR	WHO European Region			
FIND	Foundation for Innovative New Diagnostics	USAID	United States Agency for International	
GDP	gross domestic product	VD	Development Vital registration	
GLI	Global Laboratory Initiative	VR	Vital registration	
Global Fund	The Global Fund to fight AIDS, Tuberculosis and Malaria	WHA WHO	World Health Assembly World Health Organization	
Global Plan	Global Plan to Stop TB, 2011–2015	WPR	WHO Western Pacific Region	
GNI	gross national income	XDR-TB Extensively drug-resistant TB, defined as MDR-TB plus resistance to a fluoroquinolone and at least one of th injectable second-line drugs (amikacin kanamycin or capreomycin)		
НВС	high-burden country of which there are 22 that account for approximately 80% of all new TB cases arising each year			
HIV	human immunodeficiency virus	ZN	Ziehl Neelsen	
ICD-10	International Classification of Diseases (tenth revision)	Zi. Ziem recisen		

.....

Acknowledgements

This report on global tuberculosis care and control was produced by a core team of 13 people: Hannah Monica Dias, Dennis Falzon, Christopher Fitzpatrick, Katherine Floyd, Philippe Glaziou, Tom Hiatt, Christian Lienhardt, Linh Nguyen, Charalambos Sismanidis, Hazim Timimi, Mukund Uplekar, Wayne van Gemert and Matteo Zignol. The team was led by Katherine Floyd. Overall guidance was provided by the Director of the Stop TB Department, Mario Raviglione.

The data collection forms (long and short versions) were developed by Philippe Glaziou and Hazim Timimi, with input from staff throughout the Stop TB Department. Hazim Timimi led and organized all aspects of data management. Christopher Fitzpatrick, Inés Garcia and Andrea Pantoja conducted all review and follow-up of financial data. The review and follow-up of all other data was done by a team of reviewers that included Annabel Baddeley, Annemieke Brands, Hannah Monica Dias, Dennis Falzon, Linh Nguyen, Hazim Timimi, Wayne van Gemert and Matteo Zignol in WHO headquarters, Tom Hiatt in the Western Pacific Regional Office, and Suman Jain, Sai Pothapregada and Mohammed Yassin from the Global Fund. Data for the European Region were collected and validated jointly by the WHO Regional Office for Europe and the European Centre for Disease Prevention and Control (ECDC), an agency of the European Union based in Stockholm, Sweden.

Philippe Glaziou and Charalambos Sismanidis analysed surveillance and epidemiological data and prepared the figures and tables on these topics, with assistance from Tom Hiatt. Tom Hiatt, Linh Nguyen and Annabel Baddeley analysed TB/HIV data and prepared the associated figures and tables. Dennis Falzon and Matteo Zignol analysed data and prepared the figures and tables related to drug-resistant TB, with assistance from Shu-Hua Wang. Christopher Fitzpatrick analysed financial data, and prepared the associated figures and tables. Tom Hiatt and Wayne van Gemert prepared figures and tables on laboratory strengthening and the roll-out of new diagnostics. Christian Lienhardt and Karin Weyer prepared the figures on the pipelines for new TB drugs, diagnostics and vaccines, with input from the respective Working Groups of the Stop TB Partnership. Tom Hiatt checked and finalized all figures and tables in an appropriate format, ensuring that they were ready for layout and design according to schedule, and was the focal point for communications with the graphic designer.

The writing of the main part of the report was led by Katherine Floyd, with contributions from the following people: Philippe Glaziou, Charalambos Sismanidis and Jinkou Zhao (Chapter 2); Hannah Monica Dias, Haileyesus Getahun, Thomas Joseph and Mukund Uplekar (Chapter 3); Christopher Fitzpatrick and Christian Gunneberg (Chapter 5); and Annabel Baddeley, Haileyesus Getahun and Linh Nguyen (Chapter 7). Chapter 4, on drug-resistant TB, was prepared by Dennis Falzon and Matteo Zignol, with input from Katherine Floyd, Philippe Glaziou, Ernesto Jaramillo and Charalambos Sismanidis. Chapter 6, on diagnostics and laboratory strengthening, was prepared by Wayne van Gemert, with input from Christopher Gilpin, Fuad Mirzayev and Karin Weyer. Chapter 8, on research and development, was written by Christian Lienhardt, Karin Weyer and Katherine Floyd, with input and careful review by the chairs and secretariats of the Working Groups of the Stop TB Partnership: particular thanks are due to Michael Brennan, Uli Fruth and Jennifer Woolley (new vaccines); Daniella Cirillo, Philippe Jacon and Alessandra Varga (new diagnostics); and Cherise Scott and Mel Spigelman (new TB drugs). Karen Ciceri edited the entire report.

Annex 1, which explains methods used to produce estimates of the burden of disease caused by TB, was written by Philippe Glaziou, Katherine Floyd and Charalambos Sismanidis; we thank Colin Mathers of WHO's Mortality and Burden of Disease team for his careful review and helpful suggestions. The country profiles that appear in Annex 2 and the regional profiles that appear in Annex 3 were prepared by Hazim Timimi. Annex 4, which contains a wealth of global, regional and country-specific data from the global TB database, was prepared by Tom Hiatt and Hazim Timimi.

We thank Pamela Baillie in the Stop TB Department's TB monitoring and evaluation team for impeccable administrative support, Doris Ma Fat from WHO's Mortality and Burden of Disease team for providing TB mortality data extracted from the WHO Mortality Database, Michel Beusenberg, Kusha Davar, Chika Hyashi and Yves Souteyrand of WHO's HIV department for the close collaboration that facilitated joint review and validation of TB/HIV data, and Diana Weil for reviewing and providing helpful comments on the entire report. We also thank Taavi Erkkola, Luisa Frescura and Peter Ghys from UNAIDS for providing TB/HIV data collected as part of the joint reporting process on Universal Access in the Health Sector and Global AIDS Response Progress and for following up TB/HIV-related data

queries with countries, and Peter Ghys and Karen Stanecki (UNAIDS) for providing epidemiological data that were used to estimate HIV-associated TB mortality.

We thank Sue Hobbs for her excellent work on the design and layout of this report; her contribution, as in previous years, is greatly appreciated.

The principal source of financial support for WHO's work on monitoring and evaluation of TB control is the United States Agency for International Development (USAID), without which it would be impossible to produce this report on global TB care and control. Data collection, validation, analysis, printing and dissemination were also supported by funding from the governments of Japan and the Republic of Korea. We acknowledge with gratitude their support.

In addition to the core report team and those mentioned above, the report benefited from the input of many staff working in WHO's regional and country offices and hundreds of people working for national TB programmes or within national surveillance systems who contributed to the reporting of data and to the review of report material prior to publication. These people are listed below, organized by WHO region. We thank them all for their invaluable contribution and collaboration, without which this report could not have been produced.

Among the WHO staff listed below, we thank in particular Amal Bassili, Andrei Dadu, Tom Hiatt, Khurshid Alam Hyder, Daniel Kibuga, Rafael López Olarte, André Ndongosieme, Wilfred Nkhoma, Nobuyuki Nishikiori, Angélica Salomão, Ward Schrooten, Marithel Tesoro and Henriette Wembanyama for their major contribution to data collection, validation and review.

WHO staff in regional and country offices

WHO African Region

Esther Aceng, Harura Adamu, Boubacar Abdel Aziz, Inacio Alvarenga, Balde Amadou, Cornelia Atsyor, Ayodele Awe, Sanni Babatunde, Nayé Bah, Marie Barouan, Abera Bekele, Norbert Bidounga, Françoise Bigirimana, Christine Chakanyuka, Gaël Claquin, Peter Clement, Claudina Cruz, Olusoti Daniel, Noel Djemadji, Louisa Ganda, Boingotlo Gasennelwe, Joseph Imoko, Michael Jose, Joël Kangangi, Nzuzi Katondi, Samson Kefas, Bah Keita, Daniel Kibuga, Hillary Kipruto, Mwendaweli Maboshe, Leonard Mbam Mbam, Azmera Molla, Julie Mugabekazi, André Ndongosieme, Denise Nkezimana, Nicolas Nkiere, Wilfred Nkhoma, Ghislaine Nkone, Ishmael Nyasulu, Laurence Nyiramasarabwe, Samuel Ogiri, Sally Ohene, Amos Omoniyi, Chijioke Osakwe, Philips Patrobas, Angélica Salomão, Neema Simkoko, Desta Tiruneh, Henriette Wembanyama, Assefash Zehaie.

WHO Region of the Americas

Roberto del Aguila, Monica Alonso, Arletta Anez, Miguel Aragón, Denise Arakaki, Adriana Bacelar, Eldonna Boisson, Gustavo Bretas, Luis Gerardo Castellanos, Maggie Clay, Rachel Eersel, Gerry Eijkemans, Marcos Espinal, Yitades Gebre, Mirtha Del Granado, Mónica Guardo, Jorge Hadad, Rosalinda Hernández, Vidalia Lesmo, Rafael López, Tamara Mancero, Wilmer Marquiño, Mario Martínez, Fatima Marinho, Humberto Montiel, Romeo Montoya, Roberto Montoya, José Moya, Kam Mung, Soledad Pérez, Jean Rwangabwoba, Hans Salas, Roberto Salvatella, Thais dos Santos, Ward Schrooten, Alfonso Tenorio, Enrique Vazquez, Jorge Victoria, Anna Volz, Victor Zamora.

WHO Eastern Mediterranean Region

Ali Akbar, Mohamed Abdel Aziz, Samiha Baghdadi, Amal Bassili, Najwa ElEmam, Sevil Huseynova, Rhida Jebeniani, Wasiq Khan, Hamida Khattabi, Nuzhat Leiluma, Aayid Munim, Ali Reza Aloudel, Karam Shah, Ireneaus Sindani, Bashir Suleiman, Rahim Taghizadeh, Martin Van Den Boom.

WHO European Region

Evgeny Belilovsky, Andreea Cassandra Butu, Silvu Ciobanu, Pierpaolo de Colombani, Andrei Dadu, Irina Danilova, Masoud Dara, Alain Disu, Jamshid Gadoev, Gayane Ghukasyan, Ogtay Gozalov, Sayohat Hasanova, Saliya Karymbaeva, Kristin Kremer, Mehmet Kontas, Nikoloz Nasidze, Dmitry Pashkevich, Robertas Petkevicius, Valiantsin Rusovich, Javahir Suleymanova, Vadim Testov, Bogdana Shcherbak-Verlan, Melita Vujnovic.

WHO South-East Asia Region

Iyanthi Abeyewickreme, Mohammad Akhtar, Vikarunnesa Begum, Vineet Bhatia, Erwin Cooreman, Puneet Dewan, Md Khurshid Alam Hyder, Navaratnasingam Janakan, Rim Kwang Il, Kim Son Il, Franky Loprang, Jorge Luna, Partha Mandal, La Win Maung, Nigor Muzafarova, Ye Myint, Eva Nathanson, Patanjali Nayar, Rajesh Pandav, Razia Pendse, Sri Prihatini, K Rezwan, Ray Serrano, Mukta Sharma, Aminath Shenalin, Achuthan Sreenivas, Chawalit Tantinimitkul, Kim Tong Hyok, Namgyel Wangchuk, Supriya Warusavithana, Sidharta Yuwono.

WHO Western Pacific Region

Shalala Ahmadova, Nino Dayanghirang, Cornelia Hennig, Tom Hiatt, Narantuya Jadambaa, Sung Hye Kim, Woo-Jin Lew, Yuhong Liu, Giampaolo Mezzabotta, Nobuyuki Nishikiori, Khanh Pham, Fabio Scano, Jacques Sebert, Marithel Tesoro, Xuejing Wang, Catharina van Weezenbeek, Rajendra-Prasad Yadav, Dongbao Yu.

National respondents who contributed to reporting and verification of data via the online global data collection system

WHO African Region

Oumar Abdelhadi, Abdou-Salam Abderemane, Coulibaly Abdoul Karim, Jean Abena, Felix Afutu, Sofiane Alihalassa, Arlindo Amaral, Géneviève Angue Nguema, Claudina Augusto da Cruz, Fantchè Awokou, Swasilanne Bandeira, Adama Bangoura, Jorge Barreto, Frank Bonsu, Ballé Boubakar, Mahamat Bourhanadine, Miguel Camara, Ernest Cholopray, Nkem Chukwueme, Amadou Cissé, Catherine Cooper, Isaias Dambe, Serge Diagbouga, Aicha Diakité, Awa Diop, Themba Dlamini, S'celo Dlamini, Pierre-Marie Douzima, Said Egwaga, Juan Eyene, Mugabe Frank, Justin Freminot, Ndayikengurukiye Fulgence, Michel Gasana, Evariste Gasana, Ntahizaniye Gérard, Sandile Ginindza, Martin Gninafon, Nii Hanson-Nortey, Adama Jallow, Nathan Kapata, Aristide Komangoya-Nzonzo, Patrick Konwloh, Jacquemin Kouakou, Egidio Langa, Bernard Langat, Gape Machao, Llang Maama-Maime, Jocelyn Mahoumbou, Angelo Makpenon, David Mametja, Farai Mavhunga, Frank Mba Bekolo, Adamou Moustapha, Youwaoga Moyenga, James Mpunga, Clifford Munyandi, Lindiwe Mvusi, Anne Mwenye, Ronald Ncube, Thaddée Ndikumana, Biruck Negash, Antoine Ngoulou, Emmanuel Nkiligi, M Nkou, Joshua Obasanya, Davidson Ogunade, Hermann Ongouo, Jean Okiata, Maria Palma, Victor Pereira, Martin Rakotonjanahary, Sahondra Randriambeloson, Bakoliarisoa Ranivomahefa, Thato Raleting, F Rujeedawa, Mohameden Salem, Charles Sandy, Marie Sarr-Diouf, Mineab Sebhatu, Mamie Shoma, Joseph Sitienei, Nicholas Siziba, Dawda Sowe, Kassim Traore, Abdallahi Traoré, Alie Wurie, Assefash Zehaie, Abbas Zezai, Eric Zoungrana

WHO Region of the Americas

Christian Acosta, Sarita Aguirre, Shalauddin Ahmed, Valentina Alarcón, Xochil Alemán, Valeria Almanza, Raúl Alvarez, Mirian Alvarez, Alister Antoine, Chris Archibald, Carlos Ayala, Wiedjaiprekash Balesar, Draurio Barreira, Patricia Bartholomay, María Bermúdez, Jaime Bravo, Lynrod Brooks, Marta Calona, John Cann, Martín Castellanos, Jorge Castillo, Kenneth Castro, Roxana Céspedes, Gemma Chery, Diana Claxton-Carty, Sonia Copeland, Clara Cruz, María de Lourdes, Dy-Juan De Roza, Richard D'Meza, Roger Duncan, Mercedes España, Luis Fernando Fernandez, Hugo Fernandez, Clara Freile, Victor Gallant, Julio Garay, Jennifer George, Izzy Gerstenbluth, Perry Gómez, Silvino González, Lizbeth Guevara, Yaskara Halabi, Dorothea Hazel, Maria Henry, Josefina Heredia, Tania Herrera, Martin Huirse, Alina Jaime, Carla Jeffries, Kathryn Johnston, Ashok Kumar, Athelene Linton, María Llanes, Cecilia Lyons, Eugène Maduro, Marvin Maldonado, Francisco Maldonado, Andrea Maldonado, Marvin Manzanero, Belkys Marcelino, Ada Martínez, Celia Martínez de Cuellar, Zeidy Mata, Timothy McLaughlin-Munroe, Mary Mercedes, Jeetendra Mohanlall, Ernesto Moreno, Alice Neymour, Persaud Nordai, Michael Owen, Gisele Pinto, Tomasa Portillo, Irad Potter, Bob Pratt, Edwin Quinonez, Dottin Ramoutar, Anna Reyes, Leonarda Reyes, Paul Ricketts, Jorge Rodriguez, Adalberto Rodriguez, Maria Rodriguez, Mirian Román, Katia Romero, Wilmer Salazar, Joan Simon, Manohar Singh, Sybil Smith, Jackurlyn Sutton, Clarita Torres, Maribelle Tromp, Christopher Trujillo, William Turner, Melisa Valdez, Reina Valerio, Daniel Vazquez, Nestor Vera, Juan Villeda, Asin Virginia, Eva de Weever, Michael Williams, Oritta Zachariah, Elsa Zerbini.

预览已结束,完整报告链接和二维码如下:

https://www.yunbaogao.cn/report/index/report?reportId=5 28341

