

# GLOBAL TUBERCULOSIS REPORT

# 2021



World Health  
Organization



# GLOBAL TUBERCULOSIS REPORT 2021



World Health  
Organization



## **Global tuberculosis report 2021**

ISBN 978-92-4-003702-1 (electronic version)

ISBN 978-92-4-003703-8 (print version)

### **© World Health Organization 2021**

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition".

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization (<http://www.wipo.int/amc/en/mediation/rules/>).

**Suggested citation.** Global tuberculosis report 2021. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.

**Cataloguing-in-Publication (CIP) data.** CIP data are available at <http://apps.who.int/iris>.

**Sales, rights and licensing.** To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <https://www.who.int/about/policies/publishing/copyright>.

**Third-party materials.** If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**General disclaimers.** 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 WHO 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 and dashed 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 WHO 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 WHO 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 WHO be liable for damages arising from its use.

Designed by minimum graphics

Cover design by Irwin Law

# Contents

|   |    |
|---|----|
| Foreword  | v  |
| Acknowledgements  | vi |
| Abbreviations   | xi |
| 1. Introduction   | 1  |
| 2. Global TB commitments, strategy and targets          | 3  |
| 3. Main findings and messages                           | 4  |
| 4. WHO guidance related to the COVID-19 pandemic and TB | 27 |
| 5. Conclusions  | 28 |
| References  | 29 |
| Annex 1. Basic facts about TB                           | 31 |
| Annex 2. The WHO global TB database                     | 32 |
| Annex 3. WHO global lists of high TB burden countries   | 34 |
| Annex 4. Country, regional and global profiles          | 37 |
| Annex 5. Updates to estimates of TB disease burden      | 38 |
| Annex 6. The WHO TB-SDG monitoring framework            | 41 |



**Dr Tedros Adhanom Ghebreyesus**

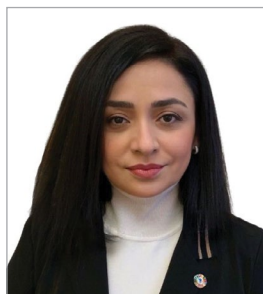
Director-General  
World Health Organization

*“Ending this debilitating disease remains a priority for WHO, and in recent years, we have made encouraging progress globally. But the COVID-19 pandemic has put these gains at risk. Not only does the virus pose an increased risk to people with TB, it has also caused severe disruption to services.*

*I want to remind you that the struggle to end TB is not just a struggle against a single disease. It's also the struggle to end poverty, inequity, unsafe housing, discrimination and stigma, and to extend social protection and universal health coverage. If the pandemic has taught us anything, it's that health is a human right, not a luxury for those who can afford it.*

*With solidarity, determination and the equitable use of tools, we will defeat COVID-19. And with the same solidarity, determination and equitable use of tools, we can end TB.* ”

# Foreword



**Dr Tereza Kasaeva**  
Director, WHO Global  
TB Programme

The 2021 global tuberculosis report highlights that we stand at a crossroads. We have just 1 year left to reach the historic 2022 tuberculosis (TB) targets committed to by heads of state and government at the first United Nations (UN) high-level meeting on TB in 2018, yet the coronavirus disease (COVID-19) pandemic has reversed gains and set back the fight against TB by several years. We need to move forward with hope, redoubling efforts and investments to urgently close widening gaps in access to much-needed prevention and care for the millions affected by this ancient disease. For the first time in over a decade, TB deaths have increased because of reduced access to TB diagnosis and treatment in the face of the COVID-19 pandemic. Close to half of the people ill with TB missed out on access to care in 2020 and were not reported; also, the number of people provided with treatment for drug-resistant TB and TB preventive treatment dropped significantly. An overview of universal health coverage (UHC), social determinants, and multisectoral action and accountability presented in this report emphasizes the need to address the

core drivers and social determinants of the disease.

This year's report is in an innovative digital format, with the main findings and messages presented in a single document, which is accompanied by expanded, more comprehensive content on the World Health Organization (WHO) website. This online content is organized under seven major topics: the COVID-19 pandemic and TB; TB disease burden; TB diagnosis and treatment; TB prevention; financing for TB diagnostic, treatment and prevention services; UHC and TB determinants; and TB research and innovation. The data come from 197 countries and territories, with notification data having been reported close to real-time on a monthly basis since the start of 2021. This transformation of the report aims to make it easier to access the core report data and information, and complements content available in the Global TB Report app.

The report provides important information at a crucial time, as preparations begin for the second UN high-level meeting on TB, which was mandated for 2023 as part of the political declaration of the 2018 UN high-level meeting and the 2020 progress report of the UN Secretary-General. This will be an important landmark to bolster political leadership to help us fast-track our efforts in an integrated and sustainable way. WHO has been tasked with supporting the Office of the UN Secretary-General to prepare a comprehensive review by heads of state and government at the 2023 high-level meeting on TB, informed by the upcoming global TB reports and the global, regional and national high-level reviews. We must stay focused until the job is done.

We have before us the opportunity to save the lives of millions, to preserve resources and to demonstrate the success of efforts to end TB, despite crises that come our way. We must keep the momentum going to stop the spread of this preventable and curable disease and reach those affected with the care they need. We are running out of time – the clock is ticking.

It's time for urgent action to End TB.

A handwritten signature in black ink, appearing to read 'T. Kasaeva', with a stylized flourish at the end.

# Acknowledgements

The *Global tuberculosis report 2021* and accompanying online materials and products were produced by a core team of 17 people: Annabel Baddeley, Marie-Christine Bartens, Saskia den Boon, Hannah Monica Dias, Dennis Falzon, Katherine Floyd, Inés Garcia Baena, Nebiat Gebreselassie, Philippe Glaziou, Marek Lalli, Irwin Law, Peter Nguhiu, Nobuyuki Nishikiori, Cicilia Gita Parwati, Charalambos Sismanidis, Olga Tosas Auguet and Hazim Timimi. The team was led by Katherine Floyd. Overall oversight was provided by the Director of the Global TB Programme, Tereza Kasaeva.

The data collection forms were developed by Philippe Glaziou and Hazim Timimi, with input from staff throughout the WHO Global TB Programme. Hazim Timimi led and organized all aspects of data management.

Data were reviewed by the following people at WHO headquarters: Annabel Baddeley, Marie-Christine Bartens, Saskia den Boon, Dennis Falzon, Inés Garcia Baena, Nebiat Gebreselassie, Medea Gegia, Licé Gonzalez Angulo, Nazir Ismail, Avinash Kanchar, Alexei Korobitsyn, Marek Lalli, Cecily Miller, Linh Nguyen, Elizaveta Safronova, Lana Syed, Hazim Timimi, Olga Tosas Auguet and Eloise Valli. Data from countries, territories and areas in the Americas were also reviewed by the following people at the WHO regional office for the Americas: Pedro Avedillo, Oscar Bernal, Ernesto Montoro and Rafael Lopez Olarte. Andrea Pantoja (WHO consultant) contributed to the review of data on TB financing. 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); we thank in particular Marlena Kaczmarek and Csaba Ködmön from ECDC for providing validated data files.

UNAIDS managed the process of data collection from national AIDS programmes and provided access to their TB/HIV dataset. Review and validation of TB/HIV data were both undertaken in collaboration with UNAIDS staff.

Many people contributed to the analyses, preparation of figures and tables, and writing required for both the main report document and the expanded web-based content and products which accompany it. Unless otherwise specified, those named work in the WHO Global TB Programme.

The main text of the report was written by Katherine Floyd and the figures and tables were prepared by Inés Garcia Baena, Philippe Glaziou, Irwin Law, Peter Nguhiu,

Nobuyuki Nishikiori and Hazim Timimi. Both draw from expanded web-based content that covers the main topics of the report in more detail.

The accompanying web content is organized into seven major topics and associated sections: 1) the COVID-19 pandemic and TB, which was prepared by Katherine Floyd, Philippe Glaziou and Irwin Law, with contributions from Nimalan Arinaminpathy (Imperial College, London, United Kingdom of Great Britain and Northern Ireland), Peter Dodd (Sheffield University, United Kingdom) and Carel Pretorius (Avenir Health, United States of America); 2) TB disease burden, which was prepared by Katherine Floyd, Philippe Glaziou, Irwin Law and Olga Tosas Auguet, with contributions from Nimalan Arinaminpathy (Imperial College, London, United Kingdom) and Peter Dodd (Sheffield University, United Kingdom); 3) TB diagnosis and treatment, which was prepared by Katherine Floyd and Hazim Timimi, with contributions from Annabel Baddeley, Nazir Ismail, Irwin Law and Fuad Mirzayev; 4) TB prevention, which was prepared by Annabel Baddeley, Saskia den Boon, Dennis Falzon and Hazim Timimi, with contributions to the writing of text from Katherine Floyd; 5) Financing for TB prevention, diagnostic and treatment services, which was prepared by Inés Garcia Baena and Peter Nguhiu (Kenya Medical Research Institute), with contributions from Katherine Floyd and Irwin Law; 6) Universal health coverage (UHC) and TB determinants, which was prepared by Nobuyuki Nishikiori and Inés Garcia Baena, with contributions to the writing of text from Katherine Floyd; and 7) TB research and innovation, which was prepared by Nebiat Gebreselassie, Dennis Falzon, Nazir Ismail, Alexei Korobitsyn and Irwin Law, with contributions to the writing of text from Katherine Floyd. All web-based content was reviewed by other members of the core report team.

The web content that accompanies the report also features six priority topics in more depth. These are: country success stories in TB responses to the COVID-19 pandemic, which was prepared by Nebiat Gebreselassie; the COVID-19 pandemic and TB in India – impact and response, which was prepared by Philippe Glaziou, Nimalan Arinaminpathy (Imperial College, London, United Kingdom) and WHO staff from the WHO Regional Office for South-East Asia and the Country Office for India, in collaboration with the National TB Elimination Programme of India; progress in the transition to case-

based, digital TB surveillance, which was prepared by Charalambos Sismanidis; updates to WHO TB guidelines in the period November 2020–October 2021, which was prepared by Dennis Falzon; TB and diabetes, which was prepared by Annabel Baddeley; and progress in the adaptation and use of WHO's multisectoral accountability framework for TB at global, regional and country levels, which was prepared by Sayohat Hasanova, Tereza Kasaeva, Farai Mavhunga, and Liana Oganezova, with input from Yuliya Chorna (WHO Civil Society Task Force), Ernesto Jaramillo, Evaline Kibuchi (WHO Civil Society Task Force), Debora Pedrazzoli and Lana Syed.

Annexes 1, 3 and 6 of the main report were prepared by Katherine Floyd; Annex 2 was prepared by Hazim Timimi; Annex 4 was prepared by Irwin Law; and Annex 5 was prepared by Philippe Glaziou and Olga Tosas Auguet, with contributions from Marie-Christine Bartens.

The report cover was designed by Irwin Law.

The preparation of the technical appendix that explains the methods used to produce estimates of TB disease burden published as part of the report and accompanying web-based content and products was led by Philippe Glaziou, with contributions from Nimalan Arinaminpathy (Imperial College, London, United Kingdom) and Peter Dodd (University of Sheffield, United Kingdom).

The updated data and other content required for the mobile app that accompanies the report was prepared by Katherine Floyd, Irwin Law and Hazim Timimi. Inés García Baena, Sayohat Hasanova, Marek Lalli, Liana Oganezova and Valérie Robert assisted with translations of new content into French, Russian and Spanish. Marek Lalli was the main focal point for communications with the developer, Adappt. The report team is very appreciative of the excellent work done by Adappt on the development, maintenance and updating of the app.

The web-based global, regional and country profiles that accompany the report were prepared by Hazim Timimi, and the simplified versions for a more general audience were prepared by Hannah Monica Dias, Irwin Law, Hazim Timimi and Yi Wang.

people; and Juliana Daher and Mary Mahy (UNAIDS) for providing epidemiological data that were used to estimate HIV-associated TB incidence and mortality.

The report team is grateful to various WHO staff outside the WHO Global TB Programme for their useful comments and suggestions on advanced drafts of report content. Particular thanks are due to Wahyu Retno (Annet) Mahanani for her review of content related to estimates of TB disease burden; Fabrizia Del Greco and Marco Vitoria for their review of content related to TB and HIV; and Tessa Tan-Torres Edejer, Gabriela Flores Pentzke Saint-Germain, Joe Kutzin and Susan Sparkes for their reviews of material related to UHC and TB determinants. The team is also grateful to various external contributors. Particular thanks are due to Gavin Churchyard, Barbara Laughon, Morten Ruhwald, Mel Spigelman, Zaid Tanvir, Margaretha de Vos and Jennifer Woolley for their contributions to and reviews of content related to TB research and innovation.

The report and accompanying web-based text was edited by Hilary Cadman.

The principal source of financial support for the report was the United States Agency for International Development (USAID). Production of the report and accompanying materials and products was also supported by the governments of Japan, the Republic of Korea and the Russian Federation. We acknowledge with gratitude their support.

In addition to the core report team and those mentioned above, the report benefited from inputs from many staff working in WHO 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 the report and its accompanying materials and products could not have been produced.

Among the WHO staff listed below, we thank in particular Pedro Avedillo, Kenza Bennani, Vineet Bhatia,

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\\_23560](https://www.yunbaogao.cn/report/index/report?reportId=5_23560)

