

## Chapter 3: Reaching Key Populations

### SUMMARY

Reaching key populations—people who are vulnerable, marginalized, underserved or at-risk of TB infection and illness—will be essential for ending TB. Beyond epidemiology, it is imperative from an equity and human rights perspective that we strive to protect people in key populations; provide them with care, understand the social, political, legal and economic barriers they face in accessing the TB prevention, diagnosis, treatment, care and support services they need, and to involve them as priority stakeholders and equal partners in the fight against the disease. To reach TB key populations, they must be meaningfully engaged and empowered to participate in TB governance and decision-making. Facilitating the meaningful participation of the representatives of key populations, on behalf of the constituencies they represent, in all TB policy, programme and governance discussions and decisions is vital if TB programmes are to understand the lived experience of TB. Investing in building the capacity and coordination of TB key populations in advocacy, treatment literacy, monitoring and evaluation, programme design, procurement and human rights—which together can contribute to creating a care-enabling environment for those most vulnerable—is a significant aspect of reaching these populations and must receive increased priority. These actions will help to find and treat the 3.3 million missing people with tuberculosis who go undiagnosed or unreported to public health systems each year in a way that is not only more effective, but is human rights-based, gender sensitive and people centered.

### PRIORITY ACTIONS

#### Governments

- Set an operational target of reaching at least 90% of people in key populations—through improved access to services, systematic screening where required, and new active case-finding approaches—and providing all people in need with effective and affordable treatment.
- Fulfill UNHLM commitments to remove discriminatory laws, policies and programmes against people with TB, promote and support an end to stigma and all forms of discrimination, and enact policies and practices that improve outreach, education and care. Governments can use the stigma assessment tools developed by the Stop TB Partnership and other partners.
- Extend support for key populations, improve quality of information, and ensure TB care and support is provided in safe environments free from stigma and discrimination.
- Integrate UNHLM on TB commitments with regard to key populations into national TB strategies and guidelines; develop and implement multisectoral plans for outreach and service provision for specific key populations.
- Report on progress in TB with data disaggregated by key population.

50 - Implement gender-sensitive policies and programming across all aspects of TB  
51 programmes, with particular consideration to both disease prevalence and access to  
52 services.

53  
54 - Facilitate the involvement of TB survivors and key populations in all levels of  
55 policymaking and programmatic design in order to ensure TB services are people-  
56 centered and meet the expressed needs of affected communities and invest in  
57 networks and organizations of TB survivors to build the required capacity to  
58 effectively engage in TB governance.

59  
60 Technical partners

61  
62 - Provide countries with frameworks for prioritization, action and monitoring progress  
63 in improving access to TB services for key population groups and also support the  
64 meaningful engagement of these populations, through investment and capacity  
65 building monitoring and advocacy, particularly in terms of TB and treatment literacy,  
66 monitoring and evaluation and human rights.

67  
68 Mining companies

69  
70 - Implement strong infection-control policies and provide workplace health and safety  
71 programs that provide routine TB screening, prevention and a system for ensuring  
72 mine workers with TB, and their families, receive appropriate quality care and support  
73 services

74  
75 Prisons and Detention Centers

76  
77 - Provide routine TB screening, diagnosis and access to appropriate quality TB care of  
78 prisoners, other people in detention and staff working in those facilities.

79  
80 - Ensure continuity of care for incarcerated persons released back into the general  
81 population during the course of receiving TB treatment or preventive therapy.

82  
83 - Reduce overcrowding, malnutrition, and address the limited ventilation in prisons and  
84 detention facilities.

85  
86 Advocates

87  
88 - Frame the need to reach people key populations TB as an equity and human rights  
89 imperative.

90  
91 - Support the growth and cultivation of global, regional and national networks of TB  
92 survivors and members of affected communities, and partner with them in advocacy  
93 activities at every opportunity.

94  
95 - Prioritise the investment in networks of TB survivors and affected communities, to  
96 effectively contribute in a coordinated as decision makers, service providers, monitors  
97 of programmes and advocates.

98

99 **Reaching key populations is an equity and human rights imperative.**

100

101 It is unacceptable that nearly half of the world’s people cannot afford or access quality health  
102 care, live in unhealthy environments, or are malnourished. We have a collective  
103 responsibility to support key populations who face higher risks associated with TB, to  
104 provide them with a cure, and to empower them to be both leaders and equal partners in the  
105 fight against the disease. Reaching key populations is critical to fulfilling the promise of the  
106 SDGs, which is to *leave no one behind*. The UNHLM political declaration on TB further  
107 commits UN Member States to leave no one behind in the effort to end TB. But as the UN  
108 Committee for Development Policy has acknowledged, leaving no one behind is “seldom  
109 disputed in principle, but the complexity of its practical implementation is often insufficiently  
110 acknowledged.”<sup>1</sup> In large part, this reality is why taking concrete actions to reach key  
111 populations who are at higher risk of TB is so essential.

112

113 Key populations are those who experience increased impact from TB and decreased access to  
114 services. Stigma, discrimination, violence and harassment, restrictive laws and policies, and  
115 criminalization of behaviors or practices place key populations at greater risk of TB and make  
116 it more difficult to access services.<sup>2</sup> To reach key populations, they must be empowered as  
117 decision-makers in the TB response. Acknowledging their unique role in having lived  
118 experience of TB, they can help inform the removal of social, political, legal, gender,  
119 economic or cultural barriers to access, and help to extend support for patients, increase  
120 quality of information, and ensure TB care is provided in safe environments free from stigma  
121 and discrimination. As discussed in Chapter 4, key population groups and affected  
122 communities themselves can take leadership roles in providing many of these services. For  
123 this to happen, the right policy and legislative frameworks must be in place, backed by  
124 adequate funding.

125

126 The UN political declaration on TB aligns with numerous international legal frameworks in  
127 committing to protect and promote the right to the enjoyment of the highest attainable  
128 standard of physical and mental health. Specifically, governments committed to removing  
129 discriminatory laws, policies and programmes against people with TB, to promote and  
130 support an end to stigma and all forms of discrimination, and to enact policies and practices  
131 that improve outreach, education and care.

132

133 These actions are critical to fulfilling another commitment within the declaration: finding the  
134 3.3 million missing people with tuberculosis, who go undiagnosed or unreported to public  
135 health systems each year.<sup>3</sup> This is the aim of **FIND. TREAT. ALL. #ENDTB.**, a joint  
136 initiative by WHO, Stop TB Partnership and The Global Fund to engage TB affected  
137 communities, civil society and development financing partners in enabling access to care for  
138 the millions who face barriers preventing them from accessing quality-assured TB care and  
139 support each year.<sup>4</sup>

140

---

<sup>1</sup> Leaving no one behind. UN Committee for Development Policy. New York: United Nations. 2018. Online: [https://sustainabledevelopment.un.org/content/documents/2754713\\_July\\_PM\\_2\\_Leaving\\_no\\_one\\_behind\\_Summary\\_from\\_UN\\_Committee\\_for\\_Development\\_Policy.pdf](https://sustainabledevelopment.un.org/content/documents/2754713_July_PM_2_Leaving_no_one_behind_Summary_from_UN_Committee_for_Development_Policy.pdf)

<sup>2</sup> Key Populations. Geneva: The Global Fund to Fight AIDS, Tuberculosis and Malaria. 2019. Online: <https://www.theglobalfund.org/en/key-populations/>

<sup>3</sup> WHO Global Tuberculosis Report 2018. [https://www.who.int/tb/publications/global\\_report/en/](https://www.who.int/tb/publications/global_report/en/)

<sup>4</sup> Joint Initiative “FIND. TREAT. ALL. #ENDTB”. Geneva: World Health Organization; 2019 (<https://www.who.int/tb/joint-initiative/en/>)

141 -----

142 **BOX 3.1 Key Issues in TB and Human Rights**

143

144 *A paradigm shift toward a human rights-based approach to TB*

145

146 The UNHLM Political Declaration calls for transforming the TB response to be rights-based.  
 147 Promotion and protection of human rights of people affected by TB is a legal, ethical and  
 148 more imperative, as well as of crucial importance for the effectiveness of the response to the  
 149 epidemic and the relief of suffering among affected individuals and communities. A human  
 150 rights-based response to TB is critical as it can contribute to overcoming barriers to accessing  
 151 TB education, prevention, diagnosis, treatment, care and support services. There are a range  
 152 of human rights considerations relevant for TB interventions. These can include issues of  
 153 accessing safe, quality, affordable drugs and diagnostic; stigma and discrimination; privacy;  
 154 deprivation of liberty; participation of TB survivors; dignity; gender equity; assembly;  
 155 accessing scientific progress; and, realizing the highest attainable standard of health. These  
 156 are the rights of all people—but particular attention needs to be given to the realization of  
 157 rights of those who are most vulnerable and marginalized—including urban and rural poor,  
 158 PLHIV, people who use drugs, children, migrants, refugees, indigenous persons, miners and  
 159 people deprived of liberty. Through human rights-based, gender sensitive and people  
 160 centered TB interventions, social, political, cultural, legal and economic barriers to accessing  
 161 TB services can be overcome and the effectiveness of TB interventions can be significantly  
 162 enhanced.<sup>5</sup>

163

164 *Legal frameworks and precedents for ensuring the rights of people with TB*

165

166 As laid out in the *Declaration of the Rights of People Affected by Tuberculosis*, people with  
 167 TB have a right to life; a right to dignity; a right to the highest attainable standard of physical  
 168 and mental health; a right to freedom from torture and other cruel, inhuman or degrading  
 169 treatment; and other rights. Under international and regional human rights law, states have  
 170 legal obligations to respect, protect and fulfil those rights. Non-state actors also have  
 171 responsibilities to respect the human rights of people affected by TB.<sup>6</sup> There are legal  
 172 precedents that have compelled states to provide TB care and support to people affected by  
 173 TB. Judgments by the European Court of Human Rights, for example, have required states to  
 174 provide TB care for children in state custody. And in 2007, Argentina’s Supreme Court ruled  
 175 that the state was obligated, under human rights treaties and national and provincial  
 176 constitutions, to provide TB care for members of the Toba indigenous community.<sup>7</sup>

177

178 *Human rights and TB prevention*

179

180 The UN political declaration also committed to prevent TB by providing 30 million people  
 181 with TB preventive therapy, including 4 million children under the age of 5 years, 20 million  
 182 other household contacts of people affected by TB, and 6 million people living with HIV.

---

<sup>5</sup> Declaration of the rights of people affected by tuberculosis. Geneva: Stop TB Partnership. 2019. Online: <http://www.stoptb.org/assets/documents/communities/FINAL%20Declaration%20on%20the%20Right%20of%20People%20Affected%20by%20TB%2013.05.2019.pdf>

<sup>6</sup> Declaration of the rights of people affected by tuberculosis. Geneva: Stop TB Partnership. 2019. Online: <http://www.stoptb.org/assets/documents/communities/FINAL%20Declaration%20on%20the%20Right%20of%20People%20Affected%20by%20TB%2013.05.2019.pdf>

<sup>7</sup> Silent epidemic: a call to action against child tuberculosis. Paris: International Union Against Tuberculosis and Lung Disease. 2017. Online: <https://childtb.theunion.org/wp-content/uploads/2018/08/Silent-Epidemic.pdf>

183 Reaching 30 million people with preventive therapy will require a paradigm shift in how  
 184 health systems view the rights of people living with TB infection. Health systems must  
 185 recognize and act to honor people’s right to know their TB status, i.e., whether they are living  
 186 with TB infection, as a foundation for supporting activities that proactively reach people at  
 187 risk of TB with access to evaluation and quality-assured preventive therapy. In Uganda, for  
 188 example, in a piloted approach called DETECT Child TB, child household contacts of adults  
 189 diagnosed with TB were routinely evaluated for TB, with decentralized services provided by  
 190 health workers within the community. Using this approach, 74 percent of children under five  
 191 years received TB preventive therapy—compared with 27 percent of children under five  
 192 years who received TB preventive therapy worldwide in 2017.<sup>8,9</sup>

193 -----

194  
 195 The Global Plan recommends that countries set a separate operational target of reaching at  
 196 least 90% of those they would define as key populations—through improving access to  
 197 services, systematic screening<sup>10</sup> where required, and active, new, and innovative case-finding  
 198 methods—and providing all people who require it with effective and affordable treatment.

199  
 200 Countries are encouraged to report on progress in TB with data that are disaggregated by key  
 201 population. Technical partners are encouraged to provide countries with frameworks for  
 202 prioritization, action and monitoring progress in improving access to TB services for key  
 203 population groups.

204  
 205 Examples of successful interventions that have been implemented to reach key populations  
 206 can be found in a compendium of case studies from the Stop TB Partnership’s TB REACH  
 207 programme.<sup>11</sup> TB REACH has also included strong examples of support for key populations  
 208 within field guides made available through the Global Fund Strategic Initiative To Find the  
 209 Missing People with TB.<sup>12</sup>

210

211 ***TB and gender***

212  
 213 Gender disparities in TB present huge challenges in providing access to services. Worldwide,  
 214 men are much likelier than women to contract and die from TB, with approximately 6 million  
 215 adult men contracting TB and 840 000 dying from the disease in 2017, compared with 3.2  
 216 million adult women who suffered nearly half a million deaths.<sup>13</sup> At the same time, TB has a  
 217 grave impact on women during reproduction and in pregnancy—and TB is still the leading  
 218 infectious killer among females globally.

219  
 220 Improving access to TB services for all demands a gender-sensitive approach. People of  
 221 different genders are affected differently by TB, are subject to varying levels of stigma, and

---

<sup>8</sup> Zawedde-Muyanja A, Nakanwagi A, Dongo J, Sekadde M, et al. Decentralisation of child tuberculosis services increases case finding and uptake of preventive therapy in Uganda. *Int J Tuberc Lung Dis.* 2018; 22(11):1314-1321.

<sup>9</sup> Global Tuberculosis Report 2018. Geneva: World Health Organization. 2019. Online: [https://www.who.int/tb/publications/global\\_report/en/](https://www.who.int/tb/publications/global_report/en/)

<sup>10</sup> For guidance, see WHO’s guidelines on systematic screening for active tuberculosis at: <http://www.who.int/tb/tbscreening/en/>

<sup>11</sup> Stop TB Partnership. Improving tuberculosis case detection: A compendium of TB REACH case studies, lessons learnt and a monitoring and evaluation framework; 2014.

<sup>12</sup> Stop TB Partnership. The Strategic Initiative To Find the Missing People with TB. 2018. <https://stoptb-strategicinitiative.org/>

<sup>13</sup> WHO: Tuberculosis and Gender. <https://www.who.int/tb/areas-of-work/population-groups/gender/en/>

222 face different barriers to access. Quality gender-sensitive and gender-responsive  
 223 programming should eliminate different socio-economic and stigma-related barriers. In some  
 224 situations, legal support is necessary to ensure that people from key populations can access  
 225 care and prevention and remain free from unjust policies and practices like involuntary  
 226 isolation and discrimination.<sup>14</sup>

227

### 228 ***TB stigma***

229

230 Eradicating stigma is essential to reaching the millions of missing people who develop TB  
 231 and go without care and support, and this effort goes hand-in-hand with more targeted efforts  
 232 to reach key populations with services. People with TB report facing stigma even from their  
 233 own family members, friends and colleagues, often leading them to take measures to hide  
 234 their diagnosis from others. People with TB can also experience self-stigma, where a person  
 235 internalizes attitudes of shame, disgust or even guilt associated with TB. The stigma  
 236 associated with TB creates a profound social and cultural barrier that makes it more difficult  
 237 for people with TB both to openly seek the care and support they need and to complete TB  
 238 treatment.<sup>15</sup> For these reasons, it is important that affected communities lead the conversation  
 239 on TB stigma and spearhead efforts to educate the public about what TB is actually like for  
 240 those who experience it. This act of owning one’s own story and sharing it with others can  
 241 create understanding that reduces TB stigma.

242

243 To assist governments in taking action to dispel TB stigma, The Stop TB Partnership, with  
 244 support from USAID and in collaboration with the Global and Regional Community  
 245 Networks, health care workers from the Global Coalition of TB Activists, human rights  
 246 experts from Northwestern Pritzker School of Law and technical partners such as WHO and  
 247 KNCV, have developed TB stigma assessment tools for countries to assess the types, levels,  
 248 causes and impact of TB stigma and develop recommendations to address them.<sup>16</sup>

249

### 250 **Key Population Groups**

251

252 The UN political declaration on TB acknowledges specific key populations who are  
 253 vulnerable to TB include people who are vulnerable or in vulnerable situations, including:  
 254 women and children, indigenous peoples, health-care workers, migrants, refugees, prisoners,  
 255 miners and others exposed to silica, the urban and rural poor, underserved populations,  
 256 undernourished people, individuals who face food insecurity, ethnic minorities, people and  
 257 communities at risk of exposure to bovine tuberculosis, people living with diabetes, people  
 258 with mental and physical disabilities, people with alcohol use disorders and people who use  
 259 tobacco, while recognizing the higher prevalence of tuberculosis among men. People within  
 260 key population groups are at greater risk of TB because of increased exposure, because of  
 261 limited access to quality-assured TB services, or because of biological or behavioral factors  
 262 (Table 3.1). People within one of categories can also be part of the other groups. A mine  
 263 worker, for example, might live in a community with little access to health care and might be

<sup>14</sup> Tuberculosis, Gender and Human Rights. Geneva: The Global Fund.

[https://www.theglobalfund.org/media/6349/core\\_tbhumanrightsgenderequality\\_technicalbrief\\_en.pdf](https://www.theglobalfund.org/media/6349/core_tbhumanrightsgenderequality_technicalbrief_en.pdf)

<sup>15</sup> Women & stigma: conversations of resilience in the war against TB. Amsterdam: Global Coalition of TB Activists. Online:

<http://www.tbonline.info/media/uploads/documents/women-and-stigma-full-book.pdf>

<sup>16</sup> TB Stigma Measurement Guidance. Challenge TB. 2018. Online:

[https://www.challengeb.org/publications/tools/ua/TB\\_Stigma\\_Measurement\\_Guidance.pdf](https://www.challengeb.org/publications/tools/ua/TB_Stigma_Measurement_Guidance.pdf)

264 living with HIV. He might also smoke and/or have diabetes. He might also pass TB to his  
265 children.

266

267 --

268 **TABLE 3.1. KEY POPULATIONS FOR TB**

269

270 **People who have INCREASED EXPOSURE to TB due to where they live or work**

271

272 Prisoners, sex workers, miners, hospital visitors, health care workers and community health  
273 workers

274

275 **PEOPLE WHO:**

276

- live in urban slums

277

- live in poorly ventilated or dusty conditions

278

- are contacts of individuals with TB, including children

279

- work in environments that are overcrowded

280

- work in hospitals or are health care professionals

281

- are in contact with or live with livestock

282

283 **People who have LIMITED ACCESS TO QUALITY TB SERVICES**

284

285 Migrant workers, women in settings with gender disparity, children, refugees or internally  
286 displaced people, illegal miners, and undocumented migrants

287

288 **PEOPLE WHO:**

289

- are from tribal populations or indigenous groups

290

- are homeless

291

- live in hard-to-reach areas

292

- live in homes for the elderly

293

- have mental or physical disabilities

294

- face legal barriers to access care

295

- are lesbian, gay, bisexual or transgender

296

297

298 **People at INCREASED RISK of TB because of biological or behavioural factors that**  
299 **compromise immune function**

300

301 **PEOPLE WHO:**

302

- live with HIV

303

- have diabetes or silicosis

304

- undergo immunosuppressive therapy

305

- are undernourished

306

- use tobacco

307

- suffer from alcohol-use disorders

308

- inject drugs

309  
310 --  
311

312 *Children and adolescents*

313  
314 An estimated one million children under 15 year of age developed TB in 2017, and 233 000 died  
315 of the disease.<sup>17</sup> Approximately 80 percent of these deaths were among children under 5 years of  
316 age. The actual burden of TB among children is likely higher, given the challenges of diagnosing  
317 childhood TB. Children with TB often come from families that are poor, have not received  
318 information or education about the disease, and live in communities with limited access to health  
319 services. Even if children have access to health services, the health services or facilities often  
320 lack the tools and expertise to diagnose TB in children. Child contacts of adults with TB should  
321 be routine screened and provided TB preventive therapy or treatment as appropriate—but here,  
322 too, there are huge gaps in service delivery. In 2017, over 75 percent of children eligible for TB  
323 preventive therapy worldwide did not receive it.<sup>18</sup>

324  
325 Children from impoverished communities also face a much higher risk of malnutrition and  
326 wasting, both in utero when their mothers are malnourished and after birth.<sup>19</sup> Infants and children  
327 under 5 years of age are the most challenging to diagnose and are the most likely to die from TB.  
328 In fact, a greater proportion of TB in children is missed when compared to adults.

329  
330 For all of these reasons, the UN political declaration has a target of reaching 3.5 million children  
331 with TB treatment and 115 000 children with MDR-TB treatment between 2018-2022. There are  
332 currently no global data, nor national-level data in many countries, on the numbers of children  
333 accessing MDR-TB treatment.

334  
335 Childhood TB must be a cross-cutting national health priority and not the sole responsibility of  
336 national TB programmes. It should be addressed in collaboration with child health services, as  
337 care for sick children is primarily sought through pediatric services, and should be part of overall  
338 efforts to scale up maternal and child health services. Health care workers and pediatricians in  
339 both public and private sectors should report all children diagnosed with TB to national TB  
340 programmes. In turn, national TB programmes must report treatment outcomes for these  
341 children.

342  
343 Adolescents (10-19 years) also face particular challenges. Adolescents with TB often present  
344 with infectious disease typically seen in adults, which leads to a high risk of transmission in  
345 schools and other places where adolescents gather. Fears of stigma and challenges associated  
346 with peer-pressure, the risk of HIV, and behavioral risks arising from the use of alcohol and  
347 tobacco also present risks for adolescents. Adolescents need friendly health services, relevant  
348 psychosocial support and treatment and care that serves minimal disruption to their education. To

---

<sup>17</sup> Dodd et al. The global burden of tuberculosis mortality in children: a mathematical modelling study. *Lancet Global Health* 2017a; 5(9):e898-e906.

<sup>18</sup> Roadmap towards ending TB in children and adolescents. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/bitstream/handle/10665/274374/9789241514668-eng.pdf>).

<sup>19</sup> Odone A, Houben RMG, White RG, Lonnroth K. The effect of diabetes and undernutrition trends on reaching 2035 global tuberculosis targets. *Lancet Diabetes Endocrinol.* 2014;2:754–64.



349 better understand how the TB epidemic impacts adolescents ages 10-14 and 15-19, countries  
350 should disaggregate TB data into these different age groups.<sup>20</sup>

351  
352 Tackling TB in children and adolescents will require a focus on mothers, too. Women living with  
353 HIV – who are more likely to have TB – need assistance and care from the health system in  
354 order to reduce the possibility of passing infections to their children.<sup>21</sup> Thus, TB should be  
355 integrated at the primary-care level in maternal and child health programmes through antenatal  
356 and postnatal clinics.

357  
358 The Roadmap Towards Ending TB in Children and Adolescents (see Fig. 3.1) sets up the goal of  
359 reaching zero TB deaths among children worldwide. It describes key actions and an urgent need  
360 for enhanced investments in order to ensure that the goal is met.<sup>22</sup>

361  
362 -----

### 363 **BOX 3.2 GDF’s Launchpad: DR-TB Pediatric initiative**

364 To speed up the introduction of child-friendly formulations for treating drug-resistant  
365 tuberculosis (DR-TB), as one of key commitments from UNHLM TB, the Stop TB Partnership’s  
366 Global Drug Facility (GDF) has taken a multi-pronged approach to address barriers to getting  
367 diagnosed and treated children with TB. GDF, with support from US and Japan, has started  
368 providing grants to 56 countries, covering the costs for a first order of these products. GDF has  
369 consolidated the demand to improve the supply of these products, including negotiating an 18%  
370 price reduction and minimizing barriers to supply. Additionally, GDF has provided funding to  
371 the Sentinel Project on Paediatric DR-TB, a network of clinicians, caregivers and advocates,  
372 which identified countries that could rapidly implement these new formulations. Sentinel is  
373 providing implementation guidance and support to these programmes.

374  
375 -----

### 376 **FIGURE 3.1 ROADMAP: TOWARDS ENDING TB IN CHILDREN AND** 377 **ADOLESCENTS**

378  
379 **[TK Insert Page 17 figure:**  
380 <https://apps.who.int/iris/bitstream/handle/10665/274374/9789241514668-eng.pdf>  
381

---

<sup>20</sup> Roadmap towards ending TB in children and adolescents. Geneva: World Health Organization; 2018  
(<https://apps.who.int/iris/bitstream/handle/10665/274374/9789241514668-eng.pdf>).

<sup>21</sup> Gupta, A, Bhosale, R, Kinikar, A, et al. Maternal tuberculosis: a risk factor for mother-to-child transmission of human immunodeficiency virus. *J Infect Dis.* 2011;203:358–63.

<sup>22</sup> Roadmap towards ending TB in children and adolescents. Geneva: World Health Organization; 2018  
(<https://apps.who.int/iris/bitstream/handle/10665/274374/9789241514668-eng.pdf>).



382  
 383 *Source: WHO, UNICEF, Stop TB Partnership et al. Roadmap towards ending TB in children*  
 384 *and adolescents.*

385  
 386 **Health Workers**

387  
 388 The world has an estimated 59 million health workers.<sup>23</sup> TB remains a significant occupational  
 389 risk for health workers in low-income and lower middle-income countries, and in some  
 390 institutions in high-income countries. The risk is particularly high in situations where there is  
 391 increased exposure to TB and inadequate infection-control measures.<sup>24</sup>

392  
 393 Health care workers are at risk of acquiring TB from patients that they care for (in the case of  
 394 nurses and physicians) or from exposure to infected specimens (in the case of laboratory

<sup>23</sup> Joseph B and Joseph M. The health of the healthcare workers. *Indian J Occup Environ Med.* 2016;20(2):71–72.

<sup>24</sup> Menzies, D, Joshi, R, Pai, M. Risk of tuberculosis infection and disease associated with work in health care settings. *The International Journal of Tuberculosis and Lung Disease.* 2007;11(6):593–605(13).

395 workers). Health care workers in primary health care facilities and community health workers  
396 also have an increased risk of getting TB.<sup>25</sup>

397  
398 Health care workers who are in contact with people having TB or clinical material such as  
399 sputum or body fluids containing *M. tuberculosis* need to be offered TB testing and, if necessary,  
400 preventive therapy. Appropriate infection-control methods need to be more widely applied.

401  
402 ***Mine workers***

403  
404 Mining is a major driver of TB in countries in southern Africa. The working environment in  
405 underground mines is extremely favourable to the spread of TB. Risk factors include high  
406 prevalence of silicosis (a severe pulmonary disease caused by exposure to silica dust), high  
407 temperatures and humidity in mine shafts, crowded working and living conditions, high rates of  
408 HIV infection, and tobacco and alcohol use.<sup>26</sup> Mine workers in southern and central Africa are  
409 often migrants, who face unique complications when it comes to accessing health care. That  
410 migrants make up a significant portion of the labour forces of mining companies, it also means  
411 that when mine workers are sick with TB and without access to quality, continual care, TB  
412 spreads to workers' home communities in other parts of the country or across national borders.

413  
414 The world's ten largest mining companies alone employed nearly 1 million people in 2019<sup>27</sup>—  
415 meaning that while mining practices play a significant role in the spread of TB internationally,  
416 with strong workforce policies and practices the industry could make a positive contribution  
417 toward ending TB. National TB strategies must directly address the role of mining activities in  
418 the epidemic, as well as the responsibility of mining companies to ensure safe and healthy work  
419 environments.<sup>28</sup> South Africa has taken the lead by introducing mandatory TB screening for  
420 mine workers and, together with nine other southern African nations, is currently implementing a  
421 Global Fund Regional Grant for addressing TB in miners.<sup>29</sup> Fifteen southern African countries  
422 have pledged to improve treatment and care for current and former mine workers with TB and  
423 their families.<sup>30</sup> Other methods to tackle TB among mine workers<sup>31</sup> should include reducing  
424 silica dust, providing better housing, improving cross-border care, tracing contacts, and  
425 screening for HIV.

426  
427 ***Prisoners***

428

---

<sup>25</sup> Claassens MM, van Schalkwyk C, du Toit E, et al. Tuberculosis in health care workers and infection control measures at primary health care facilities in South Africa. Pai M, ed. PLoS ONE. 2013;8(10):e76272. doi:10.1371/journal.pone.0076272.

<sup>26</sup> Stuckler D, Steele S, Lurie M, Basu S. Dying for gold: the effects of mineral mining on HIV, tuberculosis, silicosis, and occupational diseases in southern Africa. *Int J Health Serv.* 2013;43:639–49.

<sup>27</sup> Leading mining companies worldwide based on number of employees in 2019. Statista; 2019 (<https://www.statista.com/statistics/726584/largest-mining-companies-worldwide-by-employment/>)

<sup>28</sup> Stuckler D, Basu S, McKee M, Lurie M. Mining and risk of tuberculosis in sub-Saharan Africa. *Am J Public Health.* 2011;101(3):524–30.

<sup>29</sup> [http://www.stoptb.org/news/stories/2016/ns16\\_003.asp](http://www.stoptb.org/news/stories/2016/ns16_003.asp)

<sup>30</sup> Baleta A. Southern African declaration targets TB in mining sector. *Lancet.* 2012;380(9849):1217–8.

<sup>31</sup> Fitzpatrick S, Jakens F, Kuehne J, Mabote L. Tuberculosis in South Africa's gold mines: a united call to action (<http://results.org.uk/sites/default/files/TB%20in%20South%20Africa's%20Mines%20-%20A%20call%20to%20action.pdf>).

429 More than 11 million people worldwide are held in penal institutions.<sup>32</sup> The conditions in many  
 430 prisons fuel the spread of TB. In sub-Saharan Africa, for example, some prisons have rates of TB  
 431 that are up to 1,000 times higher than in the general population.<sup>33</sup> In Brazil, a population-based  
 432 study showed that over half of TB strains circulating in the population could be traced back to  
 433 prisons.<sup>34</sup> Prisons are also a breeding ground for drug-resistant TB, as incoming and outgoing  
 434 prisoners are unlikely to complete a full treatment course.

435  
 436 Addressing TB in prisons will require significant collaboration among the health and judicial  
 437 sectors and the research community for mapping the scale of drug resistance within prisons and  
 438 devising innovative ways to prevent transmission.

439  
 440 Linking the health care provided inside and outside prisons is vital to ensuring continuous TB  
 441 care.

442  
 443 ***People affected by zoonotic TB***

444  
 445 Zoonotic TB in humans, caused by *Mycobacterium bovis* (the bacteria that causes bovine TB), is  
 446 mostly acquired from domestic animals and their products. The general public that consumes  
 447 unpasteurized milk or untreated animal products from infected animals, people living in rural  
 448 communities in which bovine TB is endemic, cattle herders, dairy workers, and workers who  
 449 come in contact with infected animals or animal products are all at a higher risk of contracting  
 450 zoonotic TB.

451  
 452 An estimated 147 000 people developed zoonotic TB in 2016, and 12 500 died due to the  
 453 disease.<sup>35</sup> The true scale of how many people are affected by zoonotic TB is unknown (due to the  
 454 lack of adequate diagnostic tests for *M. bovis*) and its measurement complicated by a lack of  
 455 routine surveillance. This is especially concerning in developing regions in which bovine TB is  
 456 endemic and sociocultural practices increase the risk of transmission of *M. bovis* to humans.

457  
 458 As articulated in WHO’s Roadmap for Zoonotic Tuberculosis,<sup>36</sup> efforts to prevent and care for  
 459 people with zoonotic TB must be cross-sectoral and multidisciplinary, including both human  
 460 health and veterinary sectors in responding to the disease within animal populations, developing  
 461 diagnostic tools for diagnosing *M. bovis*, strengthening surveillance systems and data quality,  
 462 and assessing economic impact.<sup>37,38</sup>

463

---

<sup>32</sup> Walmsley R. World Prison Population List. 12<sup>th</sup> ed. United Kingdom: Institute for Criminal Policy Research; 2018 ([https://www.prisonstudies.org/sites/default/files/resources/downloads/wppl\\_12.pdf](https://www.prisonstudies.org/sites/default/files/resources/downloads/wppl_12.pdf))

<sup>33</sup> Biadglegne F, Rodloff AC, Sack U. Review of the prevalence and drug resistance of tuberculosis in prisons: a hidden epidemic. *Epidemiol Infect.* 2015;143:887–900.

<sup>34</sup> Sacchi FP, Praca RM, Tataru MB. Prisons as reservoir for community transmission of tuberculosis, Brazil. *Emerg Infect Dis.* 2015;21:452–5.

<sup>35</sup> World Health Organization, 2017: <https://www.who.int/tb/zoonoticTB.pdf>

<sup>36</sup> [https://www.who.int/tb/publications/2017/zoonotic\\_TB/en/](https://www.who.int/tb/publications/2017/zoonotic_TB/en/)

<sup>37</sup> Muller B, Dürr S, Alonso S., et al. Zoonotic *Mycobacterium bovis*-induced tuberculosis in humans. *Emerging Infect Dis.* 2013;19:899–908. doi:10.3201/eid1906.120543.

<sup>38</sup> Cosivi O, Grange JM, Daborn CJ, et al. Zoonotic tuberculosis due to *Mycobacterium bovis* in developing countries. *Emerging Infect Dis.* 1998;4:59–70.

464 ***Migrants***

465  
466 Migrants are an increasing share of the world’s population—258 million in 2017 up from 220  
467 million in 2010.<sup>39</sup> Migrants are particularly vulnerable to TB.<sup>40</sup> These populations often have  
468 poor access to health services, possibly because they are living in an area illegally, because of  
469 differences in language or ethnicity and/or because of a lack of awareness of entitlement to  
470 health services. Undocumented migrants face particular difficulties in accessing care. Even when  
471 migrants can access treatment, the need to move for employment or the threat of forced  
472 displacement often results in disrupted TB treatment, increasing the likelihood that drug  
473 resistance will emerge.

474  
475 From a human-rights perspective, policies should allow people to access TB diagnosis and  
476 treatment regardless of immigration status.<sup>41</sup> Similarly, immigration and labour policies should  
477 ensure that a person is not excluded from consideration for recruitment or retention based on his  
478 or her TB status.

479  
480 Health care workers must be sensitized to migrants’ needs, especially the potential for TB and  
481 HIV coinfection and drug-resistant TB. Continuity of care is particularly important in migrant  
482 populations, and the development of cross-border referral systems with contact tracing and  
483 information sharing will be important to harmonize treatment protocols across borders along  
484 migration corridors. This will require not only collaboration between health actors, but also  
485 collaboration between government ministries on migration policy.

486  
487 ***People who inject drugs***

488  
489 Drug use has been linked to a higher incidence of both latent TB and active TB disease.<sup>42</sup> The  
490 increased risk of infection is due in part to the physiological effects of drug use, especially  
491 opiates, leading to compromised immunity. People who use drugs are at risk for a variety of  
492 environmental and behavioural factors that tend to coexist with drug use, such as homelessness,  
493 tobacco and alcohol use, imprisonment, and risk of HIV and hepatitis C from infected needles.<sup>43</sup>

494  
495 The effects of drug use can also mean that people do not access health services at critical  
496 junctures, such as for TB diagnosis and treatment immediately after HIV diagnosis. Even when  
497 people who use drugs do have access to TB care, they may have difficulty complying with a  
498 complicated or lengthy TB drug regimen. Opiates may suppress telltale TB symptoms such as  
499 persistent cough.

---

<sup>39</sup> International Migration Report 2017. United Nations.

[https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017\\_Highlights.pdf](https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf)

<sup>40</sup> Tuberculosis prevention and care for migrants. Geneva: World Health Organization, International Organization for Migration; 2014.

<sup>41</sup> Plan to Stop TB in 18 high-priority countries in the WHO European Region, 2007-2015. Geneva: World Health Organization; 2007.

<sup>42</sup> Deiss RG, Rodwell TC, Garfein RS. Tuberculosis and illicit drug use: review and update. Clin Infect Dis. 2009;48:72–82.

<sup>43</sup> Grenfell P, Baptista Leite R, Garfein R, et al. Tuberculosis, injecting drug use and integrated HIV-TB care: a review of the literature. Drug Alcohol Depend. 2013;129:180–209.

500  
 501 Integrating TB treatment with drug addiction therapy can help reach the most vulnerable, so long  
 502 as TB treatment continues after drug rehabilitation. Psychosocial support and day hospitals could  
 503 greatly increase the rate of treatment adherence.<sup>44</sup> Because close contacts are at higher risk, TB  
 504 infection can often spread among groups of people using drugs together. Therefore, interventions  
 505 targeted at these populations must include TB preventive therapy.

506  
 507 *The elderly*

508  
 509 The elderly are the largest group of people living TB infection, particularly in developed  
 510 countries. Those 65 years and older are more vulnerable to TB, partly because immunity  
 511 diminishes with age. Studies have found a higher frequency of underlying illnesses, more  
 512 adverse reactions to drugs, and higher mortality in elderly TB patients.<sup>45</sup>

513  
 514 Clinical features may be atypical, and older adults with pulmonary TB are more likely to have  
 515 non-specific symptoms.<sup>46</sup> Special attention is also needed because treatment outcomes are  
 516 usually poor in older people with TB. Diagnosis is difficult and TB is frequently overlooked,  
 517 often detected only at autopsy.<sup>47</sup>

518  
 519 *People living with HIV/AIDS*

520  
 521 TB is the most common cause of death in people with HIV/AIDS.<sup>48</sup> High rates of TB and HIV  
 522 coinfection are a major challenge to driving down TB incidence in many countries. According to  
 523 WHO’s most recent data, an estimated 880 000 people worldwide living with HIV became sick  
 524 with TB in 2017.<sup>49</sup> Among people with latent TB infection<sup>50</sup>, people living with HIV are up to 27  
 525 times more likely to develop TB disease.<sup>51</sup> Like people with TB, people living with HIV are  
 526 often subject to stigma and discrimination, which can prevent them from accessing services.

527  
 528 TB and HIV coinfection is particularly acute in Africa, where 84 percent of all HIV-associated  
 529 TB deaths occurred in 2017.<sup>52</sup> There is also an urgent need to tackle both diseases in an  
 530 integrated manner in countries outside of Africa. Data show that eastern Europe is seeing rising  
 531 rates of both HIV prevalence and drug-resistant TB.

532

---

<sup>44</sup> Figueroa-Munoz JI, Ramon-Pardo P. Tuberculosis control in vulnerable groups. Bull World Health Organ. 2008;86:733–5.

<sup>45</sup> Rajagopalan S. Tuberculosis and aging: a global health problem. Clinical Infectious Diseases. 2001;33(7):1034–9.

<sup>46</sup> Lee JH, Han DH, Song JW, Chung HS. Diagnostic and therapeutic problems of pulmonary tuberculosis in elderly patients. J Korean Med Sci. 2005;20(5):784–9.

<sup>47</sup> Rajagopalan S, Yoshikawa TT. Tuberkulose im Alter. Zeitschrift für Gerontologie und Geriatrie. 2000;33(5):374–80.

<sup>48</sup> Pawlowski A, Jansson M, Skold M, et al. Tuberculosis and HIV co-infection. PLoS Pathog. 2012;8:e1002464.

<sup>49</sup> Global Tuberculosis Report 2018. World Health Organisation.

[https://www.who.int/tb/publications/global\\_report/en/](https://www.who.int/tb/publications/global_report/en/)

<sup>50</sup> “Latent TB Infection: Updated and consolidated guidelines for programmatic management.” WHO.

<https://www.who.int/tb/publications/2018/latent-tuberculosis-infection/en/>

<sup>51</sup> WHO. TB/HIV coinfection. <https://www.who.int/tb/areas-of-work/tb-hiv/en/>

<sup>52</sup> WHO. HIV-associated tuberculosis. [https://www.who.int/tb/areas-of-work/tb-hiv/tbhiv\\_factsheet.pdf?ua=1](https://www.who.int/tb/areas-of-work/tb-hiv/tbhiv_factsheet.pdf?ua=1)

533 The UN political declaration includes a target for providing six million people living with  
534 HIV/AIDS with preventive TB treatment by 2022. The Global Plan echoes this target and calls  
535 for countries to find at least 90% of all people with TB in the population that require treatment  
536 (including those living with HIV) and place them on appropriate therapy (including TB treatment  
537 and preventive therapy for people living with HIV).

538  
539 Reaching these targets will require an accelerated integration of TB and HIV services, strong  
540 leadership and political commitment to carry out the interventions recommended by WHO and  
541 UNAIDS for jointly addressing HIV and TB.<sup>53</sup>

542  
543 *People living with diabetes*

544  
545 Experts estimate 15.3% prevalence of diabetes among people with active TB worldwide. WHO  
546 found diabetes to be an underlying factor for 790 000 people who developed TB in 2017.<sup>54</sup> By  
547 weakening the immune system, diabetes raises the risk of developing TB by two to three times.<sup>55</sup>  
548 The association between these diseases is of great concern, since diabetes rates are rising sharply  
549 in many low-and middle-income countries with a high TB burden.

550  
551 There are a number of ways to jointly tackle TB and diabetes. In January 2019, The Union  
552 published a new technical guide for the co-management of diabetes mellitus-tuberculosis,  
553 developed in partnership with the World Diabetes Foundation.<sup>56</sup> It provides essential information  
554 for frontline health professionals for the management and care of people with both diabetes  
555 mellitus and tuberculosis.

556  
557 People diagnosed with diabetes should be considered for systematic screening in high TB-burden  
558 settings.<sup>57</sup> People with TB diagnosed with diabetes could be managed under the TB programme  
559 in order to ensure coherent disease management. They could then be referred to diabetes  
560 programmes after completing their treatment for TB.<sup>58</sup>

561  
562 Community health workers whose role is to reach out to TB patients can be trained in blood  
563 glucose testing to ensure dual care. Information on TB should also be provided to diabetes  
564 treatment centres so that health care workers are able to identify when to refer people for TB

---

<sup>53</sup> WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders. Geneva: World Health Organization; 2012 ([http://www.who.int/tb/publications/2012/tb\\_hiv\\_policy\\_9789241503006/en/](http://www.who.int/tb/publications/2012/tb_hiv_policy_9789241503006/en/)).

<sup>54</sup> Noubiap JJ, Nansseu JR, Nyaga UF, Nkeck JR, Endomba FT, Kaze, AD et al. Global prevalence of diabetes in active tuberculosis: a systematic review and meta-analysis of data from 2.3 million patients with tuberculosis. *Lancet Global Health*. 2019; Volume 7, Issue 4, PE448-E460. DOI:[https://doi.org/10.1016/S2214-109X\(18\)30487-X](https://doi.org/10.1016/S2214-109X(18)30487-X)

<sup>55</sup> Marais BJ, Lonnroth K, Lawn SD. Tuberculosis comorbidity with communicable and non-communicable diseases: integrating health services and control efforts. *Lancet Infect Dis*. 2013;13:436–48.

<sup>56</sup> <https://www.theunion.org/news-centre/news/new-union-technical-guide-for-the-co-management-of-diabetes-mellitus-tuberculosis-published>

<sup>57</sup> WHO and International Union Against Tuberculosis and Lung Disease. Collaborative framework for care and control of diabetes; 2011 ([http://whqlibdoc.who.int/publications/2011/9789241502252\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789241502252_eng.pdf)).

<sup>58</sup> Sullivan T, Ben Amor Y. The co-management of tuberculosis and diabetes: challenges and opportunities in the developing world. *PLoS Med*. 2012;9:e1001269. doi:10.1371/journal.pmed.1001269.

565 investigation. Procurement and delivery systems used for TB medicines could be used for  
566 insulin, the supply of which can be unreliable in low-and middle-income countries.

567  
568 There are opportunities for the prevention of both diseases, since levels of hyperglycemia  
569 associated with pre-diabetes appear to correlate with a higher risk for TB.<sup>59</sup> Efforts to integrate  
570 diabetes and TB care should not remain separate from those to address HIV and TB jointly. All  
571 the risk factors for TB should be approached holistically in order to maximize resources.

572

573 ***People who use smoke tobacco and/or are exposed to indoor air pollution***

574

575 Tobacco smoking (and passive smoking) and indoor air pollution from burning biomass fuels in  
576 poorly ventilated kitchens and homes are major risk factors for TB.<sup>60</sup> An estimated 830 000 of  
577 people diagnosed with TB worldwide in 2017 were linked to tobacco smoking.<sup>61</sup> This is  
578 especially concerning, since smoking and burning fuels indoors are highly prevalent practices in  
579 countries where TB is common. These practices increase the risks of becoming infected with TB,  
580 developing active TB disease, experiencing poor treatment outcomes, and relapsing.<sup>62</sup>

581

582 Reducing the number of people who smoke and reducing indoor air pollution are key  
583 interventions for ending TB. Because tobacco smoking is such a high risk factor for TB, smoking  
584 cessation support could form part of TB-related counselling and care on initial diagnosis.

585

586 ***People affected by malnutrition***

587

588 In 2017 an estimated 1.9 million people developed TB where malnutrition was the attributed  
589 underlying cause.<sup>63</sup> Malnutrition and TB are strongly linked, with undernutrition reducing  
590 immune defenses against TB and encouraging the transition from latent infection to active  
591 disease. TB can also impair the body's ability to absorb nutrients and micronutrients, which in  
592 turn leads to malnutrition and wasting.

593

594 In March, 2018, India's Prime Minister Narendra Modi announced that his country would  
595 provide people living with TB with direct cash transfers of USD 100 million through 2025 to  
596 ensure adequate nutritional support.<sup>64</sup> This inspiring commitment should be matched by other  
597 countries. Many of the people who are already at high risk for TB infection, such as  
598 impoverished people living in crowded, unsanitary housing, are also likely to be undernourished.  
599 The association between undernutrition and TB is so strong that people who are overweight have  
600 even lower incidence of TB than people of a healthy weight (although obesity increases risk  
601 factors for diabetes and other metabolic diseases).

602

---

<sup>59</sup> Viswanathan V, Kumpatla S, Aravindalochanan V, et al. Prevalence of diabetes and pre-diabetes and associated risk factors among tuberculosis patients in India. PLoS One. 2012;7:e41367.

<sup>60</sup> Lin HH, Ezzati M, Murray M. Tobacco smoke, indoor air pollution and tuberculosis: a systematic review and meta-analysis. PLoS Med. 2007;4:e20.

<sup>61</sup> Global Tuberculosis Report 2018. WHO. [https://www.who.int/tb/publications/global\\_report/en/](https://www.who.int/tb/publications/global_report/en/)

<sup>62</sup> Stop TB Partnership. Improving tuberculosis case detection: A compendium of TB REACH case studies, lessons learnt and a monitoring and evaluation framework; 2014.

<sup>63</sup> Global Tuberculosis Report 2018. WHO. [https://www.who.int/tb/publications/global\\_report/en/](https://www.who.int/tb/publications/global_report/en/)

<sup>64</sup> <https://www.narendramodi.in/text-of-pm-s-address-at-the-inaugural-session-of-end-tb-summit-539297>



603 Ensuring food security for the general population is an important component of preventing TB.  
604 There is also some evidence that tailored nutritional support during TB care can help patients  
605 adhere to treatment, especially those with drug-resistant TB.<sup>65</sup> WHO has provided relevant  
606 guidance.<sup>66</sup> To make nutritional support a reality, interdepartmental efforts from other  
607 ministries, including those responsible for social welfare, finance, food and agriculture, will be  
608 vital.

---

<sup>65</sup> Sinclair D, Abba K, Grobler L, Sudarsanam TD. Nutritional supplements for people being treated for active tuberculosis. *Cochrane Database Syst Rev.* 2011;9(11):CD006086.

<sup>66</sup> Guideline: nutritional care and support for patients with tuberculosis. Geneva: World Health Organization; 2013 ([http://apps.who.int/iris/bitstream/10665/94836/1/9789241506410\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/94836/1/9789241506410_eng.pdf)).

