Société Tunisienne de Pahologie Infectieuse

the 1ST Clinical Microbiology and Infectious diseases congress in Middle East North Africa region

the 34TH Tunisian Society of Infectious Diseases congress

World Health Organization

Epidemiology of MDR-TB

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Hammamet, May 22, 2025

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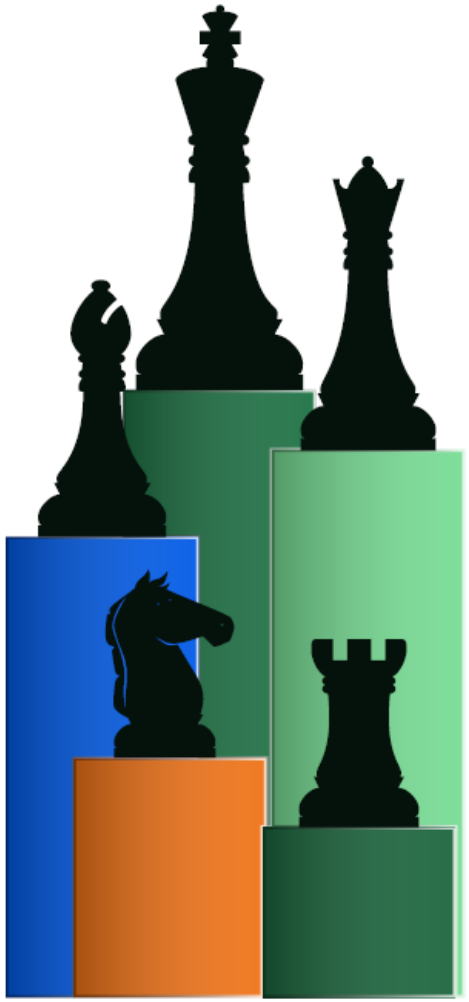
Understanding Drug Resistance

Genetic Mutations in TB

Decreased Drug Uptake

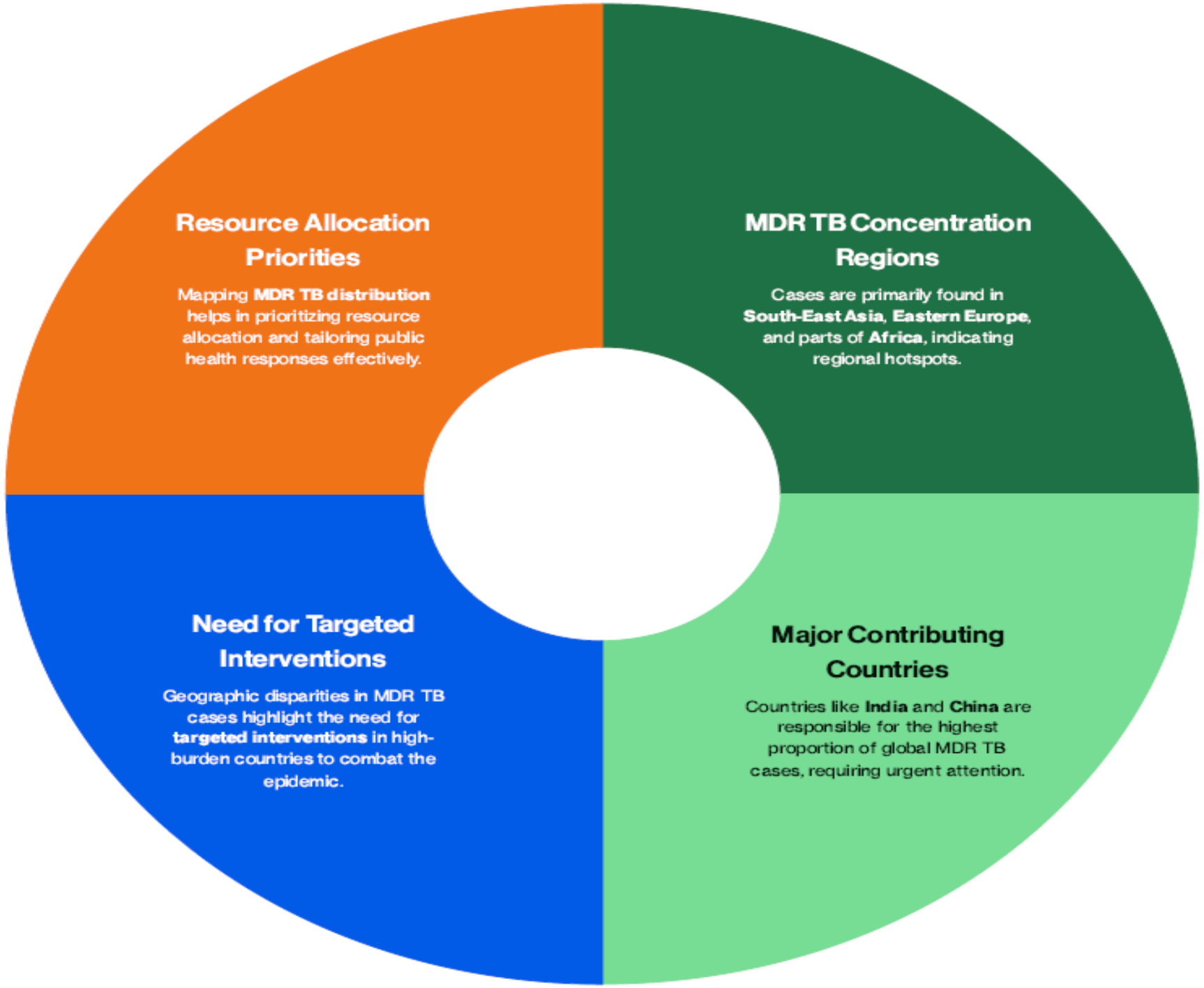
Inadequate Treatment Regimens



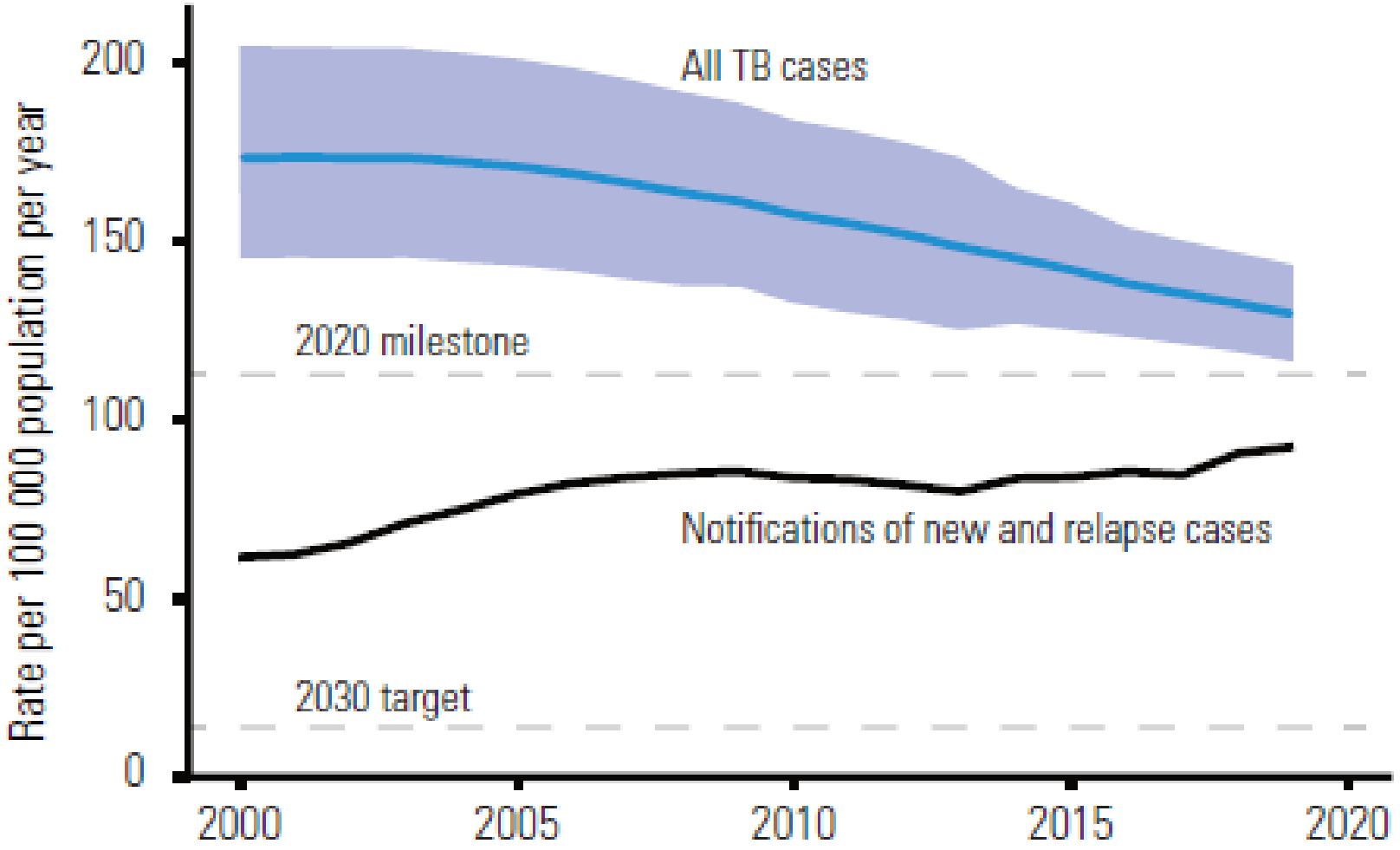
Altered Drug Targets

Increased Efflux of Drugs

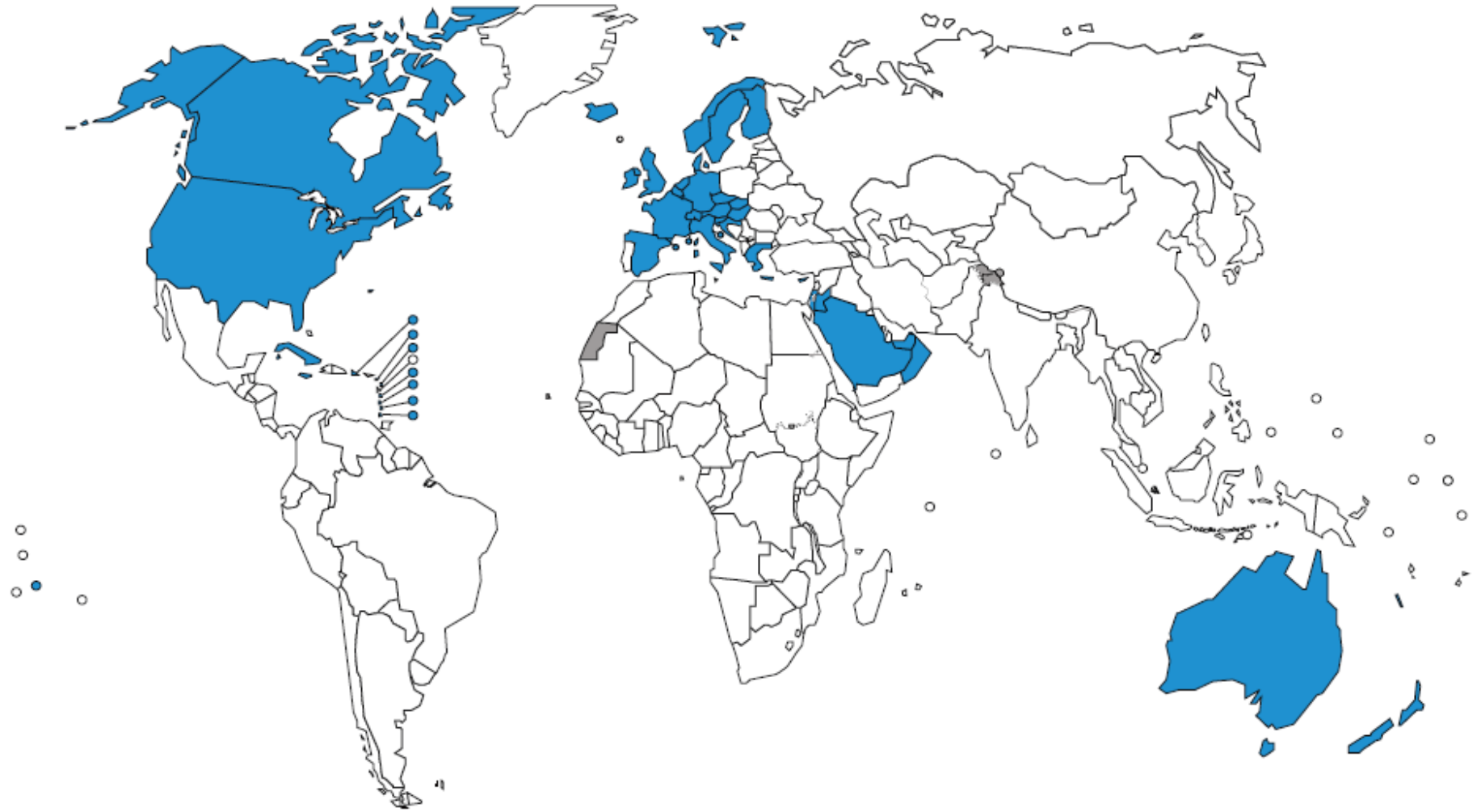
Global MDR Distribution



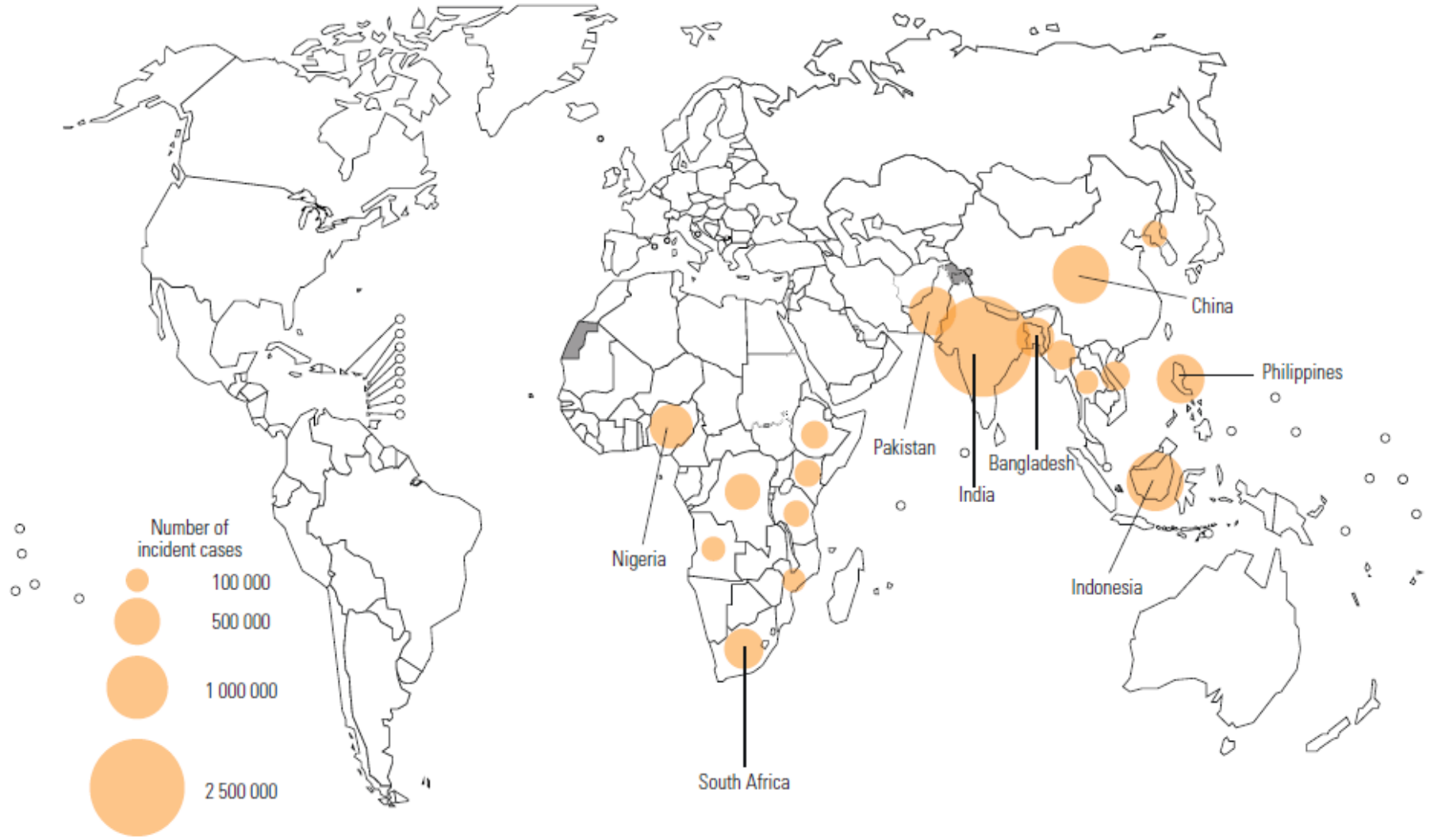
Global Trend & Estimated Incidence (2000-2020)



Countries (in blue) that had an estimated TB incidence rate of less than 10 per 100 000 population in 2020



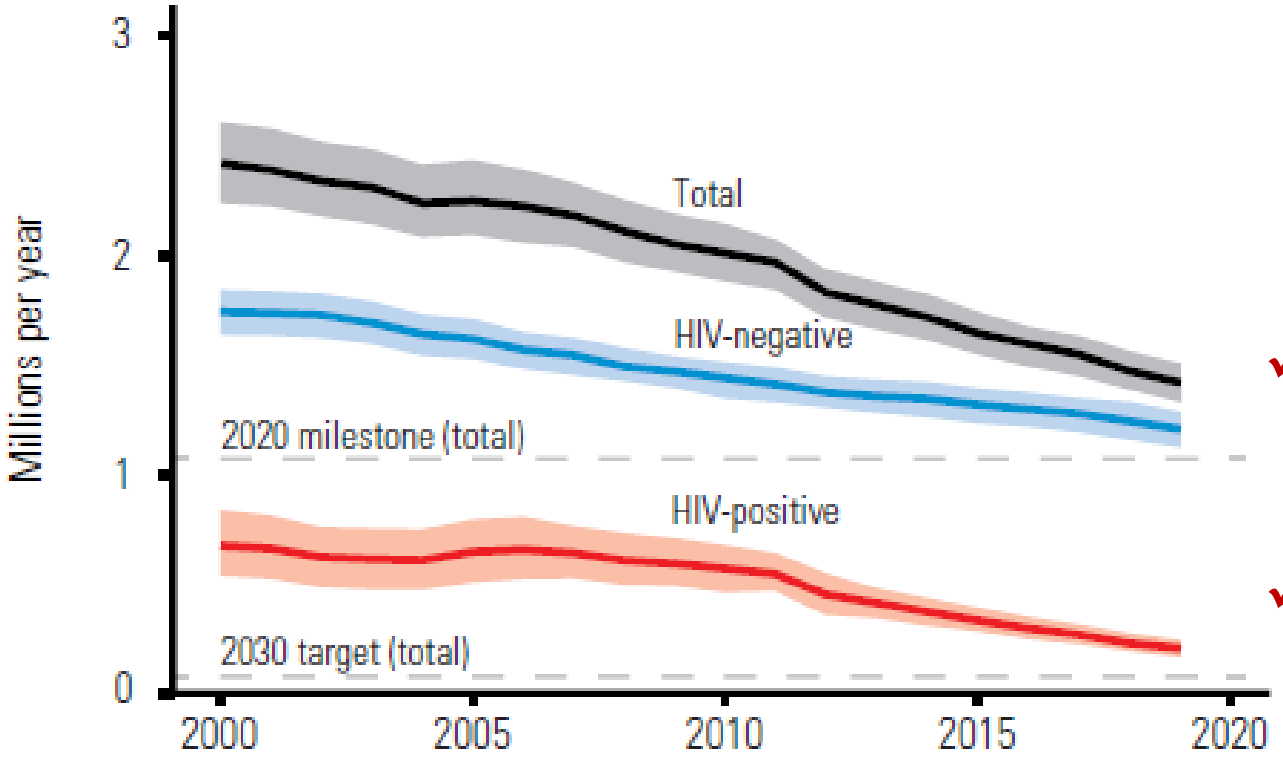
1-Countries that had at least 100 000 incident cases of TB on top of label.
2-The eight countries that rank first to eighth in terms of numbers of cases, and that accounted for two thirds of global cases, are labelled.



TB Deaths

- Worldwide, TB is the leading infectious disease killer and one of the top 10 causes of death overall. It caused 1.4 million deaths, including 208 000 among HIV-positive people.
- The annual number of TB deaths is falling globally, but not fast enough to reach the first milestone of the End TB Strategy.
- The WHO European Region is on track to reach the 2020 milestone, with a 31% reduction, and the African Region has made good progress, achieving a reduction of 19%. Reductions in other WHO regions were 6.1% in the Americas, 11% in the Eastern Mediterranean, 10% in South-East Asia and 17% in the Western Pacific.
- A total of 46 countries are on track to reach the milestone. This includes seven high TB burden countries that have already reached it (Bangladesh, Kenya, Mozambique, Myanmar, the Russian Federation, Sierra Leone and the United Republic of Tanzania) and one other that is on track (Vietnam).

Global trend in the estimated number of TB deaths, 2000–2020.The shaded areas are uncertainty intervals. Horizontal dashed lines mark the 2020 milestone and 2030 target of the End TB Strategy.



- ✓ **The Sustainable Development Goals (SDGs) aim to end the tuberculosis (TB) epidemic by 2030, specifically under Goal 3: Ensure healthy lives and promote well-being for all at all ages.**
- ✓ **Target 3.3 focuses on ending the epidemics of major communicable diseases, including TB.**
- ✓ **Aim for an 80% reduction in TB incidence rate and a 90% reduction in TB deaths by 2030, compared to 2015 levels, according to (WHO).**

Impact of MDR TB on Health Systems

Key Factors	Impact
MDR TB Threat	Strains global health systems
Higher Treatment Costs	Increased financial burden
Prolonged Illness	Longer recovery times
Increased Mortality Rates	Higher death rates
Economic Stability	Affects workforce productivity
Healthcare Infrastructure	Requires improved management

MDR Tuberculosis Statistics 2023

400,000 cases

Global MDR TB cases in 2023
In 2023, an estimated **400,000 cases** of **MDR TB** were reported globally, highlighting a critical public health challenge.

68% success rate

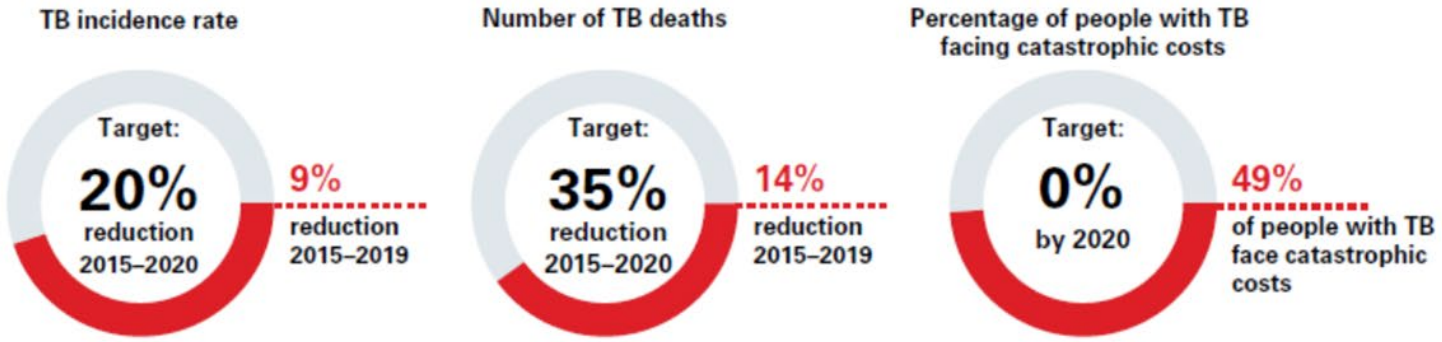
MDR TB treatment success rate
The **treatment success rate** for **MDR TB** has improved to an average of **68%**, though it remains lower than that for drug-susceptible TB.

Slight decrease in new cases

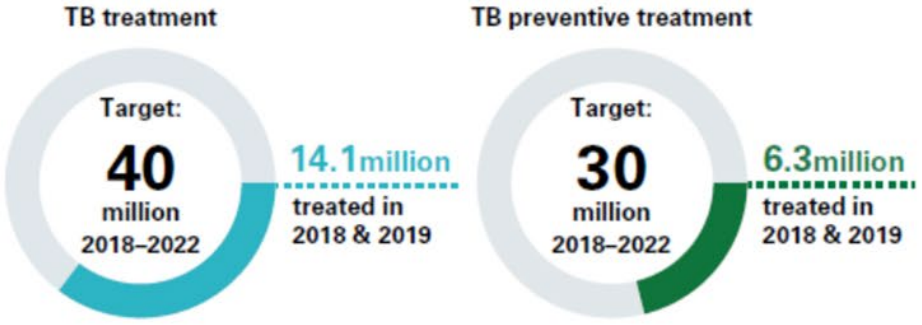
Trends in new MDR TB cases
Data indicates a **slight decrease** in new cases, attributed to better diagnostics and treatment access following the **COVID pandemic**.

Overview on Global TB Targets

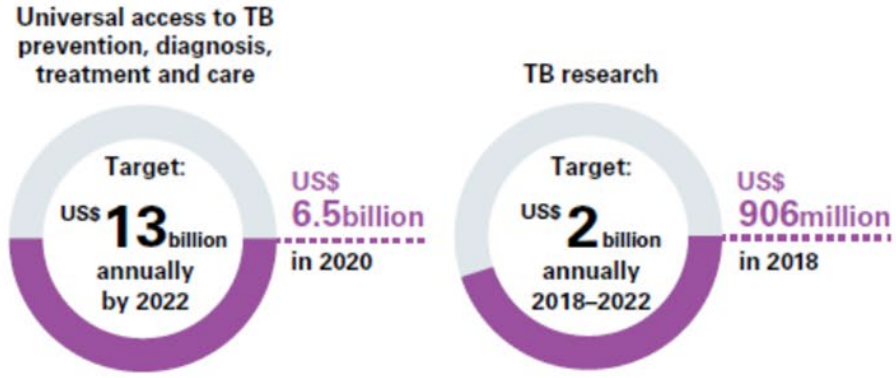
a) SDGs and End TB Strategy: targets for reductions in the TB incidence rate, TB deaths and catastrophic costs



b) UN high-level meeting on TB: targets for the number of people provided with TB treatment and TB preventive treatment



c) UN high-level meeting on TB: targets for increased funding



Global Gap in TB

- Ten countries accounted for 77% of the global gap between treatment enrolments and the estimated number of new cases of MDR/RR-TB in 2019, and thus will have a strong influence on progress in closing this gap. China and India accounted for 41% of the global gap.

- The latest treatment outcome data for people with MDR/RR-TB show a global treatment success rate of 57%. Three examples of high MDR-TB burden countries with relatively high TB treatment coverage that have higher treatment success rates for MDR/RR-TB (≥75%) are Ethiopia, Kazakhstan and Myanmar.

- Closing this wide gap requires one or more of the following:

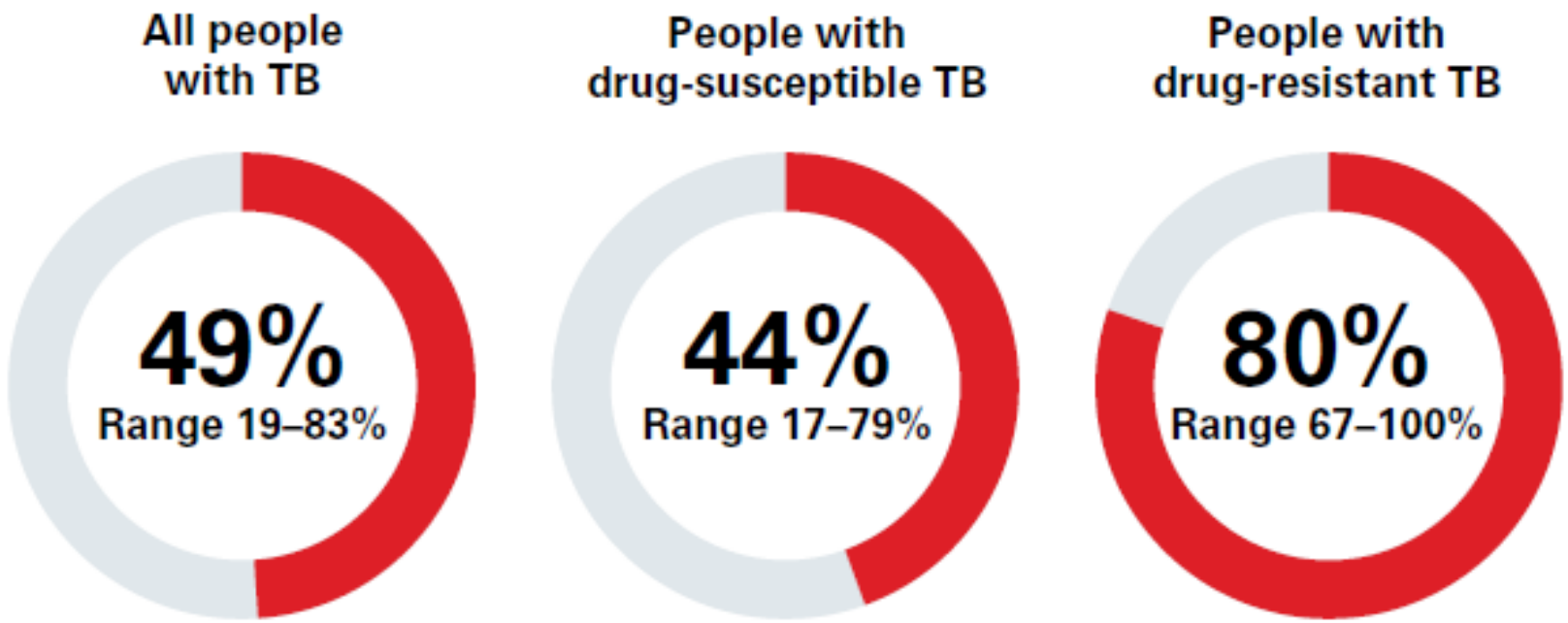
1- Improving detection of TB; increasing bacteriological confirmation among those diagnosed with TB.

2- Expanding the coverage of testing for drug resistance among those with bacteriologically confirmed TB.

3-Ensuring that all those diagnosed with MDR/RR-TB are enrolled in treatment.

Percentage of people with TB and their households facing catastrophic costs in 17 national surveys completed since 2015

The number in the centre of each circle is the pooled average figure across all surveys; the range is the minimum and maximum values in the 17 countries.



Diagnosis of MDR-TB

- In accordance with WHO guidelines, detection of MDR/RR-TB requires bacteriological confirmation of TB and testing for drug resistance using rapid molecular tests, culture methods or sequencing technologies.
- Globally in 2019, 61% of people with bacteriologically confirmed TB were tested for **Rifampicin** resistance, up from 51% in 2017 and 7% in 2012.
- **Coverage of testing was 59% for new** and 81% for previously treated TB patients in 2016.
- A global total of 206 030 people with MDR/RR-TB were detected and notified in 2019, a 10% increase from 186 883 in 2018, and 177 099 people were enrolled in treatment, up from 156 205 in 2018.

Diagnosis of MDR-TB

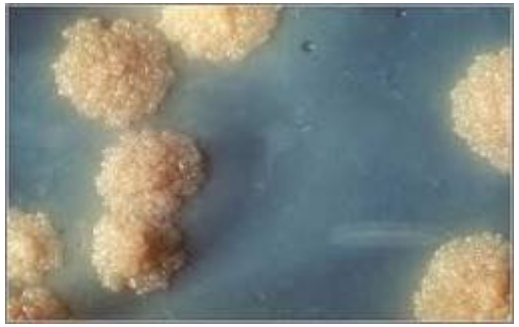
- In accordance with WHO guidelines, detection of MDR/RR-TB requires bacteriological confirmation of TB and testing for drug resistance using rapid molecular tests, culture methods or sequencing technologies. Treatment requires a course of second-line drugs for at least 9 months and up to 20 months, supported by counselling and monitoring for adverse events. WHO recommends expanded access to all-oral regimens.
- There was some progress in testing, detection and treatment of MDR/RR-TB between 2018 and 2019. Globally in 2019, 61% of people with bacteriologically confirmed TB were tested for rifampicin resistance, up from 51% in 2017 and 7% in 2012.16 Coverage of testing was 59% for new and 81% for previously treated TB patients. A global total of 206 030 people with MDR/RR-TB were detected and notified in 2019, a 10% increase from 186 883 in 2018, and 177 099 people were enrolled in treatment, up from 156 205 in 2018.

- Laboratory diagnosis of multidrug-resistant tuberculosis (MDR-TB) relies on both culture-based and molecular methods.

1-The World Health Organization (WHO) recommends Xpert MTB/RIF assay and other molecular assays like Truenat MTB-RIF Dx as initial tests for diagnosis and rifampicin resistance detection.

2-Traditional culture-based methods like BACTEC MGIT 960 are used for drug susceptibility testing.

- The Xpert MTB/RIF is a fully automated real-time PCR based molecular assay for detecting MTB and resistance to rifampicin, which provides results within 2 hours.



Insights on MDR TB Challenges

MDR TB as a global challenge

MDR TB remains a pressing global health challenge, requiring concerted efforts across all sectors to combat its spread effectively.

Mechanisms of Resistance

Understanding the mechanisms of resistance and geographical distribution informs effective interventions and strategies to tackle MDR TB.

Commitment to Research

Continued commitment to research and policy development is crucial for achieving TB elimination goals and improving treatment outcomes.

Collaboration is Key

Collaboration among countries, international organizations, and communities is essential to combat MDR TB effectively and efficiently.

Innovations in TB Research

Need for Innovative Solutions

There is a pressing need for **innovative solutions** in TB **diagnostics**, **treatment**, and **prevention** to effectively combat the disease.

Emerging Research on Vaccines

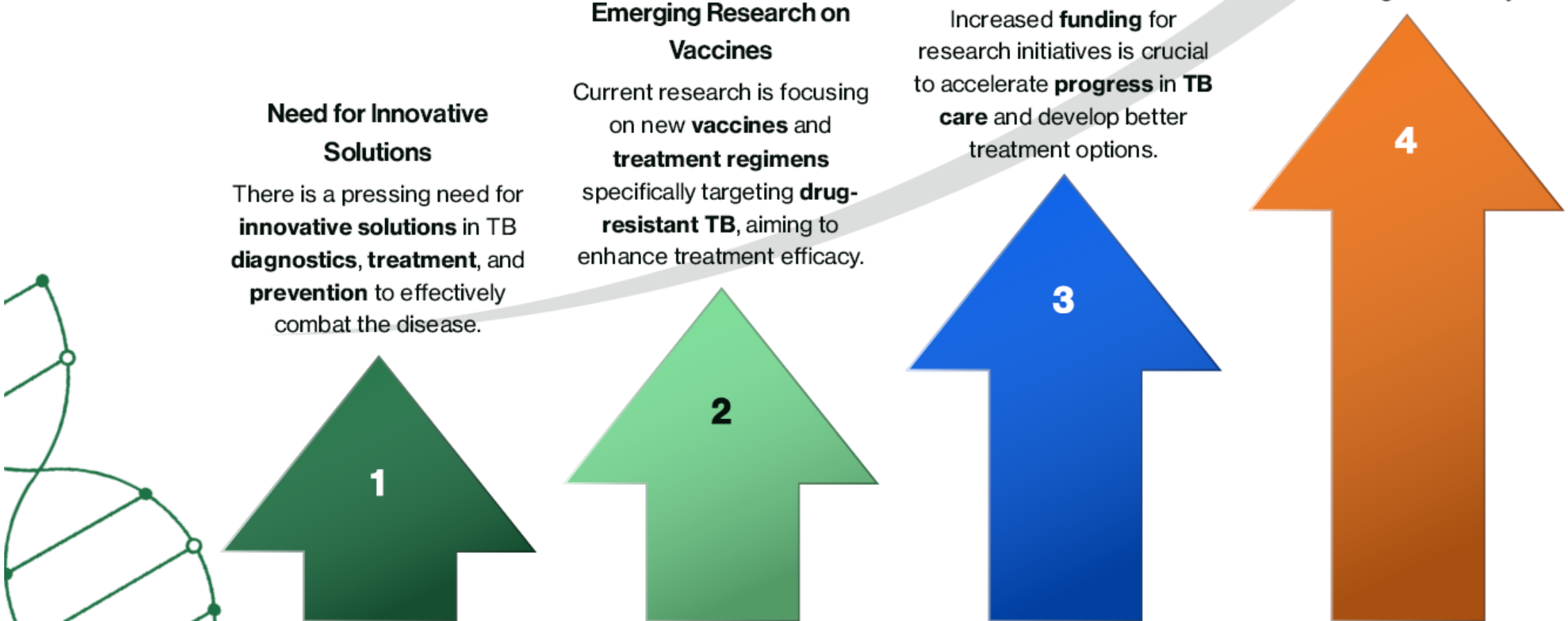
Current research is focusing on new **vaccines** and **treatment regimens** specifically targeting **drug-resistant TB**, aiming to enhance treatment efficacy.

Funding Research Initiatives

Increased **funding** for research initiatives is crucial to accelerate **progress** in **TB care** and develop better treatment options.

Collaboration is Key

Successful innovations in TB management require collaboration between the **public** and **private** sectors to share resources and knowledge effectively.



Global Partnerships Against MDR TB

International Partnerships

Review of global organizations like the Global Fund fighting MDR TB.

Data Sharing Significance

Importance of sharing data and resources across nations to tackle MDR TB.

Successful Collaborations

Highlight successful collaborative programs in high-burden countries.

Future Opportunities

Discuss future collaborative opportunities to strengthen global TB efforts.

Strengthening Health Systems for TB

Key Areas	Details
Healthcare Infrastructure	Impact of robust healthcare infrastructure on effective TB management.
Laboratory Facilities	Need for improved laboratory facilities and diagnostic capabilities.
Training Healthcare Workers	Role of training healthcare workers in managing TB cases.
Integration into Primary Care	Strategies for integrating TB care into primary healthcare systems.

Community Engagement in TB Control

Community Engagement

Community engagement is essential for effective TB care and prevention.

Successful Initiatives

Highlighting effective community-led initiatives that improved TB outcomes.

Empowering Health Workers

Strategies for empowering community health workers to educate on TB.

Reducing Stigma

Community involvement plays a crucial role in reducing stigma associated with TB.

Promoting Health-seeking

Encouraging health-seeking behavior through community participation.

Policies for Effective TB Management

Need for Coherent Policies

Effective management of MDR TB requires **coherent policy frameworks** at both national and global levels to ensure alignment and resource allocation.

1

International Best Practices

Reviewing **international best practices** in TB policy development can guide nations in formulating effective strategies to combat MDR TB.

2

Monitoring and Evaluation Role

Monitoring and evaluation are critical for assessing the effectiveness of TB policies and making necessary adjustments to improve outcomes.

3

Advocacy for TB Priority

There is a need for strong **advocacy** to ensure that TB remains a high priority in national health agendas, especially in the context of MDR TB.

4

Targeting TB in Vulnerable Groups

	Impact of TB	Targeted Intervention Strategies	Social Determinants
Refugees	Disproportionate impact due to displacement and lack of resources	Access to tailored health services and preventive care	Economic instability, living conditions, and access to healthcare
	Increased vulnerability due to lack of shelter and health resources	Mobile health clinics and outreach programs	Housing insecurity, substance abuse, and mental health issues

Mobilizing TB Advocacy Resources

Importance of TB Advocacy

Advocacy is crucial for mobilizing resources and creating awareness about TB control efforts. It helps to influence policy changes and increase funding for TB programs.

Successful Campaigns

Review of successful advocacy campaigns demonstrates how targeted efforts can lead to increased funding and significant policy changes, enhancing TB management.

Engaging Stakeholders

Effective advocacy requires engaging various stakeholders, including government, private sector, and communities. Collaboration can amplify the TB agenda.

Role of Civil Society

Civil society organizations play a vital role in driving the TB agenda forward. They mobilize communities, raise awareness, and hold governments accountable for TB responses.


Appreciating Your Engagement
Thank you for your interest and participation in addressing the challenges of MDR TB. Let's continue the discussions and collaborations to make a difference together.