

GLOBAL HEALTH SECURITY AND COVID-19 TASK FORCE

# The AIDP: Potential Impact for TB, Airborne Infectious Diseases, and Pandemic Preparedness

POLICY BRIEF

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## **ABSTRACT**

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Airborne infectious diseases are the biggest threats to global health security. Despite the devastation caused by COVID-19, the world remains vulnerable to the next airborne infection. The international community relied on the tuberculosis (TB) infrastructure and expertise to respond to COVID-19, and can strengthen its preparedness by further investing in the TB response, which utilizes the same interventions and technology needed to fight other airborne infections. The Airborne Infections Defense Platform (AIDP) will strengthen political commitment and partnerships to enhance the use of TB services for the detection, treatment, and prevention of airborne infectious diseases in high TB burden countries.

Keywords:

Tuberculosis, Airborne Infections, Global Health Security, Pandemic Preparedness & Response, COVID-19

## **CHALLENGE**

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Airborne infectious diseases – TB, smallpox, measles, pneumonic plague, influenza, SARS, MERS, COVID-19 – spread easily between people and are responsible for millions of deaths. They are the greatest threats to global health security and can cause serious illnesses, overcome immunity, or become resistant to antimicrobial medicines. Even with recent advances, TB has a mortality rate of 15%, which could increase significantly if TB services were curtailed and treatment became less accessible. In contrast, before the advent of vaccines and emergence of SARS-CoV-2 variants, COVID-19 had a 3.5% mortality – although it has killed many more people since its emergence in late 2019 because of its rapid and widespread global dissemination. Everyone is at risk from these airborne pathogens – the air we breathe is life.

The COVID-19 pandemic was a clarion call – it highlighted the fact that the world was unprepared to fight rapidly transmissible airborne infections and that immediate action was needed. The next pandemic will most likely be another airborne infectious disease and we remain vulnerable. The type of interventions used to fight TB are precisely those needed to detect, prevent, respond, treat, and mitigate the next airborne pathogen.

TB has been a source of illness, suffering, and death for humankind for centuries, and commitments were made as part of both 2015 United Nations (UN) Sustainable Development Goals and 2018 UN High Level Meeting on TB to end this scourge. TB is caused by *Mycobacterium tuberculosis*, an airborne infectious pathogen, present in every country, and likely to outlive COVID-19. In many countries, national TB programs

drew on their expertise in TB infection prevention and control to launch the first responses to COVID-19. Paradoxically, personnel, equipment and financial resources that were redirected from TB to COVID-19 resulted in enhanced, targeted responses to COVID-19 at the expense of TB services, contributing to increases in TB deaths. In reality, the world would be far safer if additional investments strengthened the infrastructure and capacity of TB programs. By bolstering the TB response, countries can accelerate progress against TB and simultaneously develop surge capacity to continue to fight COVID-19, and develop the requisite resilience to address any new pandemic due to an airborne infectious pathogen. Similarly, by monitoring progress against TB, it would be possible to assess preparedness to fight any new airborne infection.

## **PROPOSAL**

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The Airborne Infections Defense Platform (AIDP) aims to strengthen political commitment and partnerships, globally and at country level, that will enhance the use of existing TB services for the detection, treatment, and prevention of airborne infectious diseases in high TB burden countries. A key feature of the platform is the deployment of new technologies, including ultraportable radiography, digital innovations, and rapid molecular diagnostic tests to quickly and accurately detect TB, while accelerating or expanding the detection of other airborne infections, and linking people to care and referral services by relying on strong linkages to affected communities and civil societies.

More specifically, AIDP will help address the urgent realities of TB, COVID-19, and other airborne threats by:

- 1) expanding the involvement of communities and civil society in screening, contact tracing, care, and referral to improve early diagnosis, treatment and prevention measures;
- 2) enhancing person-centered prevention and care for TB, COVID-19, and other diseases caused by airborne pathogens, thereby improving services and mitigating transmission and potential epidemics; and
- 3) expanding knowledge and implementation of best practices for infection prevention and control (IPC) of respiratory illnesses.

AIDP will build on lessons learned from implementation of national TB programs in high TB burden countries, which have been developed with the support of USAID, the Stop TB Partnership, World Health Organization (WHO), and other stakeholders. It will draw experience from the COVID-19 pandemic and a strong two-decade foundation of community engagement for enhanced detection, laboratory diagnostic network development with rapid molecular tests, reliance on evidence-based policies for optimal

person-centered treatment (including drug-resistant forms of TB), contact investigation or tracing, and training on and implementation of airborne infection prevention.

### ***Contact Tracing, Early Diagnosis and Information Sharing***

The ongoing COVID-19 pandemic has provided heightened public awareness and understanding of the importance of early detection, care and referral to improve prompt diagnosis, treatment, and prevention as well as to enhance person-centered prevention and care for TB, COVID-19, and other respiratory diseases. But this new knowledge needs to fully permeate to all levels – to people on the frontlines. We are now challenged to establish and strengthen partnerships and we must be prepared to deal with emerging respiratory diseases through a global initiative that adopts a community-based approach. We must apply lessons learned from decades of building TB programs and knowledge acquired with COVID-19 in the last 2-3 years to improve services without overwhelming the community and primary health care systems.

As new tools become available, we will be able to do more, but we must deepen our understanding of how to engage community groups to generate demand, ensuring that they are educating people at greatest risk and getting them to the right place to access needed services. We must be able to leverage the diagnostic network platform to provide greater access to new technology to expand definitive microbiologic diagnoses.

For the identification of TB and other airborne infectious diseases, we can deploy community-based tools beyond the primary health care facility for use in mobile units and door-to-door outreach. For accelerated expansion and resilient infrastructure, we must focus on building these networks across the countries at all levels in a range of country settings.

### ***Expanded Community and Civil Society Involvement***

Investing in identifying, nurturing, and empowering communities, especially affected communities, is critical to the success of the response to TB and other airborne infections. When the community has been empowered, people with TB have access to services in a timely manner. The future of any airborne infection platforms, defense, or pandemic preparedness should start with the empowerment of communities.

## **RECOMMENDATIONS**

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Given the urgency to to enhance the use of TB services for the detection, treatment, and prevention of airborne infectious diseases, the following actions are recommended:

1. ***TB positioning and integration:*** Integrating TB into pandemic preparedness and response plans that can be activated quickly will make comprehensive, fully developed TB programs the centerpiece of response efforts in fighting airborne

infections and future pandemics while simultaneously contributing to strengthening health systems.

2. **Testing and diagnostics:** Innovative tools and rapid diagnostics for TB and other airborne infectious diseases have emerged in recent years. AIDP should invest in deploying these novel diagnostic tools to replace or supplement the older ones. Investing in access to non-invasive tools with advanced artificial intelligence capabilities would be very useful in scaling up diagnosis of asymptomatic individuals with active disease and placing them on treatment. Ensuring the availability of platforms that can perform rapid molecular testing for multiple pathogens are particularly important at primary care centers to ensure equity in access to care and treatment. Empowering patients and frontline health care workers to engage more directly in testing with accurate, reliable, affordable, and simple tools will help link more people more quickly to screening, diagnosis, and appropriate care as well as improve the quality and timeliness of response to patient needs.
3. **Partnerships:** Building multi-sectoral partnerships, collaborations, and review mechanisms into TB programs is essential to increase technical capacity to manage innovations and to improve accountability and transparency. Partnerships are needed within and between countries; between disease prevention programs; with internal and external stakeholders such as ASEAN, G20, others; and across global health program areas, including surveillance, monitoring, evaluation, treatment, care, diagnostics, research, and policy.
4. **Surveillance and contact tracing:** Investing in global digital surveillance systems, contact investigation, and active case finding with linkages to the zoonotic and human worlds will enable a more rapid response to multiple diseases and/or outbreaks and help get more people in care. This should be done with involvement of the private sector, the community, and civil society organizations to enhance effectiveness and efficiency.
5. **Financing:** Fundraising activities should be undertaken to provide additional financing for services as well as for human and other resources needed to strengthen and sustain programs for TB and other airborne infectious diseases. Funds should be provided specifically for training, program redesign, performance, feedback and analysis, infrastructure, and high-quality service delivery.
6. **Research:** Simultaneous research, implementation, innovation, and adoption are needed to identify models, challenges, possibilities, and opportunities and ensure that new knowledge is documented and disseminated to providers at all levels of care. This should include end-to-end research and discovery, linkage of discovery to production and distribution networks, mapping and documentation of case studies at country level, lessons learned, and experience sharing. Fast-track research, development, and field trials are needed for the deployment of a safe and efficacious TB vaccine to replace or enhance BCG vaccination. BCG

offers protection for infants and young children against severe forms of TB, but it does not reliably protect adolescents and adults.

7. **Community engagement and empowerment:** Investing in identifying, nurturing, and empowering affected communities is a critical factor in a successful TB response. Such investments should include community engagement, community outreach, civil society, community leadership, community rights, gender considerations, and meaningful involvement of people affected by TB in the design, implementation, monitoring and assessment of programs. This will help communities understand the concept of AIDP, engage, elicit demand and support, and contribute to sustainability of services.
8. **Communication:** AIDP should strengthen risk communication, socialization and publishing of important conversations around airborne infectious diseases and establish online discussion platforms where clinicians can receive support and expert opinion regarding treatment, prevention and care. Culturally-appropriate public service messages targeting affected communities should also be part of these communication strategies.
9. **Training:** Strengthening capacity at sub national and community level, including training of health care workers and community volunteers, is necessary to prepare communities for their defense against TB and other airborne or respiratory infections. Training is particularly needed for health care workers and volunteers on infection prevention and control, use of personal protective equipment, and the use of new technologies and tools.
10. **Infection prevention and control:** Scale-up of infection prevention and control services across the health system to protect care providers and their clients is an essential component of all programs addressing airborne infectious pathogens.
11. **Policy and leadership:** Implementing AIDP requires strategic leadership development, including both policy and political leadership. Investment in advocacy to key stakeholders to promote the use of artificial intelligence technology in health care as well as to address the forces of delay such as stigma and discrimination, budget constraint, long distance to diagnostic centers, shortage of service providers, and shortage of supplies is therefore a critical component. Such advocacy will help gain, strengthen, and sustain technical and political commitment for effective programs.
12. **Infrastructure:** Investments in stronger and more resilient infrastructure for TB and other airborne infectious diseases to enable the use of newly developed tools and technologies, in primary health care and local health systems to effectively contribute to Universal Health Coverage (UHC), and to scale-up diagnostic and clinical services – all essential to the development of a robust and successful response to a wide range of potential airborne pandemic pathogens.

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