



Summary of the Thirty-Fifth Meeting of the International Task Force for Disease Eradication (ITFDE) May 2-3, 2023

The ITFDE members are Dr. Kashef Ijaz, The Carter Center (Chair); Dr. Fatima Barry, The World Bank; Mr. Simon Bland, Global Institute for Disease Elimination (GLIDE); Dr. Ibrahima Soce Fall, World Health Organization (WHO); Dr. Peter Figueroa, The University of the West Indies, Jamaica; Dr. Donald Hopkins, The Carter Center; Dr. Patrick Lammie, The Task Force for Global Health; Dr. Ephrem T. Lemango, United Nations Children’s Fund (UNICEF); Dr. Kim Lindblade, PATH; Dr. David Molyneux, Liverpool School of Tropical Medicine; Dr. Ana Morice, Independent Consultant; Dr. William Schluter, U.S. Centers for Disease Control and Prevention (CDC); Dr. Faisal Sultan, Shaukat Khanum Memorial Cancer Hospital and Research Center, Pakistan; Dr. Jordan Tappero, Bill & Melinda Gates Foundation; and Dr. Dyann Wirth, Harvard T.H. Chan School of Public Health. Presenters included Dr. Deirdre Hollingsworth, University of Oxford; Dr. Sarah Pallas, CDC; and Dr. Hannah Slater, PATH.

The 35th meeting of the International Task Force for Disease Eradication (ITFDE) was convened in a hybrid, virtual and in-person format on May 2-3, 2023, at The Carter Center in Atlanta, GA, USA, to discuss “The Impact of COVID-19 Pandemic on Eradication/Elimination Programs.” The topic was in follow-up to the October 2020 ITFDE meeting focused on the potential effects the COVID-19 pandemic may have on the pillars of effective public health programs and the challenges presented by impeding the delivery of necessary, effective public health programs to many underserved populations.

Update on the Impact of Interruptions to NTD Programs Due to COVID-19

In early 2020, as the COVID-19 pandemic continued to evolve, the World Health Organization (WHO) recommended the suspension of activities directed toward active case-finding, mass drug administration (MDA) campaigns, and population-based surveys for Neglected Tropical Diseases (NTDs). Based on public health measures meant to curtail the pandemic, it was predicted that previous progress toward eradicating, eliminating, and controlling NTDs would be severely impacted. Mathematical modeling was used to estimate how NTD programs could be affected by the interruption of interventions and what remedial strategies could be implemented once programs resumed. These models suggested that the impact on some NTDs could ultimately be mitigated,

provided the delay was minimal and that prompt remedial (and in some cases novel) action was taken.^{1, 2}

Seven NTDs (soil-transmitted helminthiasis; schistosomiasis; lymphatic filariasis; onchocerciasis; trachoma; visceral leishmaniasis [VL] in the Indian sub-continent and Gambiense form of Human African Trypanosomiasis [HAT]) were analyzed by simulating the effect of program interruptions on the dynamics of each of these diseases in different endemic settings. The underlying transmission dynamics of each NTD and the level of endemicity in each stage significantly influence the rate of resurgence, with high transmission areas and diseases with the fastest recrudescence rate presenting the most significant challenges.

Initial modeling (performed in March 2020) suggested that if the impact of COVID-19 on NTD services was as substantial as one of two years of cessation of programme interventions (e.g., annual mass drug administration [MDA] campaigns and active case finding and treatment for VL and HAT), then it could, in some cases, delay the achievement of elimination goals for longer than the duration of the interruption. For schistosomiasis, onchocerciasis, trachoma, and visceral leishmaniasis, a mean delay of 2–3 years for a 1-year interruption was predicted in areas of highest prevalence. More hypothetically, the modelling suggested that such delays could be mitigated with additional mass drug administration or enhanced case-finding, highlighting the need for innovation in the face of this challenge.^{3, 4}

According to the WHO *Second round of the national pulse survey on continuity of essential health services during the COVID-19 pandemic: January-March 2021*, services for NTDs were the second most frequently disrupted by the pandemic; 48 of the 109 (44%) responding countries reported such disruptions, and 21 of the 109 (19%) responding countries reporting a severe disruption (affecting $\geq 50\%$ of the services).⁵ A follow-up pulse survey conducted in November-December, of the same year, concluded the same trend toward disrupting NTD-related services.⁶ As predicted, an interruption to preventive chemotherapy interventions was the most frequently affected among NTD services.

¹ World Health Organization (2021). Impact of the COVID-19 pandemic on seven neglected tropical diseases: a model-based analysis. Geneva: World Health Organization.

² Borlase, A., Le Rutte, E. A., Castaño, S., Blok, D. J., Toor, J., Giardina, F., Davis, E. L., & NTD Modelling Consortium. (2022). Evaluating and mitigating the potential indirect effect of COVID-19 on control programmes for seven neglected tropical diseases: A modelling study. *The Lancet Global Health*, 10(11), e1600-e1611. [https://doi.org/10.1016/S2214-109X\(22\)00360-6](https://doi.org/10.1016/S2214-109X(22)00360-6)

³ Toor, J., Adams, E. R., Aliee, M., Amoah, B., Anderson, R. M., Ayabina, D., ... et al. (2021). Predicted Impact of COVID-19 on Neglected Tropical Disease Programs and the Opportunity for Innovation. *Clinical Infectious Diseases*, 72(8), 1463-1466. <https://doi.org/10.1093/cid/ciaa933>

⁴ Brooker, S. J., Ziumbe, K., Negussu, N., Crowley, S., & Hammami, M. (2021). Neglected tropical disease control in a world with COVID-19: an opportunity and a necessity for innovation. *Transactions of The Royal Society of Tropical Medicine and Hygiene*, 115(3), 205-207. <https://doi.org/10.1093/trstmh/traa157>

⁵ World Health Organization. (2021). *Second Round of the National Pulse Survey on Continuity of Essential Health Services during the COVID-19 Pandemic. Interim Report.* World Health Organization.

⁶ World Health Organization. (2022). *Weekly Epidemiological Record*, 2022, vol. 97, 38 [full issue]. *Weekly Epidemiological Record*, 97 (38), 465 - 480. World Health Organization. <https://apps.who.int/iris/handle/10665/363108>

The WHO *Global Report on Neglected Tropical Diseases 2023* shows that the number of people receiving interventions against NTDs dropped significantly from 2019 to 2020, with a small amount of additional recovery in 2021. Notably, fewer rounds of MDA were implemented overall than before the pandemic, while several MDA rounds failed to achieve their target coverage. Data from 83 countries show that 250 MDA campaigns were implemented in 2019. In 2020, only 180 MDA campaigns were implemented in 72 countries, a decrease of 28%. In 2021, data reported from 66 countries show that the number of MDA campaigns implemented (187) increased slightly compared with 2020.⁷ Major disruptions were also observed in health-facility-based services for NTDs, such as prevention, treatment, and care.

Nevertheless, reductions in cases detected and treated for diseases requiring individual management (e.g.s., VL, HAT, and Leprosy) were observed in 2020 compared with 2019. Although for some of these diseases, a decreasing trend in the detection of new cases had occurred for several years, it is unclear whether the accelerated reduction in numbers detected and treated in 2020 was real or should be attributed to disruptions to active and passive case detection caused by COVID-19 to active and passive case detection due to movement restrictions for both health staff and patients, which resulted in a reduced offer of services and lower health-seeking behavior. The rate of resurgence of infections can be challenging to estimate, with the actual underlying rate of new infections predicted to increase once active case detection is resumed.⁸ For example, the sharp declines in the diagnosis of leprosy in Brazil suggest that there is likely to be a burden of undetected cases, which may be true in other areas.⁹ It may take some time for the underlying impact of COVID-19 on NTDs to be fully understood, with variable impacts in different settings depending on the available public health response.

COVID-19 Impact on Interruption of Vaccine-Preventable Diseases

The COVID-19 pandemic disrupted the delivery of essential immunization services, delayed vaccination campaigns, and the rollout of COVID-19 vaccines when they became available. Estimates of national immunization coverage from WHO and UNICEF for 2021 indicated substantial declines in coverage of essential immunizations relative to 2019.¹⁰ An estimated 25 million children were un- or under-vaccinated against diphtheria, pertussis, and tetanus (DTP) in 2021, 6 million more than in 2019 and the highest number since 2008. Of these, an estimated 18 million were “zero-dose” children who had not received a single dose of the DTP vaccine since birth. An estimated 40 million children were un- or under-vaccinated against measles, with 25

⁷ World Health Organization. (2023). *Global Report on Neglected Tropical Diseases 2023*. Geneva: World Health Organization.

⁸ Coffeng, L. E., Le Rutte, E. A., Muñoz, J., Adams, E. R., Prada, J. M., de Vlas, S. J., & Medley, G. F. (2020). Impact of changes in detection effort on control of visceral leishmaniasis in the Indian subcontinent. *The Journal of infectious diseases*, 221(Supplement_5), S546-S553.

⁹ da Paz, W. S., Souza, M. D. R., Tavares, D. D. S., de Jesus, A. R., Dos Santos, A. D., do Carmo, R. F., de Souza, C. D. F., & Bezerra-Santos, M. (2022). Impact of the COVID-19 pandemic on the diagnosis of leprosy in Brazil: An ecological and population-based study. *Lancet regional health. Americas*, 9, 100181. <https://doi.org/10.1016/j.lana.2021.100181>

¹⁰ World Health Organization. (2021). *Progress and Challenges with Achieving Universal Immunization Coverage: 2021 WHO/UNICEF Estimates of National Immunization Coverage (WUENIC)*. Retrieved July 14, 2022, from <https://www.who.int/publications/m/item/progress-and-challenges>

million children not receiving any dose of the measles vaccine, resulting in the lowest coverage since 2008. Immunization coverage declines between 2019 and 2021 were experienced across all WHO regions and all World Bank country income groups, with the steepest declines observed in the WHO Southeast Asian Region and among middle-income countries that were formerly eligible for support from GAVI, the Vaccine Alliance. During the pandemic, surveys of Ministry of Health staff indicated that disruptions to immunization services and other routine primary health care services were due to a combination of supply (e.g., lack of vaccine supplies; lack of needed human resources) and demand (e.g., reduced care-seeking) factors.¹¹

As a result of the disruptions to immunization services during the COVID-19 pandemic, outbreaks of multiple vaccine-preventable diseases (VPDs) have occurred during 2022 and 2023 to date, including VPDs identified as feasible for eradication by the ITFDE (polio, measles, rubella).¹² During the COVID-19 pandemic, confirmed wild poliovirus type 1 (WPV1) cases fell from 140 in 2020 to only six in 2021, followed by a resurgence to 30 cases in 2022; six confirmed WPV1 cases have been identified in 2023 to date (as of 20 June).¹³ Circulating vaccine-derived poliovirus (cVDPV) cases resulting in acute flaccid paralysis (AFP) fell from 1,815 in 2020 to 698 in 2021, followed by a resurgence to 867 cases in 2022; in 2023 to date, 117 cVDPV cases have been detected in 13 countries (as of June 20).¹⁴ Additional cVDPVs were detected through environmental surveillance, including in countries in which poliovirus had been eliminated for decades.¹⁵ Global measles incidence fell from 93,781 cases in 2020 to 59,619 cases in 2021, then increased to 171,431 cases in 2022, with 100,541 cases to date in 2023 and significant or disruptive outbreaks in over 30 countries (provisional data based on monthly data reported to WHO (Geneva) as of June 2023). Based on modeling estimates, immunization service disruptions during the pandemic may result in over 48,000 additional deaths between 2020 and 2030, mainly due to measles in the WHO African Region; catch-up vaccination activities could mitigate 18,000 of these deaths.^{16, 17}

Efforts to recover from immunization service disruptions during the pandemic are ongoing, with coordinated support across global partners for country efforts under the Immunization Agenda 2030 (IA2030) Essential Immunization Recovery Plan. Immunization recovery efforts aim to

¹¹ World Health Organization. (2023). Fourth round of the global pulse survey on continuity of essential health services during the COVID-19 pandemic: November 2022–January 2023. Interim report. Retrieved May 1, 2023, from https://www.who.int/publications/i/item/WHO-2019-nCoV-EHS_continuity-survey-2023.1

¹² World Health Organization. (2023). Meeting of the Strategic Advisory Group of Experts on Immunization, March 2023: Conclusions and recommendations. *Weekly Epidemiological Record*, 98(22), 239-256.

¹³ World Health Organization. (2023). Global Wild Poliovirus 2017-2023. Data as of 20 June 2023. Retrieved from <https://polioeradication.org/wp-content/uploads/2023/06/weekly-polio-analyses-WPV-20230620.pdf>

¹⁴ World Health Organization. (2023). Global Circulating Vaccine-derived Poliovirus cVDPV. Data as of 20 June 2023. Retrieved from <https://polioeradication.org/wp-content/uploads/2023/06/weekly-polio-analyses-cVDPV-20230620.pdf>

¹⁵ Lee, S.E., Greene, S.A., Burns, C.B., Tallis, G., Wassilak S.G.F., Bolu O. (2023). Progress towards polio eradication – worldwide, January 2021–March 2023. *Weekly Epidemiological Record*, 98(19), 195-204. Retrieved from <https://apps.who.int/iris/bitstream/handle/10665/367662/WER9819-eng-fre.pdf>

¹⁶ World Health Organization. (2023). Meeting of the Immunization and Vaccine-related Implementation Research Advisory Committee (IVIR-AC), February 2023. *Weekly Epidemiological Record*, 98(13), 127-144.

¹⁷ World Health Organization. (2023). Meeting of the Immunization and Vaccine-related Implementation Research Advisory Committee (IVIR-AC) – Pink Book, February 2023. Retrieved from <https://www.who.int/groups/immunization-and-vaccines-related-implementation-research-advisory-committee/meeting-reports-and-executive-summaries>

restore coverage to at least 2019 levels and the trajectory needed to achieve the goals of IA2030, the umbrella global strategy for immunization 2021-2030.¹⁸ Early estimates for 2022 suggest that some countries are progressing in returning to or exceeding 2019 immunization coverage.¹⁹ In addition, most countries have reinstated vaccination campaigns delayed by the COVID-19 pandemic, with only 17 countries still reporting pandemic-related delays as of 8 June 2023 and 19 countries implementing integrated multi-antigen campaigns. Complete data on 2022 coverage across countries are anticipated in July 2023.

Although the COVID-19 pandemic disrupted the delivery of routine childhood vaccines, it also demonstrated the reach of immunization programs and the value of vaccination. Over 13 billion doses of COVID-19 vaccines were delivered mainly to adults in over 190 countries during 2020-2022;¹³ modeling estimates that the first year of COVID-19 vaccination alone averted 14-20 million deaths globally.²⁰ While polio's goal of interrupting WPV transmission appears within reach, continued risk mitigation and tailored subnational approaches in the remaining two endemic countries (Afghanistan and Pakistan) are needed. Challenges remain in interrupting cVDPV transmission across diverse geographies, particularly in the WHO African Region; increasing supply availability during 2023 of novel oral polio vaccine (nOPV2, a more genetically stable version of type 2 monovalent OPV that is less likely to seed cVDPV2 emergencies) and improving timeliness and quality of vaccination campaigns will be critical towards this goal. For measles, adequate, timely resources, and effective strategies for measles vaccination through intensified routine immunization and supplemental immunization activities are critical to close immunity gaps in countries experiencing and at risk of outbreaks.

Accuracy of Malaria Control Disruption and Extension Modeling during the COVID-19 Pandemic

At the start of the COVID-19 pandemic, the malaria community quickly realized the negative potential impact of the pandemic on malaria intervention delivery. There were concerns that mass campaigns (long-lasting insecticidal nets [LLINs], seasonal malaria chemoprevention [SMC] to children, spraying houses with insecticides) could be disrupted; that there could be challenges maintaining supply chains for critical commodities including antimalarials and diagnostics, and that treatment-seeking behavior of febrile individuals might change or health facilities might become overburdened. To better understand the magnitude of these concerns, WHO engaged several malaria modelling groups to provide estimates of the impact of different disruption scenarios. Now that the initial COVID-19 waves have passed, we can compare the modelled estimates against what transpired.

¹⁸ World Health Organization. (2020). Immunization Agenda 2030: A Global Strategy to Leave No One Behind. Retrieved from <https://www.who.int/teams/immunization-vaccines-and-biologicals/strategies/ia2030>

¹⁹ World Health Organization. (2023, June 2). Meeting of the Strategic Advisory Group of Experts on Immunization, March 2023: Conclusions and recommendations. *Weekly Epidemiological Record*, 98(22), 239-256.

²⁰ Watson, O. J., Barnsley, G., Toor, J., Hogan, A. B., Winskill, P., & Ghani, A. C. (2022). Global impact of the first year of COVID-19 vaccination: a mathematical modelling study. *The Lancet Infectious Diseases*, 22, 1293–1302. [https://doi.org/10.1016/S1473-3099\(22\)00320-6](https://doi.org/10.1016/S1473-3099(22)00320-6)

Models used to explore the potential impact of severely disrupted or totally interrupted mass LLIN distribution campaigns estimated that a 50% reduction in delivery would result in over 18 million additional malaria cases globally in 2020,²¹ while totally interrupted campaigns considered alongside interrupted SMC would result in approximately 300,000 additional malaria deaths in sub-Saharan Africa.²² However, most countries could maintain their LLIN distribution campaigns—of all the nets scheduled for distribution globally in 2020, an estimated 74% were successfully distributed.²³ SMC successfully went ahead in all 13 West African countries where it was planned and indoor insecticide spraying was completed in 25 of the 37 countries where it was intended.⁵

The modelled impact of disruptions to diagnosis and treatment was significant. One study estimated that a 75% reduction in diagnosis and treatment resulted in a 13% increase in malaria incidence.³ Another study estimated that if treatment and diagnosis were completely suspended for the duration of the first COVID-19 wave (six months), there could be an additional 164,000 malaria deaths in a year.⁴ In reality, there were significant reductions in the number of malaria tests conducted in 2020 compared to 2019—potentially a result of changes to treatment-seeking behavior and the availability of diagnostics.⁵ Despite reductions in testing, there were also increases in malaria cases reported globally—between 2019 and 2021, an estimated 13.4 million cases and 63,000 deaths were attributed to the service disruptions caused by COVID-19.²⁴ Due to malaria data quality issues for both interventions delivered and malaria cases detected, it is difficult to accurately determine the impact of service disruptions on malaria burden at a more granular level, with many variations in impact observed in different settings. Also (before this malaria conclusion), the COVID-19 pandemic had the most significant adverse impact on immunization services and the second-greatest impact on MDA services for NTDs, among the three public health systems/categories considered at this ITFDE meeting.

Global malaria stakeholders used the modeling outputs generated during these exercises to emphasize the essential need to maintain malaria control interventions. Many national malaria programs used these outputs to justify continuing with planned interventions, and many national malaria programs used these outputs to justify continuing with planned interventions. Even though the “worst-case scenarios” considered by the modelers did not transpire, the model outputs did provide a valuable advocacy tool to highlight a potentially devastating situation and bring together malaria stakeholders around a common aim.

²¹ Weiss, E. J., Bertozzi-Villa, A., Rumisha, S. F., et al. (2021). Indirect effects of the COVID-19 pandemic on malaria intervention coverage, morbidity, and mortality in Africa: a geospatial modelling analysis. *The Lancet Infectious Diseases*, 21(1), 59-69. [https://doi.org/10.1016/S1473-3099\(20\)30700-3](https://doi.org/10.1016/S1473-3099(20)30700-3)

²² Sherrard-Smith, E., Hogan, A. B., Hamlet, A., et al. (2020). The potential public health consequences of COVID-19 on malaria in Africa. *Nature Medicine*, 26(9), 1411–1416. <https://doi.org/10.1038/s41591-020-1025-y>

²³ World Health Organization. (2021). *World malaria report 2021*. World Health Organization. Retrieved from <https://apps.who.int/iris/handle/10665/350147>

²⁴ World Health Organization. (2022). *World malaria report 2022*. World Health Organization. <https://apps.who.int/iris/handle/10665/365169>. License: CC BY-NC-SA 3.0 IGO

Conclusions and Recommendations

1. The ITFDE underscored the need to be cautious when interpreting the actual impact of the COVID-19 Pandemic. It is critical to communicate that modelled estimates often consider ‘worst-case scenarios’ to drive advocacy and planning efforts. The ITFDE recommends presenting more realistic intermediate scenarios to maintain public trust in modeling and informing national health planning. Misinformation can affect the population’s trust influencing behaviors such as vaccine hesitancy and drug acceptance during MDAs.
2. The ITFDE recommends that National immunization programs in 2023 should focus on making the policy, system, and program adjustments needed to rapidly deliver integrated catch-up strategies to reach children missed during the COVID-19 pandemic, mitigate overlapping disease outbreaks, and regain and sustain progress toward disease elimination and eradication goals.
3. The ITFDE recognizes that novel tools, such as microneedle array patch (MAP) vaccine technology and rapid diagnostic tests, hold promise for accelerating progress toward measles elimination. For rubella, the introduction of rubella-containing vaccine in the remaining 19 countries is a critical first step towards elimination efforts. Across all VPDs, strengthening surveillance is needed to accelerate outbreak detection and response, direct immunization program efforts to under-immunized communities, and assess disease burden and vaccination impact. Immunization recovery efforts from the COVID-19 pandemic present an opportunity to strengthen the core health system and service delivery capacities to prepare for and respond to future public health emergencies and deliver ongoing services more completely.
4. The ITFDE recommends documenting and systematically sharing best practices across nations, including strategies to manage excess mortality on overwhelmed healthcare systems. The ITFDE also recommends prioritizing strengthening national-level disease control data systems to allow ease in measuring impact and changes.
5. With the full impact of COVID-19 yet to be seen, there are several opportunities for the NTD and VPD communities to galvanize the opportunity for innovative approaches and financing potential to close the resource gap. The ITFDE recommends that pandemic preparedness planning include the effect of NTD, malaria, immunization, and other control/elimination disease programs and budgeting considerations incorporate emergency response and recovery programming to allow countries to rebuild their health system to its full capacity following significant shocks. With ample funding for pandemic preparedness, NTD, and VPD work can be reframed to focus on rebuilding and recovering delayed programming due to the pandemic.
6. The ITFDE commends the role of community health workers for working with national programmes to maintain or reinstate programmes more quickly than initially considered.