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IPC mentors provide onsite mentorship to service providers on using IPC M&E tools and reporting to DHIS2. Photo credit: Yohannes Msigwa

## Improving Infection Prevention and Control in Tanzania

Technical Brief | May 2023 | Tanzania

### Key Strategies for an Effective and Sustainable National IPC Program

#### Background

The World Health Organization (WHO) has declared antimicrobial resistance (AMR) one of the top 10 global public health threats worldwide.<sup>1,2</sup> As a result of AMR, antibiotics and other antimicrobial medicines become ineffective, meaning that an increased number of infections become hard to treat or untreatable. Inadequate infection prevention and control (IPC) measures and overuse of antimicrobial medicines are major drivers of AMR. While AMR is a growing problem globally, addressing AMR is more difficult in

low- and middle-income countries, which often have to contend with weak regulations, standards, systems, and governance.<sup>3</sup>

The US Agency for International Development (USAID) is working to address the threat of AMR through the Global Health Security Agenda (GHSA), an international effort which brings together more than 70 countries and nongovernmental partners to collectively achieve the vision of a world safe and secure from global health

<sup>1</sup> World Health Organization. Global action plan on antimicrobial resistance [Internet]. World Health Organization, Geneva. 2015 [cited 2023 May 1]. Available from: <https://apps.who.int/iris/handle/10665/193736>.

<sup>2</sup> EclinicalMedicine. Antimicrobial resistance: a top ten global public health threat. EclinicalMedicine [Internet]. 2021 Nov [accessed May 1, 2023];41(101221). DOI: <https://doi.org/10.1016/j.eclinm.2021.101221>.

<sup>3</sup> Shamas N, Stokle E, Ashiru-Oredope D, Wesangula E. Challenges of implementing antimicrobial stewardship tools in Low to Middle Income Countries (LMICs). Infection Prevention in Practice [Internet]. 2023 Dec;(5)4. 100315, ISSN 2590-0889. DOI: <https://doi.org/10.1016/j.inpip.2023.100315>.

threats posed by infectious diseases. The USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program (2018–2025) is a key implementer in USAID’s support for the GHSA vision. Since beginning its work in Tanzania in early 2019, MTAps has supported AMR prevention and containment to slow the emergence of resistant bacteria and to prevent the spread of resistant infections. To achieve this goal, MTAps Tanzania supports activities to achieve consolidated multisectoral (One Health) coordination, optimized use of antimicrobials, and strengthened IPC practices.

## Problem Statement

In 2003, nearly 15% of hospitalized patients in Tanzania had a health care-associated infection (HAI).<sup>4</sup> HAIs are often caused by drug-resistant pathogens. To address HAIs, in 2004 Tanzania initiated a national IPC program. By 2016, Tanzania had made significant progress in establishing structures for implementation of the IPC program. That year, Tanzania became the first country to undergo a WHO Joint External Evaluation (JEE) assessment, which measures a country’s capacity to implement the International Health Regulations (IHR). At that time, the country demonstrated “developed capacity” (level 3 of 5) for IPC: Tanzania had several approved IPC policies, guidelines, and standards, and the Ministry of Health (MOH) and facilities had structures and focal persons in place to oversee IPC implementation. However, the IPC program was not adequately implemented and many gaps continued to hamper program progress. Tanzania had started the process of updating its 2004 national IPC guidelines, but was still using the outdated version; the national IPC technical working group (TWG) under the multisectoral coordination committee (MCC) for AMR was not active; and the country did not have robust systems for monitoring, following up, providing feedback, and supporting compliance with IPC guidelines and standards.

## Technical Approach

MTaPS employed a systems-strengthening approach, collaborating with the MOH to assess and strengthen IPC governance, build institutional capacity to manage IPC, make IPC-related information available and ensure that it is used for decision making, and improve IPC practices and services. MTAps’ activities to improve IPC and support the country in implementing a national IPC program are guided by WHO’s IPC-related guidance and tools, including the WHO JEE 2.0 tool (2018) and the WHO Benchmarks for IHR Capacities (2019).<sup>5</sup> These tools are designed to help countries identify recommended actions and measure progress in key GHSA technical areas, including IPC.<sup>6</sup> The JEE and WHO benchmarks categorize country capacity on a scale ranging from 1 (no capacity) to 5 (sustainable capacity).

## Stakeholder Engagement

To strengthen IPC, MTAps collaborated with the MOH and the President’s Office–Regional Administration and Local Government (PO-RALG), which oversees lower-level health facilities, and worked in close collaboration with the donors, including WHO and the CDC, as well as implementing partners such as Medipeace, AMREF, FHI 360, and the Association of Private Health Facilities, to successfully scale up training on current IPC guidelines and standard operating procedures, conduct facility assessment, and support implementation of IPC interventions.

## Interventions

To build national capacity for implementation of the IPC program in Tanzania, MTAps ensured that the MOH—and the associated IPC TWG under the national MCC for AMR—took the lead in implementing a series of critical IPC interventions to strengthen IPC governance, build institutional capacity, make IPC-related information

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<sup>4</sup> Gosling R, Mbatia R, Savage A, Mulligan J-A, Reyburn H. Prevalence of Hospital-Acquired Infections in a Tertiary Referral Hospital in Northern Tanzania. *Ann Trop Med Parasitol*. 2003;97(1):69–73. Available from: <https://pubmed.ncbi.nlm.nih.gov/12662424/>.

<sup>5</sup> International Health Regulations (IHR) (2005), an instrument of international law that is legally binding in 196 countries, establishes rights and obligations for countries related to reporting, surveillance, and response to public health events, with the aim of protecting public health globally. IHR covers 19 technical areas, including AMR.

<sup>6</sup> The benchmark activities and levels for MSC, IPC, and AMS are detailed at <https://ihrbenchmark.who.int/document/3-antimicrobial-resistance>. See Benchmarks 3.1, 3.3, and 3.4.

available and ensure that it is used for decision making, and improve IPC practices and services.

## Strengthening IPC governance

- Assessed the country's national IPC program, guidelines, education and training, HAI surveillance, and multimodal strategies using the WHO Infection Prevention and Control Assessment Tool, version 2 (IPCAT2). Results were used to guide MTaPS' IPC support and inform national-level IPC activities in the country.
- Supported the national IPC TWG to review its terms of reference (TOR) and develop an action plan to improve IPC implementation in the country. This helped guide the TWG's future work.
- Helped establish and revitalize IPC committees in 10 facilities (across five regions of the country) and supported them in translating the committee TORs into practice. These IPC committees fit into the existing quality improvement structure of the facility level and have a reporting line to the hospital management team. The committees coordinated implementation of IPC practices at the facility level. Disseminated the country's updated IPC guidelines at the national, regional, district, and facility levels, and shared them with professional bodies, including the Nursing and Midwifery Council, the Pharmacy Council, and the Medical Association of Tanzania.
- Developed facility-level IPC standards for health centers and dispensaries and updated existing IPC standards for hospitals. MTaPS mentored health care workers on how to use them, including conducting self-assessments, identifying gaps, and developing and implementing action plans for improvement.

## Building institutional capacity to manage IPC

- Trained 10 facility-level IPC committee leaders (1 male; 9 female) to serve as focal persons for facility-level IPC program management.
- Helped establish an IPC e-Learning program through the Center for Distance Learning for in-service training and capacity building of health workers. Developed an IPC e-Learning course and handed it over to the Center. Oriented a team of 7 facilitators at the Center on how to facilitate the online course.

- Reviewed and updated the IPC training curriculum for health colleges to reflect the updated IPC approaches. This curriculum has been introduced in at least 61 health colleges to ensure that new health care workers come into the workforce prepared to implement WHO-recommended IPC practices.



Onsite mentorship on how to complete the IPC register and report through DHIS2. Photo credit: Yohannes Msigwa, MOH

## Making IPC-related information available and used for decision making

- Supported establishment of a national monitoring and evaluation (M&E) system to track IPC indicators, including HAIs. This included development of the national IPC M&E framework, IPC indicators for all levels of the health system, a health facility IPC register, and monthly and quarterly summary forms, as well as inclusion of IPC indicators in the country's health management information system (DHIS2). This allowed the MOH and health facilities to monitor IPC performance, enabling them to take action for improvement as needed.
- Developed IPC M&E training materials and trained health care workers in the 10 priority regions on IPC M&E and data entry into DHIS2. Based on the implementation experience in the 10 priority regions, the MOH then expanded the M&E system to all health care facilities in the country.

## Improving IPC practices and services



Demonstrating use of personal protective equipment during IPC training. Photo credit: MTaPS

- Conducted a five-day training session for regional and council health management teams from the five target regions to familiarize them with IPC assessment tools and continued quality improvement (CQI) approaches.
- Oriented representatives of professional bodies (Pharmacy Council, Nursing and Midwifery Council, Traditional Medicine Council, Laboratory Technicians' Council, Environmentalist Council) on the current IPC guidelines.
- Helped assess IPC core components at 10 hospitals using the WHO IPC Assessment Framework (IPCAF) tool for health facilities and supported a water, sanitation, and hygiene (WASH) assessment at 4 facilities. The results guided IPC improvement activities in these facilities.
- Based on IPCAF results, carried out orientations on WASH and IPC at the 10 hospitals and conducted clinical mentorship for health care workers on specific aspects of WASH, handwashing practices, and IPC.
- Introduced CQI methodology for IPC in the 10 hospitals as a technique for facilities to continuously assess themselves, identify weak areas, and take action to resolve gaps in IPC.
- Developed and introduced HAI surveillance guidelines and job aids for health facilities to identify, classify, and monitor HAIs, specifically surgical site infections (SSIs), according to WHO recommendations.

## Results and Achievements

As a result of the commitment and leadership of the Government of Tanzania and support from MTaPS and other partners, Tanzania now has a national IPC program. IPC implementation in MTaPS-supported hospitals has provided local experience in implementing WHO-recommended IPC approaches at the health facility level, which can inform future rollout of these IPC approaches in Tanzania's health care facilities. With IPC indicators integrated into the DHIS2 platform, the MOH provided national leadership and oversight of IPC performance at the facility level and has systems and structures in place which allow it to intervene to support facilities in IPC as needed. Of the 10 MTaPS-supported hospitals, 9 have established reporting systems for HAIs and are regularly reporting data into DHIS2. DHIS2 data show that in MTaPS-supported facilities, the percentage of patients who developed SSIs dropped from 3% (February 2022) and remained mostly steady at 1–2% in subsequent months. This provides compelling evidence to support national-level scale-up of these IPC interventions and IPC surveillance to additional facilities countrywide.

*“Now we see progress and improvement in IPC. There is continuation including monitoring of infections; [we can] see [any] breaches in IPC protocols, [as] these indicators which are collected every day have been integrated into the district health system. So IPC is doing very [well].”*

*—Akili Mawazo, IPC TWG member, Muhimbili University of Health and Allied Sciences*

At the national level, between December 2020 and July 2022, Tanzania improved on all core IPC components as reflected in the WHO IPCAT2 assessment (table 1), which is designed to help countries assess, plan, organize, and implement a national IPC program.

**Table 1. IPCAT2 assessment results (national level)\***

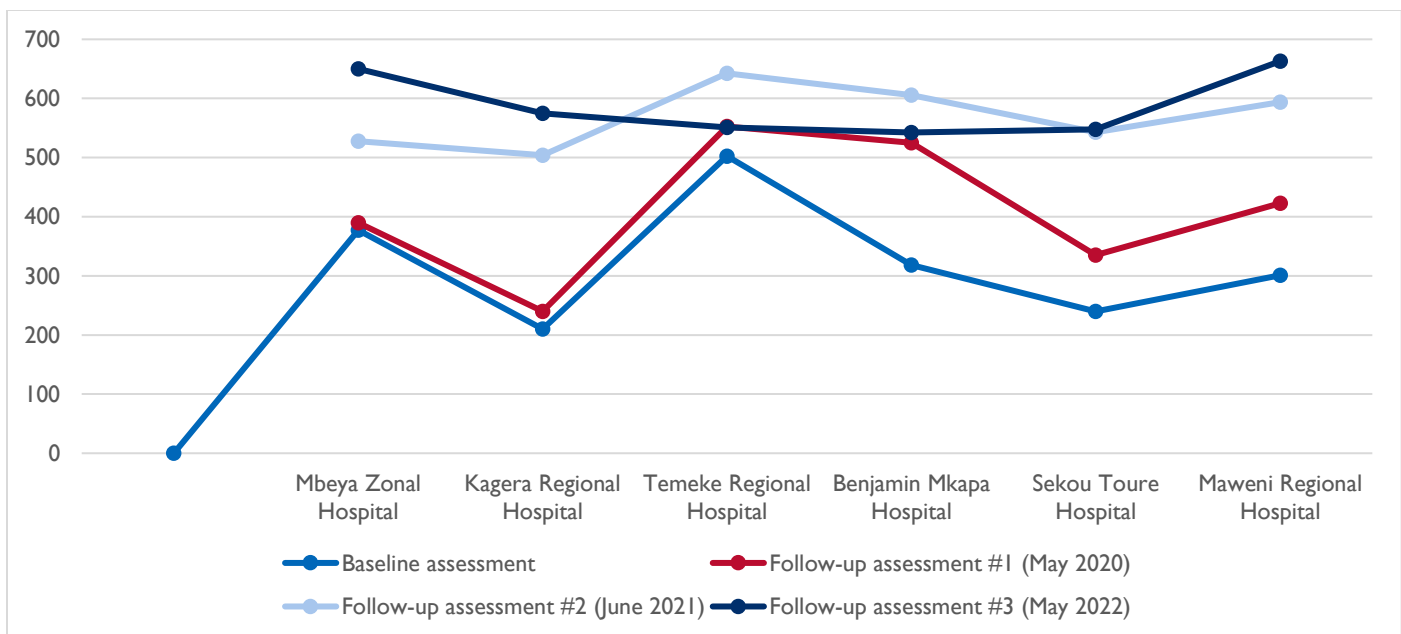
WHO Core IPC Components (IPCAT2 assessment results)	Dec 2020	July 2022
IPC programs	82%	96%
IPC guidelines	64%	89%
IPC education and training	70%	95%
HAI surveillance	2%	58%
Multimodal strategies	55%	60%
Monitoring/audit of IPC practices, feedback, and control activities	67%	94%

\* The WHO IPCAT2 tool is designed to assess the presence or absence of these elements and is intended as a tool to help countries assess, plan, organize and implement a national IPC program. See <https://www.who.int/publications/i/item/WHO-HIS-SDS-2017.13>.



Demonstrating correct masking and hand washing with soap and water. Photo credit: Daniel Paul

Similarly, at the facility level, the six hospitals where MTaPS supported a baseline and three follow-up assessments using the WHO IPCAF tool demonstrated improving trends (figure 1).



**Figure 1. IPCAF assessment results in 6 MTaPS-supported hospitals (scores out of 800)\***

Inadequate level: 0–200; Basic level: 201–400; Intermediate level: 401–600; Advanced level: 601–800.

\*The WHO IPCAF tool is designed to assess current IPC activities and resources at a given acute care facility. The tool uses a detailed questionnaire and scoring framework to assess facilities across eight IPC-related areas to identify strengths and gaps for future planning. For more information, see: <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.9>.

## Lessons Learned

In supporting Tanzania in establishing an effective and sustainable national IPC program to plan, implement, and monitor IPC improvement strategies, MTaPS and its partners gained experience that enabled implementation and helped overcome challenges. These strategies may be valuable for future work in Tanzania and for application of similar approaches in other countries.

- **Empower the MOH to own the IPC program.** To foster ownership, MTaPS began its close collaboration with the MOH through scoping visits even before beginning project implementation in Tanzania. Since then, it has engaged in ongoing advocacy with MOH officers to increase ownership and ensure prioritization of IPC. All MTaPS' IPC activities are structured around the National Action Plan on AMR, which is owned by the MOH.
- **Leverage existing structures to achieve buy-in and sustainability.** CQI implementation for IPC was integrated into existing quality improvement committees at the facility level, and IPC monitoring indicators were integrated into the existing national DHIS2 platform. Integration of IPC indicators in the national health M&E system provided the MOH with a facility-level IPC monitoring tool and provided the MOH with a structure to scale up IPC CQI and monitoring to additional health care facilities.
- **Implement practices to prioritize IPC, and motivate facilities and providers to strengthen IPC practices.** Previously, IPC was left primarily to nurses to implement, as it was not a priority for administrators and doctors. Training and the introduction of standardized IPC indicator reporting, coupled with ongoing quarterly supervision, raised the perceived importance of IPC and motivated health care providers and facilities to implement IPC practices. The involvement of administrators and doctors also meant that facilities were more likely to budget for IPC equipment, supplies, and renovations.
- **Design interventions to minimize impact from staff turnover.** Health care facilities, especially in low- and middle-income countries, often experience setbacks and revert to old approaches or policies when a key point person moves to a new position, experiences an extended

absence, or is transferred to a different facility. To mitigate this risk, MTaPS trained at least 15 people in each facility, empowering them with the tools to implement IPC practices and orient all new staff on IPC and CQI.

- **Integrate guidelines and policies into all levels of provider training.** Through collaboration with selected pre-service health training programs at colleges and universities, as well as with the MOH and facilities, MTaPS helped ensure that all current and future providers are learning the most current country IPC policies and practices.
- **Foster innovation.** The MTaPS approach empowered facilities to think creatively and develop their own solutions to improving IPC. For example, Maweni hospital built an incinerator and designed a mechanism for sustainability: on a fee-per-kilo basis, the hospital accepts materials from other facilities for incineration and uses the income to cover incinerator maintenance and repair. Other facilities with incinerators have replicated this model.
- **Empower IPC decision makers at all levels with monitoring and evaluation data.** At the facility level, management and providers can see their compiled facility data on WASH and SSI indicators and, with the help of CQI tools, can use this data to identify gaps in practice, analyze root causes, and take steps to remedy these gaps. The MOH can use this data to flag facilities experiencing issues and carry out subsequent supportive supervision visits, as well as to identify and replicate facility-level IPC best practices.
- **Document all interventions to allow for replication and scale-up.** The MOH is now equipped to replicate and scale up IPC to all facilities in the country, as it has a complete toolkit, including governance structures, assessment results (WHO IPCAT2 and IPCAF tools), and the know-how to conduct further assessments, create training curricula, document results of facility-level IPC improvements in Tanzania, and analyze data on M&E data systems.

## Pathway to Sustainability

Throughout its work with local partners in Tanzania to strengthen IPC governance, build institutional capacity to manage IPC, and improve IPC practices and services, MTaPS used a systems approach, taking into account country context and building off existing systems in the country, and integrated implementation approaches to establish a pathway to sustainability. These approaches included engaging stakeholders, providing tools, changing process and building capacity, and assessing with metrics.

Following the support provided by MTaPS, Tanzania's MOH has established itself as a steward for IPC in the country's health care facilities, and it is equipped with the tools it needs to expand the IPC program nationally, including IPC indicators and data collection procedures, facility-level IPC standards, a model for facility-level IPC committees, CQI methodologies, HAI surveillance tools, and the IPCAF assessment.

Critically, IPC implementation in the 10 MTaPS-supported facilities provided the MOH with evidence of improved outcomes in the Tanzanian operating environment and demonstrated operational approaches. Using these approaches, the MOH then went on to roll out the IPC program to more than 100 health care facilities in the country.

IPC training for health care workers is being implemented nationally through pre-service and in-service training using the curriculum updated with MTaPS support, and e-Learning courses on IPC, developed in collaboration with MTaPS, are now made available through the local Center for Distance Learning. The IPC M&E system has been rolled out to all facilities in the country through the integration of HAI indicators into DHIS2.

As MTaPS moves into its last year of implementation, the project has shifted into a technical advisory role to support the MOH in its scale-up of the facility-level IPC program.

## Conclusions

Through collaboration with the MOH and other partners, MTaPS has supported the assessment and strengthening of IPC governance, built institutional capacity to manage IPC, increased availability of IPC-related information, and ensured that data are used for decision making to improve IPC practices and services. Empowered with a clear understanding of the importance of IPC and emboldened with tools to implement IPC and measure IPC outcomes, the MOH and health care facilities are together contributing to comprehensive improvement in IPC in Tanzania. As evidenced by the improved IPCAF and IPCAT scores, IPC practices and adherence to IPC standards in the human sector have improved remarkably over time.

Over the remainder of the project lifetime, MTaPS will continue to support the MOH on SSI surveillance through onsite mentorship to the supported facilities and will bring stakeholders together for a learning session where supported facilities will share experiences, lessons learned, and best practices. Moving forward, to maximize health outcomes and actions on AMR, the MOH should cascade IPC to private health facilities and conduct IPC-focused research to synthesize data for improved IPC implementation in health care facilities. More broadly, the country will need to go beyond the human health sector and adequately engage the animal health-related sector also to further strengthen IPC systems and practices.



Demonstrating proper packaging of instruments to prevent infection. Photo credit: Daniel Paul

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### About USAID MTaPS:

The USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program (2018–2025) enables low- and middle-income countries to strengthen their pharmaceutical systems, which is pivotal to better health outcomes and higher-performing health systems. The program is implemented by a consortium of global and local partners, led by Management Sciences for Health (MSH), a global health nonprofit.