

# USAID MEDICINES, TECHNOLOGIES, AND PHARMACEUTICAL SERVICES (MTAPS) PROGRAM

*Improved Access. Improved Services. Better Health Outcomes.*



IPC training at Narail District Hospital, September 2022.  
Photo credit: Dr. Shahida Akter, MTaPS Bangladesh

## Strengthening Infection Prevention and Control (IPC) at the National and Health Care Facility Levels in Bangladesh

Technical Brief | April 2024 | Bangladesh

Institutionalizing IPC Practices to Ensure Safety of Patients and Health Care Workers

### Background

Bangladesh is a densely populated country with a rapidly growing health care infrastructure; thus, infection prevention and control (IPC) is of critical importance. Historically, tropical climates and frequent natural disasters have put the people of Bangladesh at particular risk for a range of infectious diseases. The rising threat of health care-associated infections (HAIs) represents a global challenge. HAIs contribute to prolonged hospitalizations, negative health outcomes, the development and spread of antimicrobial resistance (AMR) and increased financial burden to health systems and patients. Strong IPC practices are

key to preventing HAI, assuring patients and health care workers safety, and consequently enhancing the overall quality of health services.

The US Agency for International Development (USAID) works to strengthen IPC and address the threat of AMR through the Global Health Security Agenda (GHSA), an international effort that brings together more than 70 countries and nongovernmental partners to collectively achieve the vision of a world safe and secure from global health threats posed by infectious diseases. The USAID Medicines, Technologies, and Pharmaceutical Services

(MTaPS) Program (2018–2025) is a key implementing partner in USAID’s support for the GHSA vision.<sup>1</sup>

In October 2019, MTaPS began supporting the Bangladesh Ministry of Health and Family Welfare’s (MOHFW) Directorate General of Health Services–Communicable Disease Control (DGHS-CDC) to strengthen IPC through interventions at both the national level and in select health care facilities. The COVID-19 pandemic further highlighted the urgency of this work.

## Problem Statement

In Bangladesh, infectious diseases remain a pressing health concern. According to the current Cooperation Strategy of the World Health Organization (WHO), the country continues to grapple with several endemic infectious diseases and faces epidemic threats.<sup>2</sup> During a 2016 assessment using the WHO Joint External Evaluation (JEE) Tool (First edition 2016), Bangladesh demonstrated “limited capacity” (level 2 of 5) for IPC. Although IPC practices are key to preventing the spread of disease, various studies have found that only between 2% and 25.3% of health care workers in Bangladesh practiced proper hand hygiene.<sup>3</sup> According to 2019 data, more than 20% of health care facilities in the country lack hand hygiene amenities at points of care.<sup>4</sup> The WHO estimates that out of every 100 patients, 7 in high- and 15 in low- and middle-income countries (LMIC) will acquire at least one HAI from stays in acute care hospitals.<sup>5</sup>

In response to the growing threat of AMR worldwide and to prevent the spread of common pathogens, the MOHFW has taken steps to strengthen IPC at both the national and subnational levels. Under the leadership of

the DGHS-CDC, Bangladesh established a National Technical Committee (NTC) and Core Working Group (CWG) to coordinate the development and implementation of its first National Action Plan for AMR (NAP-AMR), addressing human, animal, and environment sectors using a One Health approach.<sup>6</sup> In 2017, Bangladesh launched the NAP-AMR for 2017–2022, followed by the NAP-AMR for 2023–2028, updated with MTaPS assistance.

Although Bangladesh recognized the importance of strengthening IPC, the country faced multiple barriers. Stakeholder coordination was not well developed, and IPC programs, committees, and policies at the national and health facility levels were absent or not fully functional. Staff capacity-strengthening interventions, IPC record keeping, and IPC supervision activities were limited. The country has also had to contend with limited funding, lack of AMR-related expertise, and insufficient human resources capacity in IPC. Although the COVID-19 pandemic highlighted the importance of IPC, it also diverted health sector resources away from other ongoing improvement initiatives.

## Technical Approach

MTaPS’ efforts to strengthen IPC in Bangladesh have been guided by the second edition of the WHO JEE Tool (2018) and the first version of the WHO Benchmarks for International Health Regulations (IHR) Capacities (2019).<sup>7</sup> These tools are designed to help countries identify and implement recommended actions to make progress in key GHSA action areas, including IPC. The JEE and WHO benchmarks categorize countries into five capacity levels, ranging from 1 (no capacity) to 5

---

<sup>1</sup> <https://msh.org/resources/mtaps-supporting-the-global-health-security-agenda-fact-sheet/>

<sup>2</sup> <https://www.who.int/publications/i/item/9789290209478>

<sup>3</sup> Horng LM et al. Healthcare worker and family caregiver hand hygiene in Bangladesh healthcare facilities: results from the Bangladesh National Hygiene Baseline Survey. *J Hosp Infect.* 2016;94(3):286–294. Available from: <https://www.sciencedirect.com/science/article/pii/S0195670116303632>; Harun MdGD, Sumon SA, Mohona TM et al. (2022). Compliance and constraints of hand hygiene among healthcare workers in Bangladesh. *Antimicrob Steward Healthc Epidemiol.* 2022;2(S1):s46–s47. DOI: 10.1017/ash.2022.145.

<sup>4</sup> United Nations Children’s Fund and World Health Organization, *State of the World’s Hand Hygiene: A global call to action to make hand hygiene a priority in policy and practice*, UNICEF, New York, 2021.

<sup>5</sup> *Global report on infection prevention and control: executive summary*. Geneva: World Health Organization; 2022. Licence: CC BY-NC-SA 3.0 IGO.

<sup>6</sup> [https://www.who.int/health-topics/one-health#tab=tab\\_1](https://www.who.int/health-topics/one-health#tab=tab_1)

<sup>7</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.

(sustainable capacity).<sup>8</sup> To support technical implementation and achievement of the WHO IPC benchmarks, MTaPS largely relied on WHO national-level IPC Assessment Tool version 2 (IPCAT2) and the WHO facility-level IPC assessment framework (IPCAF).

## Stakeholder Engagement

In strengthening national and facility-level capacity for IPC, MTaPS partnered with the Quality Improvement Secretariat (QIS) and the DGHS-CDC, both under the MOHFW. To foster multisectoral involvement in IPC and to ensure coordination among implementing partners, MTaPS engaged with stakeholders including the Fleming Fund; the International Center for Diarrheal Disease Research, Bangladesh (icddr,b); the Institute for Epidemiology, Disease Control, and Research (IEDCR); the DGHS Hospital Services Management Unit; the WHO; the World Organization for Animal Health (WOAH); the Food and Agriculture Organization (FAO); the Department of Livestock Services (DLS); the Department of Fisheries (DOF); the Department of Environment (DOE); the Bangladesh Livestock Research Institute (BLRI); and other professional associations, such as the Microbiology Association of Bangladesh.

## Intervention

MTaPS engaged in frequent dialogue with DGHS-CDC to develop an understanding of the importance of IPC for AMR containment, build support for IPC policies and interventions, and establish a collaborative working relationship. Together, DGHS-CDC and MTaPS carried out activities to strengthen IPC governance at both the national and facility levels; strengthen institutional capacity to manage IPC; and improve facility-level IPC practices and services.

## Strengthening IPC Governance

In collaboration with national counterparts and other partners, MTaPS supported the following national- and facility-level activities.

## National level

- Updated the National AMR Strategy and developed a new costed NAP-AMR (2021–2026) as an implementation road map for future action in key areas for prevention and containment of AMR.
- Developed a monitoring and evaluation framework for the NAP-AMR to track progress, gaps, and challenges, and allow for corrective measures.
- Supported development of the National IPC Action Plan, which will go through a government vetting process before receiving approval.
- In December 2019, conducted a situational analysis including a national-level AMR stakeholder mapping exercise to understand and document roles and responsibilities for improved coordination. Followed up with a repeat stakeholder mapping three years later.
- Assessed the country's national IPC program, guidelines, education and training, HAI surveillance, and multimodal strategies using the WHO IPCAT2 tool.
- Facilitated the development of terms of reference (TOR) for a National IPC Committee. This paved the way for the establishment of the committee in August 2023, which will lead the interventions for supervision and coordination of the facility-level IPC committees.
- Supported the CDC in reviewing and updating the national IPC guidelines.

## Facility level

- MTaPS support for facility-level IPC improvement started at one medical college hospital (Cumilla Medical College Hospital) and one public hospital (Munshiganj District Hospital) in late 2020, and gradually expanded to an additional seven public hospitals by 2022—Nilphamari District Hospital, Taraganj Upazila Health Complex, Barishal Medical College Hospital, Narail District Hospital, Jheneidah District Hospital, Jhalokathi District Hospital, and Lohagora Upazila Health complex.
- These facilities are located at the district, subdistrict, and medical college hospital level in five of the country's eight divisions (Barishal, Chittagong, Dhaka, Khulna, and Rangpur) from the primary, secondary, and tertiary levels. Facilities were

---

<sup>8</sup> The benchmark activities and levels for IPC are detailed at <https://ihrbenchmark.who.int/document/3-antimicrobial-resistance>. See Benchmark 3.3.

chosen, in consultation with DGHS-CDC, to allow diversity in geographical coverage and level of the public health care system and to avoid duplication of support by other donors.

- At each target facility, MTaPS supported the establishment or revitalization of the IPC committee and facilitated the development of facility-specific TOR for each committee. The TOR included the formal assignment of responsibilities and capacity-strengthening plans for doctors and nurses at the facility, and the development, implementation, and later review of IPC action plans. Each committee is led by a facility-level Residential Medical Officer who serves as the IPC focal person, or primary liaison, with MTaPS and other relevant partners on IPC issues.
- MTaPS shared both hard and soft copies of the updated IPC National guidelines with the MTaPS-supported health facilities and supported training on the guidelines.

## Strengthening Institutional Capacity to Manage IPC

### National level

Through a combination of training and collaborative implementation with the DGHS-CDC in all its IPC interventions, MTaPS strengthened the capacity of the DGHS-CDC to assess IPC programs using the WHO IPCAT2 and IPCAF tools, bring multisectoral stakeholders together to develop a NAP-AMR, develop IPC action plans, mentor facility IPC committees, and contribute to the establishment of IPC governance structures at the national and facility levels.

MTaPS also supported the development of a national IPC e-Learning course. The course has received DGHS-CDC approval and has been launched on the government's open learning platform, Muktopaath. It provides an accessible, low-cost way for the DGHS-CDC to train additional health workers in IPC. The dissemination of this course will contribute to expansion of IPC committees and programs to additional health care facilities in Bangladesh. As of April 2024, 3,105 health workers enrolled in the course and 776 received certificate of course completion.

### Facility level

MTaPS supported DGHS-CDC in strengthening facility-level capacity for IPC as follows:

- Assessed IPC core components at nine hospitals using the WHO IPCAF tool. IPCAF baseline assessment was conducted at four facilities in 2020 and 2021 and in additional facilities in 2022. To gauge progress and shape further IPC committee interventions in the facilities, MTaPS supported a repeat assessment in the initial 4 facilities in 2021.
- Held facility-level sharing workshops following the baseline assessments to discuss assessment results, including the status of IPC and gaps identified at the facility, and provide evidence-based recommendations to address these gaps. The workshops sensitized hospital authorities to the importance of strengthening IPC activities for better patient safety and helped ensure that the assessment results were considered in the development of facility-level IPC action plans.
- Trained 264 health care workers (108 female, 156 male), including IPC committee members at the nine MTaPS-supported hospitals, on the updated IPC guidelines. The training addressed gaps identified in the baseline assessments, and topics included standard IPC precautions, waste management, environmental cleaning, and sterilization.
- Conducted monitoring/supervisory, coaching and mentorship visits to the nine hospitals to identify gaps and help facilities take measures to address the gaps and improve the quality of their work. These visits included discussions, orientation sessions, and on-the-job training to strengthen staff capacity at the health facilities.
- Worked through the facility-level IPC committees to support improvements of IPC core components, including education and training, HAI surveillance, and use of multimodal strategies for implementation of IPC activities.
- Supported IPC committees in monitoring the compliance of facility cleaning practices with IPC guidelines and providing tailored guidance and instructions to janitorial staff to improve cleaning and waste separation procedures.
- Provided orientation, demonstration, on-the-job training and guidance by telephone to facility IPC committees and health care providers at the facilities to build local ownership and ensure

sustainability of IPC interventions. These interventions enabled facilities to take action toward improving their IPC practices.

review meetings for the purpose of data-informed decision making, increased ownership by management, and stronger motivation to comply with the National IPC guidelines to maintain and strengthen IPC.

## Results and Achievements

### National level

As a result of MTaPS' support and the commitment of the Government of Bangladesh and other partners, the IPC landscape in the country has seen significant advancement. Bangladesh now has a formally established National IPC Committee, a revised national AMR strategy, a new costed NAP-AMR, and updated IPC guidelines in place to guide AMR activities. These guiding documents are important in advancing IPC in health care settings in Bangladesh. At the national level, Bangladesh has improved on all core IPC components as reflected in the WHO IPCAT2 assessment, which is designed to help countries assess, plan, organize, and implement a national IPC program. The country demonstrated significant improvement from baseline to follow-up assessment in all areas aside from IPC education and training (table 1). The education and training indicator did not shift because an IPC curriculum (either undergraduate or post-graduate level) has yet to be developed to prepare IPC specialists in the country.

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

	Core Components	Baseline Assessment (2020)	Repeat Assessment (2023)
1	IPC program	66%	74%
2	IPC guidelines	81%	97%
3	IPC education and training	10%	10%
4	HAI infection surveillance	0%	21%
5	Multimodal strategies	10%	45%
6	Monitoring/audit of IPC practices, feedback, and control activities	28%	44%

In August 2023, a national workshop with CWG members and other stakeholders discussed the IPCAT2 findings and noted the following improvements in IPC implementation: better record-keeping systems and more consistent data

### Facility level

All nine supported hospitals have demonstrated increasing ownership of IPC activities, evidenced by their initiative to hold monthly meetings, develop and review their action plans, and monitor implementation through facility-level monitoring frameworks with minimal MTaPS support. Results of baseline and repeat assessments conducted with collaboration from MTaPS are presented in table 2. The repeat assessment in the original four facilities showed that they had all improved their IPC core component scores. Based on the detailed results of the assessment, the facilities are examining their gaps and developing plans to address them moving forward.

**Table 2. IPCAF assessment results in 4 MTaPS-supported hospitals\* (scores out of 800)**

Facility Name	Baseline Assessment Score/Level		Repeat Assessment Score/Level
	2020	2021	2022
Cumilla Medical College Hospital**	273 basic	N/A	670 advanced
Munshiganj District Hospital**	440 intermediate	N/A	597 intermediate
Nilphamari District Hospital	N/A	165 inadequate	427 intermediate
Taraganj Upazila Health Complex	N/A	177 inadequate	462 intermediate

\* The IPCAF assessment looks at 8 core categories (each with sub-categories): IPC program; IPC guidelines; IPC education and training; HAI surveillance; multimodal strategies; monitoring/auditing of IPC practices & feedback; workload, staffing, and bed occupancy; and built environment, materials, and equipment.

\*\* MTaPS supported repeat IPCAF assessments for Cumilla Medical College Hospital and Munshiganj District Hospital in both 2021 and 2022. Results of only the most recent (2022) repeat assessment are provided in the table above



*“MTaPS has been playing a vital role to contain AMR in Bangladesh through supporting multisectoral coordination at national level, infection prevention and control and antimicrobial stewardship at facility level. CDC/DGHS appreciates their role.”*

—Prof. Md. Nazmul Islam  
Director, Disease Control and Line Director,  
Communicable Disease Control (CDC) DGHS

### **Facility-level IPC Initiatives Promote Patient Safety**

In Cumilla Medical College Hospital, the IPC committee stepped up during the COVID-19 pandemic to guide to improve IPC practices in the COVID-19 unit, focusing on improving hand hygiene, respiratory hygiene, and cough etiquette practices; improving environmental cleaning; building a separate waste management zone and conducting proper waste management; ensuring proper laundry management; and promoting health for patients, caregivers, and staff. The committee also emphasized application of the “5 S’s” (sort, set, shine, standardize, and sustain).

Following IPC training, the gynecology department at the facility began regularly reviewing surveillance data of HAI registers and identifying areas for intervention. The department’s IPC team ensured staff orientation on practices for environmental cleaning, sterilization, and visitor restrictions, based on identified areas and applied the most appropriate methods for preventing infection.

**Nilphamari District Hospital’s** IPC committee shifted the facility’s waste disposal area from the entrance to the backyard to avoid animals getting into the waste and spreading infectious materials. The hospital includes cleaning staff in the IPC committees and gives performance awards to cleaning staff, to recognize their important role in IPC implementing the IPC activities. Cleaners now mark on the board when they have cleaned the bathroom. Waste bins are marked and color-coded, floors are washed with antiseptic solution three times per day, and bed linen is changed between patients.



IPC training at Jheneidah District Hospital, September 2022.  
Photo credit: Dr. Shahida Akter, MTaPS Bangladesh

## **Lessons Learned**

As part of MTAps’ collaboration with DGHS-CDC to strengthen IPC, several lessons emerged, which may be valuable for further work in Bangladesh or similar interventions in other countries:

- **Integration of critical health system—strengthening interventions contributes to tangible enhancement of IPC scores.** All MTAps-supported facilities demonstrated improvement in aggregate IPC scores across the majority of core IPC components. In the case of Bangladesh, these interventions included advocacy; establishing governance structures; development of technical strategies, action plans, and guidelines; coordination; training; compliance monitoring; data analysis; and on-the-job mentorship. The improvement of IPC scores underscores the efficacy and validity of MTAps’ systems-strengthening approach.
- **Frequent dialogue with facility leadership to keep them informed on facility-level IPC committee agendas is a major driver for the success of IPC interventions.** Discussions of IPC issues during facility-level IPC committee meetings at least once per month allowed for follow-up on issues and paved the way for government and facility leadership to resolve bottlenecks, take steps to enable successful implementation of IPC interventions, and put their support behind interventions and policies that support capacity building of health care workers.
- **Advocacy and collaboration with decision makers/leaders before and during the early stages of IPC interventions can enable IPC committees to succeed.** Close collaboration and technical assistance, including training, leadership

skills development, and familiarization with IPC issues and approaches builds commitment of health facility leadership to IPC. These efforts motivate them to enact policies and take actions that address technical, budgetary, and human resource–related barriers to IPC improvement, for example, to ensure consistent availability of supplies and protective equipment or to support capacity-building activities for staff.

- **Health facility IPC committees play a key role in developing facilities’ IPC competence and boosting staff confidence and capacity.**

By establishing a supportive work environment, providing continuous on-the-job mentorship, facilitating IPC training, and providing staff with tools to help them identify and address IPC issues and make improvements in IPC practices, IPC committees enhance staff members’ sense of ownership, competence, and confidence and foster staff commitment to IPC. By engaging staff across the facility—from cleaners to support staff to clinicians—IPC committees helped ensure that all staff saw IPC as part of their responsibility.

- **IPC committee membership rosters should name staff by position rather than by name.**

When IPC committees designated individuals by name to serve as committee members, the committees were left with an open slot if a staff member left the job. Appointing committee members by position would ensure that staff turnover does not leave IPC committees without full membership. Integrating a standard onboarding procedure to orient replacement staff can help ensure that new members are brought up to speed as soon as they join a committee, minimizing disruption of interventions.

## Pathway to Sustainability

The NAP-AMR (2021–2026) and its associated activities developed with MTaPS support are costed in the country’s 5th Health, Population, and Nutrition Sector Program (HPNSP 2024–2029), scheduled to start in July 2024. MTaPS’ advocacy ensured that the updated NAP-AMR operational plan includes recommendations for engaging additional human resources for AMR containment in Bangladesh. At every step of design and implementation, MTaPS has worked in partnership with

the DGHS-CDC to ensure that their ownership of IPC interventions in the country has engaged with DGHS-CDC and facilities in discussing ownership and accountability. Target facilities now have committees in place, staff with IPC knowledge, and experience developing IPC action plans, implementing them, and monitoring their implementation. With the results of their assessments, both the new National IPC Committee and the MTaPS-supported facilities are aware of areas that require improvement and can take steps to address these areas. Based on the work carried out in the nine health care facilities, the country has a model in place for facility-level IPC improvement that can be rolled out countrywide using government resources after MTaPS closes out.

## Conclusions

With technical support from MTaPS, the DGHS-CDC has strengthened IPC leadership, commitment, governance structures, policies, plans, guidelines, and implementation of key interventions. MTaPS-supported facilities have demonstrated significant improvement in IPC capacity and implementation; they have functional IPC committees and are assessing their IPC capacity, identifying gaps, implementing actions to address these gaps, and monitoring their progress regularly. Moving forward, to further strengthen IPC and combat AMR, DGHS-CDC and its partners will need to continue to sensitize the health workforce to the risks of AMR, integrate IPC into formal medical education, increase public awareness of both AMR and IPC practices, and scale up facility-level IPC interventions. Introduction of behavior change interventions at the facility level, such as promoting cough etiquette and respiratory hygiene practices and triaging visitors with respiratory symptoms, can further strengthen IPC outcomes.

For the MTaPS-supported model to be scaled effectively and to ensure its sustainability on a national level, it will be critical to quantify the impact of adapting enhanced IPC standards. Longer-term impact indicators may encompass evidence of reduced infection transmission rates within health facilities adhering to the updated standards; observable improvements in patient outcomes, such as diminished post-surgical infection rates; and shorter hospital admissions. Additionally, tangible improvement in patient satisfaction or elevated

ratings in facility reputation surveys can serve as valuable markers of success.

By investing in its workforce, prioritizing IPC activities as part of the broader AMR containment and strengthening accountability systems in the public and private sectors, Bangladesh can continue to strengthen its abilities to prevent, detect, and rapidly respond to public health risks.



## References

WHO. [Joint External Evaluation tool. International Health Regulations \(2005\), third edition](#). Geneva: World Health Organization; 2022. Licence: CC BY-NC-SA 3.0 IGO.

MTaPS. [Technical Brief: Advancing the Global Health Security Agenda](#).

MTaPS. [A Technical Guide to IPC Facility Program Assessment and Development of IPC Improvement Plans](#).

MOHFW, Bangladesh 2020. [National guideline on infection prevention and control with additional measures for COVID-19, version 3.0. DGHS, Bangladesh](#).

Quality Improvement Secretariat, MOHFW. Bangladesh 2018. [Hospital infection prevention and control manual](#).

WHO. [WHO benchmarks for strengthening health emergency capacities](#). Geneva: World Health Organization; 2023. Licence: CC BY-NC-SA 3.0 IGO.

## Acknowledgement

Thank you to the staff from MTaPS Bangladesh for their support in the development of this technical brief.

---

## Authors

This publication was written by Shahida Akter, Md. Abu Sayem, and S. M. Abu Zahid.

For more information, please contact [memory@msh.org](mailto:memory@msh.org)

---

## 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.

---



*This document is made possible by the generous support of the American people through the US Agency for International Development (USAID) contract no. 7200AA18C00074. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.*