A Technical Guide to IPC Facility Program Assessment and Development of IPC Improvement Plans

Background

USAID MTaPS supports the global partnership of the Global Health Security Agenda (GHSA) to help build countries' capacities to protect themselves from infectious disease threats and to raise global health security as a national and worldwide priority. USAID MTaPS specifically supports GHSA's antimicrobial resistance (AMR) component, with infection prevention and control (IPC) being one of MTaPS' three primary areas of focus. IPC is one of the five strategic objectives of the World Health Organization's (WHO) Global Action Plan on Antimicrobial Resistance[1] and is one of the four indicators for AMR in the International Health Regulations (IHR) monitoring and evaluation (M&E) framework's Joint External Evaluation (JEE).[2]

MTaPS supports IPC in 11 countries that are at different stages of developing and implementing their IPC strategic plans. MTaPS promotes the IPC frameworks and guidelines developed by WHO and follows an approach as shown in figure 1.

[1] WHO Global Action Plan on Antimicrobial Resistance. 2015. https://www.who.int/antimicrobial-resistance/publications/global-action-plan/en/
[2] Joint External Evaluation tool (JEE tool) - second edition: IHR Monitoring and Evaluation framework. 2018. https://www.who.int/ihr/publications/WHO_HSE_GCR_2018_2/en/

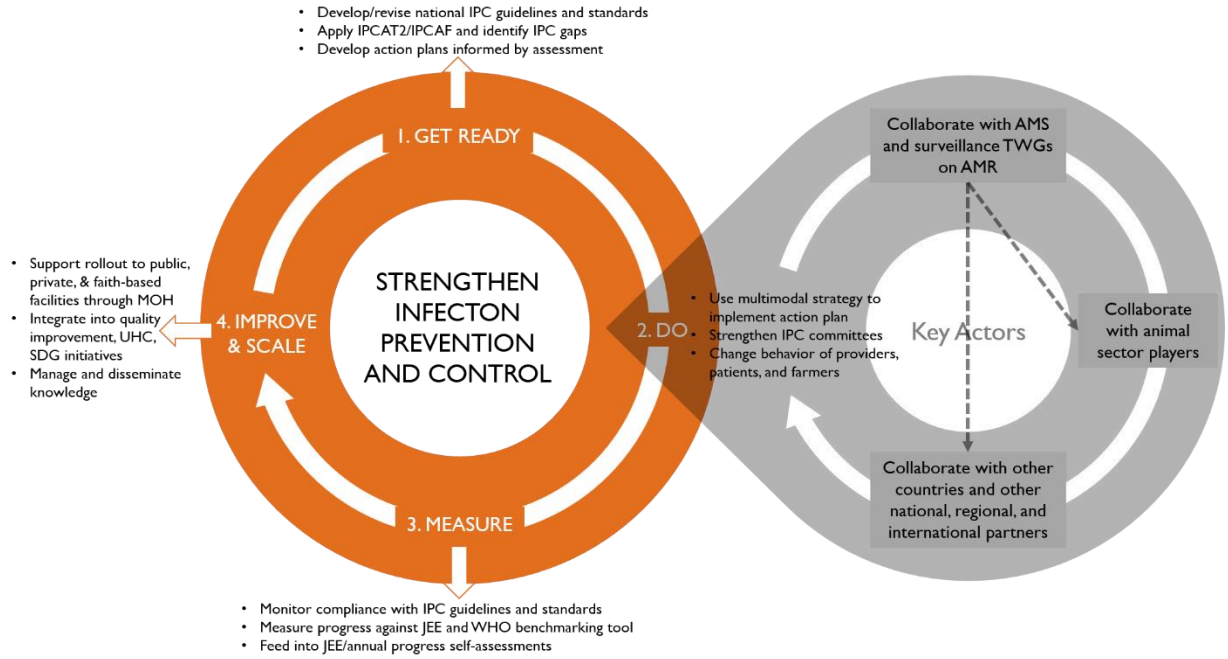


Figure 1. USAID MTaPS' approach to strengthening technical capacity in IPC

Purpose of the Guide

Well-functioning IPC programs improve patient safety, reduce health care-associated infections (HAIs), and control the spread of AMR. WHO proposes five steps to implement IPC facility programs[3]:

1. Preparing for action
2. Doing a baseline assessment
3. Developing and executing an action plan
4. Assessing impact
5. Sustaining the program over the long term

This mini-guide provides MTaPS country teams with simple stepwise recommendations on conducting the IPC baseline and monitoring assessments using standard WHO and international tools and developing action plans on the basis of assessment results. It is designed to complement WHO and other internationally accepted IPC assessment tools.

Part 1. Conducting IPC Assessments

Understanding baseline IPC capacity and practices at national and health-facility levels provides countries with practical information to prioritize activities to improve IPC. Completing IPC baseline surveys is also

[3] Infection Prevention and Control Assessment Framework at the Facility Level. WHO. https://www.who.int/infection-prevention/tools/core-components/IPCAF-facility.PDF

a JEE capacity 2 WHO benchmark 3.3 requirement.[4] The recommended benchmark action for that level is to "Use IPC assessment tools (IPCAT) to assess the core components of IPC programs at the national (IPCAT; tool 2) and facility (IPCAF; facility level) levels and identify precise areas/core components requiring action." The benchmark tool also recommends repeated use of these tools as level 3 and level 4 actions to continually identify additional areas that require addressing to make ongoing improvements. This mini-guide describes the tools, resources, and steps for conducting these baseline and reevaluation surveys.

Brief overview of WHO tools

Countries should use the WHO-recommended standardized IPC assessment tools (Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level [WHO 2016]; Interim Practical Manual Supporting National Implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes [WHO 2017]; Improving Infection Prevention and Control at the Health Facility: Interim Practical Manual Supporting Implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes [WHO 2018]) to conduct a baseline assessment and annual re-evaluations of the status and performance of their IPC programs. They are well-tested and align with key WHO guidelines on establishing and improving IPC programs at the national and facility levels; they provide a consistent scoring system to evaluate IPC status and monitor progress in IPC strengthening; and they usually cover all IPC elements of national action plans on AMR (NAP), which are normally developed along WHO guidelines.

WHO IPC assessment tools can be used individually, but using the tools together produces the best results by covering all core elements of IPC programs and linking IPC program performance to impact indicators, such as HAI. Table 1 lists internationally developed and commonly used assessment tools and their components. Some MTaPS countries, such as Tanzania, have developed their own IPC assessment tools based on national guidelines for facilities, which is acceptable as long as the tools fully reflect the country's NAP/IPC and allow for monitoring program performance based on common (for country) scoring and indicators aligned with its NAP.

Table 1. IPC assessment tools

Tools	Components	Resources/comments
National IPC program		
IPCAT2 National Infection Prevention and Control	1. IPC programs 2. National IPC guidelines 3. IPC education and training 4. HAI surveillance 5. Multimodal strategies	Download: https://www.who.int/infection-prevention/tools/core-components/ICPAT2.pdf?ua=1

[4] WHO Benchmarks for International Health Regulations (IHR) Capacities. 2019. https://extranet.who.int/sph/docs/file/3406

Tools	Components	Resources/comments
Assessment Tool 2	6. Monitoring/audit of IPC practices and feedback	Data collection Excel sheet: Available for download from WHO IPCAT2 link above
Health facility-level IPC program		
IPCAF Infection Prevention and Control Assessment Framework at the Facility Level	1. IPC programs 2. IPC guidelines 3. IPC education and training 4. HAI surveillance 5. Multimodal strategies 6. Monitoring/audit of IPC practices and feedback 7. Workload, staffing, and bed occupancy 8. Environment, materials, and equipment for IPC implementation	Download: https://www.who.int/infection-prevention/tools/core-components/IPCAF-facility.PDF Data collection: Only on-line when WHO runs global IPC assessments; MTaPS is developing an Excel spreadsheet for data entry and visualization (due January 2020)
Other IPC tools	US Centers for Disease Control and Prevention (CDC) IPC observation tools (full set)	http://ipcobservationtools.site.apic.org/observation-tools-library/
Health facility IPC practices status		
HHSAF Hand Hygiene Self-Assessment Framework	1. System change 2. Training and education 3. Evaluation and feedback 4. Reminders in the workspace 5. Institutional safety climate for hand hygiene	Download: https://www.who.int/gpsc/country_work/hhsa_framework_October_2010.pdf Data collection: MTaPS is developing an Excel spreadsheet for data entry and visualization (due January 2020)
	Additional resources: CDC quick observation checklists for procedures (for facility-specific surveys as required)	Download: https://www.cdc.gov/infectioncontrol/pdf/QUOTS/All-Quick-Observation-Tools-P.pdf
Hand hygiene compliance tools and checklists	WHO Hand Hygiene Observation Tool	Download: https://www.who.int/gpsc/5may/tools/en/

Tools	Components	Resources/comments
	Hand hygiene checklists [5] • Ward infrastructure survey • Soap/hand rub consumption survey • Perception survey for health care workers • Perception survey for senior managers • Hand hygiene knowledge questionnaire for health care workers • Protocol for evaluation of tolerability and acceptability of alcohol-based hand rub in use or planned to be introduced: method 1 • Protocol for evaluation and comparison of tolerability and acceptability of different alcohol-based hand rubs: method 2	Download these data entry tools, analysis, and report writing guides: https://www.who.int/gpsc/5may/tools/evaluation_feedback/en/
Waste management	Health care waste management. Rapid assessment tool. WHO	https://www.who.int/water_sanitation_health/medicalwaste/ratupd05.pdf
	Impacts of IPC practices	
Tools for point prevalence survey (PPS) for HAIs	The WHO guidelines on prevention of HAIs contain a module on nosocomial infection surveillance (pages 16-25) and provide a data collection tool for surveillance of HCAIs In May 2018, WHO released a protocol for surgical site infection (SSI) surveillance with a focus on settings with limited resources. This tool can be used to conduct a PPS on surgical and maternity wards where a whole hospital survey cannot be conducted.	Download: https://www.who.int/csr/resources/publications/drugresist/en/whocdscsreph200212.pdf?ua=1 This tool can be used to provide a snapshot for HAI prevalence in health facilities. Although basic, it is suitable for resource-limited settings and can collect useful data if enough trained personnel are available to conduct the survey. https://www.who.int/infection-prevention/tools/surgical/SSI-surveillance-protocol.pdf A survey team may lack the personnel to support the rigor of a whole health facility survey. The alternative would be to conduct a survey for only SSIs as a surrogate indicator for HAIs in the facility or country. The advantages of an

[5] For facility-specific surveys; not to be included at the national level

Tools	Components	Resources/comments
		SSI survey are still enormous, i.e., less rigorous, cheaper, syndromic (no need for laboratory confirmed diagnosis at all), yet they provide useful data since SSIs are the leading cause of HAIs in low- and middle-income countries (LMICs) and are the leading cause of inappropriate antimicrobial use due to HAIs in LMIC settings.
	European Centre for Disease Prevention and Control tools	European Centre for Disease Prevention and Control: PPS of HAI and antimicrobial use in European Acute Care Hospitals, 2019; provides very clear, step-by-step how-to-do PPS with data collection forms, plus downloadable freeware for data collection and management https://www.ecdc.europa.eu/en/publications-data/helicswinnet-hwn
	CDC tools	CDC guideline on PPS for antibiotic use and HAI https://www.cdc.gov/hai/data/portal/index.html (no user-friendly tool for collecting data)

IPC assessment design

Securing national and stakeholder support

Securing national ministry of health (MOH) and stakeholder support for conducting a national IPC survey is a critical first step that will ensure success of the survey and acceptability of the findings among various stakeholders and partners. If the country has not yet conducted a baseline survey as per the JEE capacity 2 requirement, MTaPS-supported national or facility-level IPC surveys will contribute to the national IPC baseline survey.

In such cases, it is important to secure political support from senior MOH leadership. A competent person with IPC experience (e.g., IPC focal person at the MOH) should be appointed to lead the survey team. Collaboration and coordination between different MOH relevant departments (e.g., quality assurance division; maternal, newborn, and child health unit; clinical services) and engagement of other IPC technical partners in the country, such as representatives from the WHO country office, USAID Mission, CDC, and other organizations working in IPC and water, sanitation, and hygiene (WASH), will be critical for success. A half-day national IPC stakeholders meeting to introduce the survey can ensure

stakeholder buy-in. It is also important for the team to hold regular update meetings. In some cases, presenting the survey plan to senior MOH leadership may also be required prior to the survey. During stakeholder and MOH engagements, linking the survey to national and global campaigns on IPC (e.g., GAP, NAP, National Action Plan for Health Security, Save Lives: Clean Your Hands, Clean Care is Safer Care, Patient Safety, WHO Global Patient Safety Challenge, World Hand Hygiene Day) will promote leveraging with other efforts.

Establish objectives of the national and facility surveys

The development of national IPC programs should be based on national priorities and data collected through comprehensive assessments of IPC status at all levels of the health system; the WHO benchmark document specifically mentions the use of IPCAT2 and IPCAF tools. Continuous M&E of IPC program performance is also a requirement. Therefore, the initial IPC assessment processes, tools, and data collection and analysis should be designed in a way that is replicable for annual monitoring of IPC program performance. It should be comprehensive without being overwhelming for the health system to carry out and inform progress toward NAP goals of reducing infection risk.

Most MTaPS GHSA countries underwent a JEE during 2016-2017 and developed NAPs based on the findings and recommendations. However, in some countries, the JEE capacity scores on IPC may have been overestimated and thus do not present a valid baseline. Most countries are also missing evidence of IPC program performance, practices, and their impact on HAIs. Overall, the survey objectives should address gaps in the NAP and the country's JEE capacity and link to addressing gaps identified.

The objectives of IPC assessment are country-specific and may include the following:

- Determine status of the country's national-level IPC program
- Identify key areas for improvement and collect baseline at acute health-care facilities
- Assess hand hygiene capacity of health care facilities
- Determine the levels of hand hygiene compliance of health care workers in facilities
- Determine the prevalence of HAIs and their link to IPC practices

A comprehensive IPC assessment is also an important opportunity to achieve additional goals and to strengthen critical programmatic aspects of IPC that must be built into the assessment design and plan. Those may include:

- Strengthening IPC management capacity by turning the IPC assessment process into learning opportunities by engaging facility IPC committees and champions in every step of the process
- Strengthening IPC committees and individual capacity through participation in the survey
- Educating general staff by engaging them as data collectors (mentorship or direct training)

- Testing data collection tools and methods for further adaptation for ongoing M&E for IPC
- Developing and using lessons learned from the IPC assessment process and results to design or enhance the existing framework, indicators, and processes for ongoing M&E of IPC programs (national and facility)
- Making best-performing facilities and staff into centers of excellence for IPC
- Identifying areas of IPC quality improvement in health facilities and guide development of interventions for improving patient safety and reducing HAIs

Develop terms of reference

What is a TOR?

A TOR summarizes the requirements and expectations of the IPC assessment:

- Why and for whom the evaluation is being done
- What it intends to accomplish
- How it will be accomplished
- Who will be in involved in the assessment
- When milestones will be reached and when the assessment will be completed
- What resources are available to conduct the assessment

Developing and approving terms of reference (TOR) for an IPC assessment is an important exercise to spell out the assessment's vision, objectives, and expectations; identify scope, tools, and deliverables; define roles and responsibilities; ensure respondents' confidentiality; identify funding and quality standards; and develop and approve the assessment schedule. TOR approved by the MOH becomes an official document that guides the assessment and holds all stakeholders responsible for its outcomes and quality. The content of the TOR will be specific to a country's goals and the availability of financial and human resources as well as technical assistance. A few guides describe a stepwise process for the development of TOR. The box above is adapted from a publication that specifically focuses on TOR for the evaluation of health programs; the publication describes key elements and steps for TOR development and a checklist to review the quality of TOR.[6] Another useful resource is a document developed by the Evaluation Capacity Development Project in Uganda.[7]

Select the facility sample

All health facilities will benefit from an IPC assessment because it provides data for development and implementation of IPC improvement plans and standard indicators for monitoring performance and improvement. Therefore, including the maximum number of facilities possible that represent all levels of a health system and all sectors (public, for- and non-profit private) is important. The following considerations for selecting facilities may be useful:

[6] Roberts D, Khattri N, Wessal A. Writing Terms of Reference for an Evaluation: A How-To Guide. Washington, DC: Independent Evaluation Group, World Bank. 2011 https://siteresources.worldbank.org/EXTEVACAPDEV/Resources/ecd_writing_TORs.pdf

[7] Kwiringira J. "How To": Write an Evaluation Terms of Reference (ToR). Evaluation Capacity Development (ECD) Project – Uganda. 2014https://ecduganda.files.wordpress.com/2014/08/how-to-write-an-evaluation-terms-of-reference.pdf

- Analyze available human and financial resources for the survey at each facility

    - Costs related to data collectors' training
    - Costs and availability of internal data collectors: time that the engaged staff could allot to data collection given their day-to-day responsibilities
    - Cost of external data collectors who may be required to assist at large facilities, such as regional referral hospitals, or at facilities where staff do not have the capacity (not trained) or cannot allocate time due to daily responsibilities; costs for external data collectors may include travel, honoraria, etc.
    - Data collection-related expenses: printed forms, laptops, handhelds

- Prioritize the selection of facilities based on their importance (e.g., teaching facility, referral facility, population in service area): all national and regional referral hospitals, district hospitals, specialized facilities, lower-level facilities, key private for profit and nonprofit facilities (run by nongovernmental or faith-based organizations)
- Prioritize front-line facilities in areas at high risk for emerging infections, if needed in some countries
- Engage donor-funded projects and nongovernmental organizations to assist with data collection and assessment facilitation

Several MTaPS GHSA countries have already conducted IPC assessments with sample facilities, ranging from 42 in Uganda and 38 in Cameroon to just 2 in Tanzania and 3 in Senegal. However, rather than being concerned about the quantity of facilities, it is more important to do IPC assessments correctly, learn the lessons, and expand, rather than try to go beyond the national (and MTaPS') capacity to ensure the validity of data and quality of results. In cases where the MTaPS assessment is conducted as part of a national baseline survey, the selection and number of health facilities should be done in consultation with the MOH.

Select data collection tools

There is no one tool that covers all elements of IPC programs and their performance. Countries have a number of internationally developed IPC assessment tools to choose from (table 1) as well as nationally developed tools and checklists in line with NAPs. However, we recommend that all countries include the IPCAF, HHSAF, and IPCAT2 tools in their surveys. WHO also recommends that national IPC action plans be informed by assessments with these three tools; in addition, using them will build the country's JEE capacity to the next level.

Based on the objectives of the assessments at both national and facility levels and the availability of resources, countries will select and use data collection tools that are most suitable for the situation. A combination of existing and recommended WHO tools is sufficient for a comprehensive IPC assessment, including HAI, and for the subsequent annual monitoring framework in figure 2.

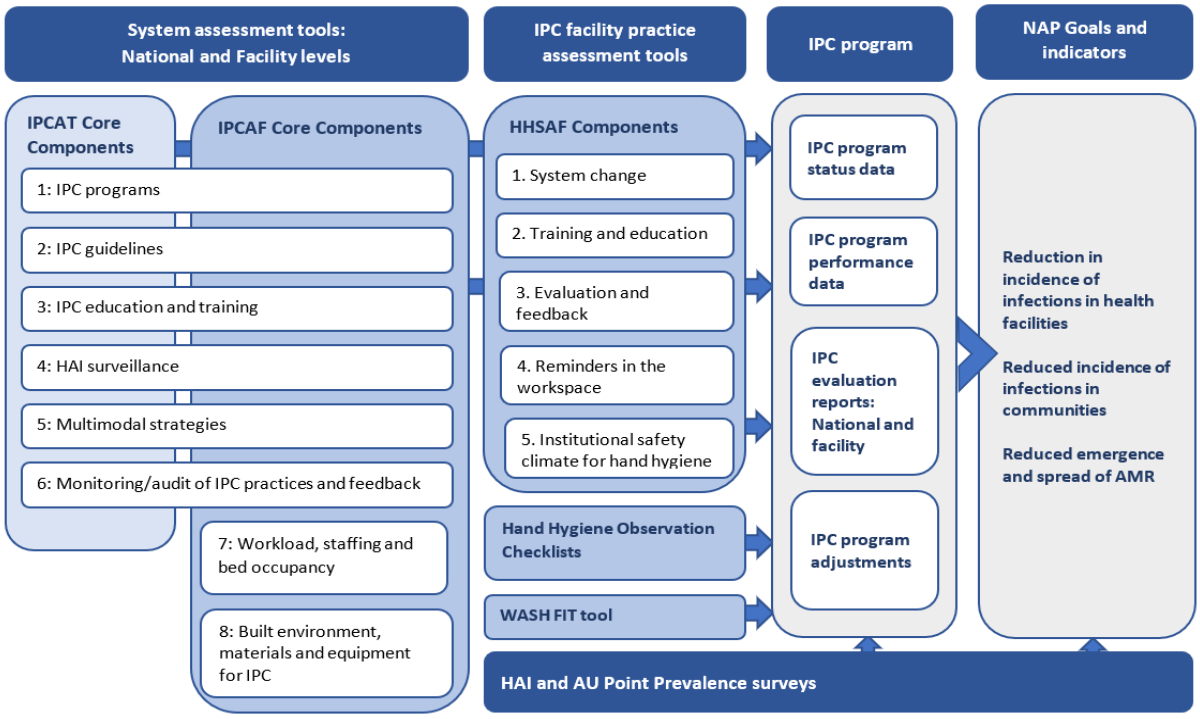


Figure 2. IPC assessment and monitoring framework

When selecting assessment tools, it is important to consider IPC program M&E requirements, such as regular assessments (e.g., annual) for measuring the IPC programs' progress toward NAP goals and key impact indicators for IPC, including decreased HAI and infection incidence in communities. It is thus important to include a tool that measures HAI, such as an HAI PPS, and make it a part of the overall IPC assessment and M&E framework to establish correlations between IPC performance and HAI incidence rates.

Select and train data collectors

Most WHO IPC assessment tools are designed for self-assessment by the facility staff. However, most facilities do not have IPC personnel trained in the use of the tools and may need support from trained data collectors. Assessment at facilities is managed by a group of nurses and doctors who have prior IPC training and represent the facility's IPC committee and the nurses responsible for IPC in specific wards. This assessment group is responsible for identifying the human and financial resources needed to carry out the IPC assessment, developing a schedule, and identifying assistance needed to train data collectors and provide external support with data collection. External data collectors may be recruited through an open call among students of nursing or medical schools or be provided via donor-funded health projects, for example.

Considerations for selecting data collectors:

- Identify optimal number of data collectors per type of facility

- Define data collectors' required skills and competencies based on the assessment tools and technical areas (Note: The data collector's professional background may be a source of bias; for example, "too much" knowledge may be reflected in responses.)
- Identify data collectors from the surveyed facilities: Engaging and training facility staff develops their capacity (although potential "home bias" in scoring must be addressed through training).
- Engage additional data collectors from other facilities: This results in less bias and more expansive capacity development through exposure to other settings.
- Recruit external data collectors via open competition, if funds are available; if not, rely on facility staff or students as data collectors.
- Engage data collectors with expertise in conducting IPC surveys using the selected tools for a national-level assessment.

Focus training on three main competencies—basic IPC knowledge, data collection skills, and knowledge of ethical and local legal considerations in data collection (annex 1 has an example). The actual set of required competencies will be determined by the IPC assessment goals and selected data collection tools.

WHO guidance does not provide detailed how-to insights for data collectors, which may be required to eliminate data collectors' biases and ensure data collection quality. Therefore, training should address data collection methods required by each WHO tool, including the following:

- Background information collection: A standard data collection form for information about the assessed facility and staff should be developed.
- Interviews: It is critical to eliminate possible biases, adhere to the interview form, and not replace the interviewee's responses with the data collector's own interpretation (good additional information source is available[8]).
- Policy and document review: For example, IPCAT2 forms for each survey question, along with yes/no responses have two additional sections, Comments and Suggested Verifiers, with the latter requiring additional interviews and review of national policies and guidance documents; selection of verifiers should be done at the study design stage and built into data collectors' training.
- Observation: The WHO Hand Hygiene Technical Reference Manual contains instructions for observation techniques that should be a part of training to avoid sensitivities and biases.

[8] Duke Global Health Institute. Five Tips for Conducting Qualitative Interviews. 2018. https://globalhealth.duke.edu/media/news/five-tips-conducting-effective-qualitative-interviews

- Patient (clinical) records review: If a country includes PPSs for HAI, data collectors will have to review clinical data that requires special training. Note that WHO does not provide guidelines for conducting PPSs for HAI. Other guidelines are available.[9,10]

Skilled facilitators for the IPC assessment design and data collectors' training could be contracted through national schools of medicine or national referral hospitals. Engaging the faculty of schools of medicine in the process may also motivate improvement of IPC curricula.

Conduct the assessment

Engage with selected facilities

A national IPC assessment and a list of selected health facilities must be vetted and approved by the MOH and relevant stakeholders (national AMR committee, national IPC technical working group, others) and must be in line with NAP goals and M&E plans. It is important to ensure that the assessment process is repeatable on a regular basis.

Health facilities selected for the assessment must be informed in advance to ensure their readiness and availability of data collectors and other personnel. A written note may be developed for each facility outlining the steps, schedule, data collection and validation, and specifically addressing the confidentiality of respondents and observers.

Data collection processes

Final data collection tools by levels of care, methods, and data sources can be presented in a tabular form for better visualization. Table 2 is an example from the MTaPS team in Uganda.

Table 2. WHO IPC assessment tools

Assessment tool	Data collection methods	Data source	Data entry tool	Dates
IPCAT	Face-to-face interviews, policy and document review	National IPC focal person	IPCAT Excel sheet	
IPCAF	Face-to-face interviews and observation with checklist	Hospital IPC focal person	MTaPS Excel tool	

[9] https://www.ecdc.europa.eu/en/publications-data/helicswinnet-hwn
[10] Curless MS, Gerland MA, Thompson E, Trexler PA. Infection Prevention and Control: Module 9. Surveillance of Health Care-Associated Infections. Baltimore, MD: Jhpiego. 2018. http://reprolineplus.org/system/files/resources/IPC_M9_Surveillance.pdf

Assessment tool	Data collection methods	Data source	Data entry tool	Dates
HHSAF	Face-to-face interviews and observation	Hospital IPC focal person, ward nurses	MTaPS Excel tool	
Hand Hygiene Compliance Observation Tool	Observation with checklist	Health worker observation	Paper checklist	
Health Care Associated Infection PPS Tool	Review of hospitalized patient medical records	Patient charts	Paper forms	

Manage data

If a national IPC survey is being conducted during the WHO Global IPC survey using IPCAT2, IPCAF, and HHSAF, WHO will provide access to the WHO IPC survey platform and database and tools for basic data analysis. For IPCAT2, a downloadable Excel-based data collection tool is available which the country could later use for a repeat assessment. For IPCAF, data collection is done using downloadable paper forms that are then uploaded to the WHO IPC portal; countries can later access summary results in pdf form, but not in other forms that lend themselves to electronic analytics. MTaPS is developing a simple user-friendly data collection tool that will allow data collection, analysis, data visuals, and comparison over time and by facility/region and will become a national tool for regular IPC assessments and reporting to national health management information systems, such as DHIS 2.

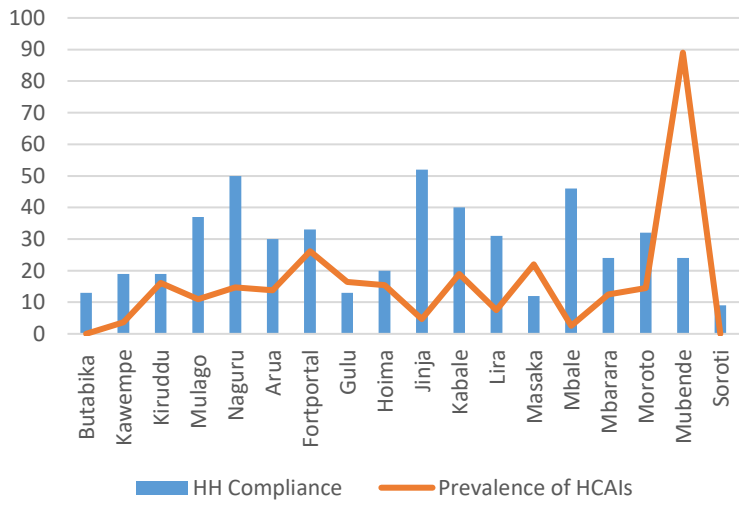
A major challenge in any assessment is data quality. Data validation should be built into the IPC assessment process at the design stage and include cross checks of all paper data-entry sheets, electronic data collection forms, and visuals before uploading to the WHO IPC portal and/or national data warehouse for analysis and report development. Data confidentiality is another important consideration that is ensured through proper training of data collectors, anonymization of data collectors and respondents, and blinding of patient records selected for HAI PPS.

Develop reports

Assessment report structure

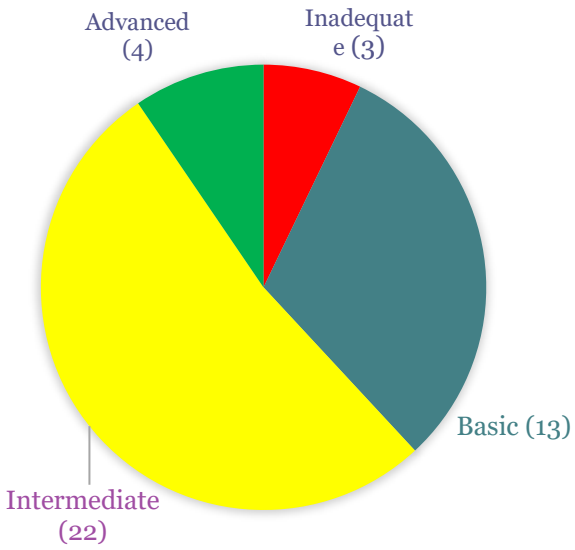
The WHO IPCAT, IPCAF, and HHSAF tools are structured along the components of national and facility IPC programs and components of hand hygiene. The tools' structure defines the structure of the assessment report. Basic analysis of data and data visuals are built into the WHO IPCAT2. In 2020, MTaPS will finalize an Excel-based tool for IPCAF and HHSAF data entry, analysis, visualization, and reporting NAP AMR indicators to national health database and AMR dashboards.

Data visuals and dashboards for IPC components are an important part of assessment reports as shown in two examples from the Uganda IPC assessment (figures 3 and 4). The survey report should be detailed enough yet understandable to the target audience. Formal MOH procedures, such as conducting data validation meetings, may be required. Disseminate the report to stakeholders.



Among selected public health facilities, hand hygiene compliance was positively correlated with prevalence of HAI. Overall, health facilities with good hand hygiene compliance had a lower prevalence of HAIs.

Figure 3. Correlation of hand hygiene compliance with HAI prevalence



A total of 42 facilities were surveyed. Of these, 5 were national referral hospitals, 13 were regional referral hospitals, 16 were general hospitals, and 8 were primary health facilities. Of the 42 facilities, 4 (9.6%) had an advanced IPC level (601-800), 22 (52.4%) had an intermediate IPC level (401-600), 13 (30.9%) had a basic IPC level (201-400), and 3 (7.1%) had an inadequate IPC level (0-200). The 3 facilities with inadequate IPC implementation were general hospitals or Health Center IV.

Figure 4. IPC capacity of all health facilities

Lessons learned

Lessons learned—what worked, what did not, what must be changed—is an important part of the IPC report as it guides adjustments to tools, processes, and information presentation required for future rounds of IPC assessments.

A suggested outline of lessons learned may include the following:

- IPC assessment design
    - Selection of facilities
    - Adequacy of the selected methods and tools in meeting the goals of the national IPC program
    - Data collection gaps that require additional tools or processes
    - Required adjustments
- IPC assessment process
    - Facilities' response and participation
    - Schedule
    - Selection and training of data collectors
    - Data validation and quality
    - Suitability of the processes for ongoing (e.g., annual) reassessment
    - Required adjustments
- IPC assessment reports
    - Types of analysis
    - Data visuals and dashboards
    - National IPC dashboard
    - Report publication
    - Required adjustments

Recommendations

Recommendations are important outputs of the IPC assessment that guide further actions to improve IPC programs at the national and facility levels and inform continuous quality improvement (CQI) for IPC.[11]

[11] USAID MTaPS. A Technical Guide to Implementing a Continuous Quality Improvement Approach to Strengthen Infection Prevention and Control Programs at Health Facilities in MTaPS Program Countries. December 2019

Use the SMART approach to structure assessment recommendations:

- **S**pecific: Related to specific IPC components as defined by WHO and/or the national IPC program (e.g., IPC guidelines, multimodal strategies, institutional safety climate, etc.) and specific barriers and solutions
- **M**easurable: Data collection tools/check lists are readily available and parameters are defined in national IPC program or improvement plans
- **A**chievable: Realistic actions that should deliver expected results given the timeframe (until next assessment), human capacity, and financial resources
- **R**elevant: Leading to desired output or outcome as defined by the national IPC program or facility improvement plan
- **T**ime-bound: Achievable within defined timeline

SWOT analysis principles—capitalize on *strengths*, minimize the effects of *weaknesses*, make the most of any *opportunities*, and reduce the impact of any *threats*—and a SWOT-based TOWS (threats, opportunities, weaknesses, strengths)[12] matrix could help organize the IPC assessment results into informed interventions and improvement strategies (table 3).

Table 3. TOWS matrix

	Opportunities	Threats
Strengths	**S**trength-**O**pportunity strategy	**S**trength-**T**hreats strategy
Weaknesses	**W**eakness-**O**pportunity strategy	**W**eakness-**T**hreats strategy

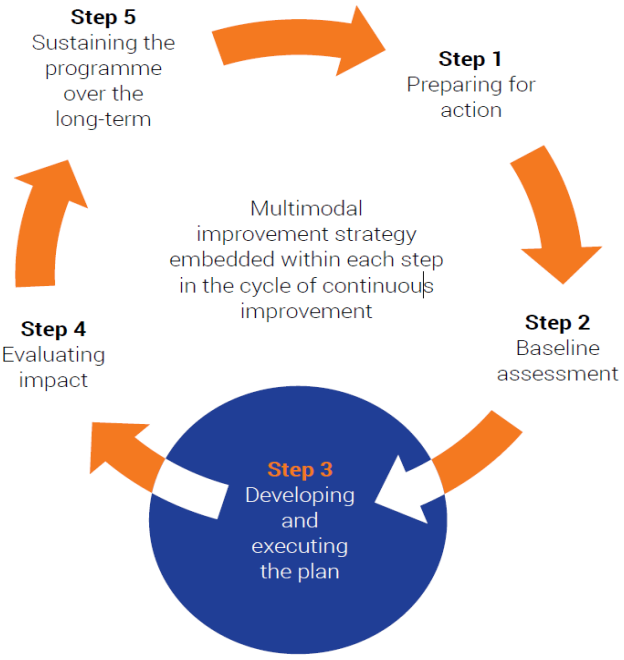
- **S-O strategies** build on IPC program results (opportunities) that are good for maximizing strengths and achieving IPC goals (e.g., Kisiizi hospital in Uganda scored "advanced" on IPCAF and HHSAF, but only "basic" on the hand hygiene compliance survey; the facility clearly has opportunities to rapidly improve hand hygiene compliance, building from its trained staff and sound processes).
- **W-O strategies** are designed to overcome IPC program weaknesses (barriers) to pursue opportunities.
- **S-T strategies** identify ways to use existing strengths (and opportunities) of IPC programs to reduce vulnerability to external threats (such as disease outbreaks).
- **W-T strategies** acknowledge high risk and vulnerability in IPC processes and develop a response plan (e.g., health facilities that scored "inadequate" on IPCAF, HHSAF, and hand

[12] The TOWS approach is becoming increasingly popular in developing improvement strategies, for example, https://www.mindtools.com/pages/article/newSTR_89.htm or https://articles.bplans.com/swot-analysis-challenge-day-5-turning-swot-analysis-actionable-strategies/

hygiene compliance surveys are at higher threat of HAI and putting patients at risk; recommendations should then address all components of IPC program as an emergency).

Part 2: Developing IPC Improvement Plans

After conducting the IPCAT2 (national) and IPCAF (facility) assessments, the next logical step is to develop an action plan with interventions to strengthen the core components of the IPC program at the national (six components) and facility (eight components) levels. Figure 5 illustrates the process for developing and implementing an IPC action plan, for either a national or facility IPC program, which must be collaborative and based on the WHO multimodal strategy.[13]



Conduct a workshop to review national-level options

Work with either a team of national experts or a consultant to prepare working documents (synthesis of assessment results, recommendations, SWOT analysis, prioritization tools) for conducting a workshop for national-level IPC improvement options. The Challenge Model found in MSH's

[13] World Health Organization. Improving Infection Prevention and Control at the Health Facility: Interim Practical Manual Supporting Implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes. Geneva: 2018 (WHO/HIS/SDS/2018.10). pages 52-57. https://www.who.int/infection-prevention/tools/core-components/facility-manual.pdf

Pharmaceutical Leadership Development Program[14] could be used for this exercise, to analyze root causes of weaknesses and develop interventions to address them.

Discussions at the workshop should focus on:

- Reviewing assessment results to identify weaknesses and gaps to fill
- Building on recommendations from the assessment report and integrating suggestions and discussions from workshop participants
- Strengthening national elements of the core components of IPC and building oversight and accountability capacity

- Prioritizing actions for the immediate (low-hanging fruit), medium, and long terms; many prioritization tools are available for this exercise[15]
- Focusing priority interventions on actions that will help the country advance on the JEE scale
- Building in actions that will create resilient systems for sustainability of IPC programs in the country over time

Strengthening IPC at the facility level[16]

Developing and implementing an IPC action plan is step 3 in the multimodal continuous improvement cycle for IPC programs (figure 5). The aim of step 3 is to develop a list of actions, responsibilities, timelines, budgets, expertise needed, and review dates for each core component to be implemented using the IPCAF results (generated during step 2) and the needs of the facility (based on the SWOT analysis described above). Use a team of experts or a consultant to analyze the facility's IPCAF results and to identify gaps and review recommendations. Refer to ref. 16, table 3A (Key considerations and actions) on page 53. This exercise will result in draft documents that will be used at the workshop. The decision about which activities to implement will depend on IPCAF results, local context, such as available resources and expertise, and discussions with facility leaders and managers. Annex 2 provides an illustrative implementation plan template.

Organize a facility-wide workshop to discuss assessment results and formulate the next steps as part of the plan to strengthen IPC:

[14] Ellis A, Mkele G, Putter S. Strengthening the Leadership and Management of Pharmaceutical Services in South Africa. Washington, DC: USAID/SIAPS. 2016.
[15] Center for Public Health Quality. Quality Improvement Tool Summary Sheet. http://www.amchp.org/Transformation-Station/SiteAssets/Pages/WebinarUsingQITooltoAddressChallengingProblems/Summary%20of%20QI%20Tools.pdf
[16] Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes. Geneva: World Health Organization; 2018 (WHO/HIS/SDS/2018.10). License: CC BY-NC-SA 3. 0 IGO. Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps. who. int/iris. https://www.who.int/infection-prevention/tools/core-components/facility-manual.pdf

- Ensure participation of facility leadership and main departments and units
- Use any of the prioritization tools[15] to analyze the root causes of each weakness or gap identified in the assessment report
- Identify the most effective solutions that can address the root cause
- Prioritize solutions according to feasibility, starting from the low-hanging fruit
- Identify actions that will require resources from outside the facility and develop an advocacy plan
- Develop facility-specific log frames (or theories of change for IPC behavior and practices improvement) (see the MTaPS CQI for IPC mini-guide[11])

The MTaPS mini-guide on Continuous Quality Improvement (CQI) for IPC Programs supplements the current mini-guide by providing facility infection control committees (ICCs) with a stepwise approach and simple frameworks that introduce CQI processes to respond to the question stemming from IPC surveys and implementation plans—How do we improve?—thus ensuring sustainable capacity building and desired IPC

The product of such a workshop will be a short-term action plan and a longer-term strategic plan (or at least elements that will inform such plans). Component 5 of the Core Components of IPC programs: multimodal strategy in the Facility Manual[17] and associated guiding questions will also help in the development of a facility action plan.

[17] See Annexes 1 and 2 in ref 16.

Annex 1. Ten guiding principles for data collection, storage, sharing, and use to ensure security and confidentiality

1. Public health data should be acquired, used, disclosed, and stored for legitimate public health purposes.
2. Programs should collect the minimum amount of personally identifiable information necessary to conduct public health activities.
3. Programs should have strong policies to protect the privacy and security of personally identifiable data.
4. Data collection and use policies should reflect respect for the rights of individuals and community groups and minimize undue burden.
5. Programs should have policies and procedures to ensure the quality of any data they collect or use.
6. Programs have the obligation to use and disseminate summary data to relevant stakeholders in a timely manner.
7. Programs should share data for legitimate public health purposes and may establish data-use agreements to facilitate sharing data in a timely manner.
8. Public health data should be maintained in a secure environment and transmitted through secure methods.
9. The number of persons and entities granted access to identifiable data should be kept to a minimum.
10. Program officials should be active, responsible stewards of public health data.

Adapted from Lee, LM, Gostin, LO. Ethical collection, storage, and use of public health data: a proposal for national privacy protection. JAMA 2009; 302:82-84.

Annex 2. Implementation action plan template (Uganda Moroto RRH illustrative example)

IPC improvement work plan for Moroto RRH 2019/2020												
Goal: To set up Moroto RRH as a center of excellence for IPC												
IPCAF components	**Response/ baseline**	**Baseline**	**Actual (verified)**	**Key activity (gap)**	**Timeframe**				**Focal person**	**Resources**	**Means of verification**	**Frequency of verification**
					Q1	**Q2**	**Q3**	**Q4**				
Core component 1-IPC programmes												
Core component 2-Infection prevention and control (IPC) guidelines												
Core component 3-Infection prevention and control (IPC) education and training												
Core component 4-Hospital acquired infection surveillance												
HHSAF components												

System change												
Training and education												

IPC improvement work plan for Moroto RRH 2019/2020												
Goal: To set up Moroto RRH as a center of excellence for IPC												
IPCAF components	**Response/ baseline**	**Baseline**	**Actual (verified)**	**Key activity (gap)**	**Timeframe**				**Focal person**	**Resources**	**Means of verification**	**Frequency of verification**
					Q 1	**Q 2**	**Q 3**	**Q 4**				
Core component 1 - IPC Programmes												
1. Do you have an IPC programme?	Yes, without clearly defined objectives			Develop clear objectives for the IPC program					IPC focal person, hospital administration	Technical assistance	IPC committee file (TOR) on file	Annual
5. Do you have an IPC committee actively supporting the IPC team?	Yes			Follow up on appointment letters and TOR for the IPC committee					IPC committee	Technical assistance	IPC committee meeting minutes, survey findings, attendance lists for CMEs	Quarterly

IPC improvement work plan for Moroto RRH 2019/2020												
Goal: To set up Moroto RRH as a center of excellence for IPC												
IPCAF components	**Response/ baseline**	**Baseline**	**Actual (verified)**	**Key activity (gap)**	**Timeframe**				**Focal person**	**Resources**	**Means of verification**	**Frequency of verification**
					Q 1	**Q 2**	**Q 3**	**Q 4**				
Core component 2 - Infection Prevention and Control (IPC) guidelines												
2. Does facility have guidelines available for:												
a. Standard precautions	No			Print and disseminate WHO and national guidelines on standard precautions					IPC committee	Technical assistance – MTaPS; Logistical support printing guidelines – MTaPS	Copies of guidelines available at facility	Annual
Core component 3 - Infection Prevention and Control (IPC) education and training												
3. How often do health care workers receive training regarding IPC in your facility?	New employee orientation. Training is done for health care workers only			Conduct regular quarterly IPC trainings/ CPDs for all hosp. staff					IPC committee, CME coordinator	IPC guidelines, trained IPC team	Training/CME logs, admin docs	Quarterly
Core component 4 - Hospital acquired infection surveillance												
HHSAF components												