Capacity building under the International Health Regulations (2005)

Ramifications of new implementation requirements in second edition Joint External Evaluation

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Introduction

In 2005, the revised International Health Regulations (IHR) entered into force as an agreement binding on all World Health Organization (WHO) Member States to build global capacity to prevent, detect, and respond to public health threats [*1*]. The WHO secretariat published the IHR monitoring framework in 2010 to guide countries in their self-assessment of progress toward IHR implementation [*2*]. In 2016, WHO expanded the IHR monitoring and evaluation suite of tools to include a voluntary Joint External Evaluation (JEE) [*3*], combining aspects of the Global Health Security Agenda (GHSA) pilot assessment tool and the IHR Monitoring and Evaluation Tool (IHRMT). Within the JEE process, countries self-assess their capacity and participate in an external evaluation completed by a panel of international experts to characterize capacity at a country scale, across sectors.

The JEE defines benchmarks for 19 core capacities identified as priorities for IHR implementation. Each core capacity has one to four indicators scored on a five-point rubric from *no capacity* (1) to *sustainable capacity* (5). As of May 2019, 96 JEEs have been conducted, and another 21 are scheduled [*4*]. These evaluations support countries in reviewing gaps and identifying priorities for action, including as part of the development of national action plans for health security.

In 2018, a second edition of the JEE (JEE 2.0) was released by WHO [*5*]. This revised JEE updates expectations for capacity building based on feedback from participating Member states, JEE evaluators, and other JEE partners, and reflects lessons learned from the 2014 Ebola outbreak [*6*]. As of July 2018, 9 countries have completed JEE 2.0 evaluations and released results via public mission reports [*7*]. Here, we review changes to the scoring rubric of JEE 2.0 and highlight new guidance for prioritization of capacity building under IHR, with an emphasis on potential impacts to country planning and future operations.

Methods

As part of prior research efforts, we identified the costable actions necessary to incrementally build capacity under JEE 1.0 for each of 48 indicators across 19 core capacities. These costable actions were assessed for each indicator [*8*]. To identify changes under JEE 2.0, we developed a crosswalk aligning the specific requirements for each indicator and score under both versions of the JEE, based on guidance provided in Appendix 2 of JEE 2.0 and expert review. Differences between the versions were identified in a line-by-line review and documented for each requirement. Differences and changes to key themes were paired with an analysis of those changes that would have an effect on costing and refined based on feedback from international experts, including those involved in the development of JEE 2.0.

Results

The changes to JEE 2.0 have a significant potential impact on countries implementing the IHR, particularly with regard to surveillance, antimicrobial resistance, and preparedness. While the two editions share overall goals and structure, the updates specifically increase focus on the importance of building local and intermediate-level capacity, the value of engaging a diverse group of stakeholders, including national ministries, and the need for sustainable financing. Many of these changes could meaningfully shift country planning and operations. For instance, targets for the development of infrastructure at healthcare facilities are likely to be time and resource intensive and may require some countries to mobilize additional resources beyond those already anticipated in prior planning efforts. In addition to impacts on planning and operational priorities, some countries may see increased scores under JEE 2.0 based on a framework that now recognizes activities they have already completed. However, particularly for geographically large countries with limited intermediate and local capacity, changes to JEE 2.0 may reduce country JEE scores until that capacity is further developed.

Capacity building at the intermediate and local levels

The new emphasis for local and intermediate-level capacity building in JEE 2.0 specifically targets capacity in healthcare facilities and points of entry, with a focus on surveillance and reporting capabilities that are critical to providing situational awareness. Table 1, below, provides details about changes to selected examples of new targets for intermediate and local capacity under JEE 2.0. Highlighted changes include, for example, a shift from a JEE 1.0 requirement that indicator or event-based surveillance systems be in place for a score of *demonstrated capacity* (4) for the indicator P.5.1; JEE 2.0 specifies that such systems must now be in place at both the central and intermediate level, including "weekly reporting from the local level on an ad hoc basis"[*5*].

Heightened focus on antimicrobial resistance (AMR)

Combatting antimicrobial resistance (AMR) requires sustained efforts to address infection prevention and control not only in the human health sector but also in the animal health and agriculture sectors [*9,10,11*]. While JEE 1.0 focused AMR indicators largely on healthcare associated infections and on the development of plans and programs, JEE 2.0 assesses activities to combat antimicrobial resistance more broadly, identifying more detailed and stringent requirements for surveillance, infection prevention and control, and appropriate use of antimicrobial medicines across sectors. These broad, multisectoral strategies to combat antimicrobial resistance identified in JEE 2.0 highlight increased expectations for coordination, surveillance systems, and for the development of national standards, both in healthcare facilities and on farms. JEE 2.0 emphasizes a One Health approach to combatting AMR, including "at least, human, animal, crops, and food safety aspects" *[5*], and places additional emphasis on the development and implementation of national water, sanitation and hygiene (WASH) standards and programs. These changes will require additional policy and standards development, awareness raising and training, and ongoing monitoring, all likely to have an effect on country-level scores.

Core Capacity	JEE Indicator and score	Requirements under JEE 1.0 [*3*]	Requirements under JEE 2.0 [*5*]
Antimicrobial Resistance (AMR)	P.3.4 Optimize use of antimicrobial medicines in human and animal health and agriculture (demonstrated capacity)	"*Designated centers* have conducted all antimicrobial stewardship practices for at least one year"	"Practices to enable appropriate use are implemented in *health facilities nationwide...*"
Food Safety	P.5.1 Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination (demonstrated capacity)	"Staff responsible for surveillance and response, food safety, laboratories and agriculture work together to consider the risks and interventions"	"Country has capacity to undertake rapid risk assessments of acute foodborne events *at the national and subnational levels*"
Surveillance	D.2.1 Surveillance systems (developed capacity)	"*Indicator OR event-based surveillance* system(s) in place to detect public health threats"	"*Both IBS and EBS* are in place at the *central and intermediate levels*, and receive immediate and weekly *reporting from the local level* on an ad hoc basis"
Preparedness	R.1.2 National multisectoral multihazard emergency preparedness measures are developed, implemented, and tested (demonstrated capacity)	"Procedures, plans or strategy in place to reallocate or mobilize resources from *national and intermediate levels…*"	"Emergency preparedness measures are implemented at *national, subnational and local levels…*"

Table 1: Selected examples of heightened requirements at intermediate and local levels under JEE 2.0, with emphasis added. JEE indicator and score based on indicators in second edition JEE, aligned with corresponding requirements from first edition JEE.

Financing requirements

JEE 2.0 includes two new indicators related to the development of sustainable financing mechanisms, highlighting the importance of financing for general IHR implementation and for emergency response [*5*]. Ensuring adequate financing for a comprehensive biosafety and biosecurity system has been also been included as a new requirement for a score of *sustainable capacity* (5) under the biosafety and biosecurity core capacity. These changes emphasize the importance of planning for financing as a critical step in capacity building and underscore the importance of developing stable and reliable sources of financial support.

Primary drivers of costs in IHR implementation

Changes to JEE 2.0 are likely to significantly impact costs associated with IHR implementation. New requirements for local and intermediate capacity building and recurrent requirements (e.g. weekly, monthly, or annual requirements) are likely to be the primary cost drivers, as these elements function as multipliers and add up quickly across communities and over time. New infrastructure requirements (e.g. laboratories and WASH facilities) and expanded laboratory equipment and diagnostic test requirements are also significant drivers of cost in IHR implementation under JEE 2.0 [*5*]. Table 2, below, identifies those changes most likely to drive cost increases.

Cost driver	JEE Indicator and score	Additional requirement(s) in JEE 2.0 [*5*]	Requirement identified by JEE 2.0
Requirements at intermediate, local, and facility levels	D.2.1 Surveillance Systems (demonstrated capacity)	Additional surveillance capacity at intermediate and local levels and reporting from all facilities	"Both IBS and EBS are in place *at all the levels (national, intermediate and local)* and receive immediate and weekly reports from *all health facilities* of the country…"
	P.5.1 Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination (demonstrated capacity)	Requirement for rapid risk assessments at the intermediate level	"Country has capacity to undertake rapid risk assessments of acute foodborne events at the *national and subnational levels*"
	P.3.4 Optimize use of antimicrobial medicines in human and animal health and agriculture (demonstrated capacity)	Requirement for plans and practices to combat antimicrobial resistance at healthcare facilities	"Practices to enable appropriate use [of antimicrobial medicines] are implemented *in health facilities nationwide...*"
Recurrent requirements or activities	R.1.2 National multisectoral multihazard emergency preparedness measures are developed, implemented and tested (demonstrated capacity)	Exercises every two years at the intermediate and local levels and at points of entry	"Multisectoral multihazard emergency response plans and SOPs are in place at *subnational and local levels, as well as at the points of entry*; and implemented or tested in the past two years and updated accordingly"
	D.4.3 In-service trainings are available (demonstrated capacity)	Requirement for regular workforce trainings	"Training plans are developed and *regular trainings* are conducted by professional bodies or relevant institutions/units to establish skills and competency standards for the workforce at the national level."

Recurrent requirements or activities (*cont.*)	R.4.2 System in place for activating and coordinating health personnel during a public health emergency (demonstrated capacity)	Requirement for ongoing staffed national EMT workforce	"...evidence of *deployable EMT capacity/capability* for national response"
Development or purchase of new infrastructure	P.3.3 Infection prevention and control (demonstrated capacity)	Requirement that health care facilities have water and sanitation (WASH) facilities	"Nationwide implementation of IPC plans and guidelines in public and private sectors; *all health care facilities have a suitable functional environment (including water and sanitation facilities),* and necessary materials and equipment to perform IPC per national standards"
Laboratory capacity and diagnostic tests	P.3.2 Surveillance of AMR (developed capacity)	Requirement for a national AMR reference laboratory	"… a *functional national AMR reference laboratory* that participates in external quality assurance and conducts confirmatory or additional testing"
	D.1.3 Effective national diagnostic network (limited capacity)	Requirement for farm-based diagnostics	"… *point-of-care/farm-based diagnostics are being used for country priority diseases*"

Table 2. Selected cost drivers for IHR implementation, and examples of changes to JEE 2.0 likely to impact costs, with emphasis added. Examples are identified next to their primary cost driver, though multiple cost drivers often apply to a single example (e.g. recurrent costs at the local level).

Conclusion

The Joint External Evaluation provides guidance on shared priorities for building global capacity to prevent, detect, and respond to infectious disease threats. While the overall goals and structure of the first and second edition JEEs are aligned, JEE 2.0 identifies a series of fundamental shifts in priorities for funding, planning and capacity building for global health security with a specific focus on increasing capacity at the intermediate, local, and facility levels. These changes underscore increased focus on the first line of defense against emerging infectious disease threats. JEE 2.0 also affirms the importance of program sustainability, including the development of reliable financing plans and the development of infrastructure capacity to sustain safe and effective operations. These changes will affect how capacity is defined, measured, and prioritized across core capacities and sectors.

As much of the previous guidance provided in JEE 1.0 emphasized national-level capacity, increased requirements at the intermediate and local levels may refocus energies towards building sub-national capacity. To address the revised guidance of JEE 2.0, some countries will need to mobilize additional capital and personnel resources throughout the country, which may require

additional buy-in from national, regional, and local decision makers to support these activities and costs. Increased capacity requirements at the intermediate and local levels are particularly likely to impact geographically large countries, rural areas, or countries with limited telecommunications infrastructure, which is required for effective reporting and communication between national, intermediate, and local levels. Additional research is needed, including based on recently released JEE 2.0 mission reports, and, as they become available, corresponding costed national action plans, to understand how rubric changes to JEE 2.0 impacted assessment scores and cost estimates for implementation.

Joint External Evaluation scores can have a large impact on national priorities, public health planning efforts, interactions with international donors and stakeholders, and on funding requirements. Those tasked with building capacity under JEE 2.0 must understand which requirements have changed, what that means for their country's planning efforts, and what additional resources (e.g. support from additional international stakeholders, additional funding) are necessary to address these new requirements. The use of different assessment rubrics also has implications for measuring change – as countries move towards completing a second JEE using JEE 2.0, evaluations completed under JEE 1.0 and JEE 2.0 must be aligned and further analyzed to enable comparisons over time and across countries. As shifts in the JEE also reflect shifts in expectations and in priorities for public health capacity building, countries, donors, and other international stakeholders must understand these changes to continue to effectively prioritize capacity-building activities and funding efforts.

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