

A NOVEL MULTI-DOMAIN INTEGRATED INFECTION PREVENTION AND CONTROL (IPC) ASSESSMENT TOOL TO IMPROVE PATIENT SAFETY AND HEALTHCARE QUALITY FOR TERTIARY CARE HOSPITALS WORLDWIDE

Woo Kit Seong¹, Lee Yew Fong², Gayathri Thanabalan¹, Dharmesh Doshi¹, Ngian Hie Ung³, Teo Shu Ching³, Chor Yek Kee³, Dayang Aida³, Abdul Rahim Abdullah⁴

¹ ECRI
² School of Medical and Life Sciences, Sunway University, Malaysia
³ Sarawak General Hospital, Ministry of Health, Malaysia
⁴ Malaysian Society for Quality in Health, Malaysia

Background

Aims

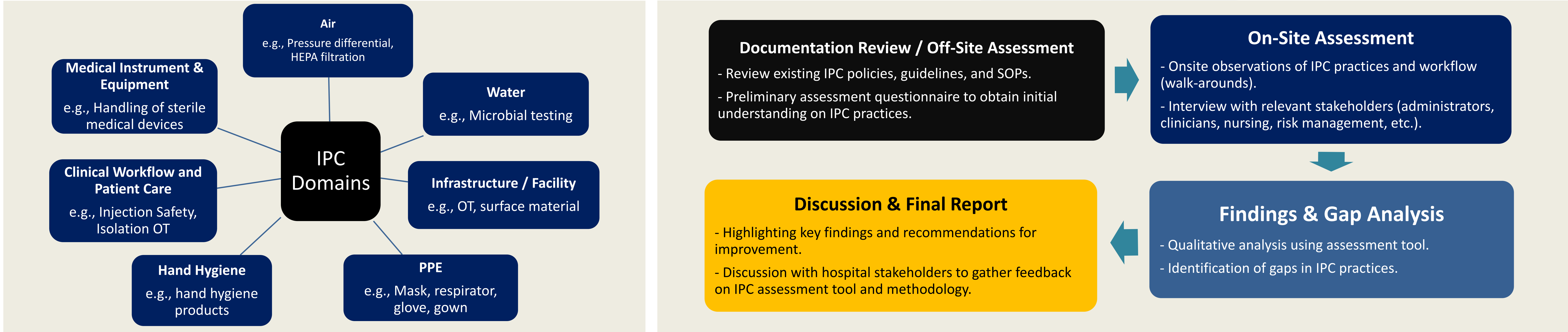
The recent pandemic sparked discussions on the adequacy of existing Infection Prevention & Control (IPC) policies and practices in managing infectious disease outbreaks. To enable proactive management of IPC, an integrated approach that considers the myriad of domains related to infection control and takes into account different care processes and workflows in clinical areas should be used, as generic guidelines of IPC may not address every specific situation or setting. ECRI has developed a novel multi-domain integrated IPC assessment tool to comprehend granular-level indicators related to IPC. The assessment also provides an opportunity for the facility to be better prepared in meeting hospital accreditation requirements.

- ✓ To demonstrate the effectiveness of a structured methodology and assessment tool for IPC.
- ✓ To identify IPC gaps and opportunities for improvement in high-risk areas: Operating Theatre (OT), Intensive Care Unit (ICU), and Paediatric ICU (PICU) departments.

Methodology

ECRI's IPC assessment tool incorporates international IPC guidelines and references, including those from World Health Organization (WHO), U.S. Centers for Disease Control and Prevention (CDC), Malaysia Ministry of Health, along with learnings from ECRI's field experience. The assessment tool covers 7 main IPC domains, as shown in Figure 1. Each domain is further divided into various categories to ensure key IPC considerations are adequately addressed. For each category, the assessment tool provides requirements accompanied by guiding questions to assist assessors in evaluating compliance. These requirements are supported by evidence-based justifications, complete with references.

The tool was used to assess current IPC practices in 3 critical care areas - Operating Theatre (OT), Intensive Care Unit (ICU), and Paediatric ICU (PICU) department. The IPC assessment methodology employed is outlined in Figure 2.



Results

The structured multi-domain integrated IPC assessment tool was successful in providing a comprehensive view of the IPC practices in the critical care areas. This tool allowed for the identification of non-compliances to IPC requirements within each assessed domain. Figure 3 presents an overview of IPC compliance in the different departments. For every non-compliance that was identified, actionable recommendations were developed to mitigate infection risks and enhance patient safety and healthcare quality.

The feedback received from stakeholders indicated that the developed tool was well structured and integrated with various guidelines and requirements. Furthermore, it included descriptions that were easily understandable by healthcare workers with different levels of technical expertise. The tool was deemed practical for assessing IPC practices on the ground, while also providing the flexibility for users to customize their analysis according to their specific needs.

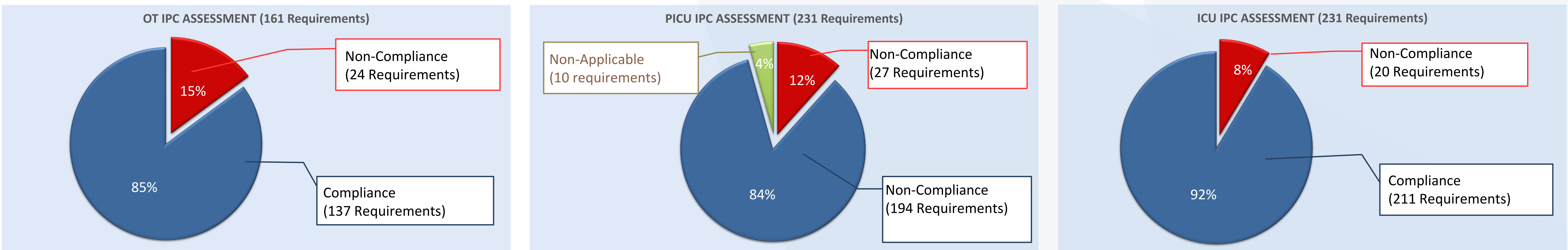


Figure 3: Overview of IPC Compliance in OT, ICU, & PICU Departments

Table 1: Examples of Key Findings & Recommendations

Domains	ECRI Key Findings	Recommendations
Clinical Workflow & Patient Care	Single-dose medication vial and sterile solutions are shared among patients.	Medication in glass ampoule is not suitable to be reused or shared. There is no mechanism to prevent contamination during storage before the next use ¹ .
Medical Instruments and Equipment Management	The equipment recording system which was used to keep track of the use of clean and disinfected ventilators was halted due to the surge of patients during Covid-19 pandemic.	Recordkeeping on the use of clean and disinfected ventilators in ICU (i.e., device ID, patient's name, date and time) should be revived for tracking. The record should also expand to other sterile consumables ^{2,3} .
PPE	During long procedure on the same patient in the OT, gloves are only changed when torn.	New gloves should be changed minimally at every 5 hours to minimize the risk of bacterial colonization on the glove ⁴ .
Reprocessing of Instruments	Heavy use of high-level disinfectant and detergent in soaking and disinfecting reusable instruments.	Excessive use of high-level disinfectant may corrode the material and increases the risk of device failure and cross-contamination among patients ^{2,3} .

Conclusion

References

The integrated IPC tool proved effective in identifying gaps within current practices in a more thorough and critical manner. This approach enables the identification of specific gaps, leading to the development of effective mitigation strategies.

By incorporating patient safety and staff safety considerations into the assessment tool, users are equipped with comprehensive understanding of the underlying evidence for each IPC requirements, allowing evidence-based decision making and implementation of robust IPC practices.

The structured approach of this IPC assessment tool enables healthcare organizations to proactively identify and address IPC risks, improve the quality of care and patient outcomes, and ultimately enhance patient safety in any given setting worldwide.

1. CDC, 2016, Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care
2. WHO, 2018, Global guidelines for the prevention of SSI
3. Ministry of Health Malaysia, 2019, Policies & procedures on IPC
4. Hosseini P, Mundis GM Jr, Eastlack R, et al. Do Longer Surgical Procedures Result in Greater Contamination of Surgeons' Hands?, Clin Orthop Relat Res. 2016;474(7):1707-1713. doi:10.1007/s11999-016-4832-1

CONTACT INFORMATION	
Contact Number: +60 3 5651 5500	E-mail Address : asiapacific@ecri.org