

## The Infection Prevention Professional

The Infection Control Association of Singapore (ICAS) is committed to education and competency building of the infection prevention professional (IPP). There is a career pathway for the IPP. This paper describes the expected proficiency level of a practising IPP in the healthcare setting.

The IPP is a health care professional (medical doctor, nurse, or other healthcare-related professional) who has completed a certified postgraduate infection prevention and control (IPC) training course, or a nationally or internationally recognized postgraduate course on IPC, or another core discipline including IPC as a core part of the curriculum as well as IPC practical and clinical training.

The IPP is trained in IPC as evidenced by a certificate from a recognised education body or an infection prevention and control society (e.g. APSIC or Asia Pacific Society of Infection Control). He/she is at least a bachelor's degree holder (e.g. Graduate Certificate in Infection Control, Master in Infection Control, Master in Public Health, etc) with working experience in a health care setting or with a provider of services to the health care industry.

The proficiency level is categorised as:

- a. **Novice** – the IPP has less than 3 years of practical IPC experience with very limited knowledge, skills, experience, and basis in which to have situational awareness in IPC and epidemiology. He/she relies on rules and concepts to guide practice and begins to develop his/her knowledge/skills in the core competencies.
- b. **Proficient** – the IPP has between 3-5 years of practical IPC experience, demonstrating proficient knowledge of the core competencies indicating that he/she has knowledge required for competent performance in IPC.
- c. **Expert** – the IPP has more than 5 years of practical IPC experience, consistently and reliably demonstrating professional expertise (and at times very advanced levels of mastery) in the IPC core competencies. The Expert IPP shares his/her knowledge and skills through mentoring, research, publication, collaboration, leadership, and educating other IPs. The expert is able to analyze more rapidly than any other stage and guide future decisions based on experience and perceptual acuity to achieve defined outcomes. The expert IPP also demonstrates capacity to take on senior leadership roles and responsibilities.

The IPP has core competencies in:

### 1. Leadership

- a. Uses leadership skills to establish a clear vision for IPC programs throughout the continuum of care in the healthcare institution. To establish that vision, the IPP collaborates with other leaders and colleagues to align IPC program goals with the strategic goals of the organization. He/she uses leadership skills to direct IPC programme initiatives (for example,

developing and leading an infection prevention program, evaluation processes, monitoring and effective utilization of results, planning, coaching, training, capacity building, strategic planning, etc.).

- b. Demonstrates problem solving and critical thinking skills when presented with situations involving infectious threats.
- c. Has effective communication skills incorporating emotional intelligence and situational awareness.
- d. Uses critical thinking in evaluation and planning of the IP program.
- e. Implements IPC interventions by working with multidisciplinary teams and using multimodal strategies and campaigning when indicated.
- f. Collaborates with relevant stakeholders to facilitate/lead interdisciplinary and interprofessional projects and research, serving as a champion for safety and evidence-based Infection Prevention practices.
- g. Links the local IPC team to Ministry of Health (MOH) and Communicable Disease Agency and Planning Office (CDA) to help coordinate the outbreak response (community or multi-hospital/facility outbreaks), promote an exchange of information, and generate regular reports.
- h. The IPP is an effective change agent using behavioural science, implementation science and change management theories in planning and execution of IPC interventions.
- i. The IPP is an effective and efficient manager of budget, resources, personnel and programs. He/she uses relevant tools such as cost-benefit analysis and is guided by healthcare economic principles to determine cost-effectiveness of IP initiatives. He/she uses team building skills to build the IPC team.
- j. Mentors other IPPs to contribute to the professional development and competency advancement of the future IP workforce.

#### Outcome metrics

- Active member of an IPC society
- Regular update through active participation in IP journal clubs and conference/seminar attendances
- Authoring a chapter in a published book
- Delivering lecture(s) in conference/seminar/workshop related to Infection Prevention
- Authoring an article published in peer reviewed journals or periodicals (as the first, second, or senior author)
- Mentors at least 1 IP mentee in IPC
- Active IPC practice in healthcare setting

## **2. Professional stewardship**

The IPP is a dedicated steward who claims responsibility for the future of the IP profession and practice.

- a. Works with all healthcare workers to ensure accountability measures are in place for IP practices.
- b. The IPP is an advocate for quality and safety and upholds ethical principles and practices related to IPC.

- c. Able to make a business case for IPC to senior management and be a good steward of resources.
- d. The IPP is also community- and population-focused and collaborates with the community partners to keep the community healthy and safe.
- e. Ensures that IPC standards are complied with in all healthcare settings.
- f. Works with academic institutions to incorporate fundamental Infection Prevention principles in the planning of curriculum guidelines.
- g. Keep abreast with Healthier SG and initiatives/program related to Population Health and advocates for IPC practises to be implemented across the continuum of care.

#### Measures

- Active involvement in preparation and presentation of business case and program proposals to senior management.
- Involvement in Healthier SG IP initiatives or initiatives/programs related to Population Health.
- Contribution in curriculum guidelines development, planning and execution of Infection Prevention academic training program.

### **3. IPC operations**

The IPP uses proactive and reactive approaches to fulfil core components of an IPC program in the organization as described by WHO:

- a. IPC program
- b. IPC guidelines
  - Formulates and reviews guidelines on IPC
  - Effective implementation of guidelines and policies
- c. IPC education and training
  - Effective advocation of importance of IPC program and practices with all staff
  - Develops or adapts IPC training resource strategies and plans targeting different audience
  - Surveillance for HAIs including influenza
  - Conducts surveillance of HAIs
  - Able to design HAI surveillance activities
  - Regularly reviews and analyses surveillance data to adjust surveillance targets and objectives
- d. Infectious diseases-related occupational health
  - Formulates and reviews guidelines on immunization program, post-exposure management and prevention of needlestick injuries for healthcare staff
  - Advocates provision of safe environment for staff and use of safety engineered devices
  - Monitoring and analysis of needlestick injuries and healthcare exposures to vaccine-preventable diseases leading to policies review and advocacy of initiatives to provide safe working environment for staff

- e. Multimodal strategies
- f. Monitoring, audit and feedback of IPC practices
  - Develops and implements feasible monitoring systems for key IPC indicators
  - Conducts cross audits in various hospitals, at least once yearly, for compliance to IPC Standard and Practices.
  - Implements process to monitor IPC program
  - Collaborates with risk management and QI teams
    - Risk assessment used to identify hazards and risks regarding location, population, care environment, behavioural factors
    - Risk prioritization used to determine probability of occurrence, consequence of occurrence, and level of preparedness for each risk
    - Evaluates and assesses effectiveness of IPC interventions and identify which activities are successful and which need to be changes
  - Conducts product evaluation based upon appropriate assessment criteria with objectives of selecting most clinically and cost-effective products
  - Monitor potential epidemics or influx of ID
- g. Workload, staffing and bed occupancy at facility level
- h. Built environment, materials and equipment for IPC
  - Oversees sterilization and disinfection practices of organization
  - Provides appropriate IPC measures for cleaning, waste & recycle management, air, water, laundry and food
  - Takes active role in risk reduction during planning of renovations and new constructions, planning and implementation of environmental sustainable drives/initiatives in organization
- i. Antimicrobial and diagnostic stewardship
 

Involved in ASP by providing consultative expertise

  - Proactively contributes by identifying and detecting MDROs among the population served, reporting surveillance trends over time, using surveillance data and analyzing antibiograms and antibiotic use.
  - Role in collaborative effort that involves decisions about new diagnostics are needed, how they will be used and interpreted, cost implications and trade-off.
  - Monitors impact of diagnostic stewardship via HAI data analysis and incorporate financial value in evaluation process
- j. Outbreak detection and management
  - Outbreak detection and management with ongoing review of IP measures and performance; and implementing analytic study if needed
  - Detecting emerging or novel pathogens

#### Measures

- Involvement in guidelines development and/or review workgroups
- Active involvement in outbreak management team or pandemic preparedness team in organization

#### **4. Quality improvement**

Uses the QI framework to systematically improve care and reduce infections within healthcare setting and throughout continuum of care. Goal is to implement stable processes, reduce variation and improve outcomes to establish a culture of sage and quality care within organization.

- a. Collaborates with other HCWs on improving processes to create change leading to better outcomes and sustained improvement.
- b. Competent in predicting possible failures in process and practices and act to pre-empt or prevent them.
- c. Uses data collected to improve processes and implement strategies to effect change.
- d. Uses risk assessment approach in program planning.
- e. Uses risk reduction approach via implementation of evidence-based prevention strategies directed by surveillance data, annual risk assessment, and services provided by organization.

#### Measures

- Leading or facilitating QI projects aiming to enhance IP standards or outcomes
- Successful in implementing change leading to better and sustainable clinical outcomes

#### **5. IPC informatics**

Keeps abreast of and proficient in using and leveraging information and diagnostic technologies to input, analyse, extract and manage data to support and drive data integrity.

- a. Keeps paced with surveillance technology.
- b. Guides IT solutions for daily IP issues e.g. enhancing surveillance processes; building rules for clinical alerts, etc. Creates data management process for IPC program and adopts visualization methods to help enhance identification of patterns, trends and correlations.
- c. Aware of advancements in healthcare-related diagnostic testing methods and use machine learning and AI to consider incorporation into surveillance systems to assure reliable monitoring of HAIs.

#### Measures

- Optimizes use of surveillance technology to look for diseases and illnesses trends
- Analyses and interprets data to evaluate effectiveness of strategies implemented.

- Utilizes data to provide recommendations on adoption of best-evidence based practices, and guide policy review/change.

## **6. Research**

Uses applied research and implementation science and use the information to develop and enhance the IPC program.

- a. Able to critically appraise appropriateness of research methodology, strengths, limitations and application of research to determine possible implementation in IPC program.
- b. Understands comparative effectiveness research (CER) and applies knowledge to make informed decisions when recommending products, devices and supplies to use and implement.
- c. Competent in methods and working of implementation and dissemination science and integrates these in strategies to change practice patterns.
- d. Participates in research by identifying gaps in knowledge and set research priorities for the organization

### Measures

- Involvement in research projects leading to publication and change in practice.
- Sharing of at least one completed project at local or overseas conference/seminar related to Infection Prevention.
- Contributing at least one paper with peer-reviewed journal every 2 – 3 years.

## **References**

1. Guidelines on core components of IPC (WHO)
2. Core competency for Infection Prevention and Control Professionals (WHO)
3. Core competencies for infection control and hospital hygiene professionals in the European Union (ECDC)
4. Billings C, Bernard H, Caffery L, Dolan SA, Donaldson J, Kalp E and Mueller A. Advancing the profession: An updated future-oriented competency model for professional development in infection prevention and control. American Journal of Infection Control 47 (2019) 602–614.