

Programme Name

National Pharmacy Residency Year 2 (R2) Programme in Infectious Diseases Pharmacy

Purpose of the Infectious Diseases Pharmacy Residency

The purpose of the Infectious Disease (ID) Residency programme is to provide relevant and quality training in order to transit pharmacists from generalist practice to specialised practice that is focused on provision of pharmaceutical care of patients with infectious diseases.

Upon successful completion of the residency training, the pharmacist will be equipped to be an integral member of the healthcare team caring for patients with complex infective issues, assuming responsibility for their pharmaceutical care. He/She will be able to practice independently and will serve as a resource for information about anti-infectives, educating fellow healthcare professionals on related topics. Graduates can also provide consultation for healthcare practitioners seeking advice on patient-related and formulary-related ID issues. Building upon the research skills they have acquired during their residency, graduates will be able to conduct future research studies to advance the knowledge base in the area of infectious diseases.

Programme Overview

The programme taps on the Singapore General Hospital's rich clinical resources and expertise and involves a 1 year full-time training that is conducted primarily in the Singapore General Hospital, with rotations to external sites offered. Through this combination, residents are given an in-depth rigorous experiential training that builds upon their competencies established in R1 Pharmacy Practice Residency or equivalent broad-based training.

The programme seeks to equip experienced pharmacists with specialist knowledge and skills to perform unique functions that characterize the infectious diseases pharmacotherapy specialist. By the end of the residency, the resident is expected to perform the following activities independently.

- Standard PC1: In collaboration with the health care team, provide comprehensive medication management to patients with infectious diseases following a consistent patient care process.
- Standard PC2: Ensure continuity of care during infectious diseases patient transitions between care settings.
- Standard AP1: Demonstrate ability to manage formulary and medication-use processes for infectious diseases patients.
- Standard AP2: Demonstrate ability to conduct a quality improvement or research project.
- Standard AP3: Manage antimicrobial stewardship activities.
- Standard LM1: Demonstrate leadership skills for successful self-development in the provision of care for patients with infectious diseases.
- Standard LM2: Demonstrate management skills in the provision of care for patients with infectious diseases.
- Standard TE1: Provide effective medication and practice-related education to infectious diseases patients, caregivers, health care professionals, students, and the public (individuals and groups).
- Standard TE2: Effectively employ appropriate preceptor roles when engaged in teaching students, pharmacy technicians, or fellow health care professionals about care of patients with infectious diseases.

Programme Structure and Activities

The National Pharmacy Residency Year 2 (R2) Programme in Infectious Diseases Pharmacy is a 12-month full-time programme based primarily in the Pharmacy Department, Singapore General Hospital, with 3 months of attachment rotations to other hospitals in Singapore where available. Table A outlines the types of activities that the residents will undertake during their residency.

The antimicrobial stewardship program (ASP) will form the backbone of the residency program where the resident will be expected to perform ASP functions on a daily basis when he/she is not rotated to the laboratory or external sites. Based on the scope of work required in this program, the resident will be expected to work approximately 42 hours per week, including alternate half-days on Saturdays as per the antimicrobial stewardship program roster. Residents will not be rostered for night and holiday duties.

A large component of the teaching in this program will involve practical training and patient contact based on a variety of infectious disease conditions. Residents will develop their clinical knowledge and acumen through a variety of learning contexts such as discussion sessions, supervised and independent clinical practice and self-directed learning. They will also have the opportunity to practice clinical report writing and verbal reporting as well as develop basic ability in formulating research questions.

	Residency Activities	Duration
a.	<p>Orientation</p> <p>The new resident will be briefed on the purpose, applicable regulations, expected professional and practice standards. The preceptors will also orient the resident to their learning experiences and evaluation strategy employed in the program.</p> <p>The resident, together with preceptor, will discuss and document an agreed-upon training plan based upon an assessment of the resident's baseline knowledge, skills, attitudes, and abilities and the resident's interests.</p> <p>External residents will need, to learn the various hospital IT systems and develop a sound understanding of their medication use process.</p>	1–2 weeks at the start of the residency
b.	<p>Ward Rounds#</p> <p>Types:</p> <ul style="list-style-type: none"> ▪ Daily ASP rounds (mid-day meeting with ASP physician and pharmacists) ▪ Specialty rounds with ID physician and ID pharmacist e.g. haematology/oncology, solid-organ transplant, critical care, vascular surgery ▪ Weekly ID consult rounds with ID physician and ID pharmacist <p>#Activities to be carried out by resident as part of these rounds:</p> <ol style="list-style-type: none"> 1. Maintain a current patient profile for selected patients including basic demographics, medication list and appropriate therapeutic and laboratory monitoring parameters. 2. Provide therapeutic drug monitoring services for applicable drugs e.g. vancomycin, aminoglycosides, azoles, beta-lactams 3. Review and obtain primary literature, where necessary to guide patient care 4. Document all interventions and adverse drug reactions in hospital electronic medication record system (Sunrise Clinical Manager). 5. Provide patient education where applicable (counselling) 6. Ensure continuity of care for patients transitioning to other levels of care e.g. outpatient 	~ 42 weeks*

c.	<p>Ambulatory care clinic e.g. infectious diseases and travel clinic and OPAT</p> <ul style="list-style-type: none"> Weekly infectious diseases clinic with infectious diseases physician <p>Activities to be carried out by residents during and after clinic sessions:</p> <ol style="list-style-type: none"> Perform medication reconciliation and help resolve medication issues for patients seen during clinics. Maintain a current patient profile for selected patients including basic demographics, medication list and appropriate therapeutic and laboratory monitoring parameters. Provide therapeutic drug monitoring services for applicable drugs e.g. vancomycin, aminoglycosides, azoles, beta-lactams (OPAT) Review and obtain primary literature, where necessary to guide patient care Document all interventions and adverse drug reactions in hospital electronic medication record system (Sunrise Clinical Manager). Provide patient education and assess patients' compliance where required Provide drug information to ID physician as needed <ul style="list-style-type: none"> Travel clinic with infectious diseases physician and nurses 	<p>16-24 weeks**</p> <p>4 sessions**</p>
d.	<p>Learning sessions</p> <p>Conducts and/or participates in continuing education sessions at least once every month with ID pharmacists &/or physicians covering infectious diseases topics as well as journal updates.</p>	<p>48 weeks*</p>
e.	<p>Informal Presentations / Discussions</p> <p>Residents will meet with preceptor responsible for that learning experience once or twice a week to discuss the cases managed by the resident and/or clinical infectious diseases topics. These sessions are also opportunities for candidates to feedback on their learning problems/difficulties.</p>	<p>48 weeks*</p>
f.	<p>Research Project</p> <p>The project will be undertaken by the resident as the Principal Investigator, with publication submission at the end of the Residency as the goal. In-house, local and/or international presentation is also expected. The presentations will provide the exposure for residents to handle peer critique. The goals and objectives outlined for Standard AP2 will be covered in this component.</p>	<p>48 weeks*</p>
g.	<p>Teaching of fellow healthcare professionals and students</p>	<p>48 weeks*</p>
h.	<p>Anti-infective Research Laboratory Attachment</p>	<p>2 weeks**</p>
i.	<p>Microbiology Laboratory Attachment</p>	<p>2 weeks**</p>

* Longitudinal

** Stand alone component

Delivery Methods

- Clinical review / rounds / ambulatory clinics
- Discussion Sessions
- Oral presentations
- Teaching

- Ad hoc activities / meetings
- Self-directed / reflective learning

Evaluation

- Formative assessment of each learning experience
 - o Snapshots and sample review of resident's clinical documentation in all medical records
 - o Ongoing / adhoc discussions
 - o Weekly clinical / topical discussion sessions
 - o Regular presentations
 - o Quarterly evaluations
- Summative assessment of each learning experience
- Other Summative components include:
 - o Research Project
 - o Viva

Exit Requirements

- To successfully complete the Residency, the candidate must fulfill the following requirements: At least 90% attendance for the entire programme;
- Successfully complete all quarterly evaluations with the relevant preceptors / residency program director and achieved the minimum grade of "satisfactory progress" for all goals by the end of the residency.
- Fulfill the requirements stated by the Pharmacy Residency Exam Committee

A candidate who successfully completes the programme will be awarded the National Infectious Diseases Pharmacy Residency Certificate of Competency. This certificate will reflect that the candidate has satisfactorily fulfilled all the requirements of the Residency.

If a candidate fails in his/her first attempt in any of the above-mentioned assessments, opportunity will be given for two further attempts (in January or July) within the year immediately after the end of the programme which will have minimal supervision. Any additional fee(s) will be borne by the candidate. Upon successfully passing all assessments, the candidate will likewise be awarded the Certificate of Competency in the Infectious Disease Residency.

Training Sites

Singapore General Hospital, Tan Tock Seng Hospital, National Centre for Infectious Diseases