



**COMPETENCY BASED FRAMEWORK
FOR
PHARMACY PROFESSIONALS
IN
BHUTAN**

**Ministry of Health
Royal Government of Bhutan**

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Competency based framework for Pharmacy professionals – pharmacists and pharmacy technicians

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Abbreviation

CBF	Competency based framework	GC	Gas Chromatography
RCSC	Royal Civil Service Commission	GCMS	Gas Chromatography Mass Spectrophotometer
ADR	Adverse Drug Reactions	GMP	Good Manufacturing Practice
AMS	Antimicrobial Stewardship	HPLC	High Performance Liquid Chromatography
AMSU	Antimicrobial Stewardship Unit	JDWNRH	JigmeDorjiWangchuck National Referral Hospital
API	Active Pharmaceutical Ingredients	MoH	Ministry of Health
BCSR	Bhutan Civil Service Rules and Regulations	OJT	On job training
BMHC	Bhutan Medical and Health Council	PHC	Primary Healthcare Centres
BMRR	Bhutan Medical Rules and Regulation	PPE	Personal Protective Equipment
CAPA	Corrective Action Preventive Action	RCDC	Royal Centre for Disease Control
CME	Continued Medical Education	SOP	Standard Operating Procedure
CPD	Continuing Professional Development	STT	STT
CSAB	Civil Service Act of Bhutan	TDM	Therapeutic Drug Monitoring
DI	Drug Information	TNA	Training Need Analysis
RRH	Regional Referral Hospital	FGD	Focus group discussion
BI	Behavioural indicators	ePIS	Electronic patient information system

1. Background

1.1. About the Department

Medicinal products are vital for the prevention and treatment of diseases. However, without the proper management and use, the potential benefits of these products are often not realised. Pharmacy professionals with their expertise in pharmacotherapeutic and pharmaceutical sciences are ideally poised to be at the forefront of efforts in ensuring access to quality medicines, promoting evidence-based treatment and ensuring medication safety. They should be able to make meaningful contributions to the pharmaceutical services that will ultimately contribute to a healthy Bhutanese society.

The pharmacy professionals are involved throughout all the processes of medicine use. Pharmacy professionals should therefore, be thorough with the pharmaceutical care processes. This involves ensuring medications are appropriate to the patient's needs; instructions for use are clear; drug-drug and drug-food interactions are prevented; known and predictable adverse drug reactions, including allergies and other contraindications, are avoided. Monitoring treatment outcomes to verify effectiveness and adverse drug events is also an important part of the process of use of medicines.

Modern pharmacy services in Bhutan started with the advent of modern healthcare. Pharmacies in the hospitals across the country have started as basic dispensary units. It was run by compounders who besides dispensing and compounding medicines provided injection and wound dressing. Now with gradual increase in pharmacy workforce, healthcare facilities in the country except for Primary Healthcare Centres (PHC) have dedicated pharmacy units manned by pharmacists and pharmacy technicians. The pharmacy unit in each hospital is responsible for provision of optimal pharmaceutical care. It must strive to ensure that the medicines that the patients receive are safe and efficacious, and that they are appropriate to their clinical needs.

Dispensing and stock management of medicines have been recognized as the primary job of pharmacy professionals in the country. However, in-patient pharmacy services have now been started at least in the referral hospitals and the effort is now on to enhance clinical pharmacy services.

Pharmacy professionals in this document include pharmacist and pharmacy technicians. While pharmacists and pharmacy technicians both work in same work setting, their job responsibilities vary and must be understood as two distinct professions. Pharmacists are expected to have extensive knowledge of medications and must ensure patients get the right medicines, and pharmacy technicians help in filling of prescriptions.

Pharmacists also have supervisory role and bears accountability for the patient outcome. Therefore, they should not only possess good knowledge but also exhibit good leadership capabilities. They should also be able to bring out innovations and adaptations in work processes to keep pace with the fast evolving medical and health sciences and emerging needs of the patients. Pharmacists should be able to inspire and instil confidence in the staffs and at the same time be able to contribute as a member of the multidisciplinary healthcare team.

While the job responsibilities are numerous, in absence of a competency framework there are disparities in terms of whether every pharmacist/pharmacy technician working in the hospitals are able to deliver as per their job responsibilities. Therefore, development of a competency-based framework for pharmacists and pharmacy technicians will go a long way in enhancing the pharmaceutical services in the country.

1.2. Vision of the Department/Agency

To achieve and sustain highest level of patient satisfaction from the optimal pharmaceutical care services

1.3. Missions of the Department

Provide safe, accessible, equitable and cost-effective pharmaceutical services to the people of Bhutan by competent pharmacy professionals.

1.4. Core Values

- i. Putting patient first
- ii. Valuing the contribution of all members
- iii. Striving for excellence and consistency
- iv. Taking ownership of the mistakes
- v. Establishing an environment conducive to achieving the vision

1.5. Core Functions

- i. Ensure availability and access to quality medicines for all the patients at all times.
- ii. Ensure the quality and efficacy of medicines is well maintained.
- iii. Ensure patients get best out of their medicine through optimal pharmaceutical care.
- iv. Ensure cost-effectiveness of pharmaceuticals in use.
- v. Ensure pharmacy professionals are well trained and updated.
- vi. Promote rational use of medicines amongst healthcare professionals.

2. Competency-Based Framework for Pharmacy Professional (Pharmacists and Pharmacy Technicians)

2.1. Introduction

The competency-based framework (CBF) for the public service programme was launched by Royal Civil Service Commission (RCSC) in collaboration with Singapore Polytechnic International (SPI) with the aim of strengthening the capabilities of the Government agencies and public officers through implementation of competency-based management framework. The framework focuses on human resource development through identification of skills needs of employees; assists continuous development and professionalism; and enhances efficiency in service delivery. CBF is also expected to address duplication of roles and responsibilities amongst similar occupational groups and as well as within a particular professional group thereby enhancing efficiency and productivity.

As with the other categories of healthcare workers, the pharmacy workforce in Bhutan has evolved rapidly over time. The scope of work for pharmacists and pharmacy technicians has also expanded. While pharmacists and technicians are supposed to be working as a team, it is important that there is a clear delineation of roles. Further, level of competencies amongst the pharmacists and pharmacy technicians themselves could vary depending on the qualification and experience.

For the health sector, CBF development was piloted with medical doctors, nurses and health assistants in 2019. The CBF development process for pharmacist and pharmacy technician was started in 2021 with the training of two master trainers by the RCSC. Subsequently, a task force comprising of members from the Ministry of Health, Bhutan Medical and Health Council (BMHC), Royal Centre for Disease Control, Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) and District hospitals was formed to take up the development of the CBF. These involved a series of workshops and consultations with pharmacists and pharmacy technicians in the field. Separate workshops were held for pharmacists and pharmacy technicians respectively to identify and document key roles, competency areas, behavioural indicators and training needs. Online survey was then conducted for each category to validate the indicators and to assess the training needs. The response rate was 85.7% for the pharmacists and 76.2% for the pharmacy technicians respectively. More than 90% of the respondents of the survey for pharmacists and pharmacy technicians agreed with the proposed key role, competency area, key competencies and behavioural indicators.

The CBF for comprises of 3 Key Roles, and 11 Competency Areas common to both pharmacists and pharmacy technicians. Based on the common Competency Areas, 28 Key Competencies, and 74 Behavioural Indicators were identified for the pharmacist. Similarly, 24 Key Competencies, and 64 Behavioural Indicators were identified for the pharmacy technicians.

2.2. Purpose

The CBF highlights the knowledge, skills and abilities required for pharmacists and pharmacy technicians to achieve a high level of professional competence and deliver the highest standard of pharmaceutical services.

2.3. Aim

Build a fraternity of pharmacists and pharmacy technicians who are highly knowledgeable, skilful and competent in delivering efficient and effective pharmaceutical services.

2.4. Objectives

The framework is developed with the following objectives:

- i. To define clear roles and responsibilities for pharmacists and pharmacy technicians, respectively and at different proficiency levels.
- ii. To ensure appropriate training and professional development of pharmacists and pharmacy technicians to enhance their competencies
- iii. To provide quality pharmaceutical services by the competent pharmacy professionals

2.5. Structure

2.5.1. Framework development processes

2.5.1.1. Framework development process for pharmacists

The following processes were involved in development of the CBF of pharmacist:

- *Identification of Key Roles, Competency areas and Behavioural indicators:* In October 2021, a 5-day workshop for task force members consisting of representatives from JDWNRH, BMHC and RCDC and

the district hospital identified 3 key roles, 11 Competency Areas, 28 Key Competencies and 74 Behavioural Indicators for the pharmacist.

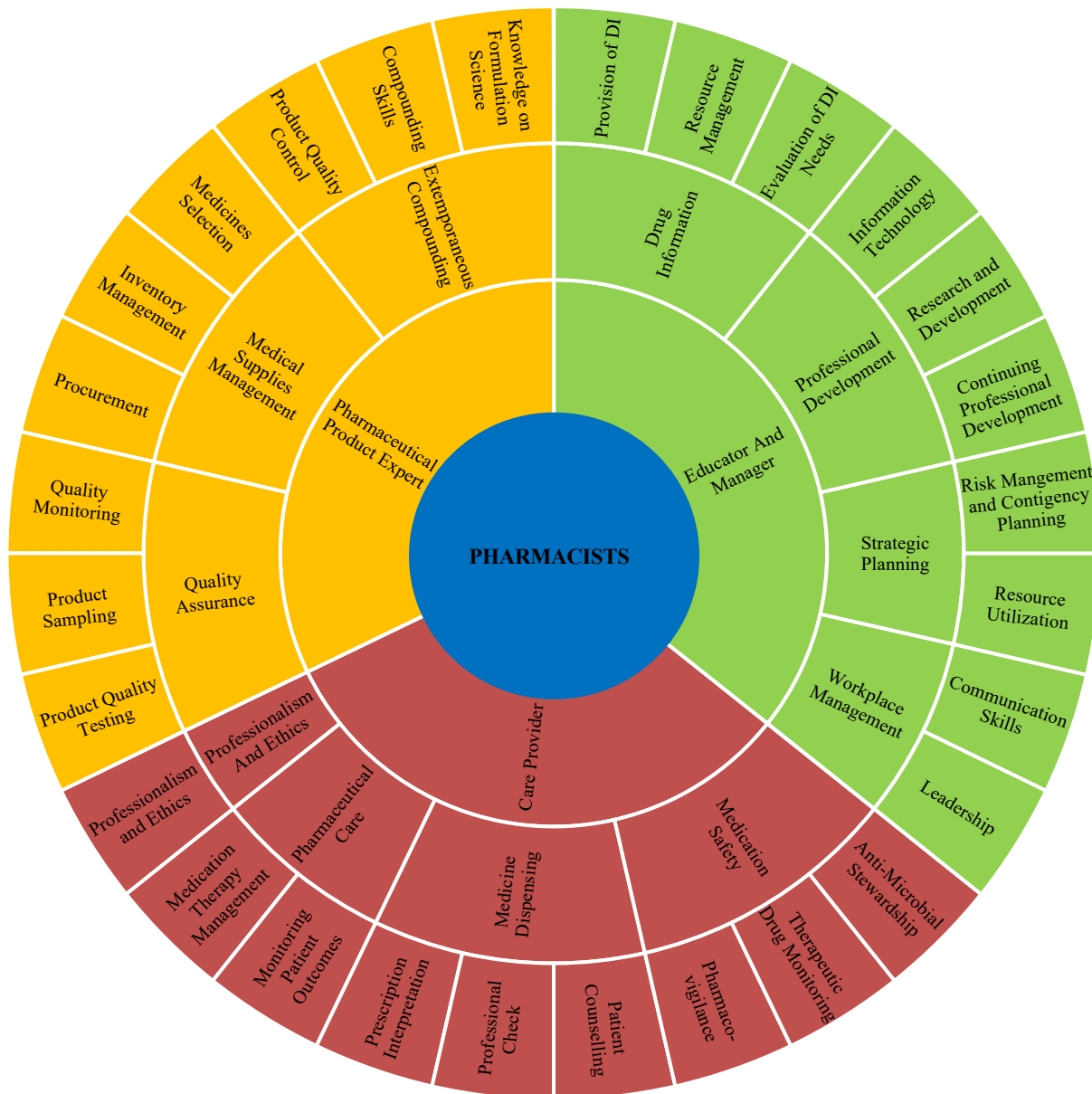


Figure 1: Mandala of CBF for pharmacists

- Consultation and Validation of Competency Areas, Key Competencies & Behavioural Indicators:* Online survey was conducted for pharmacists working at the MOH, Referral hospitals, District hospitals and RCDC on the proposed Key Roles, Competency Areas, Key Competencies and Behavioural Indicators. The survey was completed over 2 months from November to December, 2021. Online zoom meeting was also conducted following the survey to seek further views. Face to face meetings could not be conducted because of the COVID-19 pandemic restrictions. Over 90% of the pharmacists consulted agreed to the proposed competencies and behavioural indicators.

- *Training Need Analysis:* An online survey on the Training Need Analysis (TNA) was conducted in December 2021. A total of 27 pharmacists from various health facilities responded to the survey. The summary of the findings on training need analysis is given under Table no.15. The findings of the survey were used to plan short term and long-term training programs to enhance the competencies of the pharmacists.

2.5.1.2. Framework development process for pharmacy technicians

The following processes were involved in development of the CBF of pharmacy technicians:

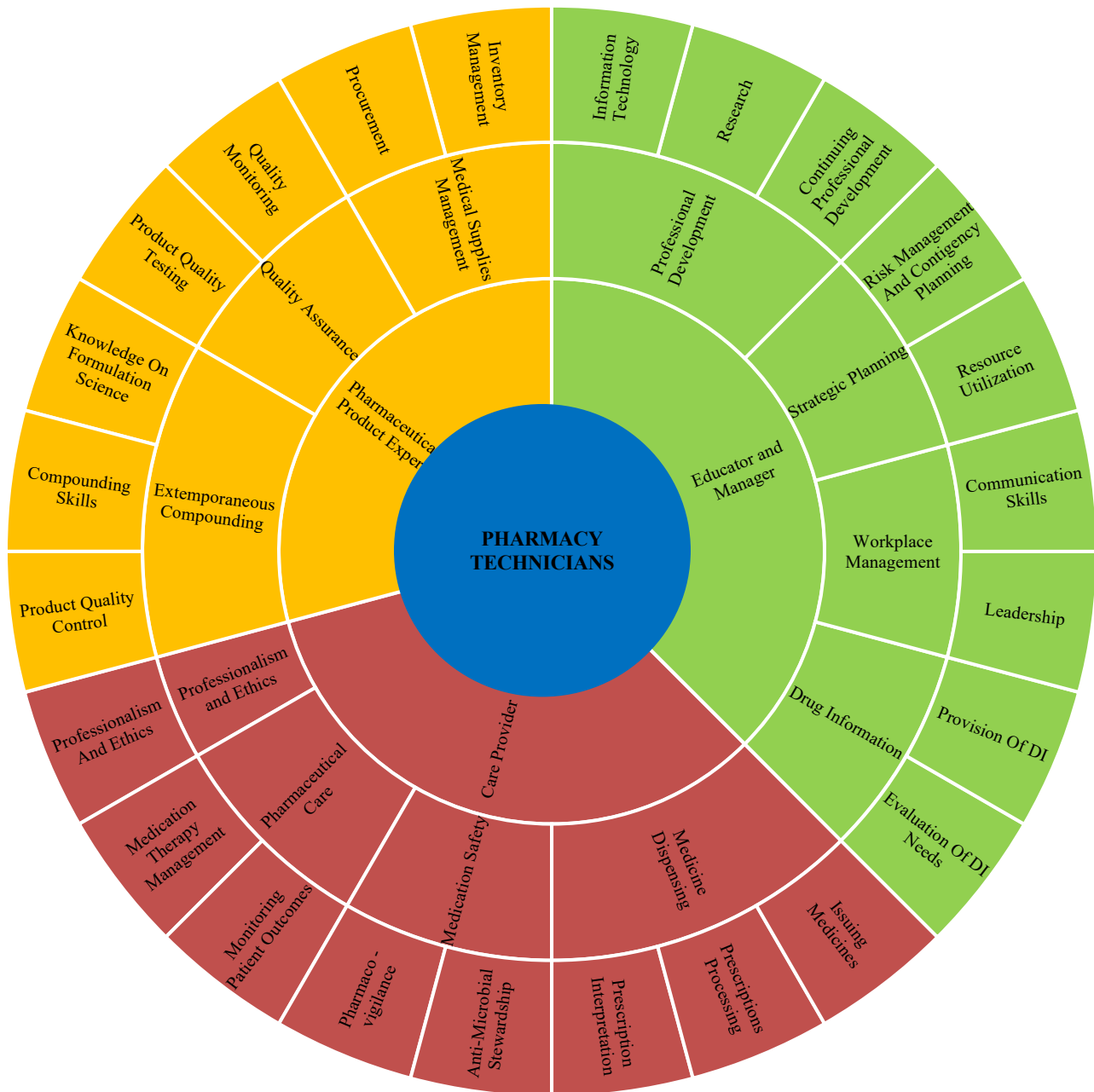


Figure 2: Mandala of CBF for pharmacy technicians

- *Identification of Key Roles, Competency areas and behavioural indicators:* In November 2021, a 3 days' workshop for task force members consisting of representatives from JDWNRH, BMHC and RCDC and the district hospital identified 3 key roles, 11 Competency Areas, 24 Key Competencies and 64 Behavioural Indicators for the pharmacy Technicians.
- *Consultation and Validation of Competency Areas, Key Competencies & behavioural Indicators:* In December 2021, an online survey was conducted for pharmacy technicians working at referral hospitals, district hospitals, and RCDC on the proposed Competency Areas, Key Competencies and Behavioural Indicators. 118 pharmacy technicians responded to the survey. Face to face meetings could not be conducted because of the COVID-19 pandemic restrictions. Majority of the pharmacy technicians surveyed agreed to the proposed competencies and behavioural indicators.
- *Training Need Analysis:* The online survey of pharmacy technicians on the TNA was completed in February 2022. The target group included the pharmacy technicians with minimum qualification of Certificate in Pharmacy. A total of 83 pharmacy technicians from various health facilities responded to the survey. The findings on the TNA are given under Table 16. The findings of the survey were used to plan short term and long-term training programs to enhance the competencies of the pharmacists

2.5.2. Identification of Key Role

The key role is an organized set of behaviours that are crucial to achieve the current and future goals of the Department of Pharmacy. It is important that pharmacy professionals perform their duties in line with the Key Roles to be able to achieve the common goal of optimal pharmaceutical care. Following are the key roles expected to be performed by the pharmacy professionals:

A. Pharmaceutical product expert

To ensure patients have uninterrupted access to quality pharmaceuticals, pharmacy professionals have important product-oriented roles in manufacture, product selection, formulary management, quality assurance and stock management of pharmaceuticals. Expertise in stock management is required to ensure availability of medicines, and at the same time ensuring product efficacy during the entire product shelf life. They are expected to possess competencies in pharmaceutical compounding of non-sterile and sterile products. Pharmacy professionals must also be able to identify the quality defect of pharmaceutical products. Timely communication on quality defect is important to prevent harm arising out of product quality issues.

B. Care provider

In order to ensure patients get the best out of their medicines, pharmacy professionals must be able to dispense products to patients for the right indication, at the right dose, and for the right duration. Pharmacy professionals are often the exit point care-provider encountered by the patients. Pharmacy professionals must therefore be able to verify the validity, clarity, completeness or authenticity of the prescription; assess the therapeutic appropriateness of the prescription for the patient; and select appropriate products and ingredients using knowledge pharmacotherapy and pharmaceutical sciences. They must also be able to identify and address patterns of unusual drug prescribing and usage including

possible drug misuse. As a part of the pharmaceutical care plan, pharmacy professionals should be able to determine the patient's actual and potential drug therapy problem and develop a patient care plan in partnership with the patient and in collaboration with other healthcare professionals.

C. Educator & Manager

Patient education is the cornerstone of good dispensing practice. Pharmacy professionals are expected to possess good communication skills to be able to educate patients and other healthcare workers on rational use of medicines. They should also take a proactive role in general health education including promoting a healthy lifestyle.

Description of Role Profile

The role profile is the description of roles that Pharmacists and Pharmacy Technicians are expected to demonstrate in achieving the outcomes of the Pharmacy Department. It defines outcomes and competencies for an individual role. It concentrates on outcomes rather than duties, which provides better guidance than a job description on expectations. It does not constrain pharmacy professionals from carrying out a prescribed set of tasks.

Table 1: Role Profile of Pharmacist and Pharmacy Technicians

SN	Key Role	Role Description
1	Pharmaceutical Product Expert	<ul style="list-style-type: none"> ▪ Carry out extemporaneous compounding through application of knowledge of pharmaceutical formulation ▪ Selection of medicines for inclusion in the national formulary based on the scientific evidence and cost effectiveness following criteria mentioned in the national drug policy. ▪ Carry out timely procurement and effective inventory management to ensure availability of vital and essential medicines throughout the year and to minimize wastage. ▪ Monitor product quality on a regular basis through appropriate sampling and product quality testing as per standard operating procedures to ensure quality of the medicines.
2	Care Provider	<ul style="list-style-type: none"> ▪ Carry out Good Dispensing Practice and provide adequate counselling. ▪ Identify, prioritize and resolve medication therapy problem through application of knowledge of pharmacotherapy ▪ Optimize treatment outcome through therapeutic drug monitoring and antimicrobial stewardship ▪ Improve medication safety through detection and reporting of adverse drug reactions.
3	Educator and Manager	<ul style="list-style-type: none"> ▪ Conducts continuing professional development activities to support their scope of practice ▪ Identify sources, search information systematically, evaluate and provide evidence-based drug information appropriate for the needs of clients. ▪ Able to identify and address problems within the organisation through communication skills and effective resource utilisation.

2.5.3. Identification of Competency Areas

The competency area is the clustering of key competencies by related behaviour and functions of each role. It comprises a set of Knowledge, Skills and Abilities (KSA) that result in essential behaviours expected from Pharmacists and Pharmacy Technicians. The framework has identified 10 competency areas.

Table 2: Competency Area for pharmacists and pharmacy technicians

Role #	Key Role	Competency Area
1	Pharmaceutical Product Expert	1.1. Extemporaneous Compounding
		1.2. Medical Supplies Management
		1.3. Quality Assurance
2	Care Provider	2.1. Medicine Dispensing
		2.2. Pharmaceutical Care
		2.3. Professionalism and Ethics
		2.4. Medication Safety
3	Educator and Manager	3.1. Drug Information
		3.2. Workplace Management
		3.3. Strategic Planning

2.5.4. Identification of Key Competencies

The key competency is an observable behaviour that indicates the presence of the particular competency. Generally, it is broadly divided as core competency, leadership competency and technical or functional competency.

2.5.4.1. Identification of key competencies for Pharmacists

The framework has identified 28 key competencies for Pharmacists as below:

Table 3: Key competencies for Pharmacists

SN	Key Role	Major Competency Area	Key Competencies
1	Pharmaceutical Product Expert	1.1.Extemporaneous Compounding	1.1.1. Knowledge on formulation science
			1.1.2. Compounding skills
			1.1.3. Product quality control
		1.2.Medical Supplies Management	1.2.1. Medicines selection
			1.2.2. Inventory Management
			1.2.3. Procurement
		1.3.Quality Assurance	1.3.1. Quality Monitoring
			1.3.2. Product Sampling
			1.3.3. Product Quality Testing
2	Care Provider	2.1.Medicine Dispensing	2.1.1. Prescription Interpretation

			2.1.2. Professional Check
			2.1.3. Patient Counselling
		2.2. Pharmaceutical Care	2.2.1. Medication Therapy Management
			2.2.2. Monitoring patient outcomes
		2.3. Professionalism And Ethics	2.3.1. Professionalism and Ethics
		2.4. Medication Safety	2.4.1. Pharmacovigilance
			2.4.2. Therapeutic Drug Monitoring
2.4.3. Antimicrobial stewardship			
3	Educator and Manager	3.1. Professional Development	3.1.1. Continuing Professional Development
			3.1.2. Research and development
			3.1.3. Information Technology
		3.2. Drug Information	3.2.1. Evaluation of drug information needs
			3.2.2. Resource management
			3.2.3. Provision of drug information
		3.3. Workplace Management	3.3.1. Leadership
			3.3.2. Communication Skills
		3.4. Strategic Planning	3.4.1. Resource utilization
			3.4.2. Risk management and contingency planning

2.5.4.2. Identification of key competencies for Pharmacy Technicians

The framework has identified 24 key competencies for Pharmacy technicians as below:

Table 4: Key competencies for Pharmacy Technicians

SN	Key Role	Competency Area	Key Competencies		
1	Pharmaceutical Product Expert	1.1. Extemporaneous compounding	1.1.1. Knowledge on Formulation science		
			1.1.2. Compounding skills		
			1.1.3. Product quality control		
		1.2. Medical Supplies Management	1.2.1. Medicines selection		
			1.2.2. Inventory Management		
2	Care Provider	2.1. Medicine Dispensing	2.1.1. Prescription interpretation		
			2.1.2. Professional Check		
			2.1.3. Patient Counselling		
		2.2. Pharmaceutical Care	2.2.1. Medication Therapy Management		
			2.2.2. Managing Patient Outcomes		
		2.3. Professionalism and Ethics	2.3.1. Professionalism and Ethics		
		2.4. Medication Safety	2.4.1. Pharmacovigilance		
			2.4.2. Therapeutic Drug Monitoring		
			2.4.3. Antimicrobial stewardship		
		3	Educator and	3.1. Professional	3.1.1. Continuing Professional Development

	Manager	Development	3.1.2. Research and development
			3.1.3. Information Technology
		3.2. Drug Information	3.2.1. Evaluation of drug information needs
			3.2.2. Resource management
			3.2.3. Provision of drug information
		3.3. Workplace Management	3.3.1. Leadership
			3.3.2. Communication Skills
		3.4. Strategic Planning	3.4.1. Resource Utilisation
			3.4.2. Risk Management and contingency planning

2.5.5. Identification of Behavioural Indicators for Pharmacists

The behavioural Indicators is the description of competencies based on various proficiency levels. It outlines a collection of desired and observable motives, traits and behaviours when executing or carrying out the assigned task. It serves as a tool to guide evaluations of employee performance. The framework has identified 74 behavioural indicators for Pharmacists.

Table 5: Behavioural indicators for Pharmacists

Key Role 1: Pharmaceutical Product Expert		
Major Competency Area	Key Competencies	Behavioural Indicators
1.1. Extemporaneous Compounding	1.1.1. Knowledge On Formulation Science	1.1.1.1. Conversant on compounding and reconstitution of medicines.
		1.1.1.2. Have sound knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on the quality, safety and efficacy of finished product.
		1.1.1.3. Exhibit comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including GMP.
		1.1.1.4. Demonstrate sound Knowledge on Occupational Safety and Appropriate Use of PPEs.
		1.1.1.5. Demonstrate sound knowledge on the determination of shelf life of finished products.
	1.1.2. Compounding Skills	1.1.2.1. Effectively uses technical skills to prepare pharmaceutical products as appropriate to their practice setting.
		1.1.2.2. Performs proper and consistent packaging, labelling, storage and documentation of the finished products.
		1.1.2.3. Have good knowledge on selection of ingredients, excipients, equipment, packaging materials and formulations.
	1.1.3. Product Quality Control	1.1.3.1. Develops protocols for ensuring quality of prepared medicines.
		1.1.3.2. Prepares pharmaceutical products according to the standards required including standard operating procedures (sops), guidelines, or good manufacturing practice as appropriate
		1.1.3.3. Applies knowledge to ensure the appropriate quality controls and monitoring

		are in place.
		1.1.3.4. Maintains records and documentation for product quality control (registration form, product record form, worksheets, test reports, complaint form).
1.2. Medical Supplies Management	1.2.1. Medicines Selection	1.2.1.1. Demonstrates sound understanding of medicines supply chain and criteria of selection of medicines.
		1.2.1.2. Reviews information and evidence on medicine cost-effectiveness.
	1.2.2. Inventory Management	1.2.2.1. Carries out analysis of cost-effectiveness and consumption pattern of medicines.
		1.2.2.2. Monitors and maintains correct storage conditions of products in accordance with manufacturers' guidelines.
		1.2.2.3. Manages the inventory to ensure availability of all medicines by implementing stock rotation, stock update, mobilisation and forecasting.
		1.2.2.4. Plans and implements Good Distribution Practices of medical supplies
		1.2.2.5. Stores medicines in a safe, organised, and secure manner.
	1.2.3. Procurement	1.2.3.1. Demonstrates good knowledge of procurement rules and regulations and the National Drug Policy.
1.2.3.2. Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.		
1.3. Quality Assurance	1.3.1. Quality Monitoring	1.3.1.1. Evaluates the quality of supplies and products using quality inspection guidelines.
		1.3.1.2. Identifies and addresses defective products through information sharing and dissemination within agencies and implementation of recall processes.
	1.3.2. Product Sampling	1.3.2.1. Follows standard guidelines on sampling of medicines for quality inspection and testing.
		1.3.2.2. Implements and maintains a reporting system for defective products (substandard & falsified medical product reporting system).
	1.3.3. Product Quality Testing	1.3.3.1. Adopts analytical procedures for quality control according to product specifications.
		1.3.3.2. Demonstrates sound laboratory skills in quality testing of medicines.
		1.3.3.3. Implements Quality Management Systems and Good Laboratory Practices.
		1.3.3.4. Demonstrates sound knowledge on the principles, instrumentations and application of analytical methods.

		1.3.3.5. Demonstrates sound knowledge on testing of narcotics and psychotropic substances and precursor chemicals.	
		1.3.3.6. Maintains records and documentation for product quality testing (registration form, product record form, worksheets, test reports, complaint form).	
		1.3.3.7. Performs corrective action and preventive action.	
Key Role 2: Care Provider			
2.1. Medicine Dispensing	2.1.1. Prescription Interpretation	2.1.1.1. Interprets prescription to fulfil the intent of the prescriber: parts of prescription including diagnosis and signs and symptom; name of medicine and dosage regimen; Latin terminologies and abbreviations	
		2.1.1.2. Validates prescriptions are from authentic prescriber and meets the legal and professional requirements.	
	2.1.2. Professional Check	2.1.2.1. Checks prescription for appropriateness of indication and dosing; identifies drug allergies and contraindication; identifies drug-drug and food-drug interactions.	
		2.1.2.2. Monitors medication errors arising out of erroneous packaging and labelling.	
	2.1.3. Patient Counselling	2.1.3.1. Identifies patient needs for counselling by assessing knowledge on medication use	
		2.1.3.2. Counsels' patients to help understand doctor's prescription: indication, mechanism of action, route of administration, dosage, storage, side effects and management of it; Advises on lifestyle modification and self-medication.	
		2.1.3.3. Assesses patient understanding after counselling and provides reassurance.	
	2.2. Pharmaceutical Care	2.2.1. Medication Therapy Management	2.2.1.1. Identifies and prioritises medication therapy problems: unnecessary therapy; wrong drug; inappropriate duration; adverse drug reaction; non-compliance to therapy
			2.2.1.2. Prepares pharmaceutical care plan to resolve medication therapy problems
2.2.1.3. Resolves medication therapy problems as per the care plan in discussion with the prescribers: discontinuation of unnecessary therapy; initiation of new medication; revision of dose; patient education and medication adherence reminders.			
2.2.2. Monitoring Patient Outcomes		2.2.2.1. Monitors and documents patient outcomes as per the follow-up plan	
2.3. Professionalism And Ethics	2.3.1. Professionalism And Ethics	2.3.1.1. Works within the limitations of own professional knowledge and expertise.	
		2.3.1.2. Protects patient privacy and maintain the confidentiality of the patient information	
		2.3.1.3. Demonstrates the ability to understand and complies with existing standard	

		code of ethics as per the BMHC rules & regulations.
2.4. Medication Safety	2.4.1. Pharmacovigilance	2.4.1.1. Demonstrates sound knowledge on pharmacovigilance.
		2.4.1.2. Identifies and reports suspected or confirmed ADR.
		2.4.1.3. Maintains proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).
	2.4.2. Therapeutic Drug Monitoring	2.4.2.1. Recommends sampling for TDM.
		2.4.2.2. Conducts therapeutic drug monitoring and recommends adjustment of medication dose based on drug level
		2.4.2.3. Maintains records and documentation
	2.4.3. Antimicrobial Stewardship	2.4.3.1. Develops and reviews AMS guidelines and policies.
		2.4.3.2. Conducts monitoring, audit and feedback on antimicrobial prescribing and use.
		2.4.3.3. Conducts education and training of healthcare professionals and patients.
Key Role 3: Educator and Manager		
3.1. Professional Development	3.1.1. Continuing Professional Development	3.1.1.1. Conducts continuing professional development activities to support their scope of practice
	3.1.2. Research And Development	3.1.2.1. Conducts literature review and identifies evidence gaps
		3.1.2.2. Participate/ conduct research.
3.1.3. Information Technology	3.1.3.1. Demonstrates a good understanding of information technology and skills to improve pharmaceutical services	
3.2. Drug Information	3.2.1. Evaluation Of Drug Information Needs	3.2.1.1. Anticipate and evaluate the needs of patients and healthcare professionals
		3.2.1.2. Obtains appropriate and complete background information to individualise the response to meet the requestor's need.
	3.2.2. Resource Management	3.2.2.1. Identifies and performs a systematic search of appropriate evidence-based source of information on medicines
		3.2.2.2. Evaluates, interprets, and combines information from the resources used.
	3.2.3. Provision Of Drug Information	3.2.3.1. Appropriately communicates, documents and applies pertinent information to the relevant situation
	3.3. Workplace Management	3.3.1. Leadership
3.3.1.2. Demonstrates an understanding of the principles of organization and management		
3.3.1.3. Identifies and addresses problems within the organization		
3.3.2. Communication		3.3.2.1. Demonstrates the ability to communicate effectively to encourage the

	Skills	patient/carer to ask questions, raise concerns and seek information or advice to provide personalized care.
		3.3.2.2. Demonstrates the ability to respond sensitively with patient's emotions and concerns
		3.3.2.3. Respects the patients in relation to diversity including differently abled patient, values, beliefs and expectations about their health and treatment with medicines
		3.3.2.4. Demonstrates the ability to communicates effectively within the organization
3.4. Strategic Planning	3.4.1. Resource Utilisation	3.4.1.1. Identifies resource requirements and manages effectively
	3.4.2. Risk Management and Contingency Planning	3.4.2.1. Identifies and manages risk at the workplace.
		3.4.2.2. Aware on hospital emergency contingency plan and contribute to the emergency response

2.5.6. Classification of Proficiency Levels for Pharmacists

The proficiency level is categorised based on the level of expertise. It describes the levels of a competency required to perform a specific job successfully. There is a progression of proficiencies at each level. The proficiency level of pharmacist is categorised into four levels as (I) Entry – PL P5-P4), (II) Experienced – PL P3 and (III) Pre-Advanced – PL P2 and (IV) Advanced – PL P1. The framework has identified 74 behavioural indicators across four levels of proficiency.

The proficiency will enable individual officials to distinguish the type of competencies expected in their career path, which will give them an opportunity to enhance competency in achieving current as well future career goals. As the officials in position levels of P5 & P4 play similar roles, their proficiency levels are merged together. Further, the proficiency level will set a benchmark for the recruitment and deployment. The proficiency levels of each key competency are detailed below:

Table 6: Classification of proficiency level for pharmacists

Behavioural Indicator	Foundation	Intermediate	Experienced	Advance
1.1.1.1. Conversant on and	Proficient in modifying medication to patient specific needs by altering dose or formula for		Experts in executing simple as well as complex compounding where specialized skill for dose	

reconstitution of medicines.	medication that is not available commercially.		modification is required.	
1.1.1.2. Have sound knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on the quality, safety and efficacy of finished product.	Have basic knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on quality, safety and efficacy of finished product.	Have sound knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on quality, safety and efficacy of finished product.	Have advanced knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on quality, safety and efficacy of finished product.	
1.1.1.3. Exhibit comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including GMP.	Displays comprehensive understanding of legal requirements.		Displays wide understanding of legal requirements and is able to develop, review and amend.	
1.1.1.4. Demonstrate Sound Knowledge on Occupational Safety and Appropriate Use of PPEs.	Demonstrate sound knowledge on occupational safety and appropriate use of PPEs		Demonstrate advanced knowledge on occupational safety and appropriate use of PPEs and monitor junior pharmacists and pharmacy technicians on occupational safety.	
1.1.1.5. Demonstrate sound knowledge on the determination of shelf life of finished products.	Demonstrate sound knowledge on the determination of shelf life of finished products.	Demonstrate sound knowledge on the determination of shelf life of finished products and guides pharmacy technicians and junior pharmacists.	Demonstrate advanced knowledge on the determination of shelf life of finished products and trains pharmacy technicians and junior pharmacists.	
1.1.2.1. Effectively uses technical skills to prepare pharmaceutical products as	Manages to formulate various dosage forms using suitable	Displays skills in dose adjustment and formulating	Displays specialized skills in dose adjustment and	Display specialized skills and provide expert opinion and interventions on the same

appropriate to their practice setting.	compounding techniques (Trituration, levigating, Dilution etc.)	preparation such as non-sterile preparations and guides junior pharmacists and technicians.	formulating special preparation such as chemotherapeutic drug mixing and sterile preparations and guides junior pharmacists and technicians.	matter to pharmacy staff.
1.1.2.2. Performs proper and consistent packaging, labelling, storage and documentation of the finished products.	Select appropriate storage material which will preserve product's identity (strength, quality, purity and prevent contamination) as well as standard labelling.	Select appropriate storage material which will preserve product's identity (strength, quality, purity and prevent contamination) as well as standard labelling.	Assist junior pharmacist in selecting storage materials as well as set standard labelling document for dispensing the finished products.	Collaborates with various stakeholders to develop guidelines for labelling and storage standards which compliance with requirement stated by various agencies and guide another pharmacist.
1.1.2.3. Have good knowledge on selection of ingredients, excipients, equipment, packaging materials and formulations.	Displays pharmaceuticals expertise to select appropriate ingredients and right apparatus of standard quality for compounding	Displays pharmaceuticals expertise to select appropriate ingredients and right apparatus of standard quality for compounding as well as plan the most suitable formulation.	Displays expertise in selection of ingredients, excipients, equipment, packaging materials and formulations and guides the junior pharmacists and technicians.	
1.1.3.1. Develop protocols for ensuring quality of prepared medicines.	Assist in developing protocols for ensuring quality of prepared medicines	Develop protocols for ensuring quality of prepared medicines	Review the protocols for ensuring quality of prepared medicines.	
1.1.3.2. Prepares pharmaceutical products	Prepares pharmaceutical	Prepares pharmaceutical	Ensure appropriate SOPs are implemented to validate the quality of products compounded and guides junior	

according to the standards required including standard operating procedures (sops), guidelines, or good manufacturing practice as appropriate	products according to the standards required including standard operating procedures (SOPs), guidelines, or good manufacturing practice as appropriate.	products according to the standards required including standard operating procedures (SOPs), guidelines, or good manufacturing practice as appropriate and verifies the final products.	pharmacists and technicians.	
1.1.3.3. Applies knowledge to ensure the appropriate quality controls and monitoring are in place.	Have basic knowledge on quality control measures and implements them.	Follows appropriate quality controls measures and guides junior pharmacists and technicians.	Monitor the appropriateness of the quality control measures in place by developing practice setting oriented audit checklist.	
1.1.3.4. Maintains records and documentation for product quality control (registration form, product record form, worksheets, test reports, complaint form).	Maintains records and documentation for product quality control (registration form, product record form, worksheets, test reports, complaint form).		Conduct timely monitoring of records and documentation and provide feedback if any.	
1.2.1.1. Demonstrates sound understanding of medicines supply chain and criteria of selection of medicines.	Display basic understanding of medicines supply chain and criteria of selection of medicines.	Display sound understanding of medicines supply chain and criteria of evaluation process.	Display advanced understanding of medicines supply chain and selection of medicines.	
1.2.1.2. Review of information and evidence on medicine cost-effectiveness.	Assist in reviewing of information and evidence on medicine cost-effectiveness.	Review of information and evidence on medicine cost-effectiveness.	Review and recommend selection of medicines based on evidence on cost-effectiveness and guide junior pharmacists.	Coordinate and monitor the activity.

1.2.2.1. Carry out analysis of cost and consumption patterns of medicines.	Assist in carrying out analysis of cost and consumption patterns of medicines.	Carry out analysis of cost and consumption patterns of medicines.	Carry out analysis of cost and consumption pattern of medicines and recommend changes in formulary.	Carry out analysis of cost and consumption patterns of medicines and recommend changes in formulary.
1.2.2.2. Monitor and maintain correct storage conditions of products in accordance with manufacturers' guidelines.	Implement Good Storage Practice to ensure the product safety, quality and efficacy throughout the shelf life.		Monitor the implementation of Good Storage Practice and recommend improvement if any.	
1.2.2.3. Manages the inventory to ensure availability of all medicines by implementing stock rotation, stock update, mobilisation and forecasting.	Manages the inventory to ensure availability of all medicines by implementing stock rotation, stock update, mobilisation and forecasting.	Manages the inventory to ensure availability of all medicines by implementing stock rotation, stock update, mobilisation and forecasting and guides junior pharmacists and technicians.	Monitors the implementation of inventory management to ensure availability of all medicines.	
1.2.2.4. Plan and implement good distribution practice of medical supplies	Implement Good Distribution Practice of medical supplies and assist in planning.	Plan and implement Good Distribution Practice.	Review the plan and monitor the implementation of Good Distribution Practice.	
1.2.2.5. Stores medicines in a safe, organised, systematic and secure manner.	Stores medicines in a safe, organised, systematic and secure manner	Stores medicines in a safe, organised, systematic and secure manner and able to change agent.	Monitors the implementation of the activity.	
1.2.3.1. Demonstrate good knowledge in procurement rules and regulations and national drug policy.	Demonstrate basic knowledge in procurement rules and regulations and	Demonstrate sound knowledge in procurement rules and regulations and	Demonstrate advanced knowledge in procurement rules and regulations and national drug policy.	

	national drug policy.	national drug policy.	
1.2.3.2. Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.		
1.3.1.1. Evaluate the quality of supplies and products using quality inspection guideline.	Evaluate the quality of supplies and products using Quality Inspection Guideline.	Evaluate the quality of supplies and products using Quality Inspection Guideline and guides junior pharmacists.	Evaluate the quality of supplies and products using Quality Inspection Guideline and review and recommend improvements.
1.3.1.2. Identify and address defective products through information sharing and dissemination within agencies and implementation of recall process.	Identify and assist in addressing defective products through information sharing and dissemination within agencies and implementation of recall process.	Identify and address defective products through information sharing and dissemination within agencies and implementation of recall process.	Monitor the implementation of the activity.
1.3.2.1. Follow standard guidelines on sampling of medicines for quality inspection and testing.	Follow standard guidelines on sampling of medicines for quality inspection and testing.	Follow standard guidelines on sampling of medicines for quality inspection and testing and guide junior pharmacists and technicians.	Follow standard guidelines on sampling of medicines for quality inspection and testing and monitor the process.
1.3.2.2. Implement and maintain a reporting system for defective products (substandard & falsified	Implement and maintain a reporting system for defective products (Substandard	Implement and maintain a reporting system for defective products	Implement and maintain a reporting system for defective products (Substandard & Falsified Medical Product

medical product reporting system).	& Falsified Medical Product Reporting System) and assist senior pharmacists in addressing defective products.	(Substandard & Falsified Medical Product Reporting System) and address defective products and guide junior pharmacists.	(Substandard & Falsified Medical Product Reporting System), address defective products and train junior pharmacists on methodology to address defective products.	Reporting System) and address defective products and monitor the process.
1.3.3.1. Adopt analytical procedures for quality control according to product specifications.	Adopt and verify analytical procedures for quality control according to product specifications under supervision of a senior pharmacist	Adopt, verify and develop analytical procedures for quality control according to product specifications and guide junior pharmacists.	Adopt, verify, develop and validate analytical procedures for quality control according to product specifications and guide junior pharmacists.	
1.3.3.2. Demonstrates sound laboratory skills in quality testing of medicines.	Demonstrates adequate laboratory skills to test medicines for physical parameters and selected chemical parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus and titrimetric. Guide technicians on improving laboratory skills.	Demonstrates excellent laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus, titrimetric, HPLC, GC and GCMS and guide and provide consultation to junior pharmacists.	Demonstrates advanced laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus, titrimetric, HPLC, GC and GCMS and guide and provide consultation to junior pharmacists.	
1.3.3.3. Implement quality management system and good laboratory practice.	Implement Quality Management System and Good Laboratory	Implement Quality Management System and Good Laboratory	Implement Quality Management System and Good Laboratory Practice and guide and provide consultation to the junior pharmacists and technicians.	

	Practice.	Practice and guide and provide consultation to the junior pharmacists and technicians.	
1.3.3.4. Demonstrate sound knowledge on the principles, instrumentations and application of analytical methods.	Demonstrates basic understanding of principles, instrumentations and application of analytical methods.	Demonstrates deep understanding of principles, instrumentations and application of analytical methods, is able to define the rationale behind it and guide junior pharmacists.	Demonstrate advanced understanding of principles, instrumentations and application of analytical methods and is able to identify CAPA for any issues.
1.3.3.5. Demonstrate sound knowledge on testing of narcotics and psychotropic substances and precursor chemicals.	Demonstrate basic knowledge on testing of narcotics and psychotropic substances and precursor chemicals	Demonstrate sound knowledge on testing of narcotics and psychotropic substances and precursor chemicals and guide junior pharmacists.	Demonstrate advanced knowledge on testing of narcotics and psychotropic substances and precursor chemicals and train junior pharmacists.
1.3.3.6. Maintains records and documentation for product quality testing (registration form, product record form, worksheets, test reports, complaint form).	Maintains records and documentation for product quality testing (registration form, product record form, worksheets, test reports, complaint form).	Maintains records and documentation for product quality testing (registration form, product record form, worksheets, test reports, complaint form).	Monitor the implementation of proper documentation and record keeping.
1.3.3.7. Perform corrective action and preventive action.	Perform Corrective Action and Preventive Action under supervision.	Perform Corrective Action and Preventive Action.	Review and monitor Corrective Action and Preventive Action activities.

2.1.1.1. Interprets prescription to fulfil the intent of the prescriber: parts of prescription including diagnosis and signs and symptom; name of medicine and dosage regimen; Latin terminologies and abbreviations	Understands commonly used terms in the parts of prescriptions to enable dispensing and counselling.		Guides pharmacists and technicians on interpretation of prescription parts.	Provides consultation on queries on interpretation of prescription
2.1.1.2. Validates prescriptions are from authentic prescriber and meets the legal and professional requirements.	Screens prescription for authenticity and legality.		Screens prescriptions and addresses prescriptions not fulfilling legal and professional requirements.	Addresses non-conformity of prescriptions to legal and professional requirements by discussing with the prescribers and bringing out relevant remedial measures.
2.1.2.1. Checks prescription for appropriateness of indication and dosing; identifies drug allergies and contraindication; identifies drug-drug and food-drug interactions.	Checks prescription for appropriateness of medication for minor and common illnesses, drug allergies and common drug interaction.	Checks prescriptions for appropriateness of prescriptions for major diseases and interactions for drugs; ability to communicate and bring out changes in prescription	Checks prescriptions for appropriateness for majority of the disease conditions and has the ability to attend to queries on the appropriateness from pharmacists and technicians.	Provides consultation to pharmacists and technicians. Discuss with stakeholders on influencing prescribing behaviour through policy interventions
2.1.2.2. Monitors medication errors associated with packaging and labelling.	Monitors errors associated with packaging and labelling and provide feedback.		Monitors medication errors of packaging and labelling and suggests remedial measures	Analyses medication errors and bring out policy changes in the system to reduce incidences of medication errors.
2.1.3.1. Identifies patient needs for counselling by assessing knowledge on medication use	Assesses knowledge gaps in patients and the need for counselling	Assesses the patient knowledge and tailor counselling to individual patient needs		Assesses the knowledge and ability of pharmacists and pharmacy technicians in providing medication counselling.

2.1.3.2. Counsels' patients to help understand doctor's prescription: indication, mechanism of action, route of administration, dosage, storage, side effects and management of it. Advise on lifestyle modification and self-medication.	Helps patients understand the will of the prescribers in terms of what the medications have been prescribed for and how they are to be taken.	Helps patients understand on how to get best out of each medicine and how best to minimize adverse effects; Educates patients on non-pharmacological remedies.	Assesses correctness and adequacy of counselling provided by pharmacists and technicians and provide oversight; Enhances patient education through timely review of counselling points included during dispensing of medicines.	
2.1.3.3. Assesses patient understanding after counselling and provides reassurance.	Assesses patient understanding at the end of counselling session.		Monitors if reassurance of patients understanding is carried out by pharmacists and technicians.	
2.2.1.1. Identifies and prioritizes medication therapy problems: unnecessary therapy; wrong drug; inappropriate duration; adverse drug reaction; non-compliance to therapy	Identifies and prioritizes medication therapy problems through thorough assessment of past medical history, current diagnosis, allergy status, current medications and medication history under supervision.	Identifies and prioritizes medication therapy problems through thorough assessment of past medical history, current diagnosis, allergy status, current medications and medication history.	Identifies and prioritizes medication therapy problems and attend to queries from pharmacists and technicians on identification of drug therapy problems.	Provides consultation on queries from pharmacists and technicians on identification and prioritization of drugs therapy problems; formulate protocols to guide in identification of drug therapy problems.
2.2.1.2. Prepares pharmaceutical care plan to resolve medication therapy problems	Prepare pharmaceutical care plan appropriate to the patient needs in consultation with a clinical pharmacist.	Prepares pharmaceutical care plan appropriate to the patient needs independently in consultation with prescribers.	Monitors and provides guidance on formulation of pharmaceutical care plans by the pharmacists.	
2.2.1.3. Resolves medication therapy problems as per the care plan in discussion with the prescribers: discontinuation of	Resolves medication therapy problems as per the care plan as part of the multidisciplinary	Independently resolves medication therapy problems as per the care plan as	Resolves medication therapy problems including complex issues as per the care	Reviews pharmaceutical care interventions carried out by pharmacists and provide feedback on the interventions;

unnecessary therapy; initiation of new medication; revision of dose; patient education and medication adherence reminders.	intervention, under supervision of a clinical pharmacist.	part of the multidisciplinary intervention.	plan as part of the multidisciplinary intervention.	Review acceptance of the interventions by the prescribers and formulate policy interventions.
2.2.2.1. Monitors and documents patient outcomes as per the follow-up plan	Follows up on the outcomes of the care interventions and document.			Review and monitor the practice of follow up on care interventions; formulate plans to enhance follow up of care interventions outcomes.
2.3.1.1. Work within the limitations of own professional knowledge and expertise.	Demonstrate professionalism and responsibility for care within scope of practice and level of competence.	Demonstrate professionalism and responsibility for care within scope of practice and level of competence and provide guidance to junior pharmacists and pharmacy technicians.		Demonstrate professionalism and responsibility for care within scope of practice and level of competence and provide guidance to junior pharmacists and pharmacy technicians and monitor.
2.3.1.2. Protect patient privacy and maintain the confidentiality of the patient information	Protect patient privacy and maintain the confidentiality of the patient information during the provision of care.	Protect patient privacy and maintain the confidentiality of the patient information and advocate the junior pharmacists and pharmacy technicians on patient privacy and confidentiality.		Protect patient privacy and maintain the confidentiality of the patient information and advocate the junior pharmacists and pharmacy technicians on patient privacy and confidentiality and monitor.
2.3.1.3. Demonstrate the ability to understand and complies with existing standard code of ethics as per the BMHC rules & regulations.	Able to understand and comply with existing standard code of ethics as per the BMHC Rules & Regulations.	Able to understand and comply with existing standard code of ethics as per the BMHC Rules & Regulations and also be a role model to the junior pharmacists and pharmacy technicians.		
2.4.1.1. Demonstrates knowledge on pharmacovigilance.	Have basic knowledge on pharmacovigilance and the importance of	Have sound knowledge on pharmacovigilance and the importance of reporting (ADR, product defects and medication errors) and		Have advanced knowledge on pharmacovigilance and the importance of reporting (ADR,

	reporting (ADR, product defects and medication errors)	respond to queries.		product defects and medication errors) and respond to queries
2.4.1.2. Identifying and reporting of suspected or confirmed ADR.	Identifies and report adverse drug event under supervision. Able to distinguish ADR from disease condition.	Identifies and report adverse drug event independently.	Interpret laboratory parameters indicating drug induced adverse event, perform causality assessment and report.	Analyse ADR, monitor and communicate information to other healthcare professionals and promote medication safety.
2.4.1.3. Maintain proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).	Maintain proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).			
2.4.2.1. Recommend sampling for tdm.	Identifies patient requiring drug level monitoring and recommend time and sampling method under supervision of clinical pharmacist.	Provide pre sampling advice depending on the drug to be monitored. Applies knowledge of good laboratory Practice, managing samples, apparatus and analyser used in TDM.		Verify and recommend TDM report for pharmacotherapy intervention.
2.4.2.2. Conduct therapeutic drug monitoring and adjust medication dose based on drug level	Assist in conducting TDM. Demonstrates basic knowledge on clinical pharmacokinetics and statistics.	Interprets therapeutic drug level and perform simple calculation for dose calculation,	Performs and interprets dose calculation for complex drug by applying statistical software and recommend dosing changes to the prescriber.	Correlates TDM report with clinical condition of the patient and recommend dosing changes to the prescriber.
2.4.2.3. Maintains records and documentation	Maintains records and documentation of TDM reports.			

2.4.3.1. Development and review of AMS guidelines and policies.	Assists in development of AMS guidelines and policies.	Develop and review AMS guidelines and policies.		
2.4.3.2. Monitoring, audit and feedback on antimicrobial prescribing and use.	Collect and maintain data on antimicrobial prescribing and use in the hospital and assist in recommending stewardship interventions.	Identifies non-compliances and inappropriateness and recommend stewardship interventions including STOP, SWITCH and STEP-DOWN of antibiotics to the prescribers as part of the multidisciplinary approach; Maintains records of stewardship interventions and information on antimicrobial prescribing.	Reviews stewardship interventions and AMS related activities; Enhance quality improvement activities related to AMS in the hospital.	
2.4.3.3. Conduct education and training of healthcare professionals and patients.	Assists in carrying out training and education of healthcare professionals and patients.	Provide education and training of other healthcare professionals on stewardship strategies and good practices as a multidisciplinary approach; Promote evidence-based practice of AMS in the hospital.	Reviews education and training activities on AMS and recommends way forward.	
3.1.1.1. Conduct continuing professional development activities to support their scope of practice	Able to attend and facilitate continuing professional development	Conduct and engage in professional developmental activities and assess their relevance and efficiency.	Engage and collaborate with professional colleagues and to identify training needs at the policy level to ensure lifelong learning culture.	
3.1.2.1. Conduct literature review and identify evidence gaps	Conduct literature review and assist in critical evaluation of literature.	Conduct literature review independently and guide the junior pharmacists.	Conduct literature review, identify evidence gaps and apply evidence-based practice. Guide the junior pharmacists.	Conduct literature review, identify evidence gaps and apply in the daily settings. Encourage, support and provide guidance to other pharmacists.
3.1.2.2. Participate/ conduct research.	Demonstrate basic understanding on research protocols and methodology. Participate in research	Develop research protocols and conducts research.	Develop research protocols and conducts research. Effectively communicates	Develop research protocols and conducts research. Effectively communicates research findings for policy changes. Able to provide

	activities.		research findings. Able to provide guidance.	guidance.
3.1.3.1. Acquire a good understanding of information technology skills to improve pharmaceutical services	Demonstrate proficiency in use of basic IT skills such as Microsoft Office and electronic patient information system to improve pharmaceutical services	Demonstrate proficiency in use of both basic and advanced IT skills (such as Vigiflow) to improve pharmaceutical services	Demonstrate proficiency in use of advanced IT skills and to encourage, guide and assist pharmacy technicians to use these tools.	Demonstrate proficiency in used of advanced IT skills and encourage, guide and assist junior pharmacist to use such tools.
3.2.1.1. Anticipate and evaluate the di needs of patients and healthcare professionals	Assist in carrying out evaluation of DI needs of patients and healthcare professionals	Carry out evaluation of drug information needs of patients and healthcare professionals and guide the junior pharmacists and technicians in evaluation of DI needs	Carry out evaluation of advanced drug information needs of patients and healthcare professionals and guide junior pharmacists and technicians in evaluating DI needs.	
3.2.1.2. Obtain appropriate and complete background information to individualize the response to meet the requestor's need.	Obtain complete background information, including examining the medical record for patient.		Obtain complete background information, including examining the medical record for patient. Guides junior pharmacists and technicians.	
3.2.2.1. Identify and perform a systematic search of appropriate evidence-based source of information on medicines	Identify and perform a systematic search of tertiary sources of information on medicines and assist in performing systemic search of primary and	Identify and perform a systematic search of primary, secondary and tertiary sources of information on medicines and guide the junior	Identify and perform a systematic search of primary, secondary and tertiary sources of information on medicines and guide the pharmacists and technicians in performing systematic search of appropriate evidence-based source of information on medicines	

	secondary source of information	pharmacists and technicians in performing systematic search of primary, secondary and tertiary source of information on medicines.	
3.2.2.2. Evaluate, interpret, and combine information from the resources used.	Assist to evaluate, interpret and combine information from the resources used.	Evaluate, interpret and combine information from the resources used and differentiate between information sources regarding reliability and ensures resources are sufficient and appropriate for the information provided.	Assesses and reconciles divergent or conflicting information to form a professional opinion, including where there is insufficient information. Guide the pharmacists and technicians in evaluation and interpretation of information from the resources used.
3.2.3.1. Appropriately communicate, document and apply pertinent information to the relevant situation	Deliver evidence-based drug information to the patients and other health workers through written and verbal means		
3.3.1.1. Shows understanding on the organization vision and mission.	Able to explain vision and mission and align daily workflow with it.		Creates vision and mission of the organization in consultation with colleagues and motivating the team towards achieving it.
3.3.1.2. Demonstrates an understanding of the principles of organization and management	Have a basic understanding of the principles of organization and management	Have a sound understanding of the principles of organization and management	Have a sound understanding of the principles of organization and management and able to explain organizational priorities and the rationale, and how they impact the team and stakeholders

3.3.1.3. Identifies and addresses problems within the organization	Addresses and manages day to day management issues as required in their position of responsibility	Recognizes and address the pertinent issues in the organization.	Formulates policy and provides guidance in identifying and addressing problems in the organization
3.3.2.1. Demonstrate the ability to communicate effectively to encourage the patient/carer to ask questions, raise concerns and seek information or advice to provide personalized care.	Able to communicate effectively to encourage the patient/carer to ask questions, raise concerns and seek information or advice to assist in providing personalized care		
3.3.2.2. Demonstrate the ability to respond sensitively with patient's emotions and concerns	Responds sensitively with patient's emotions and concerns and handle difficult individuals in a professional manner	Responds sensitively with patient's emotions and concerns, handle difficult individuals in a professional manner and resolve the situation.	
3.3.2.3. Respects the patients in relation to diversity including differently abled patient, values, beliefs and expectations about their health and treatment with medicines	Shows respect to the patients in relation to diversity including differently abled patients, values, beliefs and expectations about their health and treatment with medicines		
3.3.2.4. Demonstrates the ability to communicates effectively within the organization	Communicates effectively with the colleagues and supervisor to deliver the services efficiently.	Communicates effectively with the colleagues and supervisor to deliver the services efficiently and identify the communication need issues.	Communicates effectively with the colleagues and supervisor to deliver the services efficiently, identify the communication need issues and adapts communication to meet those needs.
3.4.1.1. Identifies resource requirements and manages effectively	Able to identify resource gaps in the organization and communicate.	Able to negotiate for and manage resources within the organization	Able to lead the team in acquiring and optimizing the use of resources provided.

3.4.2.1. Identifies and manages risk at work place.	Identifies the source of risk and communicate.	Identifies the source of risk and mitigation.	Able to develop/ revise risk management policies including prevention of potential risk.
3.4.2.2. Aware on hospital emergency contingency plan and contribute to the emergency response	Understands and able to carry out individual roles and responsibilities in hospital emergency response.		Understands and demonstrates ability to carry out individuals in hospital contingency response and also contribute in formulating and supervising the hospital emergency contingency planning.

2.5.7. Identification of Behavioural Indicators for Pharmacy Technicians

The Behavioural Indicators is the description of competencies based on various proficiency levels. It outlines a collection of desired and observable motives, traits and behaviours when executing or carrying out the assigned task. It serves as a tool to guide evaluations of employee performance. The framework has identified 64 behavioural indicators.

Table 7: Behavioural indicators for pharmacy technicians

Key Role 1: Pharmaceutical Product Expert		
Major Competency Area	Key Competencies	Behavioural Indicator
1.1.Extemporaneous Compounding	1.1.1. Knowledge on Formulation science	1.1.1.1. Have sound knowledge on compounding formulary and basic pharmaceutical calculations.
		1.1.1.2. Have knowledge on pre-formulation studies of each preparation.
		1.1.1.3. Have comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including GMP.
		1.1.1.4. Follow occupational safety and appropriate use of PPEs
	1.1.2. Compounding skills	1.1.2.1. Perform appropriate and consistent packaging, labelling, storage and documentation of the finished product as per the SOPs.
		1.1.2.2. Demonstrate skills in preparation of extemporaneous pharmaceutical products.

	1.1.3. Product Quality Control	<p>1.1.3.1. Carry out the formulation instruction including the preparation methods, selection of API, excipients and equipment for extemporaneous preparation.</p> <p>1.1.3.2. Able to identify and address the quality issues of the finished products.</p> <p>1.1.3.3. Maintains records and documentation for product quality control (registration form, product record form, worksheets, test reports, complaint form).</p>
1.2. Medical Supplies Management	1.2.1. Inventory Management	<p>1.2.1.1. Carry out analysis consumption pattern of medicines.</p> <p>1.2.1.2. Receive and store medical supplies and identify any deviation or breakdown of products.</p> <p>1.2.1.3. Demonstrate understanding on disposal of pharmaceutical products as per the standard guidelines.</p> <p>1.2.1.4. Recognize and respond to unusual patterns of drug distribution including diversion, drug misuse and fluctuations in utilization</p> <p>1.2.1.5. Maintain stock levels of all products, batch traceability, monitor expiry dates of products and check for signs of deterioration of products and monitor stock level and identify stock discrepancies</p> <p>1.2.1.6. Perform stock rotation, stock update, mobilization and forecasting to ensure availability of medicines.</p> <p>1.2.1.7. Implement Good Distribution Practice of medical supplies.</p> <p>1.2.1.8. Stores medicines in a safe, organized, systematic and secure manner.</p>
	1.2.2. Procurement	<p>1.2.2.1. Demonstrate good knowledge in procurement rules and regulations and national drug policy.</p> <p>1.2.2.2. Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.</p>
1.3. Quality Assurance	1.3.1. Quality Monitoring	<p>1.3.1.1. Evaluate the quality of medical supplies using Quality Inspection Guideline.</p> <p>1.3.1.2. Identify and address defective products through information</p>

		sharing within agencies and implementation of recall process.
		1.3.1.3. Sampling of medicines for quality inspection and testing as per the standard guidelines.
	1.3.2. Product Testing	Quality
		1.3.2.1. Adopt analytical procedures for quality control according to product specifications.
		1.3.2.2. Able to interpret and perform laboratory activities as per the SOPs or standard guidelines.
		1.3.2.3. Demonstrates laboratory skills in quality testing of medicines.
		1.3.2.4. Follow Quality Management System and Good Laboratory Practice.
		1.3.2.5. Demonstrate sound knowledge on the principles, instrumentations and application of analytical methods.
Key Role 2: Care Provider		
2.1. Medicine Dispensing	2.1.1. Prescription interpretation	2.1.1.1. Check the authenticity of prescriptions to ensure that the prescription meets the legal and professional requirements
		2.1.1.2. Read prescriptions to ensure they are accurate, complete and clearly communicate the prescriber's intended treatment
	2.1.2. Prescriptions processing	2.1.2.1. Maintain appropriate documentation of the prescriptions issued
		2.1.2.2. Perform pharmaceutical calculation to ensure accuracy in prescription processing
		2.1.2.3. Pack and label the medicines accurately and appropriately
	2.1.3. Issuing medicines	2.1.3.1. Check the correctness of the medications and the labels before issuing to the patient.
		2.1.3.2. Ensure medicines are issued to the right patient
		2.1.3.3. Explain the name, indication, dose and common side effects of the medicines and precautions to be observed to the patients.
		2.1.3.4. Checks prescription for appropriateness of indication and dosing, drug allergies, contraindication, drug-drug and food-drug interactions
2.2. Pharmaceutical Care	2.2.1. Medication Management	Therapy
		2.2.1.1. Identify medication therapy problems (unnecessary therapy; wrong drug; inappropriate duration; adverse drug reaction; non-compliance to therapy) and resolve them in consultation

		with the pharmacist
	2.2.2. Monitoring patient outcomes	2.2.2.1. Assist the pharmacist to monitor and document patient outcomes as per the follow-up plan
2.3. Professionalism and Ethics	2.3.1. Professionalism and Ethics	2.3.1.1. Work within the limitations of own professional knowledge and expertise.
		2.3.1.2. Protect patient privacy and maintain the confidentiality of the patient information.
		2.3.1.3. Demonstrate the ability to understand and comply with existing standard code of ethics as per the BMHC Rules & Regulations.
2.4. Medication Safety	2.4.1. Pharmacovigilance	2.4.1.1. Demonstrates knowledge on pharmacovigilance.
		2.4.1.2. Report suspected or confirmed ADR to the national or regional pharmacovigilance centre.
		2.4.1.3. Follow up the patient to assess the outcome of the ADR
		2.4.1.4. Maintain proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).
	2.4.2. Antimicrobial stewardship	2.4.2.1. Assist the pharmacist to monitor the use of antimicrobials in the wards
		2.4.2.2. Assist the pharmacist to document the antimicrobial use data for further assessment
Key Role 3: Educator and Manager		
3.1. Professional Development	3.1.1. Continuing Professional Development	3.1.1.1. Participate in continuing professional development activities to support their scope of practice
	3.1.2. Research	3.1.2.1. Participate in data collection to carry out research
		3.1.2.2. Demonstrates knowledge on research methodology
3.1.3. Information Technology	3.1.3.1. Acquire good understanding of information technology skills to improve pharmaceutical services	
3.2. Drug Information	3.2.1. Evaluation of drug information needs.	3.2.1.1. Evaluate the Drug Information needs of patients and healthcare professionals
		3.2.1.2. Obtain appropriate and complete background information to

		individualize the drug information needs.
	3.2.2. Provision of drug information	3.2.2.1. Appropriately respond and document the Drug Information provided
3.3. Workplace Management	3.3.1. Leadership	3.3.1.1. Shows understanding on the organization vision and mission.
		3.3.1.2. Demonstrates an understanding of the principles of organization and management
		3.3.1.3. Identifies the problems within the organization
	3.3.2. Communication Skills	3.3.2.1. Demonstrate the ability to communicate effectively to encourage the patient/carer to ask questions, raise concerns and seek information or advice to provide personalized care.
		3.3.2.2. Demonstrate the ability to respond sensitively with patient's emotions and concerns
		3.3.2.3. Respects the patients in relation to diversity including differently abled patient, values, beliefs and expectations about their health and treatment with medicines
3.3.2.4. Demonstrates the ability to communicates effectively within the organization		
3.4.Strategic Planning	3.4.1. Resource utilization	3.4.1.1. Identify resource requirements and gaps in the organization
	3.4.2. Risk management and contingency planning	3.4.2.1. Identifies the risk at work place.

2.5.8. Classification of Proficiency Levels for Pharmacy Technicians

The proficiency level is categorized based on the level of expertise. It describes the levels of a competency required to perform a specific job successfully. There is a progression of proficiencies at each level. The proficiency level of pharmacy technicians is categorized into three levels as (I) Foundation – PL S2), (II) Experienced – PL S1 and (III) Advanced – PL SS4, SS3, SS2, SS1. The framework has identified 64 behavioural indicators across three levels of proficiency.

The proficiency will enable individual officials to distinguish the type of competencies expected in their career path, which will give them an opportunity to enhance competency in achieving current as well future career goals. As the officials in position levels of P5 & P4 play similar

roles, their proficiency levels are merged together. Further, the proficiency level will set a benchmark for the recruitment and deployment. The proficiency levels of each key competency are detailed below:

Table 8: Classification of proficiency level for pharmacy technicians

Behavioural Indicator	Foundation	Experienced	Advanced
1.1.1.1. Have sound knowledge on compounding formulary and basic pharmaceutical calculations.	Have sound knowledge on compounding formulary and basic pharmaceutical calculations.	Competent in executing simple as well as complex compounding calculations with reference to compounding formulary.	
1.1.1.2. Have knowledge on pre-formulation studies of each preparation.	Have basic knowledge on the concept of preformulation studies.	Have sound knowledge on the concept of preformulation studies and be able to apply in practice settings.	
1.1.1.3. Have comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including GMP.	Displays basic understanding of legal requirements that govern the manufacture of medicinal products, including GMP.	Have comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including GMP.	
1.1.1.4. Follow occupational safety and appropriate use of PPEs	Able to implement basic occupational safety measures and use of each PPEs.	Able to implement and identify any occupational safety issues.	Able to identify and recommend for changes to mitigate occupational safety issues.
1.1.2.1. Perform appropriate and consistent packaging, labelling, storage and documentation of the finished product as per the SOPs.	Perform appropriate and consistent packaging, labelling, storage and documentation of the finished product as per the SOPs.	Perform appropriate and consistent packaging, labelling, storage and documentation of the finished product and be able to identify any discrepancies.	
1.1.2.2. Demonstrate skills in preparation of extemporaneous pharmaceutical products.	Demonstrate good weighing, mixing, dilution, trituration and levigating techniques in preparation of non-sterile products.	Demonstrate sound weighing, mixing, dilution, trituration, levigating and aseptic techniques in preparation of both sterile and non-sterile products.	
1.1.3.1. Carry out the formulation	Perform the formulation	Perform the formulation instruction including the preparation	

instruction including the preparation methods, selection of API, excipients and equipment for extemporaneous preparation.	instruction including the preparation methods, selection of API, excipients and equipment for non-sterile preparations.	methods, selection of API, excipients and equipment for both sterile and non-sterile preparations.	
1.1.3.2. Able to identify and address the quality issues of the finished products.	Able to identify the quality issues of the finished products and report to the supervisor.	Able to identify the quality issues of the finished products and mitigate the issues.	Able to identify the quality issues of the finished products and perform basic CAPA.
1.1.3.3. Maintains records and documentation for product quality control (registration form, product record form, worksheets, test reports, complaint form).	Maintains records and documentation for product quality control (registration form, product record form, worksheets, test reports, complaint form).		
1.2.1.1. Carry out analysis consumption pattern of medicines.	Assist in carrying out analysis of the consumption pattern of medicines.	Carry out analysis consumption pattern of medicines.	
1.2.1.2. Receive and store medical supplies and identify any deviation or breakdown of products.	Receive and store medical supplies as per standard guidelines.	Receive and store medical supplies and identify any deviation or breakdown of products.	
1.2.1.3. Demonstrate understanding on disposal of pharmaceutical products as per the standard guidelines.	Demonstrate basic understanding on disposal of pharmaceutical products e.g., expired, deteriorated and obsolete.	Demonstrate sound understanding on disposal of pharmaceutical products e.g., expired, deteriorated and obsolete.	
1.2.1.4. Recognize and respond to unusual patterns of drug distribution including diversion, drug misuse and fluctuations in utilization	Recognize unusual patterns of drug distribution including diversion, drug misuse and fluctuations in utilization	Recognize and respond to unusual patterns of drug distribution including diversion, drug misuse and fluctuations in utilization	
1.2.1.5. Maintain stock levels of all products, batch traceability, monitor expiry dates of products and check for signs of deterioration of products	Maintain stock levels of all products, batch traceability, expiry dates and check for signs of deterioration of products.	Maintain stock levels of all products, batch traceability, expiry dates and check for signs of	Maintain stock levels of all products, batch traceability, expiry dates and check for signs of deterioration of products and

and monitor stock level and identify stock discrepancies		deterioration of products and monitor stock level.	monitor stock level and identify stock discrepancies.
1.2.1.6. Perform stock rotation, stock update, mobilization and forecasting to ensure availability of medicines.	Perform stock rotation, stock update and mobilization to ensure availability of medicines.	Perform stock rotation, stock update, mobilization and forecasting to ensure availability of medicines.	
1.2.1.7. Implement Good Distribution Practice of medical supplies.	Implement Good Distribution Practice of medical supplies.	Implement Good Distribution Practice of medical supplies and recommend for improvement.	
1.2.1.8. Stores medicines in a safe, organized, systematic and secure manner.	Stores medicines in a safe, organized, systematic and secure manner	Stores medicines in a safe, organized, systematic and secure manner and guides junior technicians.	
1.2.2.1. Demonstrate good knowledge in procurement rules and regulations and national drug policy.	Demonstrate basic knowledge in procurement rules and regulations and national drug policy.	Demonstrate sound knowledge in procurement rules and regulations and national drug policy.	
1.2.2.2. Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.		
1.3.1.1. Evaluate the quality of medical supplies using the Quality Inspection Guideline.	Assist in evaluating the quality of medical supplies using Quality Inspection Guideline.	Evaluate the quality of medical supplies using Quality Inspection Guideline.	
1.3.1.2. Identify and address defective products through information sharing within agencies and implementation of recall process.	Identify and assist in addressing defective products through information sharing within agencies.	Identify and address defective products through information sharing within agencies and implementation of recall process.	
1.3.1.3. Sampling of medicines for quality inspection and testing as per the standard guidelines.	Sampling of medicines for quality inspection and testing as per the standard guidelines under supervision.	Sampling of medicines for quality inspection and testing as per the standard guidelines.	
1.3.2.1. Adopt analytical procedures	Adopt analytical procedures for	Adopt analytical	Adopt and verify analytical

for quality control according to product specifications.	quality control according to product specifications under supervision of a senior technician or pharmacists.	procedures for quality control according to product specifications.	procedures for quality control according to product specifications.
1.3.2.2. Able to interpret and perform laboratory activities as per the SOPs or standard guidelines.	Able to interpret and perform laboratory activities as per the SOPs or standard guidelines.		
1.3.2.3. Demonstrates laboratory skills in quality testing of medicines.	Demonstrates adequate laboratory skills to test medicines for physical parameters and selected chemical parameters by using UV-Visible Spectrophotometer, FTIR and titrimetric.	Demonstrates advanced laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus, titrimetric and guide junior technicians.	
1.3.2.4. Follow Quality Management System and Good Laboratory Practice.	Implement Quality Management System and Good Laboratory Practice.	Implement Quality Management System and Good Laboratory Practice and guide junior technicians.	
1.3.2.5. Demonstrate sound knowledge on the principles, instrumentations and application of analytical methods.	Demonstrates basic understanding of principles, instrumentations and application of analytical methods.	Demonstrates sound understanding of principles, instrumentations and application of analytical methods.	
2.1.1.1. Check the authenticity of prescriptions to ensure that the prescription meets the legal and professional requirements	Screen prescription for authenticity and legality.	Screens prescription for authenticity and legality and guides junior pharmacy technicians	Screens prescriptions and addresses prescriptions not fulfilling legal and professional requirements in consultation with pharmacists.
2.1.1.2. Read prescriptions to ensure they are accurate, complete and clearly communicate the prescriber's intended treatment	Understands commonly used terms in the parts of prescriptions to ensure that all medicines are correctly dispensed as per the prescription	Able to correctly interpret the prescription as well as provide guidance to junior technicians on interpretation of prescription	

2.1.2.1. Maintain appropriate documentation of the prescriptions issued	Maintain appropriate records of the prescription issued including patient details, diagnosis, medication and quantity issued	Maintain appropriate documentation of prescriptions issued as well as provide guidance to the junior technicians to maintain proper documentation
2.1.2.2. Perform pharmaceutical calculation to ensure accuracy in prescription processing	Calculate the correct amount of each medicine to be dispensed as per the prescription	Calculate the correct amount of each medicine to be dispensed as per the prescription and provide assistance to the junior pharmacy technician on pharmaceutical calculation
2.1.2.3. Pack and label the medicines accurately and appropriately	Pack and label the medicines by picking the right product, dosage form accurately as specified by the prescriptions. Apply legible, comprehensible and complete labels to packed medicines.	Pack and label the medicines accurately and appropriately as specified by the prescriptions and provide feedback and guidance to the junior technicians on appropriate packing and labelling
2.1.3.1. Check the correctness of the medications and the labels before issuing to the patient.	Check the correctness of the medications and the labels before issuing to the patient	Check the correctness of the medications and the labels before issuing. Identify if there are any discrepancies and rectify them.
2.1.3.2. Ensure medicines are issued to the right patient	Ensure medicines are issued to the right patient by using at least two patient identifiers (e.g., name, age or address).	
2.1.3.3. Explain the name, indication, dose and common side effects of the medicines and precautions to be observed to the patients.	Explain the name, indication, dose and common side effects of the medicines and precautions to be observed to the patients.	Explain the name, indication, dose and common side effects of the medicines and precautions to be observed and check patient's understanding of the information provided.
2.1.3.4. Checks prescription for appropriateness of indication and dosing, drug allergies, contraindication, drug-drug and food-drug interactions	Checks prescription for appropriateness of medication for minor and common illnesses, drug allergies and common drug interactions and refer to the pharmacist to resolve the issues.	Checks prescription for appropriateness of medication for minor and common illnesses, drug allergies and common drug interactions. Refer to the

		pharmacist to resolve the issues or resolve the issues independently in absence of pharmacist.
2.2.1.1. Identify medication therapy problems (unnecessary therapy; wrong drug; inappropriate duration; adverse drug reaction; non-compliance to therapy) and resolve them in consultation with the pharmacist	Identify the medication therapy problems (unnecessary therapy; wrong drug; inappropriate duration; adverse drug reaction; non-compliance to therapy) and resolve them in consultation with the pharmacist	Identify the medication therapy problems (unnecessary therapy; wrong drug; inappropriate duration; adverse drug reaction; non-compliance to therapy) and resolve them in consultation with the pharmacist. Able to resolve the medication therapy problems independently in absence of a pharmacist.
2.2.2.1. Assist the pharmacist to monitor and document patient outcomes as per the follow-up plan	Assist the pharmacist to follow up the patient on the outcomes of the care interventions and maintain proper documentation.	
2.3.1.1. Work within the limitations of own professional knowledge and expertise.	Demonstrate professionalism and responsibility for care within scope of practice and level of competence	Demonstrate professionalism and responsibility for care within scope of practice and level of competence and provide guidance to junior technician.
2.3.1.2. Protect patient privacy and maintain the confidentiality of the patient information.	Protect patient privacy and maintain the confidentiality of the patient information during the provision of care.	Protect patient privacy and maintain the confidentiality of the patient information and advocate the Junior Technicians on patient privacy and confidentiality.
2.3.1.3. Demonstrate the ability to understand and comply with existing standard code of ethics as per the BMHC Rules & Regulations.	Able to understand and comply with existing standard code of ethics as per the BMHC Rules & Regulations.	Able to understand and comply with existing standard code of ethics as per the BMHC Rules & Regulations and also be a role model to the Junior Technicians
2.4.1.1. Demonstrates knowledge on	Have basic knowledge on	Have sound knowledge on pharmacovigilance and the

pharmacovigilance.	pharmacovigilance and the importance of reporting (ADR, product defects and medication errors)	importance of reporting (ADR, product defects and medication error)	
2.4.1.2. Report suspected or confirmed ADR to the national or regional pharmacovigilance centre	Report suspected or confirmed ADR upon receipt of an ADR notification from the wards or through detection from the prescriptions		Report suspected or confirmed ADR and provide guidance and support to the junior technicians
2.4.1.3. Follow up the patient to assess the outcome of the ADR	Follow up the patients to determine the outcome of ADR		Follow up the individual patients to determine the outcome of ADR and to guide the junior pharmacy technicians
2.4.1.4. Maintain proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).	Maintain proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).		
2.4.2.1. Assist the pharmacist to monitor the use of antimicrobials in the wards	Assist the pharmacist to monitor the use of antimicrobials identified by the AMSU in the wards	Assist the pharmacist to monitor the use of antimicrobials identified by the AMSU in the wards and guide junior technicians	Monitor the use of antimicrobials identified by the AMSU in the wards independently in absence of pharmacist
2.4.2.2. Assist the pharmacist to document the antimicrobial use data for further assessment	Assist the pharmacist to document the antimicrobial use data for further assessment		Document the antimicrobial use data for further assessment in absence of pharmacist
3.1.1.1. Participate in continuing professional development activities to support their scope of practice	Participate in continuing professional development activities to support their scope of practice	Participate in continuing professional development activities to support their scope of practice and assist Pharmacists in providing resources for CPD activities	
3.1.2.1. Participate in data collection to carry out research	Participate in data collection to carry out research	Participate in data collection and analysis of research data.	
3.1.2.2. Demonstrates knowledge on research methodology	Demonstrates basic knowledge on research methodology	Demonstrates sound knowledge on research methodology	

3.1.3.1. Acquire good understanding of information technology skills to improve pharmaceutical services	Demonstrate proficiency in use of basic IT skills such as Microsoft Office and electronic patient information system to improve pharmaceutical services	
3.2.1.1. Evaluate the Drug Information needs of patients and healthcare professionals	Assist in carrying out evaluation of DI needs of patients and healthcare professionals	Carry out evaluation of drug information needs of patients and healthcare professionals in collaboration with pharmacists.
3.2.1.2. Obtain appropriate and complete background information to individualize the drug information needs.	Obtain appropriate and complete background information to individualize the drug information needs.	
3.2.2.1. Appropriately respond and document the Drug Information provided	Appropriately respond and document the Drug Information provided	Appropriately respond and document the Drug Information provided and guide junior technicians.
3.3.1.1. Shows understanding on the organization vision and mission.	Able to explain vision and mission and align daily workflow with it.	Able to explain vision and mission and align daily workflow with it and guide junior technicians.
3.3.1.2. Demonstrates an understanding of the principles of organization and management	Have good understanding of the principles of organization and management	
3.3.1.3. Identifies the problems within the organization	Demonstrate the ability to identify problems within the organization	Assist the supervisor in addressing the problems within the organization
3.3.2.1. Demonstrate the ability to communicate effectively to encourage the patient/carer to ask questions, raise concerns and seek information or advice to provide personalized care.	Able to communicate effectively to encourage the patient/carer to ask questions, raise concerns and seek information or advice to assist in providing personalized care in consultation with pharmacist	Able to communicate effectively to encourage the patient/carer to ask questions, raise concerns and seek information or advice to provide personalized care independently in absence of Supervisor
3.3.2.2. Demonstrate the ability to respond sensitively with patient's emotions and concerns	Responds sensitively with patient's emotions and concerns, handle difficult individuals in a professional manner and direct to supervisory level when appropriate.	Responds sensitively with patient's emotions and concerns, handle difficult individuals in a

			professional manner and resolve the situation independently in absence of supervisor.
3.3.2.3. Respects the patients in relation to diversity including differently abled patient, values, beliefs and expectations about their health and treatment with medicines	Shows respect to the patients in relation to diversity including differently abled patients, values, beliefs and expectations about their health and treatment with medicines		
3.3.2.4. Demonstrates the ability to communicates effectively within the organization	Communicates effectively with the colleagues and supervisor to deliver the services efficiently.	Communicates effectively with the colleagues and supervisor to deliver the services efficiently and identify the communication need issues.	Communicates effectively with the colleagues and supervisor to deliver the services efficiently, identify the communication need issues and adapts communication to meet those needs.
3.4.1.1. Identify resource requirements and gaps in the organization	Able to identify resource gaps in the organization and communicate with Supervisor.		Able to assist the supervisor in negotiating, managing and acquiring the need resources.
3.4.2.1. Identifies the risk at work place.	Identifies the source of risk and communicate with Supervisors.		
3.4.2.2. Aware on hospital emergency contingency plan and contribute to the emergency response	Understands and able to carry out individual roles and responsibilities in hospital emergency response.		

2.5.9. Training Needs Analysis

2.5.9.1. Training Needs Assessment for Pharmacists

The Training Needs is the difference between desired capability and current capability. The Training Needs Analysis is the process of recognizing the skills gap and needs of training. It is the procedure to determine whether the training will bring out the solution to the problem. It ensures that training is targeting the correct competencies, the correct employees and the needs of the Department. The training can reduce, if not eliminate, the gap by equipping the pharmacy professionals with knowledge and skills. It should be the shared responsibility of the employee and Department to build and enhance their capability and competency.

The training needs analysis is carried out in consultation with the stakeholders through interview, survey and FGD. The questionnaire consists of both closed and open-ended questions. The questionnaire is based on 74 behavioural indicators for pharmacists of different proficiency levels on Likert Scale of “Competent” and “Not Competent” followed by open ended questions asking the likely reasons for ‘Not Competent’ and suggest interventions to address the gap. The behavioural indicators were assessed by proficiency level to identify the performance gaps.

2.5.9.1.1. Foundation Proficiency Level

Training need assessment of pharmacists for foundation level found that foundation level pharmacists were non-competent in 31 behavioural indicators: 16 BI under key role 1 pharmaceutical product expert, 9 BI under key role 2 Care provider and 6 BI under key role 3 educator and manager.

Table 9: Training need assessment for Pharmacists for foundation level

Key Role 1: Pharmaceutical Product Expert			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Knowledge on Formulation science	Proficient in modifying medication to patient specific needs by altering dose or formula for medication that is not available commercially.	Practicing base on the knowledge acquired during UG studies.	Attachments in higher centres.
	Have basic knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on the quality, safety and efficacy of finished product.	Lack of formal training before taking up the position	<ul style="list-style-type: none"> ● Mentorship ● Workshop ● STT
	Displays comprehensive understanding of legal requirements.	Poor sensitization on legal framework.	<ul style="list-style-type: none"> ● Orientation ● CME
	Demonstrate sound knowledge on occupational safety and appropriate use of PPEs	<ul style="list-style-type: none"> ● No standard SOP on occupational safety. ● Poor Compliance 	<ul style="list-style-type: none"> ● Development of standard SOPs ● Orientation
Compounding skills	Manages to formulate various dosage forms using suitable compounding technique	Limited ability to critically apply compounding skills in	<ul style="list-style-type: none"> ● STT ● Mentorship

	(Trituration, levigating, Dilution etc..)	practice setting	
	Displays pharmaceuticals expertise to select appropriate ingredients and right apparatus of standard quality for compounding	Limited proficiency.	<ul style="list-style-type: none"> ● Attachment in higher centre STT
Medicine selection	Display basic understanding of medicines supplies chain and criteria of selection of medicines.	Limited representation in the procurement	<ul style="list-style-type: none"> ● OJT ● STT
	Assist in reviewing information and evidence on medicine cost-effectiveness.	Limited representation in the procurement	<ul style="list-style-type: none"> ● OJT ● Mentorship
Inventory Management	Manages the inventory to ensure availability of all medicines by implementing stock rotation, stock update, mobilization and forecasting.	Poor exposure to inventory management since a designated Pharmacy professional handles store management	<ul style="list-style-type: none"> ● OJT
	Implement Good Distribution Practice of medical supplies and assist in planning.	Limited exposure.	<ul style="list-style-type: none"> ● STT
Procurement	Demonstrate basic knowledge in procurement rules and regulations and national drug policy.	Not Adequately informed or sensitised on the procurement rules and regulation as well as national drug policy.	<ul style="list-style-type: none"> ● Workshop ● Training
	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Most of the Pharmacists are working in hospital setting and only few in the Procurement section.	<ul style="list-style-type: none"> ● STT ● OJT
Quality Monitoring	Evaluate the quality of supplies and products using Quality Inspection Guideline.	Not familiar with the quality inspection manuals and quality inspection guideline.	<ul style="list-style-type: none"> ● STT
Product Quality Testing	Demonstrates adequate laboratory skills to test medicines for physical parameters and selected chemical parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus and titrimetric. Guide technicians on improving laboratory skills.	Only Pharmacist working under drug testing laboratory is specialized in the laboratory skills.	<ul style="list-style-type: none"> ● OJT

	Implement Quality Management System and Good Laboratory Practice.	Pharmacist working under drug testing laboratory is specialized in the laboratory skills.	<ul style="list-style-type: none"> ● OJT
	Demonstrate basic knowledge on testing of narcotics and psychotropic substances and precursor chemicals	Pharmacist working under drug testing laboratory is specialized in the laboratory skills.	<ul style="list-style-type: none"> ● STT
Key Role 2: Care Provider			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Medication Therapy Management	Identifies and prioritizes medication therapy problems through thorough assessment of past medical history, current diagnosis, allergy status, current medications and medication history under supervision.	Assessment of medication therapy management requires detailed interaction, however due to heavy workload unable to perform.	<ul style="list-style-type: none"> ● systemic reform
	Prepare pharmaceutical care plan appropriate to the patient needs in consultation with a clinical pharmacist.	Predominately carried out in the bigger hospital where there is well established inpatient Pharmacy department. Pharmacist in district is not competent.	<ul style="list-style-type: none"> ● Attachment ● LTT
	Resolves medication therapy problems as per the care plan as part of the multidisciplinary intervention, under supervision of a clinical pharmacist.	Pharmacists in district are not competent.	<ul style="list-style-type: none"> ● LTT ● Attachment ● Mentorship
Monitoring Patient Outcomes	Follows up on the outcomes of the care interventions and document.	Lack of skills and knowledge	<ul style="list-style-type: none"> ● STT ●
Therapeutic Drug Monitoring	Identifies patient requiring drug level monitoring and recommend time and sampling method under supervision of clinical pharmacist.	Lack of well-established inpatient pharmacy in most of the hospital.	<ul style="list-style-type: none"> ● OJT

	Assist in conducting TDM. Demonstrates basic knowledge on clinical pharmacokinetics and statistics.	TDM is specialized field requiring constant drug monitoring and is mostly carried in hospital setting having well established in-patient pharmacy department.	<ul style="list-style-type: none"> Attachment in JDWNRH in-patient Pharmacy department.
	Maintains records and documentation of TDM reports.	Not competent	<ul style="list-style-type: none"> STT
Anti-microbial stewardship	Assists in development of AMS guidelines and policies.	Lack of knowledge and skills	<ul style="list-style-type: none"> CME
	Collect and maintain data on antimicrobial prescribing and use in the hospital and assist in recommending stewardship interventions.	Lack of well-established inpatient pharmacy in most of the hospital.	<ul style="list-style-type: none"> OJT
Key Role 3: Educator and Manager			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Research and development	Conduct literature review and assist in critical evaluation of literature.	Limited research skills	<ul style="list-style-type: none"> STT CME
	Demonstrate basic understanding on research protocols and methodology. Participate in research activities.	Inadequate training and sensitization on research activities	<ul style="list-style-type: none"> STT CME
Evaluation of drug information needs	Assist in carrying out evaluation of DI needs of patients and healthcare professionals	Inadequate ability to conduct DI needs due to limited skills	<ul style="list-style-type: none"> CME
Resource Management	Identify and perform a systematic search of tertiary sources of information on medicines and assist in performing systemic search of primary and secondary source of information	Lack of formal training before taking up the position.	<ul style="list-style-type: none"> STT
	Assist to evaluate, interpret and combine information from the resources used.	Limited proficiency and expertise	<ul style="list-style-type: none"> CME OJT

Shows understanding on the organization vision and mission.	Able to explain vision and mission and align daily workflow with it.	Inadequate leadership and management skills.	<ul style="list-style-type: none"> • CME • OJT
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2.5.9.1.2. Intermediate Proficiency Level

Training need assessment of pharmacists for intermediate level found that intermediate level pharmacists were non-competent in 21 behavioural indicators: 8 BI under key role 1 pharmaceutical product expert, 8 BI under key role 2 Care provider and 5 BI under key role 3 educator and manager.

Table 10: Training need assessment for Pharmacists for intermediate level

Key Role 1: Pharmaceutical Product Expert			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Knowledge on formulation Science	Have sound knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on quality, safety and efficacy of finished product.	Lack of formal training before taking up the position	<ul style="list-style-type: none"> • STT
	Displays comprehensive understanding of legal requirements.	Poor sensitization on legal framework.	<ul style="list-style-type: none"> • Workshop • CME
Procurement	Demonstrate basic knowledge in procurement rules and regulations and national drug policy.	Limited representation in the occupational group.	<ul style="list-style-type: none"> • OJT
	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Limited representation in that occupational group.	<ul style="list-style-type: none"> • OJT
Product Quality Testing	Demonstrates excellent laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR,	Pharmacist working under drug testing laboratory is specialized in the laboratory	<ul style="list-style-type: none"> • OJT • LTT • STT

	dissolution apparatus, titrimetric, HPLC, GC and GCMS and guide and provide consultation to junior pharmacists.	skills.	
	Implement Quality Management System and Good Laboratory Practice and guide and provide consultation to the junior pharmacists and technicians.	Pharmacists working under drug testing laboratories are specialized in laboratory skills. Majority of Pharmacist are working in hospital setting.	<ul style="list-style-type: none"> ● OJT ● Mentoring
	Demonstrates deep understanding of principles, instrumentations and application of analytical methods, is able to define the rationale behind it and guide junior pharmacists.	Pharmacist working under drug testing laboratory is specialized in the laboratory skills. Majority of Pharmacist are working in hospital setting.	<ul style="list-style-type: none"> ● OJT ● Mentoring
	Demonstrate sound knowledge on testing of narcotics and psychotropic substances and precursor chemicals and guide junior pharmacists.	Lack of specialized skills.	<ul style="list-style-type: none"> ● Mentoring ● OJT
Key Role 2: Care Provider			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Medication Therapy Management	Prepares pharmaceutical care plan appropriate to the patient needs independently in consultation with prescribers.	In the current scenario the Pharmacist are practicing based on the knowledge and skills acquired during the UG studies.	<ul style="list-style-type: none"> ● Attachment at JDWNRH before taking up the responsibility of another hospital. ● Orientation program
	Independently resolves medication therapy problems as per the care plan as part of the multidisciplinary intervention.	Inadequate knowledge and expertise	<ul style="list-style-type: none"> ● OJT
Therapeutic drug monitoring	Provide pre sampling advice depending on the drug to be monitored. Applies knowledge of good laboratory practice,	TDM is specialized field requiring constant drug monitoring and is mostly	<ul style="list-style-type: none"> ● Attachment

	managing samples, apparatus and analyser used in TDM.	carried in hospital setting having well established in-patient pharmacy department. Most hospital doesn't have inpatient pharmacy.	
	Interprets therapeutic drug level and perform simple calculation for dose calculation,	<ul style="list-style-type: none"> • TDM is a specialized field r and is mostly carried in hospital setting having a well-established in-patient pharmacy department. • Most hospitals don't have inpatient pharmacy. 	<ul style="list-style-type: none"> • OJT
	Maintains records and documentation of TDM reports.	Not competent	<ul style="list-style-type: none"> • OJT
Anti-microbial Stewardship	Assists in development of AMS guidelines and policies.	Lack of knowledge and skills	<ul style="list-style-type: none"> • CME
	Identifies non-compliances and inappropriateness and recommend stewardship interventions including STOP, SWITCH and STEP-DOWN of antibiotics to the prescribers as part of the multidisciplinary approach; Maintains records of stewardship interventions and information on antimicrobial prescribing.	<ul style="list-style-type: none"> • Lack of well-established inpatient pharmacy in most of the hospital. • Not adequately trained or informed about AMS 	<ul style="list-style-type: none"> • STT
	Provide education and training of other healthcare professionals on stewardship strategies and good practices as a multidisciplinary approach; Promote evidence-based practice of AMS in the hospital.	<ul style="list-style-type: none"> • Lack of well-established inpatient pharmacy in most of the hospital. • Not adequately trained or informed about AMS 	<ul style="list-style-type: none"> • STT

Key Role 3: Educator and Manager			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Continuing Professional Development	Conduct and engage in professional developmental activities and assess their relevance and efficiency.	Difficult to provide accredited CME for another colleague. Not taught in the UG studies.	<ul style="list-style-type: none"> ● STT ● workshop
Research and Development	Develop research protocols and conducts research.	unconducive environment and limited exposure to effectively carry out research.	<ul style="list-style-type: none"> ● CME ● Workshops
Information Technology	Demonstrate proficiency in use of both basic and advanced IT skills (such as Vigiflow) to improve pharmaceutical services	Challenging to keep up to date on the latest Technology.	<ul style="list-style-type: none"> ● CME ● Workshop ●
Evaluation of drug information needs	Carry out evaluation of drug information needs of patients and healthcare professionals and guide the junior pharmacists and technicians in evaluation of DI needs	With many sources of DI, it becomes difficult to sort out the desired authenticated information within a specific time frame.	<ul style="list-style-type: none"> ● CME ● STT ● LTT
	Obtain complete background information, including examining the medical record for patient.	Time constrains in many hospitals due to huge turnaround of patient and limited expertise's.	<ul style="list-style-type: none"> ● Attachment ● Workshop ● CME

2.5.9.1.3. Experienced Proficiency Level

Training need assessment of pharmacists for intermediate level found that intermediate level pharmacists were non-competent in 26 behavioural indicators: 14 BI under key role 1 pharmaceutical product expert, 6 BI under key role 2 Care provider and 6 BI under key role 3 educator and manager.

Table 11: Training need assessment for Pharmacists for experienced level

Key Role 1: Pharmaceutical Product Expert			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Knowledge on formulation science.	Have advanced knowledge on evaluation of physico-chemical properties and stability of each component used in the formulation and their implications on the quality, safety and efficacy of finished product.	Pharmacist working under drug testing laboratory is specialized in the laboratory skills.	<ul style="list-style-type: none"> ● OJT ● STT
	Demonstrate advanced knowledge on the determination of shelf life of finished products and trains pharmacy technicians and junior pharmacists.	Lack of specialist pharmacist who can conduct standard analysis. And develop protocols and SOPs	● LTT
Compounding Skills	Displays specialized skills in dose adjustment and formulating special preparation such as chemotherapeutic drug mixing and sterile preparations and guides junior pharmacists and technicians.	Limited speciality to formulated preparation of right stability.	● STT
Product quality control	Review the protocols for ensuring quality of prepared medicines.	Limited knowledge on quality assurance parameters	<ul style="list-style-type: none"> ● CME ● Workshop ● STT
Inventory management	Review the plan and monitor the implementation of Good Distribution Practice.	Limited exposure.	<ul style="list-style-type: none"> ● STT ● workshop
Procurement	Demonstrate advanced knowledge in procurement rules and regulations and national drug policy.	Limited representation in this occupational group	● OJT
	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Limited representation in this occupational group	● OJT

Product Quality testing	Adopt, verify, develop and validate analytical procedures for quality control according to product specifications and guide junior pharmacists.	Lack of specialized skills	● OJT
	Demonstrates advanced laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus, titrimetric, HPLC, GC and GCMS and guide and provide consultation to junior pharmacists.	Lack of specialized skills	● OJT
	Implement Quality Management System and Good Laboratory Practice and guide and provide consultation to the junior pharmacists and technicians.	Only Pharmacists working in the laboratory have specialized laboratory skills.	● OJT
	Demonstrate advanced understanding of principles, instrumentations and application of analytical methods and is able to identify CAPA for any issues.	Not competent	● OJT
	Demonstrate advanced knowledge on testing of narcotics and psychotropic substances and precursor chemicals and train junior pharmacists.	Not competent	● OJT
	Monitor the implementation of proper documentation and record keeping.	Not competent	● OJT
	Review and monitor Corrective Action and Preventive Action activities.	Not competent	● OJT
Key Role 2: Care Provider			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Therapeutic drug monitoring	Provide pre sampling advice depending on the drug to be monitored. Applies knowledge of good laboratory practice, managing samples, apparatus and analyser	TDM is specialized field requiring constant drug monitoring and is mostly carried in hospital setting	● Attachment in JDWNRH in-patient Pharmacy department.

	used in TDM.	having well established in-patient pharmacy department.	
	Performs and interprets dose calculation for complex drug by applying statistical software and recommend dosing changes to the prescriber.	Lack of specialized skills	● OJT
	Maintains records and documentation of TDM reports.	Lack of specialized skills	● OJT
Anti-Microbial stewardship	Develop and review AMS guidelines and policies.	Lack of well-established inpatient pharmacy in most of the hospital. Not adequately trained or informed about AMS	● STT ● Attachment in higher centre
	Identifies non-compliances and inappropriateness and recommend stewardship interventions including STOP, SWITCH and STEP-DOWN of antibiotics to the prescribers as part of the multidisciplinary approach; Maintains records of stewardship interventions and information on antimicrobial prescribing.	Lack of knowledge and skills	● STT
	Provide education and training of other healthcare professionals on stewardship strategies and good practices as a multidisciplinary approach; Promote evidence-based practice of AMS in the hospital.	Lack of knowledge and skills	● STT
Key Role 3: Educator and Manager			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Research and development	Develop research protocols and conducts research. Effectively communicates research findings. Able to provide	Un-conducive environment and limited exposure to effectively carry out research.	● CME ● Workshops

	guidance.		
Information technology	Demonstrate proficiency in use of advanced IT skills and to encourage, guide and assist pharmacy technicians to use these tools.	Challenging to keep up to date on the latest Technology.	<ul style="list-style-type: none"> ● CME ● Workshop
Resource management	Identify and perform a systematic search of primary, secondary and tertiary sources of information on medicines and guide the pharmacists and technicians in performing systematic search of appropriate evidence-based source of information on medicines	Lack of formal training, due to availability of multiple sources of information there are no systematic and trusted sources identified.	<ul style="list-style-type: none"> ● STT
	Assesses and reconciles divergent or conflicting information to form a professional opinion, including where there is insufficient information. Guide the pharmacists and technicians in evaluation and interpretation of information from the resources used.	Limited representation in the leadership and managerial level.	<ul style="list-style-type: none"> ● LTT
Risk management and contingency planning	Able to develop/ revise risk management policies including prevention of potential risk.	Limited representation in the leadership and managerial level.	<ul style="list-style-type: none"> ● LTT
	Understands and demonstrates ability to carry out individuals in hospital contingency response and also contribute in formulating and supervising the hospital emergency contingency planning.	Limited representation in the leadership and managerial level.	<ul style="list-style-type: none"> ● STT ● Workshop

2.5.9.2. Training Needs Assessment for Pharmacy Technicians

The training needs analysis is carried out in consultation with the stakeholders through interview, survey and FGD. The questionnaire consists of both closed and open-ended questions. The questionnaire is based on 64 behavioural indicators for pharmacy technicians of different proficiency levels on Likert Scale of “Competent” and “Not Competent” followed by open ended questions asking the likely reasons for ‘Not

Competent” and suggest interventions to address the gap. The behavioural indicators were assessed by proficiency level to identify the performance gaps.

2.5.9.2.1. Foundation Proficiency Level

Training need assessment of pharmacy technicians for intermediate level found that intermediate level technicians were not competent in 21 behavioural indicators: 14 BIs under key role 1 pharmaceutical product expert, 4 BIs under key role 2 Care provider and 3 BIs under key role 3 educator and manager.

Table 12: Training need assessment for Pharmacy Technicians at foundation level

Key Role1: Pharmaceutical Product Expert			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Knowledge on Formulation science	Displays basic understanding of legal requirements that govern the manufacture of medicinal products, including GMP.	Lack of knowledge	<ul style="list-style-type: none"> ● STT
	Have basic knowledge on the concept of preformulation studies.	Lack of knowledge	<ul style="list-style-type: none"> ● CME ● STT
Compounding Skills	Demonstrate good weighing, mixing, dilution, trituration and levigating techniques in preparation of non-sterile products.	<ul style="list-style-type: none"> ● Lack of skills ● Only limited compounding services provided in the district hospitals 	<ul style="list-style-type: none"> ● OJT at NRH, RRH
Product quality control	Perform the formulation instruction including the preparation methods, selection of API, excipients and equipment for non-sterile preparations.	Lack of knowledge Lack of skills Only limited compounding services are provided in the district hospitals	<ul style="list-style-type: none"> ● OJT at JDWNRH, RRH ● STT

Inventory Management	Recognize unusual patterns of drug distribution including diversion, drug misuse and fluctuations in utilization	Lack of knowledge Only few pharmacy technicians work in the medical store	<ul style="list-style-type: none"> ● STT
Procurement	Demonstrate basic knowledge in procurement rules and regulations and national drug policy.	Lack of knowledge Only few pharmacy technicians work in the procurement	<ul style="list-style-type: none"> ● CME ● OJT
	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Lack of knowledge Only few pharmacy technicians work in the procurement	<ul style="list-style-type: none"> ● Classroom Teaching ● OJT
Quality Monitoring	Assist in evaluating the quality of medical supplies using Quality Inspection Guideline.	Lack of knowledge Only few pharmacy technicians are involved in this activity	<ul style="list-style-type: none"> ● OJT
	Sampling of medicines for quality inspection and testing as per the standard guidelines under supervision.	Only few pharmacy technicians are involved in this activity Not taught during Diploma and certificate course	<ul style="list-style-type: none"> ● OJT ● Incorporate in the diploma in pharmacy curriculum
Product Quality Testing	Able to interpret and perform laboratory activities as per the SOPs or standard guidelines.	Lack of knowledge Not taught during diploma and certificate course	<ul style="list-style-type: none"> ● STT
	Adopt analytical procedures for quality control according to product specifications under supervision of a senior technician or pharmacists.	Lack of knowledge and skills Currently there are no pharmacy technicians working in the national drug testing lab.	<ul style="list-style-type: none"> ● OJT
	Demonstrates adequate laboratory skills to test medicines for physical parameters and selected	Lack of knowledge and skills Currently there are no pharmacy technicians working in the national drug testing lab	<ul style="list-style-type: none"> ● STT ● OJT

	chemical parameters by using UV-Visible Spectrophotometer, FTIR and titrimetric.		
	Implement Quality Management System and Good Laboratory Practice.	Currently there are no pharmacy technicians working in the national drug testing lab	<ul style="list-style-type: none"> ● OJT ● STT
	Demonstrates basic understanding of principles, instrumentations and application of analytical methods.	Currently there are no pharmacy technicians working in the national drug testing lab	<ul style="list-style-type: none"> ● OJT ● STT
Key Role 2: Care Provider			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Intervention Development
Monitoring patient outcomes	Assist the pharmacist to follow up the patient on the outcomes of the care interventions and maintain proper documentation.	Limited knowledge on monitoring parameters and frequency	<ul style="list-style-type: none"> ● CME ● STT
Anti-microbial stewardship	Assist the pharmacist to document the antimicrobial use data for further assessment	Lack of knowledge Not taught during certificate and diploma course	<ul style="list-style-type: none"> ● OJT ● CME
Research	Participate in data collection to carry out research	Lack of knowledge Not taught during diploma and certificate course	<ul style="list-style-type: none"> ● OJT ● CME
	Demonstrates knowledge on research methodology	Lack of knowledge Not taught during diploma and certificate in pharmacy course	<ul style="list-style-type: none"> ● STT

Key Role 3: Educator and Manager			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Information Technology	Demonstrate proficiency in use of basic IT skills such as Microsoft Office and electronic patient information system to improve pharmaceutical services	Lack of knowledge and skills Lack of training opportunities	<ul style="list-style-type: none"> • STT
Evaluation of drug information needs	Obtain appropriate and complete background information to individualize the drug information needs.	Lack of knowledge and skills	<ul style="list-style-type: none"> • STT
Leadership	Able to explain vision and mission and align daily workflow with it.	Lack of awareness on the vision and mission of the organization	<ul style="list-style-type: none"> • Orientation

2.5.9.2.2. Training Need Assessment for Experienced Proficiency Level Pharmacy Technicians

Training need assessment of pharmacy technicians for intermediate level found that intermediate level technicians were non-competent in 21 behavioural indicators: 12 BIs under key role 1 pharmaceutical product expert, 3 BIs under key role 2 Care provider and 6 BIs under key role 3 educator and manager.

Table 13: Training need assessment for Pharmacy Technicians for experience level

Key Role 1: Pharmaceutical Product Expert			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Knowledge on Formulation science	Have comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including	Lack of skills	<ul style="list-style-type: none"> • CME • STT

	GMP.		
	Have sound knowledge on the concept of preformulation studies and able to apply in practice settings.	Not taught during certificate and diploma	<ul style="list-style-type: none"> ● CME ●
Product Quality Control	Perform the formulation instruction including the preparation methods, selection of API, excipients and equipment for both sterile and non-sterile preparations.	Lack of knowledge and skills	<ul style="list-style-type: none"> ● OJT ● STT
Procurement	Demonstrate sound knowledge in procurement rules and regulations and national drug policy.	Lack of knowledge and skills	<ul style="list-style-type: none"> ● OJT ● STT
	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Lack of knowledge and skills	<ul style="list-style-type: none"> ● OJT ● STT
Quality Monitoring	Evaluate the quality of medical supplies using the Quality Inspection Guideline.	Only few pharmacy technicians involved in this activity	<ul style="list-style-type: none"> ● CME on Guideline for Quality Inspection of Medical Supplies ● OJT
	Sampling of medicines for quality inspection and testing as per the standard guidelines.	Only few pharmacy technicians involved in this activity	<ul style="list-style-type: none"> ● CME on Guideline for Quality Inspection of Medical Supplies ● OJT
Product Quality Testing	Adopt analytical procedures for quality control according to product specifications.	None of the pharmacy technicians are currently working in the drug testing lab Not taught during certificate or Diploma in Pharmacy course	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Able to interpret and perform laboratory activities as per the SOPs or standard guidelines.	None of the pharmacy technicians are currently working in the drug testing lab	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT

		Not taught during certificate or Diploma in Pharmacy course	
	Demonstrates advanced laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus, titrimetric and guide junior technicians.	None of the pharmacy technicians are currently working in the drug testing lab Not taught during certificate or Diploma in Pharmacy course	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Implement Quality Management System and Good Laboratory Practice and guide junior technicians.	None of the pharmacy technicians are currently working in the drug testing lab Not taught during certificate or Diploma in Pharmacy course	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Demonstrates sound understanding of principles, instrumentations and application of analytical methods.	None of the pharmacy technicians are currently working in the drug testing lab Not taught during certificate or Diploma in Pharmacy course	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
Key Role 2: Care provider			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Pharmacovigilance	Follow up the patients to determine the outcome of ADR	Lack of knowledge and experience	<ul style="list-style-type: none"> ● CME
Antimicrobial stewardship	Assist the pharmacist to monitor the use of antimicrobials identified by the AMSU in the wards and guide junior technicians	Lack of knowledge Currently only few pharmacy technicians are involved in this	<ul style="list-style-type: none"> ● CME ● OJT

		activity	
	Assist the pharmacist to document the antimicrobial use data for further assessment	Lack of knowledge Currently only few pharmacy technicians are involved in this activity	<ul style="list-style-type: none"> ● CME ● OJT
Key Role 3: Educator and Manager			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Continuing Professional Development	Participate in continuing professional development activities to support their scope of practice and assist Pharmacists in providing resources for CPD activities	Limited opportunities to attend CPD activities	<ul style="list-style-type: none"> ● STT ● CME
Research	Participate in data collection and analysis of research data.	Lack of knowledge Not taught during diploma and certificate course	<ul style="list-style-type: none"> ● OJT ● CME
	Demonstrates sound knowledge on research methodology	Lack of knowledge Not taught during diploma and certificate in pharmacy course	<ul style="list-style-type: none"> ● STT
Evaluation of drug information needs	Carry out evaluation of drug information needs of patients and healthcare professionals in collaboration with pharmacists.	Lack of knowledge and skills	<ul style="list-style-type: none"> ● STT
	Obtain appropriate and complete background information to individualize the drug information needs.	Lack of knowledge and skills	<ul style="list-style-type: none"> ● STT

2.5.9.2.3. Training Need Assessment for Advanced Proficiency Level Pharmacy Technicians

Training need assessment of pharmacy technicians for intermediate level found that intermediate level technicians were non-competent in 17 behavioural indicators: 11 BI under key role 1 pharmaceutical product expert, 2 BI under key role 2 Care provider and 4 BI under key role 3 educator and manager.

Table 14: Training need assessment for Pharmacy Technicians at advanced level

Key Role 1: Pharmaceutical Product Expert			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Knowledge on Formulation science	Have comprehensive understanding of the legal requirements that govern the manufacture of medicinal products, including GMP.	Lack of knowledge Only limited compounding services are provided in the district hospitals	<ul style="list-style-type: none"> • CME
	Able to identify and recommend for changes to mitigate occupational safety issues.	Lack of knowledge and skills Only limited compounding services are provided in the district hospitals	<ul style="list-style-type: none"> • CME • OJT at JDWNRH/RRH
Inventory Management	Recognize and respond to unusual patterns of drug distribution including diversion, drug misuse and fluctuations in utilization	Lack of knowledge and skills Some pharmacy technicians are not working in the medical store.	<ul style="list-style-type: none"> • STT
Procurement	Prepares bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.	Lack of knowledge Only few pharmacy technicians working in the procurement division	<ul style="list-style-type: none"> • CME on procurement rules and regulations, standard bidding documents • OJT with procurement

			division
Quality Monitoring	Evaluate the quality of medical supplies using Quality Inspection Guideline.	Only few pharmacy technicians involved in this activity	<ul style="list-style-type: none"> ● CME on Guideline for Quality Inspection of Medical Supplies ● OJT
	Sampling of medicines for quality inspection and testing as per the standard guidelines.	Only few pharmacy technicians involved in this activity	<ul style="list-style-type: none"> ● CME on Guideline for Quality Inspection of Medical Supplies ● OJT
Product Quality Testing	Adopt and verify analytical procedures for quality control according to product specifications.	Lack of knowledge and skills Currently, there is no pharmacy technicians working in the drug testing lab.	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Able to interpret and perform laboratory activities as per the SOPs or standard guidelines.	Lack of knowledge and skills Currently, there is no pharmacy technicians working in the drug testing lab.	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Demonstrates advanced laboratory skills to test medicines for all parameters by using UV-Visible Spectrophotometer, FTIR, dissolution apparatus, titrimetric and guide junior technicians.	Lack of knowledge and skills Currently, there is no pharmacy technicians working in the drug testing lab.	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Implement Quality Management System and Good Laboratory Practice and guide junior technicians.	Lack of knowledge and skills Currently, there is no pharmacy technicians working in the drug testing lab.	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT
	Demonstrates sound understanding of principles, instrumentations and application of analytical methods.	Lack of knowledge and skills Currently, there is no pharmacy technicians working in the drug testing lab.	<ul style="list-style-type: none"> ● STT for those who are posted to national drug testing lab ● OJT

Key Role 2: Care provider			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Pharmacovigilance	Follow up the individual patients to determine the outcome of ADR and to guide the junior pharmacy technicians	Lack of knowledge and experience	● CME
	Maintain proper pharmacovigilance documentation (ADR notification form, suspected ADR form, ADR identification stickers, causality assessment).	Lack of knowledge and experience	● STT
Key Role 3: Educator and Manager			
Key Competencies	Description of Proficiency Level	Likely reason for performance gap	Capacity Development Intervention
Continuing Professional Development Research	Participate in continuing professional development activities to support their scope of practice and assist Pharmacists in providing resources for CPD activities	<ul style="list-style-type: none"> ● Lack knowledge and experience ● Limited opportunities to attend such workshops 	● CME
Research	Participate in data collection and analysis of research data.	Lack of opportunities to participate in research activities	● CME
	Demonstrates sound knowledge on research methodology	Lack of opportunities to participate in research activities	● STT
Resource Utilization	Able to assist the supervisor in negotiating, managing and acquiring the needed resources.	Lack of experience and skills	● STT

TNA Summary in numbers for Pharmacists

Table 15: TNA Summary for pharmacists

Key Role	Competency Area	Key competencies	No. of Behavioural Indicators	No. of Behavioural Indicators for TNA			Remark
				Foundation	Intermediate	Experienced	
Pharmaceutical Product expert	Extemporaneous Compounding	Knowledge on Formulation science	5	4	2	2	
		Compounding skills	3	2	0	1	
		Product quality control	4	0	0	1	
	Medical supplies management	Medicines selection	2	2	0	0	
		Inventory Management	5	2	0	1	
		Procurement	2	2	2	2	
	Quality Assurance	Quality Monitoring	2	1	0	0	
		Product Sampling	2	0	0	0	
		Product Quality Testing	7	3	4	7	
Care Provider	Medicine Dispensing	Prescription Interpretation	2	0	0	0	
		Professional Check	2	0	0	0	
		Patient Counselling	3	0	0	0	
	Pharmaceutical Care	Medication Therapy Management	3	3	2	0	
		Monitoring patient outcomes	1	1	0	0	
	Professionalism and Ethics	Professionalism and Ethics	3	0	0	0	
	Medication Safety	Pharmacovigilance	3	0	0	0	
Therapeutic Drug Monitoring		3	3	3	3		

		Anti-microbial stewardship	3	2	3	3	
Educator and Manager	Professional Development	Continuing Professional Development	1	0	1	0	
		Research and development	2	2	1	1	
		Information Technology	1	0	1	1	
	Drug Information	Evaluation of drug information needs	2	1	2	0	
		Resource management	2	2	0	2	
		Provision of drug information	1	0	0	0	
	Work Place Management	Leadership	3	1	0	0	
		Communication Skills	4	0	0	0	
	Strategic Planning	Resource utilization	1	0	0		
		Risk management and contingency planning	2	0	0	2	
	Total		74	31	21	26	

TNA summary in numbers for Pharmacy Technicians

Table 16: TNA summary for pharmacy technicians

Key Role	Competency Area	Key competencies	No. of Behavioural Indicators	No. of Behavioural Indicators for TNA			Remarks
				Foundation	Intermediate	Experienced	
Pharmaceutical Product expert	Extemporaneous Compounding	Knowledge on Formulation science	4	2	2	2	
		Compounding skills	2	1	0	0	
		Product quality control	3	1	1	0	
	Medical supplies management	Inventory Management	8	1	0	1	
		Procurement	2	2	2	1	
	Quality Assurance	Quality Monitoring	3	2	2	2	
Product Quality Testing		5	5	5	5		
Care Provider	Medicine Dispensing	Prescription Interpretation	2	0	0	0	
		Prescription processing	3	0	0	0	
		Issuing medicine	4	0	0	0	
	Pharmaceutical Care	Medication Therapy Management	1	0	0	0	
		Monitoring patient outcomes	1	1	0	0	
	Professionalism and Ethics	Professionalism and Ethics	3	0	0	0	
	Medication Safety	Pharmacovigilance	4	0	1	2	
Anti-microbial stewardship		2	1	2	0		
Educator and Manager	Professional Development	Continuing Professional Development	1	0	1	1	
		Research	2	2	2	2	
		Information Technology	1	1	1	0	
	Drug Information	Evaluation of drug information needs	2	1	2	0	
		Provision of drug information	1	0	0	0	

	Work Place Management	Leadership	3	1	0	0	
		Communication Skills	4	0	0	0	
	Strategic Planning	Resource utilization	1	0	0	1	
		Risk management and contingency planning	2	0	0	0	
	TOTAL		64	21	21	17	

2.5.10. Mandatory Short-term Program and Learning Objectives for Pharmacists

The framework has highlighted the likely reasons for the gaps and interventions proposed above. In order to provide a capacity building program, the following are the expected learning objectives. The respective proficiency level officials will be able to achieve the objectives mentioned against each of the training.

Table 17: STT for Pharmacists

Foundation Proficiency Level			
SN	Training/Intervention	Methods of Implementation	Learning Objectives
1.	Orientation on relevant Policy, Rules & Regulation: <ul style="list-style-type: none"> ● CSAB 2010 ● BCSR 2018 ● Medical and Health Council Act 2002 ● Bhutan Medicines Act 2003 ● BMHC Regulations 2005 ● BMRR 2012 ● Disciplinary proceedings for Malpractice and Negligence Regulations 2009 ● Scope of practice for pharmacy professionals ● Organization's vision, mission, key performance indicator, incident reporting system ● Guidelines (infection control, patient safety, other relevant guidelines) 	In-house orientation to new recruits and recruits through lateral transfer	Pharmacists are: <ul style="list-style-type: none"> ● Well informed about the laws and policy governing them as civil servant, a healthcare worker and a pharmacy professional. ● Pharmacists can adhere to the ethical and professional standards ● Pharmacists can work towards achieving the common organizational goals

	<ul style="list-style-type: none"> ● SOPs on Good Dispensing Practice; Store management; Extemporaneous compounding, etc. 		
2.	<p>Training:</p> <ul style="list-style-type: none"> ● Basic Life Support ● Disaster management ● Basic research methodology ● Information technology ● Good laboratory practices 	Formal Classroom Trainings and practical sessions (In-country)	Pharmacists are better prepared with basic skills in basic life support, research, IT and laboratory techniques
3.	<p>On-job training/attachment:</p> <ul style="list-style-type: none"> ● Dispensing practice ● inventory/stock management ● Compounding of non-sterile products ● Quality inspection of pharmaceuticals ● Quality testing of pharmaceuticals ● Pharmaceutical Drug information service 	In-country attachment with the relevant institutes	Pharmacists are well versed with the knowledge and skills required to work as a competent pharmacist in hospital/laboratory
4.	<ul style="list-style-type: none"> ● Continued medical education/workshops ● Pharmaceutical care ● Infection control practices ● Waste management ● Communication skills ● Medication safety management 	In-country workshops	Pharmacists are familiar about pharmaceutical care principles, infection control practices, waste management and medication safety management
5.	Seminar/conferences	Ex-country	Pharmacists are updated on latest developments in pharmacy practices, and other areas of pharmaceutical sciences.
Intermediate Proficiency Level			
SN	Methods of Intervention/Training Requirement	Methods of Implementation	Learning Objectives
1.	<p>Orientation on relevant Policy, Rules & Regulation:</p> <ul style="list-style-type: none"> ● Organization's vision, mission, Annual Performance Agreement, key performance indicator, incident reporting 	In-house orientation to new recruits and recruits through lateral	<p>Pharmacists are:</p> <ul style="list-style-type: none"> ● Reoriented with organizations vision, mission, organization

	<p>system</p> <ul style="list-style-type: none"> ● Procurement Rules and Regulations ● SOPs on Good Dispensing Practice; Store management; Extemporaneous compounding, Management of Controlled Medicines, etc. 	transfer	<p>targets and goals</p> <ul style="list-style-type: none"> ● Continue to adhere to the ethical and professional standards
2.	<p>Training on emergency response:</p> <ul style="list-style-type: none"> ● Basic Life Support ● Disaster management ● Information technology 	Formal Classroom Trainings and practical sessions (In Country)	Pharmacists are well refreshed with basic skills in basic life support, research, IT and laboratory techniques
3.	<p>In-country on-job training/attachment on:</p> <ul style="list-style-type: none"> ● Procurement practices ● Quality testing of pharmaceuticals ● Formulary management ● Causality analysis of ADR ● In-patient clinical rounds ● AMS interventions 	In country attachment with the relevant institutes	<p>Pharmacists are:</p> <ul style="list-style-type: none"> ● Well versed with the knowledge and skills required to work as a competent pharmacist in hospital and has a fair idea about in-patient pharmaceutical care planning. ● Conversant about procurement norms ● able to carry out causality analysis of ADRs ● Conversant about principles of antimicrobial stewardship.
4.	<p>Ex-country on-job training/attachment on:</p> <ul style="list-style-type: none"> ● Compounding of sterile products for IV administration (Chemotherapy and parenteral nutrition) 	Attachment with the relevant hospitals outside the country.	Pharmacists can independently carry out compounding of sterile products.
5.	<p>Continued medical education/workshops on:</p> <ul style="list-style-type: none"> ● Pharmaceutical care interventions of various diseases ● Infection control practices ● Waste management ● Communication skills ● Medication safety ● Pharmacovigilance 	In-country CME	<ul style="list-style-type: none"> ● Pharmacists have a broader about pharmaceutical care principles and disease-specific care interventions. ● Knowledge and skills on communication strategies, infection control practices, waste management and medication safety management are enhanced

6.	Seminars/conferences		Pharmacists are updated on latest developments in pharmacy practices and other areas of pharmaceutical sciences
Experienced Proficiency Level			
SN	Methods of Intervention/Training Requirement	Methods of Implementation	Learning Objectives
1.	Orientation on relevant Policy, Rules & Regulation: <ul style="list-style-type: none"> ● Organization's vision, mission, Annual Performance Agreement, key performance indicator, incident reporting system ● SOPs on Good Dispensing Practice; Store management; Extemporaneous compounding, Management of Controlled Medicines, etc. 	In-house orientation	Pharmacists are: <ul style="list-style-type: none"> ● Reoriented with organizations vision, mission, organization targets and goals ● Continue to adhere to the ethical and professional standards
2.	Training on: <ul style="list-style-type: none"> ● Basic Life Support ● Disaster management ● Conflict management ● Inventory analysis and reporting 	In-country training	Pharmacists guide junior pharmacists' basic skills in basic life support, research, IT and laboratory techniques
3.	On-job training/attachment: <ul style="list-style-type: none"> ● Compounding of sterile products for IV administration (Chemotherapy and parenteral nutrition) ● Therapeutic Drug Monitoring ● Advanced pharmaceutical analysis techniques ● Radio-pharmacy 	Ex-country	Pharmacists are: <ul style="list-style-type: none"> ● Can independently carry out compounding of sterile preparations ● Can oversee causality analysis of ADRs and provide feedback
4.	Seminar/conferences	Ex-country/in-country	<ul style="list-style-type: none"> ● Can interpret TDM results and recommend dosing changes ● Can carry out pharmaceutical testing procedures independently ●

Advanced Proficiency Level			
SN	Methods of Intervention/Training Requirement	Methods of Implementation	Learning Objectives
1.	Orientation on relevant Policy, Rules & Regulation: <ul style="list-style-type: none"> ● Organization's vision, mission, Annual Performance Agreement, key performance indicator, incident reporting system ● SOPs on Good Dispensing Practice; Store management; Extemporaneous compounding, Management of Controlled Medicines, etc. 	In-house orientation	Pharmacists are: <ul style="list-style-type: none"> ● Reoriented with organizations vision, mission, organization targets and goals ● Continue to adhere to the ethical and professional standards
2.	Training on: <ul style="list-style-type: none"> ● Advanced cardiac life support ● Quality improvement initiatives ● Leadership management 	In-country training	Pharmacists guide junior pharmacists on basic skills in basic life support, research, IT and laboratory techniques Bring out quality improvement initiatives.
3.	On-job training/attachment on: <ul style="list-style-type: none"> ● Advanced formulation techniques ● Therapeutic Drug Monitoring ● Radio - pharmacy ● AMS rounds/interventions ● Leadership management ● Advanced pharmacokinetics & Pharmacogenomics 	Ex-country attachment with relevant institutes	Pharmacists are: <ul style="list-style-type: none"> ● Verify sterile preparations ● Can oversee causality analysis of ADRs and provide feedback ● Oversee TDM activities and address complex cases ● Validate pharmaceutical testing procedures.
4.	Continued medical education/workshops on: <ul style="list-style-type: none"> ● Pharmaceutical care interventions in various diseases ● Infection control practices ● AMS interventions 	In-county CME	Pharmacists are updated on latest developments in pharmacy practices and other areas of pharmaceutical sciences.
5.	Seminar/conferences	Ex-country	

Proposed Long-term Program (Specialization) for Pharmacists

Table 18: LTT for pharmacists

SN	Program
1.	Masters in Clinical Pharmacy
2.	Masters in Pharmaceutical Analysis
3.	Masters in Pharmaceutical Management
4.	Masters in Medicinal Chemistry
5.	Masters in Pharmaceutical Sciences
6.	Masters in Phytopharmaceutical Sciences
7.	Fellowship in Cardiology Pharmacy
8.	Fellowship in Oncology Pharmacy
9.	Fellowship in Antimicrobial Stewardship
10.	Fellowship in Paediatric pharmacy

2.5.11. Mandatory Short-term Program and Learning Objectives for Pharmacy Technicians

The framework has highlighted the likely reasons for the gaps and interventions proposed above. In order to provide a capacity building program, the following are the expected learning objectives. The respective proficiency level officials will be able to achieve the objectives mentioned against each of the training.

Table 19: STT for pharmacy technicians

Entry Proficiency Level			
SN	Methods of Intervention/Training Requirement	Methods of Implementation	Learning Objectives
1.	Orientation on relevant Policy, Rules & Regulation: <ul style="list-style-type: none"> ● CSAB 2010 ● BCSR 2018 ● Medicines act of Bhutan 2003 ● Bhutan Medicines Rules and Regulations 2019 	Institute and implement a standard in-house orientation to new recruits and recruits through lateral transfer	To familiarize the pharmacy technicians with the relevant rules and regulations and comply to it.

	<ul style="list-style-type: none"> ● Standard Operating Procedures ● BMHC Act 2002 ● BMHC Regulations 2005 		
2.	<p>CME on:</p> <ul style="list-style-type: none"> ● Legal requirements legal requirements that govern the manufacture of medicinal products, including GMP ● Concept of preformulation studies 	In - house CME	Pharmacy technicians should have a thorough understanding of legal requirements that govern manufacture of medicinal products and preformulation studies.
3.	Training on Compounding skills	Class room teaching with practical sessions (ex - country)	Pharmacy Technicians should acquire demonstrate good weighing, mixing, dilution, trituration and levigating techniques in preparation of non-sterile products.
4.	Training on Inventory management	Classroom teaching with practical sessions (ex-country)	Pharmacy Technicians should be able to assist the pharmacist in carrying out analysis of consumption pattern of medicines and recognize unusual patterns of drug consumption.
5.	Training on procurement rules and regulations of medical supplies	<ul style="list-style-type: none"> ● Inhouse CME ● On the job training 	<ul style="list-style-type: none"> ● To learn about procurement rules and regulations ● Should be able to prepare bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.
6.	Training on Quality inspection of medical supplies	On the job training	Should be able to assist the pharmacist in carrying out quality inspection of medical supplies as per the quality inspection guideline.
7.	Training on pharmaceutical product testing	<ul style="list-style-type: none"> ● Class room training (ex-country) ● OJT 	<ul style="list-style-type: none"> ● Able to interpret and perform laboratory activities as per the SOPs

			<ul style="list-style-type: none"> • Demonstrates adequate laboratory skills to test medicines for physical parameters and selected chemical parameters
8.	Training on Medication Therapy management	Clinical attachment at Outpatient and Inpatient Pharmacy, JDWNRH	Should be able to identify medication therapy problems and assist the pharmacist to monitor patient outcomes
9.	Training on antimicrobial stewardship program	On the job training at AMSU, JDWNRH and RRH	Should be able to assist the pharmacist in monitoring antimicrobial use in the wards and appropriately document the data for further assessment
10.	Training on research methodology	Classroom training with practical sessions (ex-country)	Should be able to collect data to carry out research. Should have basic knowledge on research methodology.
11.	Training on Information Technology	Classroom training with practical sessions (in-country)	Demonstrate proficiency in use of basic IT skills such as Microsoft Office and electronic patient information system (ePIS)
12.	Training Drug information Service	Classroom training with practical sessions (ex-country)	Should be able to assist the pharmacist and pharmacy technicians in carrying out evaluation of DI needs of patients and healthcare professionals Should be able to obtain appropriate and complete background information to individualize the drug information needs.
Experienced Proficiency Level			
SN	Methods of Intervention/Training Requirement	Methods of Implementation	Learning Objectives
1.	CME on: <ul style="list-style-type: none"> • Legal requirements legal requirements that govern the 	Inhouse CME	Pharmacy technicians should have a thorough understanding of legal

	<p>manufacture of medicinal products, including GMP</p> <ul style="list-style-type: none"> • Concept of preformulation studies 		<p>requirements that govern manufacture of medicinal products and preformulation studies.</p>
2.	Training on compounding	Classroom teaching with practical sessions (ex-country)	Should be able to perform the formulation instruction including the preparation methods, selection of API, excipients and equipment for both sterile and non-sterile preparations.
3.	Training on procurement rules and regulations of medical supplies	<ul style="list-style-type: none"> • Inhouse CME • On the job training 	<ul style="list-style-type: none"> • To learn about procurement rules and regulations • Should be able to prepare bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.
4.	Training on pharmaceutical product testing	<ul style="list-style-type: none"> • Class room training (ex-country) • OJT 	<ul style="list-style-type: none"> • Able to interpret and perform laboratory activities as per the SOPs • Demonstrates adequate laboratory skills to test medicines for physical parameters and selected chemical parameters
5.	Training on Pharmacovigilance	OJT	Able to follow up the patients to determine the outcome of ADR
6.	Training on Antimicrobial Stewardship	OJT at AMSU, JDWNRH and RRH	<ul style="list-style-type: none"> • Able to assist the pharmacist to monitor the use of antimicrobials identified by the AMSU in the wards and guide junior technicians • Able to assist the pharmacist to document the antimicrobial use data for further assessment
7.	Training on research methodology	Classroom training	Should be able to collect data to carry

		with practical sessions (ex-country)	out research. Should have basic knowledge on research methodology.
8.	Training on Information Technology	Classroom training with practical sessions (in-country)	Demonstrate proficiency in use of basic IT skills such as Microsoft Office and electronic patient information system (ePIS)
9.	Training Drug information Service	Classroom training with practical sessions (ex-country)	<ul style="list-style-type: none"> • Should be able to assist the pharmacist and pharmacy technicians in carrying out evaluation of DI needs of patients and healthcare professionals • Should be able to obtain appropriate and complete background information to individualize the drug information needs.
Advanced Proficiency Level			
SN	Methods of Intervention/Training Requirement	Methods of Implementation	Learning Objectives
1.	CME on: <ul style="list-style-type: none"> • Legal requirements legal requirements that govern the manufacture of medicinal products, including GMP • Concept of preformulation studies 	In-house CME	Pharmacy technicians should have a thorough understanding of legal requirements that govern manufacture of medicinal products and preformulation studies.
2.	Training on Compounding skills	Class room teaching with practical sessions (ex-country)	Pharmacy Technicians should acquire demonstrate good weighing, mixing, dilution, trituration and levigating techniques in preparation of non-sterile products.
3.	Training on Inventory management	Classroom teaching with practical sessions (ex-country)	Pharmacy Technicians should be able to carry out analysis of consumption pattern of medicines and recognize

			unusual patterns of drug consumption.
4.	Training on procurement rules and regulations of medical supplies	<ul style="list-style-type: none"> ● In-house CME ● On the job training 	<ul style="list-style-type: none"> ● To learn about procurement rules and regulations ● Should be able to prepare bidding files, comparison table and manages the tender procedure for medicines with suppliers in accordance with the procurement procedure.
5.	Training on Quality inspection of medical supplies	On the job training	Should be able to assist the pharmacist in carrying out quality inspection of medical supplies as per the quality inspection guideline.
6.	Training on pharmaceutical product testing	OJT	<ul style="list-style-type: none"> ● Able to interpret and perform laboratory activities as per the SOPs ● Demonstrates adequate laboratory skills to test medicines for physical parameters and selected chemical parameters.
7.	Training on Medication Therapy management	Clinical attachment at Outpatient and Inpatient Pharmacy, JDWNRH	Should be able to identify medication therapy problems and assist the pharmacist to monitor patient outcomes
8.	Training on antimicrobial stewardship program	On the job training at AMSU, JDWNRH and RRH	Should be able to assist the pharmacist in monitoring antimicrobial use in the wards and appropriately document the data for further assessment
9.	Training on research methodology	Classroom training with practical sessions (ex-country)	<ul style="list-style-type: none"> ● Should be able to collect data to carry out research. ● Should have basic knowledge on research methodology.
10.	Training on Information Technology	Classroom training	Demonstrate proficiency in use of

		with practical sessions (in-country)	basic IT skills such as Microsoft Office and electronic patient information system (ePIS)
11.	Training Drug information Service	Classroom training with practical sessions (ex-country)	<ul style="list-style-type: none"> • Should be able to assist the pharmacist and pharmacy technicians in carrying out evaluation of DI needs of patients and healthcare professionals • Should be able to obtain appropriate and complete background information to individualize the drug information needs.

Proposed Long-term Program (Specialization) for Pharmacy Technicians

Table 20: LTT for pharmacy technicians

SN	Program
1.	Diploma in Pharmacy (for those with Certificate in pharmacy qualification)
2.	Certificate (modular) courses in:
	<ul style="list-style-type: none"> • Pharmacovigilance
	<ul style="list-style-type: none"> • Therapeutic drug monitoring
	<ul style="list-style-type: none"> • Chemo mixing
	<ul style="list-style-type: none"> • Dialysis mixing
	<ul style="list-style-type: none"> • Drug information service
	<ul style="list-style-type: none"> • Formulation science
	<ul style="list-style-type: none"> • Pharmaceutical quality control
	<ul style="list-style-type: none"> • Inventory management
	<ul style="list-style-type: none"> • Antimicrobial stewardship

3. Implementation of Competency based Framework

The implementation of training and other interventions are to be based on the mandatory **program/interventions** listed under section under the training needs analysis (Section 2.8) of this document. The mandatory list of training/intervention includes all the programs against the behaviour indicators that are found to be “Not Competent” under the Training Needs Analysis. Implementation of the training programs will be prioritized based on the following:

- i. Annual prioritization
- ii. Most critical area of intervention
- iii. Rationalization of selection of participants
- iv. Availability of the resource allocation

Implementation will be initiated and spearheaded by the Ministry of Health in close coordination and collaboration with the respective HR Division.

Sl.no	Recommendations/Activity	Timeline	Responsible agency forM&E
1	Sensitization on CBF through face to face and virtual meeting for all the Pharmacist (this will be conducted batch wise for effective sensitization)	July-September, 2022	RCSC, MOH
2	Prepare and plan for the integration of CBF in IWP(RCSC), Clinical Auditing (BMHC) and Continuing Medical Education (BMHC, MoH, KGUMSB)	October-December 2022	RCSC, MOH, BMHC
3	Analyze, prioritize and carry out the upskills and trainings identified in Training Need Analysis.	January- July 2022	RCSC and MOH
4	Linkage and addition of CBF in mandatory IWP, BMHC Certificate Renewal and RCSC promotion.	July – February 2023	MOH, Hospital /HealthCenter Administrations,BM HC
5	Mid and Annual review of CBF implementation progress	February - December 2024	RCSC, MOH
6	Complete all the trainings and implement recommendations in CBF	December 2024	MOH

4. Recommendations

Following are the recommendations:

- i. To conduct training of pharmacists and pharmacy technicians on the CBF.
- ii. To roll-out training as per the TNA in a phased manner soon after its endorsement.
- iii. Develop an assessment/measurement tool to assess the competencies.
- iv. Training impact assessment to be carried out after roll-out of training.
- v. RCSC/MoH to monitor implementation of the CBF to be instituted.
- vi. CBF to be linked with Annual Performance Agreement (APA) of Organization and Individual Work Plan (IWP)

5. Conclusion

The CBF for pharmacists and pharmacy technicians is developed to enhance the professional knowledge and skill to enable them to deliver optimal pharmaceutical services. This framework is also expected to bring out clear delineation of roles and responsibilities between pharmacists and pharmacy technicians; identify performance gaps and competency development interventions; enhance skill and competency for effective delivery of safe and high-quality care.

This framework was developed by the CBF team and finalized after a series of meetings with relevant stakeholders. In the process, 3 key roles and 10 competency areas common to both pharmacists and pharmacy technicians were identified. Subsequently, key competencies and behavioural indicators with different proficiency levels were identified for pharmacists and pharmacy technicians, respectively. The training need analysis revealed requirements of both short and long-term training courses for competencies to be enhanced. Overall, this framework is expected to serve as a comprehensive tool to strengthen the capacity and capabilities of the staff nurses through continuous professional development.

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