

National Collaborative Prescribing Programme



Clinical Supervisor Handbook
March 2018

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1. Introduction

1.1. Background

Healthcare provision, with increasing complexity and patient load, is progressively experiencing the benefits of inter-professional collaboration. Since the late 1990s, pharmacists have been involved in medication management and titration at anticoagulation clinics. Over the years, this practice evolved to various other pharmacist-managed clinics and services e.g. heart failure, renal, diabetes management. Advanced Practice Nurses (APNs) undergo the Masters of Nursing programme and were certified from mid 2000s. Since then, APNs have been practicing in various settings and disciplines, being heavily involved in patient care, including medication management.

To further improve care accessibility, and provide quality care without compromising patient safety, the Ministry of Health, Singapore is advocating selected APNs and pharmacists to become collaborative prescribing practitioners where their scope of practice will be expanded.

1.2. Practice Model

Collaborative prescribing aims to assist and facilitate care transformation in the community and hospitals, by providing a more holistic service with improved continuity for team-based care. The collaborative prescribing practitioner (CPP) is a member of a multidisciplinary clinical team led by a medical practitioner and his/her scope of practice is a set of services performed as part of a team. The scope and services are defined in a Collaborative Practice Agreement, under the governance of the institution, according to National standards and guidelines.

1.3. Programme Content

The National Collaborative Prescribing Programme prepares APNs and pharmacists to prescribe under a Collaborative Practice Agreement with a medical practitioner(s). Collaborative prescribing involves assessing the patient, considering treatment options, reaching a shared decision, prescribing, providing patient education, monitoring and reviewing of the patient. Through this programme, the individual will acquire skills and competencies in history taking, data interpretation, diagnostic formulation, physical examination, clinical decision making, applied therapeutics, psychosocial aspects of prescribing, collaboration with multidisciplinary team, effective communication and documentation.

The programme is designed to build on the basic skills already acquired in the APNs' and pharmacists' training. The core components comprise of areas involving safe and professional prescribing, as well as improving prescribing practice and prescribing as part of a team. The core competencies required include inter-professional collaboration, understanding prescribing systems, and professional and ethical considerations of prescribing. Based on differences in baseline skillsets of APNs and pharmacists, a portion of the curriculum is conducted separately to strengthen areas requiring further skills development in the two professions to perform collaborative prescribing.

At the end of the programme, the CPP should be able to develop his/her own practice under a Collaborative Practice Agreement. The CPP should also be aware of his/her own strengths and limitations, scope of practice and practice framework that he/she should practice within.

2. Programme Structure Overview

The three-month programme is conducted over 13 weeks, with one full day a week (Mondays) in teaching sessions over 9 weeks, and an additional 80 hours of clinical practicum.

2.1. Teaching Sessions

Teaching methods include lectures, case-based discussions, clinical stimulations, role-play, hands-on practice, problem/team based learning, as well as self-directed and e-learning.

2.2. Clinical Practicum

An existing or potential collaborative prescribing practice with a clinical supervisor is required for the programme. The clinical supervisor (together with his/her team) will oversee the clinical practicum to ensure opportunities for hands-on practice and the individual's competency to practice independently as a CPP.

Please refer to the [Clinical Practicum](#) section for details.

2.3. Assessment

For successful completion of the CP Programme, the candidate must have achieved a minimum of 75% attendance, and successfully completed the following assessments:

- Portfolio reviews: please refer to [Portfolio](#) section for details
- Oral presentation
- In-class quizzes
- A final written examination, and
- A formative and a summative OSCE.

3. Teaching Sessions

3.1. General

Topics to be covered include legislative aspects and principles of prescribing (refer to [CP website](#) for more details).

3.2. Consultations and Physical Assessments

Topics to be covered include general approaches to patients, communication skills, history-taking and physical assessment sessions (refer to [CP website](#) for more details).

3.3 Pharmacotherapeutics

Topics to be covered include pharmacokinetics and pharmacodynamics, and pharmacotherapeutics of cardiovascular, respiratory, infectious, endocrine, renal, gastrointestinal, neurological, psychiatric disorder/diseases (refer to [CP website](#) for more details).

4. Clinical Practicum

The aim of the period of clinical practicum is to provide the trainee with opportunities to develop competencies in consultation and prescribing under the supervision of the clinical supervisor. The period will be spent with the patient group/s for which the trainee is expected to manage and prescribe upon satisfactory completion of the programme.

A key component of your role is to develop and assess the trainee's competence in order that he/she becomes a safe and effective Collaborative Prescribing Practitioner. Competence relates to the expectation that on completion of the programme, trainees will have acquired the knowledge, skills and attitudes to enable them to prescribe safely and competently. It is therefore important that you work closely with the trainee to achieve a competent level of performance.

The competencies that the trainee is working towards are illustrated in the trainee's portfolio. These competencies may be signed off by the clinical supervisor and/or supervising peers. However, the final signature of competency is yours as the trainee's named clinical supervisor.

4.1. About the Clinical Practicum

All trainees need to complete 80 hours of clinical practicum with the following allocation:

- 30 hours DIRECT supervision:
 - 12 hours with named clinical supervisor
 - 18 hours with a Senior Resident and/or higher grade of doctors
- 10 hours INDIRECT supervision by above
- 30 hours DIRECT supervision by peers i.e. Resident/Medical Officer, APN or pharmacist
- 10 hours INDIRECT supervision by peers

Whereby

- DIRECT supervision means that the supervisor must be in attendance in the same room as the trainee to observe the trainee's clinical encounter / performance, and provide feedback;
- INDIRECT supervision means that the supervisor is physically present on the premises (but not in the same room) when the trainee is engaged in the clinical encounter / performing the task, and is available at the trainee's side within a few minutes if help is needed.

The duration of each session of the clinical practicum should be decided between the trainee and you, and the other supervisors i.e. peers (APNs or pharmacists), senior residents and other doctors etc. It may be helpful for you to work with your trainee to identify other potential doctor-supervisors, introduce them and brief them on the important role that they play.

In order to get the most from the time in practice, at the beginning of the programme, the trainees are required to identify their scope of practice and personal formulary, identify the clinical assessment skills (i.e. history, physical examination, clinical reasoning, formulation of differential diagnoses, presentation of findings, and communication / information sharing) they will require and develop a personal development plan for the 10 weeks of clinical practicum. We strongly suggest that you meet the trainee at the start of the clinical practicum to review his/her personal development plan and areas of learning with respect to clinical assessment skills. This initial meeting ensures that the trainee's personal development plan is realistic in helping him/her to acquire the necessary clinical assessment skills by the end of the practicum.

For each period of time that they spend under your supervision, they must complete a learning log that needs to be verified with your signature (see [section 5.1.5 Learning log](#)).

The success of the clinical practicum relies on your willingness and ability to devote time to provide appropriate guidance for the trainee.

Examples of how the trainee could receive supervision are:

- Provide opportunities for the trainee to carry out consultations and agree on clinical management and prescribing options;
- Provide opportunities to develop and implement clinical management plans in partnership with patients and the clinical supervisor.
- Provide opportunities for in-depth discussion and analysis of clinical management using a random case analysis approach, when patient care and prescribing behaviour can be examined further;
- Encourage critical thinking and reflection with the use of the trainee's prescribing portfolio;
- Provide opportunities for the trainee to observe how you or a doctor-colleague conducts a 'consultation/interview' with patients and/or their carers, and the development of a subsequent management plan.

During the clinical practicum, the trainees must also complete at least two [mini-clinical evaluation exercises \(mini-CEX\)](#) and two [case-based discussions \(CBD\)](#) assessment. Please see the relevant sections for details.

4.2. Role of the Clinical Supervisor

The clinical supervisor role is summarised below:

- Planning a learning programme which will provide the opportunity for the trainee to meet their learning objectives and gain competency in prescribing
- Facilitating learning by encouraging critical thinking and reflection
- Providing dedicated time and opportunities for the trainee to observe how the clinical supervisor conducts a consultation/interview with patient/clients and/or parents/carers and the development of a management plan
- Allowing opportunities for the trainee to carry out consultations and suggest clinical management and prescribing options, which are then discussed with the clinical supervisor
- Helping to ensure that the trainee integrates theory with practice
- Discussing each practice outcome with the trainee and review the supporting evidence
- Signing and dating each practice outcome identifying the level of achievement
- Assessing the trainee's practice through the use of mini-CEXs and CBDs
- Assessing and verifying that, by the end of the programme, the trainee is competent to assume the prescribing role.

We ask that in your role as a clinical supervisor you will:

- Gain an understanding of the required prescribing competencies and assessment process;
- Supervise the trainee's clinical practicum as described in [section 4.1](#);
- Assess the trainee's competencies in practice as described in [section 5](#).

4.3. Final Report

Each trainee will give their clinical supervisor a copy of this form (refer to [Annex I](#)) to complete for the final signing-off process.

4.4. Failure to Progress in Practice

Where there is concern that a trainee is failing to achieve a satisfactory standard in practice, the clinical supervisor MUST contact the programme manager. A visit to the placement area will be arranged to undertake joint discussions between the trainee, supervisor and programme manager or designee. This will be documented. A joint documented plan of action will be developed to facilitate the trainee's remediation and progress before the final competency grade in relation to the practice outcomes is given. It is important that there is documentation of issues raised, follow up actions and progress meetings as the evidence may be required to be presented to the examination board.

4.5. Unsafe Practice

The institution patient and clinical safety protocols and requirements will apply to the trainee during the clinical practicum. If you have any concern about your trainee in this aspect please intervene early so that he/she has sufficient time to remediate and improve his/her practice.

5. Assessments

5.1. Prescribing Portfolio

There are a number of sections to the portfolio. They include:

- Identifying the trainee's scope of practice (refer to [section 5.1.1](#)) and personal drug formulary (refer to [section 5.1.2](#));
- Developing a personal development plan (refer to [section 5.1.3](#));
- Presenting a drug monograph and clinical application use (refer to [section 5.1.4](#)) which must be related to the trainee's scope of practice and personal drug formulary;
- Details of the trainee's supervised time in practice in a learning log (refer to [section 5.1.5](#));
- Providing evidence that the prescribing practice outcomes are completed and signed off in prescribing logs (refer to [section 5.1.6](#));
- Developing patient assessment skills using mini-CEXs (refer to [section 5.1.7](#)) and case-based discussions (refer to [section 5.1.8](#));
- A statement from you that the trainee's patient assessment skills are developed sufficiently and that you are satisfied that he/she will be a competent Collaborative Prescribing Practitioner.

The trainee must attain successful completion of the portfolio in order to qualify for entry into the OSCE (Objective Structured Clinical Examination). Failure to complete the portfolio automatically disqualifies the trainee from attempting the OSCE.

5.1.1. Scope of Practice

It is vitally important that the trainee discuss and agree their scope of practice and identified learning needs with the clinical supervisor so that they can be developed as part of their time in practice. The clinical supervisor should sign the trainee's scope of practice document.

The trainees' scope of practice, in line with the Collaborative Prescribing Competency Framework, should include the following:

- Medical conditions and/or defined patient groups
- Drug Formulary (excluding unregistered Therapeutic Products and clinical trial drugs)
- Clinical Decisions, which refers to refers to assessment and treatment based on guideline, protocol or treatment algorithm
- Tests and Investigations
- Escalation Criteria
- Patient Exclusion and/or Inclusion Criteria.

5.1.2. Personal Drug Formulary

Information recommended for the trainee's personal formulary includes the following:

- Drug class / Disease (to allow grouping of the drugs)
- Drug name
- Remarks to be used at the trainee's discretion

5.1.3. Personal Development Plan

To ensure that the trainee is able to utilise his/her time effectively, he/she is encouraged to identify his/her development needs. This may be done by assessing him/herself against the identified programme's learning outcomes, which is related to the CP competency framework. Priority should be given to those outcomes/areas that the trainee has identified to require improvement or in need of development.

The trainee will include the following details in their development plan:

- How will this outcome be achieved?
- How does he/she know if it has been achieved?
- What is the date for planned completion?
- What support is required to ensure it is achieved and where will the support come from?
- What are the potential barriers and how can they be overcome?

Before submitting the portfolio, the trainee is encouraged to have one final review of the form and, at the same time, update and develop a new personal development plan that he/she can take into the first year of being a prescriber.

5.1.4. Drug Monograph and Clinical Application of Drug Use

This section is designed for the trainee to familiarise themselves with a number of drugs that they will be prescribing.

The trainee will choose a drug from his/her personal drug formulary and gather the following information:

- Indication and dosing
- Strength and dosage forms
- Drug class
- Mechanism of action
- Pharmacokinetics
- Contraindications
- Precautions
- Administration considerations
- Monitoring parameters
- Common and clinically relevant side effects
- Common and clinically relevant drug / diet interactions

Using patient/s example, they will illustrate the application of this drug to clinical practice, including the following information:

- List the indications for his/her patient
- Summarise the evidence for its use
 - If there are alternative drugs for the patient's problem/diagnosis, list the reason(s) he/she chose this drug instead of alternatives
- Describe how the pharmacokinetics affect his/her patient
 - If a special group of patients is affected by this drug, state the characteristics of this group of patients and how the drug / pharmacokinetics affect them
- Describe the reasons for these contraindications

- Describe the reasons for these precautions
 - Describe what he/she will do if precautions apply to his/her patient but the patient needs this drug
- List the administration considerations for his/her patient
- Describe his/her monitoring plan
- Describe how he/she communicate these side effects to his/her patient
 - Describe the advice that he/she gave on what to do if these side effects occur
- Describe how he/she communicate these drug / diet interactions to his/her patient
 - Describe the advice that he/she gave on what to do if these drug / diet interactions occur

5.1.5. Learning Log

The trainee must attend a minimum of 80 hours of supervised and educationally – led practice i.e. clinical practicum, and this must be dated and signed by the clinical supervisor and/or supervising peers.

For each session they must state:

- Date and number of hours
- Brief description of cases seen (eg. Medication counselling session)
- Key learning points from session, relating to key prescribing competencies
- Cumulative total hours (to be signed by the clinical supervisor before each portfolio review)

5.1.6. Prescribing Log

Unlike a learning log, where the trainee records all sessions supervised in brief (1-2 lines), the prescribing logs provide detailed information on cases encountered with an emphasis on pharmacological management. The trainee is required to complete only 5 prescribing logs.

- The first log is related to therapeutics and different aspects of decision making in prescribing.
- The second log should focus on pharmacokinetics interaction and/or dose adjustment such as therapeutic drug monitoring, dose adjustment in renal/hepatic impairment, age-related dose adjustment.

This is the suggested layout of the prescribing logs:

- **Case Summary**, which should include history of present illness, examinations, clinical findings, medications and allergies
- **Diagnosis**, which should include differential diagnosis
- **Pharmacological Treatment / Therapeutic Target(s)/Goal(s)**, which should include drug name, dosage form, dose, frequency and total amount
- **Counselling, Monitoring**, which should include pharmacotherapy and non-pharmacotherapy advice; monitoring for efficacy or adverse effects
- **Referral/ Review**, to be included if referral to another healthcare professional is necessary
- **Learning Points**, which should include Guidelines or References used.

5.1.7. Mini Clinical Evaluation Exercise (Mini-CEX)

A major element of safe and effective prescribing is the ability to undertake an effective consultation. The consultation may include physical examination, history taking, interpersonal skills, problem-solving skills, decision making and development of a treatment plan.

The mini-CEX is designed to assess the trainee's ability to undertake a consultation in their own area of practice. It is assessed by the clinical supervisor and/or supervising peer.

A mini-CEX form (refer to [Annex F](#)) must be used to ensure that all trainees are assessed against the same criteria. Please make sure that all information is anonymised and no patient identifiable information is mentioned in the mini-CEX.

The assessment comprises of the following category:

- History-taking
- Physical examination
- Clinical judgement and reasoning
- Organization and efficiency
- Counselling and communication skills
- Consideration for patient / professionalism
- Global impression scale

For each consultation used, the trainee should include a short description of 3 to 5 lines introducing the case.

Clinical supervisor and/or supervising peers are required to provide comments on areas of strength, and suggestions for development in the form, and the trainees should discuss and note agreed learning goals for next assessment.

5.1.8. Case-Based Discussion

The case-based discussion is used to assess clinical decision-making and the application or use of medical and pharmacotherapy knowledge with actual patients. The clinical supervisor will question the trainee about the care provided probing for reasons behind the work-up, diagnoses, interpretation of clinical findings, and treatment plans.

Cases suitable for case-based discussion are (1) inpatients who have been treated and discharged so that all the clinical information is available or (2) outpatients whose acute problems have been treated and/or chronic illnesses are at a steady state. Please make sure that all information discussed is anonymised and no patient identifiable information is mentioned in the discussion.

This list of questions is suggested for your case-based discussion with your trainee, which you are at liberty to use some or all:

- What are the key findings from the history? Are there any red flags?
- What are the key findings from the physical examination? Are there any red flags?
- What are your differential diagnoses or issues identified for this patients? How did you arrive at your diagnosis(es)?
- What are the investigations you would consider? Why?
- What are the treatment options available to this patient? Why?
- Are there any specific considerations concerning the prescription of treatment for this patient?
- Does this patient need to be referred to another practitioner for further management?

- What are the follow-up / monitoring considerations?

A case-based discussion form (refer to [Annex G](#)) must be used to ensure that all trainees are assessed against the same criteria.

The assessment comprises of the following category:

- Data collection and presentation
- Synthesis and analysis of health information
- Clinical reasoning and approach to diagnostic studies
- Management and therapeutic plans
- Use of evidence-based medicine
- Global impression

Similar to the mini-CEX, for each consultation used, the trainee should submit a short description of 3 to 5 lines introducing the case.

Clinical supervisor and/or supervising peers are required to provide comments on areas of strength, and suggestions for development in the form, and the trainees should discuss and note down agreed learning goals for next assessment.

5.2. Formative OSCE

More details will be provided at a later date.

5.3. Final Written Examination

The 2-hour closed book written examination consists of 60 multiple choice questions (MCQs).

5.4. Summative OSCE

More details will be provided at a later date.

6. Teaching and Learning References and Resources

These 2 books are recommended for history, approaches, physical examination and basic communication with patients:

Khan H, Khan I, Gupta A, Hussain N, Nageshwaran S (eds). *OSCEs for Medical Finals*. Oxford: Wiley-Blackwell; 2013.

Henderson MC, Tierney LMJr., Smetana GW (eds). *The Patient History: an Evidence Based Approach to Differential Diagnoses*. 2nd ed. McGraw-Hill; 2012.

A number of articles about teaching and learning are available and may be of use. These are:

- Kaufman DM. ABC of learning and teaching in medicine. Applying educational theory in practice. *BMJ* 2003;326:213-216
- Gordon J. ABC of learning and teaching in medicine. One to one teaching and feedback. *BMJ* 2003;326:543-545
- Spencer J. ABC of learning and teaching in medicine. Learning and teaching in the clinical environment. *BMJ* 2003;326:591-594
- Smee S. ABC of learning and teaching in medicine. Skill based assessment. *BMJ* 2003;326:703-706
- Norcini JJ. ABC of learning and teaching in medicine. Work based assessment. *BMJ* 2003;326:753-755

These can be accessed from the website www.bmj.org

Annex A. Learning Outcomes

A1. Consultation Competencies

On completion of the programme, the student should be able to perform the following key tasks:

1. Assess Patient

- 1.1. Accesses, consolidates and interprets all available and relevant patient records.
- 1.2. Interviews patient/caregiver to obtain an appropriate clinical, psychosocial and medication history including over the counter/ traditional medicines, online medicines and drug allergies.
- 1.3. Performs relevant physical examinations, where appropriate.
- 1.4. Requests and interprets relevant investigations necessary to inform treatment options.
- 1.5. Makes, confirms and documents the working or final diagnosis by systematically considering the various possibilities (differential diagnosis).
- 1.6. Knows the condition(s) being treated and their natural progression.
- 1.7. Assesses their severity, deterioration and anticipated response to treatment.
- 1.8. Reviews adherence to and safety and efficacy of current treatment plan.
- 1.9. Collaborates and consults with another member of the team, a specialist or a prescribing information source when necessary.

2. Consider treatment option

- 2.1. Knows non-pharmacological and pharmacological treatment options.
- 2.2. Chooses the most appropriate medication based on safety, efficacy and cost effectiveness and prescribes doses adjusted according to disease and clinical conditions, including dose optimisation.
- 2.3. Stops treatment (de-prescribing), if there is no indication.
- 2.4. Assesses the risks and benefits to the patient of taking or not taking a medicine or treatment.
- 2.5. Knows and applies understanding of the pharmacodynamics and pharmacokinetics of medication being prescribed and how these may be altered (e.g. by genetics, age, renal impairment, pregnancy).
- 2.6. Assesses how co-morbidities, existing medication, allergies, contraindications and quality of life impact on management options.
- 2.7. Takes into account psychosocial aspects of patient (e.g. ability to swallow, religion, affordability) and the potential impact on route of administration and formulation of medicines.
- 2.8. Identifies, accesses, and uses reliable and validated sources of information and critically evaluates other information.
- 2.9. Knows and stays up-to-date in own area of practice and apply the principles of evidence-based practice, including clinical and cost-effectiveness.
- 2.10. Takes into account the wider perspective including the public health issues related to medicines and their use and promoting health.
- 2.11. Knows antimicrobial resistance and the roles of infection prevention, control and antimicrobial stewardship measures.

3. Reach a shared decision (with patient/caregiver)

- 3.1. Builds rapport with patient and/or caregivers.
- 3.2. Identifies and respects the patient and/or caregivers in relation to diversity in values, beliefs and expectations about their health and treatment with medicines.
- 3.3. Explains the rationale behind and the potential risks and benefits of management options in a way the patient and/or caregiver understands, including discontinuing treatment.

- 3.4. Works with the patient and/or caregiver in partnership to make informed choices, agreeing on a treatment plan that respects patient preferences including their right to refuse or limit treatment.
- 3.5. Assesses adherence in a non-judgmental way and understands the different reasons for non-adherence (intentional or non-intentional) and how best to support patients/caregivers.
- 3.6. Explores the patient/caregivers understanding and expectations of a consultation and aims for a satisfactory outcome for the patient/caregiver and prescriber.
- 3.7. Develops, finalises, implements and documents the treatment plan.

4. Prescribe

- 4.1. Prescribes a medicine safely with knowledge of its mechanism of action, indications, dose, contraindications, interactions and adverse effects.
- 4.2. Knows the potential for adverse effects and takes steps to avoid/minimise, monitor and manage them.
- 4.3. Ensures no omission of medicine resulting from any untreated indication.
- 4.4. Ensures medicines without indications are discontinued.
- 4.5. Prescribes within relevant frameworks for medicines use as appropriate (e.g. local formularies, care pathways, protocols and guidelines).
- 4.6. Prescribes generic medicines for cost effectiveness and when medicines with narrow therapeutic index should be prescribed by specific brands.
- 4.7. Knows relevant national frameworks for medicines use and ability to apply them to own prescribing practice.
- 4.8. Completes accurately and checks calculations relevant to prescribing and practical dosing routinely.
- 4.9. Considers the potential for misuse of medicines.
- 4.10. Uses up-to-date information about prescribed medicines (e.g. availability, pack sizes, storage conditions, excipients, costs).
- 4.11. Generates electronically or writes legible unambiguous and complete prescriptions which meet legal requirements.
- 4.12. Uses effectively the systems necessary to prescribe medicines (e.g. medicine charts, electronic prescribing, decision support).
- 4.13. Makes accurate, legible and timely records and clinical notes of prescribing decisions.
- 4.14. Communicates information about medicines and what they are being used for when sharing or transferring prescribing responsibilities / information.

5. Provide patient education

- 5.1. Establishes the patient/caregiver's understanding of and commitment to the patient's clinical management, monitoring and follow-up.
- 5.2. Gives the patient/caregiver clear, understandable and accessible medication information (e.g. what it is for, how to use it, possible unwanted effects and how to manage and/or report them, expected duration of treatment).
- 5.3. Guides patients/caregivers on how to identify reliable sources of information about their medicines and treatments.
- 5.4. Ensures that the patient/caregiver knows what to do if there are any concerns about the management of their condition, if the condition deteriorates or if there is no improvement in a specific time frame.
- 5.5. Encourages and supports patients/caregivers when possible, to take responsibility for their medicines and self-manage their conditions.

6. Monitor and review

- 6.1. Establishes, documents and maintains a plan for reviewing the patient's treatment.
- 6.2. Ensures that the effectiveness of treatment and potential unwanted effects are monitored.
- 6.3. Detects and reports suspected adverse drug reactions using appropriate reporting systems.
- 6.4. Reviews and adjusts the management plan in response to patient's clinical progress and patient's preferences.
- 6.5. Recommends an appropriate duration for next monitoring and review.

A2. Prescribing Competencies

On completion of the programme, the student should be able to perform the following key tasks:

1. Prescribe safely

- 1.1 Prescribes within own scope of practice and recognises the limits of own knowledge and skill
- 1.2 Knows common types and causes of medication errors and how to prevent, avoid and detect them
- 1.3 Identifies the potential risks associated with prescribing via remote media (telephone, email or through a third party) and takes steps to minimise them
- 1.4 Minimises risks to patients by using or developing processes that support safe prescribing particularly in areas of high risk (e.g. transfer of information about medicines, prescribing of repeat medicines)
- 1.5 Keeps up to date with emerging safety concerns related to prescribing
- 1.6 Reports prescribing errors, near misses and critical incidents, and reviews practice to prevent recurrence

2. Prescribe professionally

- 2.1 Ensures confidence and competence to prescribe are maintained.
- 2.2 Accepts personal responsibility for prescribing and understands the legal and ethical implications.
- 2.3 Works within legal and regulatory frameworks affecting prescribing practice (e.g. controlled drugs, prescribing of unlicensed/off label medicines, regulators guidance, supplementary prescribing).
- 2.4 Makes prescribing decisions based on the needs of patients and not the prescriber's personal considerations.
- 2.5 Recognises and deals with factors that might unduly influence prescribing (e.g. pharmaceutical industry, media, patient, colleagues).

3. Improve prescribing practice

- 3.1 Reflects on own and others' prescribing practice, and acts upon feedback and discussion.
- 3.2 Act upon (whistle blow) colleagues' inappropriate or unsafe prescribing practice using appropriate mechanisms.
- 3.3 Knows the available tools and use them to improve prescribing (e.g. patient and peer review feedback, prescribing data analysis and audit).

4. Prescribe as part of a team

- 4.1 Acts as part of a multidisciplinary team to ensure that continuity of care across care settings is developed and not compromised.
- 4.2 Establishes rapport with other professionals based on understanding, trust and respect for each other's roles in relation to prescribing.
- 4.3 Negotiates the appropriate level of support and supervision for role as a prescriber.
- 4.4 Provides support and advice to other prescribers or those involved in administration of medicines where appropriate.

Annex B. List of Presenting Complaints / Conditions

System	Conditions	Presenting Complaints
Cardiovascular	<ul style="list-style-type: none"> • Hypertension • Hyperlipidaemia • Common arrhythmias • Heart failure • Myocardial infarction • Venous thromboembolism (VTE) • Peripheral vascular disease (PAD) • 	<ul style="list-style-type: none"> • Chest pain • Palpitation • Syncope
Respiratory	<ul style="list-style-type: none"> • Chronic obstructive pulmonary disease (COPD) • Asthma • Pneumonia • Bronchitis • Upper respiratory tract infection (URTI) • Tuberculosis • 	<ul style="list-style-type: none"> • Shortness of breath • Cough • Haemoptysis
Endocrine	<ul style="list-style-type: none"> • Diabetes mellitus • Leg ulcers • Hypothyroidism • Hyperthyroidism • 	<ul style="list-style-type: none"> • Polydipsia, thirst • Leg pain • Weight loss • Neck mass
Renal	<ul style="list-style-type: none"> • Renal failure 	<ul style="list-style-type: none"> • Abnormal renal function •
Gastrointestinal	<ul style="list-style-type: none"> • Peptic ulcer disease (PUD) • Gastritis • Gastroesophageal reflux disease (GERD) • Hepatitis A • Hepatitis B • Hepatitis C • 	<ul style="list-style-type: none"> • Abdominal pain and masses • Bleeding gastrointestinal tract • Diarrhoea • Nausea and vomiting • Change in bowel habit • Abnormal liver function test • Jaundice
Neurology	<ul style="list-style-type: none"> • Dementia • Stroke (FAST) • Epilepsy 	<ul style="list-style-type: none"> • Extrapyrarnidal side effects • Altered mental state • Delirium • Weakness • Headache •
Psychiatry	<ul style="list-style-type: none"> • Depression • Anxiety • Stress • Insomnia • 	<ul style="list-style-type: none"> • Low mood • Lack of energy

System	Conditions	Presenting Complaints
Musculoskeletal	<ul style="list-style-type: none"> • Osteoarthritis • Osteoporosis • Sport and soft tissue injuries • 	<ul style="list-style-type: none"> • Joint pain • Back pain with/without radiculopathy
Others (infectious diseases)	<ul style="list-style-type: none"> • Lower urinary tract infection • Cystitis • Conjunctivitis • Chicken pox • Herpes zoster 	<ul style="list-style-type: none"> • Dysuria • Hematuria • Red eyes, itchy eyes • Eye crusting • Vesicular rash • Nerve pain •
General	<ul style="list-style-type: none"> • Anemia 	<ul style="list-style-type: none"> • Fever • Leg swelling • Functional decline • Loss of appetite •

Annex C. Portfolio Review Form

Trainee’s name: Institution:

Item	Has this item been completed?*	Remarks / Explanation
Scope Of Practice	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Personal Drug Formulary	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Personal Development Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Drug Monograph Presentation	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Learning Log	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Prescribing Log 1	<input type="checkbox"/> Yes <input type="checkbox"/> No	

*If the item is not completed please provide an explanation

This portfolio has been reviewed on _____ (date) by the following peers:

Name: _____

Signature: _____

Annex D. Drug Monograph Form

- The completion and submission of this form is accompanied by a 10-minute presentation to peers in the CP Programme at week 3
- Please include at least one patient example to illustrate the use of this drug in practice
- This form should be completed using Calibri, minimal font size 10, single line spacing and on 2 pages only

	Information gathered	Application to clinical practice
1.	<p>Indication and dosing:</p> <p>Strength and dosage forms:</p>	<p>List the indications in your patient:</p> <p>Summarise the evidence for its use:</p> <p>If there are alternative drugs for your patient's problem/diagnosis, list the reason(s) you chose this drug instead of alternatives:</p>
2.	<p>Drug class:</p> <p>Mechanism of action:</p> <p>Pharmacokinetics:</p> <ul style="list-style-type: none"> - Onset: - Duration: - Absorption: - Distribution: - Metabolism: - Half-life elimination: 	<p>Describe how the pharmacokinetics affect your patient:</p> <p>If a special group of patients is affected by this drug, state the characteristics of this group of patients and how the drug / pharmacokinetics affect them:</p>
3.	<p>Contraindications:</p> <p>Precautions:</p>	<p>Describe the reasons for these contraindications:</p> <p>Describe the reasons for these precautions:</p> <p>Describe what you will do if precautions apply to your patient but he/she needs this drug:</p>
4.	<p>Administration considerations:</p> <p>Monitoring parameters:</p>	<p>List the administration considerations for your patient:</p> <p>Describe your monitoring plan:</p>
5.	<p>Common and clinically relevant side effects:</p>	<p>Describe how you communicate these side effects to your patient:</p> <p>Describe the advice that you gave on what to do if these side effects occur:</p>
6.	<p>Common and clinically relevant drug / diet interactions</p>	<p>Describe how you communicate these drug / diet interactions to your patient:</p> <p>Describe the advice that you gave on what to do if these drug / diet interactions occur:</p>

Annex E. Presentation Assessment Rubrics

Criteria	Needs improvement (NI)	Meets expectation (ME)	Exceeds expectation (EE)	Grade
Content and information	Either insufficient or excessive; literature review is inadequate or excessive; assessor is unable to decipher important points either because there is insufficient or too much information	Adequate; literature review is adequate; assessor understands important points because the amount of information is just right	Appropriately in-depth; literature review is high-yield for learners; assessor understands important points and nuances in differentiation, safety etc.	
Knowledge and understanding [1]	Facts[2] and concepts[2] are presented without clarification of inter-relationships; assessor is unable to discern the links between facts and concepts	Facts, concepts and inter-relationships are presented; assessor discerns the links between facts and concepts	Facts, concepts and inter-relationships are prioritised in the presentation; assessor discerns the links between facts and concepts, and their relative importance	
Contextualisation and application	Applies use of the drug with some difficulty; unable to individualise therapy for specific patient groups; analysis and/or application thought processes have some ambiguities or gaps	Applies use of the drug to specific patient groups; explains the unique characteristics of the drug with respect to the patient groups; analysis and/or application thought processes are clear and logical	Applies use of the drug to specific patient and population groups; explains the unique characteristics of the drug and its impact on community and/or population; analysis and/or application thought processes are clear, logical and inspires learners to emulate	
Presentation style and management of Q&A	Disorganised; poor use of AV aid; does not listen actively and/or comprehend questions; does not respond in a way that facilitates understanding	Organised; good use of AV aid; listens actively to questions; response facilitates understanding and learning	Organised and stylish; expert use of AV aid; listens actively and probes effectively; response triggers learners to explore the subject further	
Overall	Presentation has omissions and/or inaccuracies of concern. Often formulaic in approach and unable to contextualise to patient care. Struggled with the presentation or appeared disorganised and unpractised. Presenter is unfamiliar with the drug.	Presentation is of a satisfactory standard with minimal or no omissions / errors. May be formulaic in approach at times e.g. not quite contextualised to patient care. Presentation is organised and adequately engaging. Presenter is familiar with the drug.	Presentation is of a high standard without any omissions / errors. Approach is that of a content expert. Presentation is completed confidently and fluently. Presenter has deep knowledge of the drug.	

[1] Bloom’s taxonomy of learning domains, available at <http://www.nwlink.com/~donclark/hrd/bloom.html>

[2] Fact = specific and unique data or instance; Concept = a class of items, words, or ideas that are known by a common name, includes multiple specific examples, shares common features

Annex F. Mini-CEX Form

Trainee’s name: Assessor’s name:

Focus: Data gathering Diagnosis Counselling Therapy / management

Complexity of case (see below): Low Medium High

Presenting complaint: _____ **Date of clinical encounter:** _____

Brief description of case:

	Assessor: please grade the following items	<i>Needs Improvement</i>	<i>Meets Expectation</i>	<i>Exceeds Expectation</i>	Not observed
1	History Taking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meets expectations:</i> Facilitates patient’s telling of story; demonstrates effective use of questions to obtain accurate, adequate information (including medication history where appropriate) needed. Responds appropriately to affect and non-verbal cues.				
2	Physical Examination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meets expectations:</i> Follows an efficient logical sequence; balances screening/diagnostic steps for problem; informs patient; is sensitive to patient’s comfort and modesty.				
3	Clinical Judgment and Reasoning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meets expectations:</i> Generates an appropriate problem list/list of differential diagnoses; applies principles of evidence-based medicine in the selection of diagnostic studies, management and therapeutic plans with due consideration for patient’s clinical, financial and social-functional status and in context of team-based care; provides justification for choice of diagnostic studies, management and therapeutic plans; aims for comprehensive and holistic care.				
4	Organization and Efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meets expectations:</i> Prioritizes; is timely, succinct and paces patient without being brusque or abrupt; organizes interaction/workflow efficiently; is able to multi-task if required.				

	Assessor: please grade the following items	<i>Needs Improvement</i>	<i>Meets Expectation</i>	<i>Exceeds Expectation</i>	Not observed
5	Counselling and Communication Skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Meets expectations:</i> Explains rationale for treatment; facilitates shared decision-making; educates/counsels regarding management and provides appropriate oral/written information; checks patient’s understanding, compliance and need for more information.					
6	Consideration for patient / Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Meets expectations:</i> Shows respect, compassion, empathy; establishes rapport; respects patient’s rights and choice; ensures confidentiality of information; interacts appropriately with peers, doctors, and other healthcare professionals; reflects appropriately on key lessons from current clinical encounter; draws up an appropriate action plan for improvement.					
7	Global Impression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Meets expectations:</i> Completes the clinical encounter in a caring, effective and efficient manner; demonstrates sound judgment, reasoning and decision-making.					

Areas of strength, areas for development (to be completed by assessor):

Agreed learning goals for next assessment (to be completed by student):

Trainee’s signature and date

Assessor’s signature and date

Annex G. Case-Based Discussion (CBD) Form

Trainee’s name: Assessor’s name:

Instruction to Trainee and Assessor:

- Cases suitable for case-based discussion are (1) inpatients who have been treated and discharged so that all the clinical information is available or (2) outpatients whose acute problems have been treated and/or chronic illnesses are at a steady state.

Complexity of case (see below): Low Medium High

Presenting complaint: _____ **Date of clinical encounter:** _____

Brief description of case:

	Assessor: please grade the following items	<i>Needs Improvement</i>	<i>Meets Expectation</i>	<i>Exceeds Expectation</i>	<i>N.A.</i>
1	Data Collection and Presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meets expectations:</i> (1) Collects and organizes relevant information including presenting complaint, history of present illness, medical, surgical and gynaecologic history if relevant, drug allergy and medication history (including adherence, adverse drug reactions etc.), social, family and occupational history, relevant physical assessment findings (2) Highlights any missing information, ambiguity or uncertainty and explains how that is managed (3) Presents the case succinctly with appropriate emphasis on key aspects				
2	Synthesis and Analysis of Health Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meet expectations:</i> (1) Analyses and interprets correctly information from history and physical assessment (2) Detects and interprets pertinent positives and pertinent negatives (3) Makes sense of the information and relates it to patient’s unique characteristics / circumstances				
3	Clinical Reasoning and Approach to Diagnostic Studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Meets expectations:</i> (1) Formulates and prioritizes differential diagnoses / problem list with justifications (2) Selects and organises appropriate diagnostic studies (including laboratory, imaging etc.) and considers risks, benefits (3) Interprets results of diagnostic studies with respect to differential diagnoses / problem list				

	Assessor: please grade the following items	<i>Needs Improvement</i>	<i>Meets Expectation</i>	<i>Exceeds Expectation</i>	<i>N.A.</i>
4	Management and Therapeutic Plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Meets expectations:</i></p> <p>(1) Proposes care that is contextualised to patient’s immediate and intermediate needs, and respectful of patient’s rights and choice</p> <p>(2) Specifies measurable/observable therapeutic goals that integrate multi-disciplinary/interprofessional input</p> <p>(3) Explains the rationale for therapeutic goals and pharmacologic interventions</p> <p>(4) Interprets patient’s response and progress with respect to management plans including pharmacologic intervention</p> <p>(5) Reviews medication list and if applicable, interprets pharmacologic / drug therapy problems e.g. indications, effectiveness, appropriateness of drug, dose, dosage form, regime, monitoring or adherence, contraindications, adverse drug reactions or drug/food interactions</p> <p>(6) Explains rationale for monitoring plans and if applicable, adjustment to plans</p>					
5	Use of Evidence Based Medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Meets expectations:</i></p> <p>(1) Describes evidence that supports the diagnostic studies, management and therapeutic plans</p> <p>(2) Where an alternative is selected, explains the rationale for the decision</p>					
6	Global Impression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p><i>Meets Expectations:</i></p> <p>(1) Analyses and discusses the case with an appropriate level of reasoning, judgment and decision-making</p> <p>(2) Discusses the case in a manner that is respectful of patients and colleagues</p>					

Areas of strength; areas for development (to be completed by assessor):

Agreed learning goals for next assessment (to be completed by student):

Trainee’s signature and date

Assessor’s signature and date

.....

.....

Annex H. Level of case complexity

Complexity of case in Mini-CEX and case-based discussion is described as:

Low	<ul style="list-style-type: none"> • A patient with single-system presentation with minimal complications (medical and/or social) and responsive to first-line treatment • A patient with a self-evident diagnosis where management is straightforward. • A stable patient, with a common presentation or a clear diagnosis.
Medium	<ul style="list-style-type: none"> • A patient with multi-system problem and minimal complications (medical or/and social). • A patient with a single-system problem, and multiple/significant complication (medical and/or social) or who does not respond to first line treatment. • A stable patient with an uncommon presentation or without a clear diagnosis. • A critically-ill or injured patient who responds to first line treatment.
High	<ul style="list-style-type: none"> • A patient with multi-system problems and multiple/significant complications (medical and/or social). • An unstable/deteriorating patient, with an uncommon presentation or without a clear diagnosis. • A critically-ill or injured patient who is unresponsive to first line treatment. • A patient presenting with a life threatening condition.

Ref: www.acem.org.au

Annex I. Clinical Supervisor Final Report

In my capacity as Clinical Supervisor, I am satisfied that
(trainee's name) from (department, institution) has
completed the National Collaborative Prescribing Programme Clinical Practicum successfully
and is ready to sit for the summative assessments.

I understand that upon successful completion of the summative assessments, he/she will be
awarded a Certificate of Successful Completion of the National Collaborative Prescribing
Programme and is eligible to apply for collaborative prescribing privileges in my institution as
stated in the Collaborative Practice Agreement.

Clinical Supervisor's name:

Name stamp:

.....

Signature:

Date:

.....

.....

Annex J. Overview of Programme Structure

Week	Teaching Sessions (APNs)	Teaching Sessions (Pharmacists)	Clinical Practicum	Assessments
1	Introduction and program overview Principles of prescribing 1		80 hours involving the following allocation of time: • 30 hours DIRECT supervision: - 12 hours with named clinical supervisor - 18 hours with Senior Resident and above • 10 hours INDIRECT supervision by above • 30 hours DIRECT supervision by peers i.e. Resident/Medical Officer, APN or pharmacist • 10 hours INDIRECT supervision by peers	
	Overview of drug use in Singapore	General approach to patient (role-play)		
2	Legislative aspects of prescribing Scope of practice and personal formulary Consultation/history-taking skills			
3	Principles of prescribing 2 Prescribing in a team context			Presentation of drug monograph; Portfolio review 1
4	Communication skills (role-play) Principles of physical assessment and clinical examination			
5	Pharmacokinetics & pharmacodynamics; Pharmacotherapeutics (Respiratory & infectious disease)	Physical assessment simulation/ practice I		
6	Pharmacotherapeutics (Cardiovascular Diseases)	Physical assessment simulation/ practice II		Portfolio review 2
	Skin/dermatological conditions			
7	Pharmacotherapeutics (Endocrine, Renal & Gastrointestinal Diseases)	Revision on history-taking and communication skills; Obtaining history from special populations		Quiz (skin/ dermatological conditions)
8	Pharmacotherapeutics (Neurology & Psychiatry)	Mock OSCE I		Portfolio review 3
	Interpreting diagnostic tests and procedures			
9	Mock OSCE II			Formative OSCE
	E-learning: Pharmacotherapeutics (Pain management & Musculoskeletal Disorder)			
10	Nil			
11	Nil		Clinical Practicum must be completed by Week 10	Final written exam; Portfolio review 4
12	Nil			Summative OSCE