

FIP knowledge and skills reference guide for professional development in cardiovascular diseases

A companion to the FIP cardiovascular diseases handbook for pharmacists

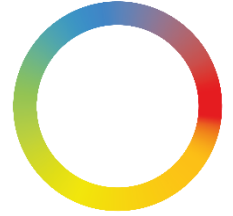
2022



FIP Development Goals

Cardiovascular diseases

FIP Practice Transformation Programme on NCDs



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International Pharmaceutical Federation (FIP)
Andries Bickerweg 5
2517 JP The Hague
The Netherlands
www.fip.org

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Authors and editors:

Dr Dalia Bajis, FIP Lead for Provision and Partnerships, The Netherlands
Dr Genuine Desireh, FIP Intern and Associate, inSupply Health, Kenya

Cover image:

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Recommended citation

International Pharmaceutical Federation (FIP). FIP knowledge and skills reference guide for professional development in cardiovascular diseases: A companion to the FIP cardiovascular diseases handbook for pharmacists. The Hague: International Pharmaceutical Federation; 2022.

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Acknowledgements

FIP thanks the authors and reviewers for their contributions to this publication.

FIP and the authors acknowledge members of the reference group whose names are listed below for their valuable comments and suggestions on this reference guide.

Name of reviewer	Affiliation and country
Dr Francesca Wirth	Senior lecturer, Department of Pharmacy, University of Malta, Malta
Benigna Vilasuso Cores	Member of the Hypertension and Vascular Risk Group of Spanish Society of Clinical, Family and Community Pharmacy (SEFAC), Spain
Óscar Penín Álvarez	Member of the Hypertension and Vascular Risk Group of SEFAC, Spain
Prof. Stephane Steurbaut	Associate professor, Research Group of Clinical Pharmacology and Clinical Pharmacy, Vrije Universiteit Brussel, Jette, Belgium Chair of the Drug and Therapeutics Committee at the Department of Hospital Pharmacy, University Hospital Brussels (UZ Brussel), Jette, Belgium

FIP thanks the European Society of Clinical Pharmacy for its expert contributions to this publication.



1 Background

Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality globally. The World Health Organization (WHO) estimates that in 2019, an estimated 17.9 million people died from CVDs.¹ This represents 32% of all global deaths. A global burden of disease study by Roth and colleagues reinforces these statistics, and further estimates that the rise in CVDs has concurrently led to a significant increase in disability adjusted life years (DALYs) and years of life lost.² Unsurprisingly, over 75% of the 17.9 million deaths due to CVDs occurred in low and middle income countries.¹ This has been largely attributed to lack of resources to effectively deliver proven therapies. However, there is a cultural and ethnic context that determines the risk factors for CVDs and the effectiveness of medication and other interventions.³

CVDs can be managed using a wide range of medicines that are effective and safe. Additionally, most CVDs can be prevented by addressing behavioural risk factors such as unhealthy diets, obesity, tobacco smoking, excessive alcohol use and physical inactivity. Therefore, if detected early, CVDs can be easily prevented and managed.

Pharmacists play an important role in the primary and secondary prevention of CVDs. This is mainly done through patient counselling and education, drug safety management, medication reconciliation, review and monitoring as well as detection identification and control of CVD risk factors, and ensuring positive clinical outcomes from pharmacological and non-pharmacological interventions.⁴ The effectiveness of pharmacists as part of multidisciplinary care teams is unquestionable.⁴ This has been recognised in a randomised study by Santschi and colleagues, and further reiterated by the American College of Cardiology.^{5,6} More information on the myriad roles that pharmacists play in the prevention and treatment of CVDs can be found in the [FIP Cardiovascular diseases Handbook for Pharmacists](#). The FIP handbook for pharmacists on CVDs supports the position of the pharmaceutical workforce in preventing and combatting CVDs by providing a valuable resource to help pharmacists implement evidence-based interventions for CVD in their practices.⁷

As such, there is a need for pharmacists to keep up to date with the ever-evolving knowledge and skills in the care of CVD patients, as clearly demonstrated through a study by Apikoglu and colleagues, who found a significant improvement in the outcomes of patients with non-communicable diseases (NCDs) after a three-day peer training of community pharmacists on pharmaceutical care for patients with NCDs.⁸ These findings were further supported by Zolezzi and colleagues, who found that community pharmacists have knowledge gaps which prevented them from providing CVD risk assessment and management services.⁹

Therefore, there is an unmet need. Fortunately, many continuous professional development (CPD) providers are developing learning programmes that equip pharmacists with the necessary knowledge and skills in CVD prevention and management.^{10,11} The array of programmes available are specifically designed to provide practising pharmacists with contextual, relevant and up-to-date knowledge plus skills in CVD care. It is important to pull such knowledge and skills together, and this FIP knowledge and skills reference guide provides the overarching knowledge areas and associated skills that are needed by pharmacists to effectively execute their roles as members of multidisciplinary care teams and provide quality person-centred care in the area of CVD.

Building on the need to support pharmacists in providing services and interventions to CVD patients, this knowledge and skills reference guide aims to:

- Outline the knowledge and skills pharmacists require for the management of CVDs;
- Provide a structure to support and enhance pharmacists' CPD in CVDs; and
- Provide key considerations for CPD providers around CVD to support pharmacists' professional development.

2 FIP global competency and professional development frameworks

As medication experts, pharmacists are key members of the wider healthcare team. Through CPD, pharmacists maintain and further their competence to practise and remain responsive to the increasingly complex healthcare environment. FIP defines CPD as “the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers”.¹² One approach to developing and maintaining competence is to embrace competency-based training, which is a structured approach to training and assessment that is directed toward achieving specific outcomes. As such, pharmacists must be assisted to acquire skills and knowledge to enable them to perform a task to a specified standard under certain conditions. In competency-based training, the outcomes to be achieved are clearly stated so that learners know exactly what they must be able to do, trainers know what training or learning is to be provided, and organisations know the skill levels required of their people. The emphasis in competency-based training is on “performing” (doing) rather than just “knowing”.¹²

With wide acceptance of implementing competency-based training and education in health professions, competency frameworks are useful in organising educational curricula, regulating career entry, benchmarking standards of practice and facilitating expertise development.¹² FIP has developed two global frameworks that describe generic competencies for foundation and advanced pharmacy practice

The [FIP Global Competency Framework](#) (GbCF), updated in 2020, is a set of competencies and core behavioural statements that are intended to be generally applicable for the pharmacy workforce worldwide, particularly targeting early-career (foundation-level) pharmacists.¹³ The GbCF includes 124 behavioural statements grouped under 23 competency domains and four broad competency clusters: pharmaceutical public health, pharmaceutical care, organisation and management, and professional and personal competencies.

The [FIP Global Advanced Development Framework](#) (GADF) is a complementary framework to the GbCF.¹⁴ The GADF is intended to support the professional development and recognition of pharmacists and pharmaceutical scientists and maps broad-based advanced practice stages across developmental competencies. Six developmental competency clusters are described in the GADF: expert professional practice; working with others; leadership; management; education, training and development; and research and evaluation.

The GbCF and GADF are intended to act as mapping tools for individuals to progress towards effective and sustained performance and to pave the way for advanced and specialist practice.

As such, FIP recommends that individuals use its knowledge and skills reference guides alongside the FIP competency and development frameworks to identify the knowledge, skills and behaviours that will be relevant to support them in developing their practice (Figure 1). It is expected that pharmacists will need to harness knowledge, skills, attitudes and values previously acquired that may intersect with other competency areas to deliver patient-centred services. A FIP reference guide provides guidance on knowledge and skills on a specific topic. In this way, cross-learning and transfer of key knowledge and skills is encouraged. The tools provided by FIP, which include competency frameworks and knowledge and skills reference guides, inform continuing development and practices, including approaches to self-assessment as part of registration or licensing requirements, professional development and self-directed learning.

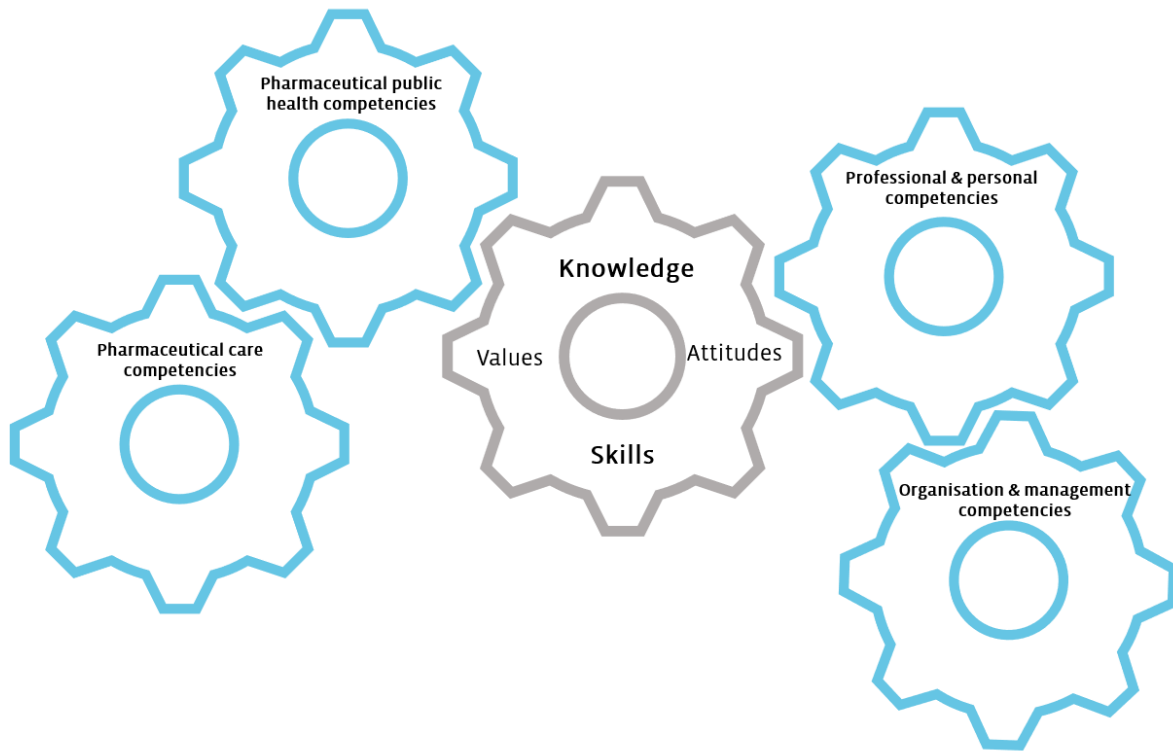


Figure 1. Competencies encompass an array of knowledge, skills, attitudes and values to enable effective performance. Competency clusters are based on the FIP Global Competency Framework.¹³

3 Pharmacist professional development: Knowledge and skills reference guide

3.1 About the guide content

This knowledge and skills guide provides a comprehensive reference list of knowledge and skills in pharmaceutical and related care to support pharmacists to develop, upskill and refresh knowledge and skills for managing patients with CVDs. This guide supplements the [FIP Cardiovascular diseases handbook for pharmacists](#) and was developed in consultation with a global reference group (see Acknowledgments).

Tables 1 and 2 below build on existing FIP resources to date,³⁵ current learning and teaching tools, curricula and expert review through a reference group. The reference group, made up of educators and practitioners with experience in professional development in CVDs, reviewed the statements in the tables and agreed on the content.

3.2 How is the information organised?

The guide is organised in two parts.

The first part (Table 1) describes the knowledge required by pharmacists in CVD-related roles, providing care to CVD patients. In the knowledge guide, topics are grouped into three categories (Figure 2):

- Broad topic area — includes main categories such as body systems, pharmaceutical care, public health and advocacy, ethics and collaborations. Many of these categories are linked to the GbCF competency clusters.
- Core topics — identifies key topic areas (knowledge areas) related to the roles and services provided in the management of CVD.
- Specific topics — describes specific topics stemming from the core topics.

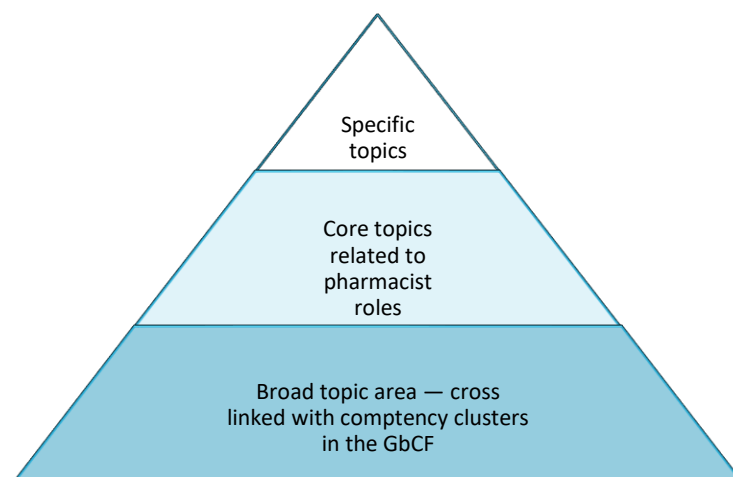


Figure 2. Hierarchy of topic grouping in the knowledge guide

The second part (Table 2) describes skills required by pharmacists in CVD roles.

3.3 Who is this for?

This reference guide is intended to guide practice in CVD care, rather than to be a prescriptive list that has to be adhered to in all cases. It is relevant to pharmacists focusing on a specific area(s) of practice and may be relevant at any stage of professional development, depending on the pharmacist's role. It is intended to support pharmacists in performing CVD-related services and interventions safely and effectively. It is also intended to help educators and CPD providers in the area of CVDs to support pharmacists' professional development.

3.4 How to use it

This reference guide can be used:

- To support pharmacists as they upskill in the area of CVDs and as part of their course of career development;
- To help pharmacists with an interest in providing CVD-related services in their area of practice; and
- To inform the design and delivery of education and training programmes by CPD providers.

3.5 Contextualisation, and regulatory and training requirements

It is crucial to recognise that pharmacists will have to follow their local, national and jurisdictional requirements for training, certification and regulatory/professional and ethical standards to fulfil their specified roles. These may include:

- Appropriate training relevant to their scope of practice and level of specialisation in the management of CVDs;
- Codes of conduct;
- Nationally developed certificate training programmes or board certification;
- Registration or licensure status;
- Professional affiliations; and
- Healthcare jurisdictions (laws) regarding the education, competencies and responsibilities of pharmacists and other healthcare professionals.

Table 1: Knowledge guide for pharmacists in the area of cardiovascular disease¹⁵⁻²⁶

Therapeutic area	
Body system	Demonstrate knowledge and understanding of:
Anatomy and physiology	<ul style="list-style-type: none"> • Anatomy and function of the cardiovascular system, including coronary arteries and valvular anatomy. • Complications that can occur in the cardiovascular system resulting in pathological states.
Disease particulars	Demonstrate knowledge and understanding of:
Hypertension	<ul style="list-style-type: none"> • Causes, signs and symptoms, prevention and risk factors/exacerbating factors. • Commonly used medicines, including usual doses, administration routes, place in therapy with regard to guidelines/evidence, mechanism of action, pharmacokinetics and adverse effects. • Monitoring clinical parameters, including ambulatory blood pressure monitoring, home blood pressure monitoring and office blood pressure. • Drug-drug, drug-patient interactions, e.g., drug handling in older adults, drug-food and drug-disease interactions and how to identify, prioritise and manage them. • Treatment targets and the importance of patient concordance. • Non-pharmacological interventions that have been shown to lower blood pressure such as: weight loss, diet, exercise, tobacco cessation, continuous positive airway pressure for persons suffering from obstructive sleep apnoea.
Heart failure	<ul style="list-style-type: none"> • Causes, signs and symptoms, prevention and risk factors/exacerbating factors for acute and chronic heart failure. • Commonly used medicines, including usual doses, routes of administration, place in therapy with regard to guidelines/evidence, mechanism of action, pharmacokinetics and adverse effects. • Monitoring clinical, pathological, and therapeutic parameters, including identifying, prioritising, and acting to ensure appropriate monitoring. • Drug-drug, drug-patient interactions, e.g., drug handling in older adults, and drug-disease interactions and how to identify, prioritise and manage them. • Optimisation of pharmacological treatment in accordance with treatment targets. • Non-pharmacological interventions for the management of heart failure such as: improving medication adherence, diet, weight loss, regular exercise, reduction in salt intake, tobacco cessation, fluid intake restriction in overloaded patients, alcohol abstinence, continuous positive airway pressure for persons suffering from obstructive sleep apnoea, and vaccination.
Stable angina or chronic coronary syndrome	<ul style="list-style-type: none"> • Causes, signs and symptoms, prevention, and risk factors/exacerbating factors. • Commonly used medicines, including usual doses, routes of administration, place in therapy with regard to guidelines/evidence, mechanism of action, pharmacokinetics and adverse effects. • Monitoring clinical, pathological, and therapeutic parameters, including identifying, prioritising and acting to ensure appropriate monitoring. • Drug-drug, drug-patient interactions, e.g., drug handling in older adults, and drug-disease interactions and how to identify, prioritise and manage them. • Optimisation of pharmacological treatment in accordance with treatment targets.
Acute coronary syndromes (ACSs)	<ul style="list-style-type: none"> • Cause, signs and symptoms, prevention, and risk factors/exacerbating factors for ACSs, including ST segment elevation myocardial infarction (STEMI), non-ST segment elevation myocardial infarction (NSTEMI) and unstable angina (UA). • Commonly used medicines, including usual doses, routes of administration, place in therapy with regard to guidelines/evidence, mechanism of action, pharmacokinetics and adverse effects.

	<ul style="list-style-type: none"> Monitoring clinical, pathological, and therapeutic parameters, including identifying, prioritising, and acting to ensure appropriate monitoring. Drug-drug, drug-patient interactions, e.g., drug handling in older adults, and drug-disease interactions and how to identify, prioritise and manage them. Optimisation of pharmacological treatment in accordance with treatment targets.
Atrial fibrillation (AF)	<ul style="list-style-type: none"> Causes, signs and symptoms, prevention and risk factors/exacerbating factors. Commonly used medicines, including usual doses, routes of administration, place in therapy with regard to guidelines/evidence, mechanism of action, pharmacokinetics and adverse effects. Monitoring clinical, pathological, and therapeutic parameters, including identifying, prioritising, and acting to ensure appropriate monitoring. Drug-drug, drug-patient interactions, e.g., drug handling in older adults, and drug-disease interactions and how to identify, prioritise and manage them. Optimisation of pharmacological treatment in accordance with treatment targets.
Venous thromboembolism (VTE)	<ul style="list-style-type: none"> Causes, signs and symptoms, prevention, and risk factors/exacerbating factors for VTE treatment and prophylaxis. Commonly used medicines for treatment and prophylaxis, including usual doses, routes of administration, place in therapy with regard to guidelines/evidence, mechanism of action, pharmacokinetics and adverse effects. Monitoring parameters for treatment and prophylaxis, including identifying, prioritising, and acting to ensure appropriate monitoring. Drug-drug, drug-patient interactions, e.g., drug handling in older adults, and drug-disease interactions and how to identify, prioritise and manage them. Optimisation of pharmacological treatment in accordance with treatment targets. Non-pharmacological interventions, such as graduated compression stockings, intermittent pneumatic compression devices and inferior vena cava filters.
Public health and advocacy	
Prevention strategies	Demonstrate knowledge and understanding of:
Risk factors	<ul style="list-style-type: none"> CVD risk definition and risk assessment. Modifiable CVD risk factors, e.g., tobacco use, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, stress and sleep disorders, including identification, management and prevention. Non-modifiable CVD risk factors, e.g., age, family history, genetics and sex, and how to deal with them.
Lifestyle	<ul style="list-style-type: none"> Evidence-based lifestyle interventions that have the potential to prevent development of CVD, e.g., Mediterranean diet, DASH(Dietary Approaches to Stop Hypertension) diet, weight reduction and increased physical activity.
Epidemiology	<ul style="list-style-type: none"> Global, national, and regional prevalence of CVD.
Advocacy	<ul style="list-style-type: none"> Structured CVD prevention programmes and campaigns, and support groups for people living with CVD. Social and other determinants of health, e.g., ageing, globalisation and urbanisation, and how they affect access to and effectiveness of CVD treatment and prevention interventions.
Nutraceuticals	<ul style="list-style-type: none"> Evidence-based nutraceuticals that have been shown to prevent CVD. Interactions between nutraceuticals and CVD medicines, and how to avoid them.

Screening	Demonstrate knowledge and understanding of:
Screening and referral	<ul style="list-style-type: none"> • CVD risk assessment and risk prediction models used to determine those at high risk of developing CVD. • National evidence-based screening tests/guidelines. • CVD screening tests, e.g., blood pressure measurement, lipid profiles, obesity measurements. • Factors that may influence accuracy of screening tests and how to mitigate them. • Appropriate referral networks in their area of practice.
Pharmaceutical care	
Monitoring parameters	Demonstrate knowledge and understanding of:
Laboratory	<ul style="list-style-type: none"> • Laboratory indicators, including plasma lipid profile, C-reactive protein, natriuretic peptides, troponin T, coagulation tests (INR and Anti-Xa), HbA1c, and Complete Blood Count haemoglobin.
Function monitoring and imaging	<ul style="list-style-type: none"> • Cardiac function monitors, such as blood pressure, pulse rate, echocardiogram, electrocardiogram, and imaging tests such as angiography, chest X-ray, MRI scans, cardiac CT scans, and myocardial perfusion scintigraphy.
Medicines	Demonstrate knowledge and understanding of:
Medicines for hypertension	<ul style="list-style-type: none"> • Use of medicines in the management of hypertension, including drug-drug, drug-patient (e.g., drug handling in older adults) and drug-disease interactions as well as their identification, prioritisation and management; treatment targets and their identification, prioritisation and management; optimising patient adherence in concordance with therapy goals; and the impact and effects of hypertensive medication on morbidity and mortality. • Commonly used medicines, including angiotensin converting enzyme inhibitors, angiotensin II receptor blockers, betablockers, calcium channel blockers, thiazide or thiazide-like diuretics. • Medication-specific considerations that require patient education or counselling.
Medicines for dyslipidaemia	<ul style="list-style-type: none"> • Commonly used medicines, including statins, cholesterol absorption inhibitors, bile acid sequestrants, protein convertase subtilisin/kexin type 9 inhibitors, iomitapide, mipomersen, fibrates, nicotinic acid, omega-3 fatty acids, cholesteryl ester transfer protein inhibitors. • Novel medicines in the management of dyslipidaemia, including inclisiran, evinacumab, gemcabene, bempedoic acid, ARO-ANG3. • Use of medicines, including drug-food interactions, treatment goals, optimisation of therapy in concordance with treatment goals, and the effects of dyslipidaemia medication on morbidity and mortality. • Medication-specific considerations that require patient education or counselling.
Medicines for venous thromboembolism (VTE)	<ul style="list-style-type: none"> • Commonly used medicines, including antiplatelets, vitamin K antagonists, low molecular weight heparins and direct oral anticoagulants. • Use of medicines, including drug-food interactions, treatment goal identification, prioritisation, and management, optimisation of therapy in concordance with treatment goals, and effects of VTE medication on morbidity and mortality. • Medication-specific considerations that require patient education or counselling.
Medicines information	Demonstrate knowledge and understanding of:

	<ul style="list-style-type: none"> • Common information sources used when answering enquiries about CVD medicines, including administration of medicines, adverse drug reactions, alternative medicines, interactions, compatibility of parenteral medicines, together with their advantages and disadvantages. • How to effectively search trusted sources, such as textbooks, databases, websites, journals and reports, for evidence-based information, and their advantages and limitations. • Effective use of patient and carer interviews to gather all relevant background information to establish nature of medicine enquiry, and to be able to provide the best and most individualised response. • Structure of medicines information service provision within the area of practice.
Self-care of CVD	Demonstrate knowledge and understanding of:
Education	<ul style="list-style-type: none"> • Education about self-management of CVD.
Self-management education	<ul style="list-style-type: none"> • Various evidence-based self-care skills in CVD, such as self-monitoring of blood pressure, self-monitoring of blood coagulation, and self-augmentation/reduction of dosage in patients receiving anticoagulation agents. • Multidisciplinary referral systems, including referral to dietitians, nutritionists, exercise physiologists, psychologists or structured group programmes. • Important lifestyle modifications, including healthy diet, regular physical activity, smoking cessation, adequate sleep hygiene and stress management.
Pharmaceutical care plan	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> • Medication management cycles and approaches to CVD medication management among patients with comorbidities, e.g., HIV/AIDS, diabetes. • Medication adherence measurement and evidence-based interventions that enhance CVD medication adherence and eliminating therapeutic inertia (resistance to therapeutic treatment). • Medication-related problems and their evaluation and resolution. • Development of treatment and monitoring plans among CVD patients and approaches to ensure rational use of CVD medicines.
Prevention and management of CVD complications	Demonstrate knowledge and understanding of:
Heart failure	<ul style="list-style-type: none"> • Pathophysiology, risk factors, signs and symptoms, screening, and monitoring parameters. • Mechanism of action, pharmacology and pharmacokinetics of medicines used to treat or prevent heart failure.
Ischaemic stroke	<ul style="list-style-type: none"> • Pathophysiology, risk factors, signs and symptoms, screening and monitoring parameters, and the mechanism of action, pharmacology, and pharmacokinetics of the medicines used to treat or prevent stroke. • Management, including awareness of stroke warning signs and symptoms, and prevention, risk or exacerbating factors. • Referral mechanisms within area of practice for patients suffering from stroke.
Aneurysms	<ul style="list-style-type: none"> • Pathophysiology, risk factors, signs and symptoms, screening and monitoring parameters. • Mechanism of action, pharmacology, and pharmacokinetics of the medicines and surgical procedures used to treat or prevent aneurysms.

Peripheral artery disease	<ul style="list-style-type: none"> • Pathophysiology, risk factors, signs and symptoms, screening and monitoring parameters. • Mechanism of action, pharmacology and pharmacokinetics of the medicines and surgical procedures used to treat or prevent peripheral artery disease.
Coronary artery disease	<ul style="list-style-type: none"> • Pathophysiology, risk factors, signs and symptoms, screening and monitoring parameters. • Mechanism of action, pharmacology and pharmacokinetics of the medicines and surgical procedures used to treat or prevent coronary artery disease.
Sudden cardiac arrest	<ul style="list-style-type: none"> • Pathophysiology, risk factors, signs, and symptoms. • Emergency procedures to resuscitate an individual having a cardiac arrest. • Mechanism of action, pharmacology and pharmacokinetics of the medicines and surgical procedures used in the immediate, mid-term and long-term recovery after cardiac arrest. • Long-term effects of sudden cardiac arrest on the brain. • Appropriate lifestyle interventions to reduce the risk of another cardiac arrest.
Mental health conditions	<ul style="list-style-type: none"> • Risk factors for mental health conditions in CVD patients and the importance of seeking professional mental health counselling or cognitive behavioural therapy.
CVD in special population groups	Demonstrate knowledge and understanding of:
Older adults	<ul style="list-style-type: none"> • Age-associated changes in the older adults and how this worsens CVD. • Common comorbidities among older adults with CVD. • Specific precautions and considerations in the management of CVD in older adults, including compelling indications for CVD medication. • Treatment cut-offs and preventive therapy for older adults with CVD.
Diabetes mellitus	<ul style="list-style-type: none"> • Pathophysiology of developing CVD in people with diabetes. • Specific considerations and principles of managing CVD in diabetic patients. • Multifaceted vascular protection checklist for CVD patients with diabetes.
HIV/AIDS patients	<ul style="list-style-type: none"> • Pathophysiology and risk factors of CVD in HIV/AIDS patients. • Diagnosis and mandatory investigations required to prevent CVD in HIV patients. • Pharmacological and non-pharmacological interventions useful in the treatment and prevention of CVD in HIV/AIDS patients • Potential drug-drug interactions between CVD medicines and antiretroviral medicines, and appropriate pharmacist-led interventions to prevent such interactions.
Chronic kidney disease (CKD)	<ul style="list-style-type: none"> • Pathophysiology and risk factors for developing CVD in CKD patients. • Important considerations/cautionary measures in the diagnosis and management of CVD and its complications in CKD patients.
Pregnancy and lactation	<ul style="list-style-type: none"> • Haemodynamic and metabolic changes that occur during pregnancy and the risk of developing CVD during pregnancy. • General reproductive health considerations of CVD in pregnancy, including pre-conception, ante-partum, intra-partum and post-partum care. • Hypertensive disorders in pregnancy, including pre-eclampsia, eclampsia, HELLP syndrome, chronic hypertension. • Prevention and management of hypertensive disorders in pregnancy. • Pharmacological and non-pharmacological management of post-partum cardiomyopathy complications, including acute and chronic heart failure.

	<ul style="list-style-type: none"> Prevention and treatment of deep venous thrombosis and pulmonary embolism in pregnant women. Important considerations for cardiovascular medication during pregnancy and lactation.
Paediatrics	<ul style="list-style-type: none"> Pathophysiology and risk factors for CVD in paediatrics. Recommended cardiovascular medication for paediatric patients with CVD. Important considerations regarding dose reduction and management of side effects in paediatric patients with CVD. Lifestyle and non-pharmacological interventions for CVD in paediatric patients. Important considerations in the transition of lifetime CVD treatment from paediatrics to adulthood.
Patient education	Demonstrate knowledge and understanding of:
Communication	<ul style="list-style-type: none"> Importance of language strategies on core attitude change, social perception, understanding of CVD, treatment outcomes and psychosocial well-being of the individual. Methods of questioning and resources available to appropriately educate or assess a patient's needs regarding CVD information, including shared decision making. Various elements to consider when communicating with patients with CVD, including cultural/ethnic, socioeconomic, gender, literacy/numeracy, behavioural, time and urgency factors.
Organisation and management	
Stewardship of medicines supply, availability and affordability	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> Requirements for the safe storage and transport of CVD medicines, and how deviation from recommended practice should be assessed and managed. Availability and affordability of essential CVD medicines. Factors influencing the stability of medicines, including factors relating to packaging of medicines, how these relate to product shelf-life, and how the stability of medicines is influenced by storage and supply.
Professional	
Multidisciplinary care	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> Expertise, roles and responsibilities of each colleague and member of the healthcare team involved in CVD care and management, including CVD education specialists, dieticians, nutritionists, nurse educators, exercise and rehabilitation specialists and mental healthcare providers. Need for continuous education and professional development on CVD management and to stay up to date with current CVD national and international recommendations.
Ethical practice	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> Pharmacy code of ethics and how it applies to pharmacist-patient interactions, informed consent, access to patient data and analysis of these data whether or not in the context of scientific publications.
Policies, regulations and guidelines	
Policies, regulations and guidelines	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> Relevant policies, regulations and guidelines to support provision of services to CVD patients.

	<ul style="list-style-type: none"> • Role and scope of pharmacists as prescribers, and key considerations for pharmacist prescribers in the management of CVD.
Medicines safety	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> • Relevant safety alerts regarding adverse events following administration of CVD medicines and implementing best practices in accordance with local policies. • Local and national incident reporting processes to pharmacovigilance authorities and appropriateness of incidents' reporting. • Common errors associated with pharmaceutical packaging and labelling, and their causes. • Pharmaceutical risks associated with prescribing, supply, storage and administration of CVD medicines in clinical areas.
Healthcare systems	Demonstrate knowledge and understanding of:
	<ul style="list-style-type: none"> • Healthcare systems regulations regarding CVD to facilitate uninterrupted access to medicines, devices and supplies necessary to treat and self-manage CVD and related complications.

Table 2: Associated skills in cardiovascular disease^{25, 27–34}

Public health and advocacy	
Advocacy	<ul style="list-style-type: none"> • Monitor and encourage medication adherence. • Provide continuous disease/medication education for patients and other healthcare professionals. • Educate patients on cardiovascular risk factors and methods of risk factor mitigation. • Encourage evidence-based diet modifications and exercise as ways to reduce CVD and promote healthy lifestyles. • Actively participate in quality improvement programmes and public health campaigns for the primary and secondary prevention of CVD.
Screening and referral	<ul style="list-style-type: none"> • Identify and comprehensively assess an individual's risk of developing CVD using evidence-based risk assessment tools. • Identify patients at high risk of developing CVD. • Conduct preventive health screening tests among at risk populations e.g., blood pressure, cholesterol, triglycerides, and body-mass index. • Teach and demonstrate evidence-based self-care interventions for CVD patients, e.g., self-monitoring of blood pressure. • Communicate population trends and screening results to key stakeholders. • Refer patients requiring further care to appropriate general practitioners or specialists within area of practice.
Cultural interventions	<ul style="list-style-type: none"> • Identify and assess cultural influences, social determinants of health, health beliefs, learning preferences and barriers, literacy and numeracy to adapt communication and education approaches accordingly.
Pharmaceutical care	
Monitoring parameters	
Laboratory	<ul style="list-style-type: none"> • Correctly interpret laboratory test values used to diagnose or monitor CVD.
Function monitoring and imaging	<ul style="list-style-type: none"> • Correctly interpret function monitoring and imaging tests that assess cardiac function. • Provide evidence-based advice to patients or refer patients for further care based on the findings from cardiac function tests.
Medicines	
Antihypertensive medicines	<ul style="list-style-type: none"> • Apply pharmacotherapeutic knowledge and be the medicine therapy expert on antihypertensive medicines. • Work with patients and multidisciplinary care teams to simplify hypertension treatment regimens and find lower cost medicines where a need is identified. • Thoroughly assess prescribed antihypertensive medicines and determine whether patients are experiencing any adverse effects or interactions that may be related to these medicines. • Effectively monitor patient response to antihypertensive medicines in line with set treatment goals. • Identify, discuss and implement strategies that address patients' concerns about their antihypertensive medicines. • Assess and communicate to patients the risks and benefits of antihypertensive medicines. • Educate and counsel patients on medication-specific considerations for antihypertensive medicines.
Medicines for dyslipidaemia	<ul style="list-style-type: none"> • Apply pharmacotherapeutic knowledge and be the medicine therapy expert on medicines for dyslipidaemia.

	<ul style="list-style-type: none"> • Work with patients and multidisciplinary care teams to simplify treatment regimens and find lower cost medicines where a need is identified. • Thoroughly assess prescribed medicines for dyslipidaemia and determine whether patients are experiencing any adverse effects or interactions that may be related to these medicines. • Effectively monitor patient response to medicines for dyslipidaemia in line with set treatment goals. • Identify, discuss and implement strategies that address patients' concerns about their medicines for dyslipidaemia. • Assess and communicate to patients the risks and benefits of medicines for dyslipidaemia. • Educate and counsel patients on medication-specific considerations for medicines for dyslipidaemia.
<p>Medicines for venous thromboembolism (VTE)</p>	<ul style="list-style-type: none"> • Apply pharmacotherapeutic knowledge and be the medicine therapy expert on VTE medicines. • Work with patients and multidisciplinary care teams to simplify VTE treatment regimens and find lower cost medicines, where a need is identified. • Thoroughly assess prescribed VTE medicines and determine whether patients are experiencing any adverse effects or interactions that may be related to these medicines. • Effectively monitor patient response to VTE medicines in line with set treatment goals. • Identify, discuss, and implement strategies that address patients' concerns about their VTE medicines. • Assess and communicate to patients the risks and benefits of VTE medicines. • Educate and counsel patients on medication-specific considerations for VTE medicines.
<p>Medicines information</p>	<ul style="list-style-type: none"> • Identify sources, evaluate, assess and provide appropriate medicines information according to the needs of CVD patients. • Counsel patients with CVD on the safe and rational use of medicines and devices, including use, contraindications, interactions, storage, adverse effects and side effects of medicines. • Support patient's use of health information technologies, digital communications and health solutions. • Provide accurate evidence-based information on nutraceuticals and non-pharmacological interventions for CVD patients.
<p>Medicines use and supply</p>	<ul style="list-style-type: none"> • Educate patients on proper storage conditions for CVD medicines to maintain efficacy and shelf-life. • Ensure that CVD medicines are stored appropriately at the pharmacy by checking the most important stability parameters, including humidity, temperature and expiry date. • Make sure that information on the appropriate medicines route and time of administration, doses, dosage forms and documentation is communicated effectively to each CVD patient under your care. • Thoroughly assess CVD medicine prescriptions for authenticity, and therapeutic and pharmaceutical appropriateness. • Consult with the patient, carer or prescriber to address any issues identified in the prescription. • Monitor medicines supply chains to ensure quality of medicines supplied, their rational use and their safe disposal. • Comply with national and professional guidelines when administering injectable medicines or supervising medicine dosing.
<p>Self-care in CVD</p>	
<p>Self-management education</p>	<ul style="list-style-type: none"> • Educate and demonstrate evidence-based self-care interventions to CVD patients.

	<ul style="list-style-type: none"> Educate CVD patients on medication adherence measurement tools, and promote evidence-based interventions that enhance medication adherence.
Pharmaceutical care plan	
Patient risk assessment	<ul style="list-style-type: none"> Identify and comprehensively assess an individual's risk of developing CVD using evidence-based risk assessment tools.
Developing and implementing a care plan	<ul style="list-style-type: none"> Co-create treatment and monitoring plans with CVD patients and their carers, and follow-up to ensure adherence and achievement of set treatment targets.
Monitoring care plan	<ul style="list-style-type: none"> Schedule time for care planning based on routine patient visits or overt patient need. Effectively communicate and document specific responsibilities in the treatment care plan process. Share treatment plan documentation with patients in a timely manner. Implement, conduct and maintain a reporting system for pharmacovigilance (e.g., reporting of adverse drug reactions).
Prevention and management of CVD complications	<ul style="list-style-type: none"> Identify CVD patients at high risk of developing CVD complications. Conduct regular screening for patients at risk of developing CVD complications. Identify and initiate evidence-based interventions for preventing and managing CVD complications, e.g., diet and lifestyle modifications. Appropriately dispense medicines for secondary prevention of CVD. Appropriately refer patients presenting with CVD complications to qualified general practitioners or specialists. Encourage personal strategies or psychotherapy to address psychosocial issues and concerns for CVD patients.
Special population groups	
Older adults	<ul style="list-style-type: none"> Effectively communicate to patients and caregivers specific precautions and considerations for pharmacological and non-pharmacological management of older adults with CVD. Apply pharmacological knowledge in initiating treatment cut-offs and preventive therapy for older adults with CVD.
Diabetes	<ul style="list-style-type: none"> Communicate the causal relationship between diabetes and development of CVD. Apply pharmacological knowledge to prevent interactions between diabetes medicines and CVD medicines. Promote non-pharmacological interventions that prevent development of CVD in people with diabetes.
HIV/AIDS patients	<ul style="list-style-type: none"> Communicate the causal relationship between HIV medication and development of CVD to HIV/AIDS patients. Provide appropriate pharmacological and non-pharmacological interventions for the treatment and prevention of CVD in HIV/AIDS patients Assess CVD medication regimens for potential antagonistic interactions with anti-retroviral medicines. Initiate appropriate intervention to prevent antagonistic medication interactions in HIV/AIDS patients.
Pregnancy and lactation	<ul style="list-style-type: none"> Educate pregnant women with CVD on general reproductive health considerations during preconception, ante-partum, intra-partum and post-partum care. Communicate and initiate evidence-based pharmacological and non-pharmacological management of CVD in pregnancy.

	<ul style="list-style-type: none"> • Appropriately prevent or manage post-partum cardiomyopathy and VTE complications in pregnant women. • Assess CVD medication for pregnant and lactating women for appropriateness and safety, considering the cardiovascular medicines contraindicated during pregnancy and lactation. • Refer pregnant or lactating mothers to qualified health practitioners for further care where necessary.
Paediatric patients	<ul style="list-style-type: none"> • Educate paediatric patients with CVD and their carers or guardians using an appropriate communication style. • Perform routine screening and monitoring tests for paediatric patients with CVD. • Effectively communicate to families the complications that may occur in paediatric patients with CVD. • Refer children and adolescents with CVD to appropriate education and support programmes and groups where necessary. • Identify signs related to mental health issues among paediatric patients with CVD and refer to appropriate mental health professionals. • Communicate and guide CVD treatment as paediatric patients transition to adulthood. • Make appropriate dose reductions of CVD medicines based on body surface area and common side effects.
Patient education	
Communication	<ul style="list-style-type: none"> • Use neutral, non-judgmental, fact-based, inclusive and person-centred language. • Use proper questioning methods to identify and address the needs of CVD patients. • Recognise and respect cultural and ethnic diversity when communicating with CVD patients from a background different to one's own. • Tailor communications to suit patients' cultural, socioeconomic, gender, literacy, numeracy, behavioural, time and urgency factors. • Undertake all consultations in an appropriate setting, minimising interruptions and maintaining verbal, auditory and personal privacy.
Professional	
Multidisciplinary care and interprofessional collaboration	<ul style="list-style-type: none"> • Establish contact, respect and trust with colleagues and other healthcare professionals while respecting individual, cultural and ethnic differences. • Communicate effectively with health and social care staff, support staff, patients, caregivers and relatives using lay terms, and check understanding. • Work collaboratively with other healthcare professionals to identify gaps in the care plan and improve outcomes for the patient. • Serve as a medicines expert for the multidisciplinary team and organisation and as a resource for topics related to CVD care and education. • Recognise and advocate for the value of the pharmacy team within the multidisciplinary team. • Mitigate risks of medicines shortages and stock-outs through liaison and appropriate communication with healthcare staff, healthcare stakeholders and patients. • Promote and support opportunities for learning that enhances the practice of colleagues, pharmacy students and other healthcare professionals in CVD management. • Identify and respond to gaps in knowledge, skills and professional behaviours of others in relation to CVD management.
Ethical practice	<ul style="list-style-type: none"> • Maintain privacy and confidentiality with the patient and other healthcare professionals.

Policies, regulations and guidelines	
Policies, regulations and guidelines	<ul style="list-style-type: none"> • Keep abreast of relevant policies, regulations and guidelines that support provision of quality healthcare services to CVD patients. • Participate in the development of regulations and guidelines for CVD management and support dissemination of these guidelines to other healthcare providers.
Healthcare systems	<ul style="list-style-type: none"> • Communicate to stakeholders and policymakers the local impact of CVD and associated complications. • Participate in the establishment or implementation of initiatives and services designed to improve population outcomes for CVD. • Identify and address systems-based barriers that could hinder patients with CVD from accessing optimal care, including individual factors, cultural practices or economic factors. • Identify organisational and systemic solutions and provide support for overcoming barriers to medication adherence. • Increase population awareness of the pharmacist's role in the management of CVD.

4 Considerations for CPD providers of courses and programmes on CVD for pharmacists

FIP recognises that training and professional programmes for pharmacists and pharmacy teams play a key role in the development and maintenance of competence in CVD management and service provision. It is recommended that training and professional programmes, in the form of continuing professional development (CPD), include educational material and training on existing and future pharmacist roles in CVD management.

Underpinned by the knowledge and skills reference guide (Chapter 3), training programmes should focus on CVD roles and services and, at the completion of training, a practitioner should be able to demonstrate knowledge and apply skills in the following areas:

- Advocacy and health promotion;
- Pharmaceutical care services, including digital approaches to care;
- Screening, prevention and therapeutic disease management;
- Patient education and person-centred care;
- Self-care in CVD;
- Multidisciplinary care and interprofessional collaboration;
- Effective communication skills; and
- Stewardship of CVD medicines supply, availability and affordability.

The following considerations will support the development and implementation of robust training, guidelines and transformative CPD programmes that are focused on improving the competence and capacity of practitioners in the management of patients with CVDs.

4.1 Embarking on a needs-based approach to addressing education, CPD and training gaps

CPD in CVD should address local and national needs and reflect individual professional development needs and learning endeavours. The following should be noted:

- The diversity of health systems and contexts may hinder access to recommended first-line therapies due to costs and supply chain problems. Pharmacists should play a critical role in adequately managing CVDs in the context of local and national needs.
- CPD is lifelong and must be relevant to one's area of practice. As such, CPD in CVD should focus on addressing individual professional needs and provide a holistic approach to gaining knowledge, learning skills and embracing attitudes and values that allow pharmacists to execute their roles.

4.2 Fostering national and international collaborations on training projects in CVD

Collaboration on training projects in CVD for pharmacists allows for:

- Reduction in skill gaps in the management of CVDs between countries of differing economic status;
- Sharing of resources;
- Increasing the inclusion of relevant international organisations, such as the World Health Organization, the United Nations and FIP, in lobbying key decision-makers to facilitate the inclusion of well-equipped pharmacists with the knowledge and skills within multidisciplinary healthcare teams to manage patients with CVD.

4.3 Quality assurance and accreditation of training programmes

CPD programmes in CVD require accreditation to demonstrate that the learning activities have achieved the required standards and benchmarks set by regulatory or professional bodies. Accreditation ensures that the learning is of high quality and meets the expectations of pharmacists, employers and the community. Certification of training courses and programmes facilitates the standardisation of crucial knowledge and skills required to upskill. It also paves the way to develop multidisciplinary consensus guidelines with other health professionals in the area of CVD.³⁵

5 FIP Seal for programmes and CPD providers

The FIP Provision and Partnerships Programme provides a global platform to help FIP members address professional support and development of the pharmaceutical workforce according to local and national needs and priorities. By offering a global platform for collaboration and partnerships among members and partners, FIP provides an opportunity to bridge training and professional development gaps. FIP can identify with members' transformative opportunities to accelerate the advancement of pharmacy across all sectors and roles.

In 2021, following expert consultation and an iterative process, FIP developed criteria to assure the quality of professional development and training programmes, and their alignment with FIP's mission, goals and the Development Goals.³⁶ The FIP Seal recognises the overall quality and alignment of a programme. Application forms and details of the process to be followed are available to interested parties to undertake self-assessment for the FIP Seal upon request (email Dr Dalia Bajis at dalia@fip.org) and in the [FIP handbook for providers of programmes](#).³⁶

References

1. World Health Organization. Cardiovascular diseases (CVDs) [Internet]. 2021 [accessed 2022 18 July]. Available at: <https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-cvds>.
2. Roth GA, Mensah GA, Johnson CO et al. Global burden of cardiovascular diseases and risk factors, 1990-2019: Update from the GBD 2019 Study. *J Am Coll Cardiol*. 2020;76(25):2982-3021.2020.[accessed:18 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/33309175>.
3. Anand S, Bradshaw C, Prabhakaran D. Prevention and management of CVD in LMICs: why do ethnicity, culture, and context matter? *BMC Med*. 2020;18(1):7.2020.[accessed:18 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/31973762>.
4. Omboni S, Caserini M. Effectiveness of pharmacist's intervention in the management of cardiovascular diseases. *Open Heart*. 2018;5(1):e000687.2018.[accessed:18 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/29344376>.
5. Santschi V, Chiolerio A, Burnand B et al. Impact of pharmacist care in the management of cardiovascular disease risk factors: a systematic review and meta-analysis of randomized trials. *Arch Intern Med*. 2011;171(16):1441-53.2011.[accessed:18 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/21911628>.
6. Barbara S, Wiggins, Joseph J, Saseen. Cardiovascular disease prevention in the clinical setting: the role of pharmacists [Internet]. 2016 [accessed 2022 18 July]. Available at: <https://www.acc.org/latest-in-cardiology/articles/2016/09/30/09/32/cardiovascular-disease-prevention-in-the-clinical-setting>.
7. International Pharmaceutical Federation (FIP). Cardiovascular diseases: A handbook for pharmacists. The Hague: International Pharmaceutical Federation; 2022. [accessed: 26 October 2022]. Available at: www.fip.org/file/5251
8. Apikoglu S, Selcuk A, Ozcan V et al. The first nationwide implementation of pharmaceutical care practices through a continuous professional development approach for community pharmacists. *Int J Clin Pharm*. 2022.2022.[accessed:18 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/35699862>.
9. Zolezzi M, Abdallah O, Sankaralingam S. Development and evaluation of an educational program for community pharmacists on cardiovascular risk assessment. *Risk Manag Healthc Policy*. 2020;13:623-32.2020.[accessed:18 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32607030>.
10. American Society of Health-System Pharmacists. Basics in cardiology pharmacy certificate [Internet]. 2022 [accessed 2022 18 July]. Available at: <https://elearning.ashp.org/products/9762/basics-in-cardiology-pharmacy-certificate>.
11. World Health Organization. WHO/Europe training course on noncommunicable diseases 2022: surveillance, implementation and evaluation (Introductory page) [Internet]. 2022 [accessed 2022 18 July]. Available at: [https://www.who.int/europe/news-room/events/item/2022/04/01/default-calendar/who-europe-training-course-on-noncommunicable-diseases-2022-surveillance-implementation-and-evaluation\(introductory-page\)](https://www.who.int/europe/news-room/events/item/2022/04/01/default-calendar/who-europe-training-course-on-noncommunicable-diseases-2022-surveillance-implementation-and-evaluation(introductory-page)).
12. Udoh A, Bruno-Tome A, Ernowati DK et al. The development, validity and applicability to practice of pharmacy-related competency frameworks: A systematic review. *Res Social Adm Pharm*. 2021;17(10):1697-718.2021.[accessed:17 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/33640334>.
13. International Pharmaceutical Federation (FIP). FIP global competency framework - supporting the development of foundation and early career pharmacists - Version 2. The Hague: International Pharmaceutical Federation; 2020. [accessed: 17 July 2022]. Available at: <https://www.fip.org/file/5127>.
14. International Pharmaceutical Federation (FIP). FIP global advanced development framework handbook: supporting the advancement of the profession - version 1. The Hague: International Pharmaceutical Federation; 2020. [accessed: 17 July 2022]. Available at: <https://www.fip.org/file/4790>.
15. International Pharmaceutical Federation (FIP). Beating non-communicable diseases in the community The contribution of pharmacists. The Hague: International Pharmaceutical Federation; 2019. [accessed: 22 July 2022]. Available at: <https://www.fip.org/file/4694>.
16. Royal Pharmaceutical Society. Professional knowledge guide [Internet]. 2018 [Available at: <https://www.rpharms.com/LinkClick.aspx?fileticket=CicDInpBtEg%3D&portalid=0>].
17. World Health Organization. WHO guideline on self-care interventions for health and well-being, 2022 revision. Geneva: World Health Organization; 2022. [accessed: 22 July 2022]. Available at: <https://apps.who.int/iris/rest/bitstreams/1440452/retrieve>.
18. de Ferranti SD, Steinberger J, Ameduri R et al. Cardiovascular risk reduction in high-risk pediatric patients: A scientific statement from the American Heart Association. *Circulation*. 2019;139(13):e603-e34.2019.[accessed:22 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/30798614>.
19. Flynn JT, Kaelber DC, Baker-Smith CM et al. Clinical practice guideline for screening and management of high blood pressure in children and adolescents. *Pediatrics*. 2017;140(3).2017.[accessed:22 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/28827377>.
20. Lane DA, Wood K. Cardiology patient page. Patient guide for taking the non-vitamin K antagonist oral anticoagulants for atrial fibrillation. *Circulation*. 2015;131(16):e412-5.2015.[accessed:22 July 2022]. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/25901074>.

21. Mach F, Baigent C, Catapano AL et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. *Eur Heart J.* 2020;41(1):111-88.2020.[accessed:22 July 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/31504418>.
22. Ministry of Health. Kenya national guidelines for cardiovascular diseases management. Nairobi: Ministry of Health; 2018. [accessed: 22 July 2022]. Available at: https://www.health.go.ke/wp-content/uploads/2018/06/Cardiovascular-guidelines-2018_A4_Final.pdf.
23. Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J et al. 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy. *Eur Heart J.* 2018;39(34):3165-241.2018.[accessed:22 July 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/30165544>.
24. Schwartz JB, Schmader KE, Hanlon JT et al. Pharmacotherapy in older adults with cardiovascular disease: Report from an American College of Cardiology, American Geriatrics Society, and National Institute on Aging Workshop. *J Am Geriatr Soc.* 2019;67(2):371-80.2019.[accessed:22 July 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/30536694>.
25. Centers for Disease Control and Prevention. Best practices for cardiovascular disease prevention programs: A guide to effective health care system interventions and community programs linked to clinical services. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017. [accessed: 22 July 2022]. Available at: <https://www.cdc.gov/dhbsp/pubs/guides/best-practices/index.htm>.
26. De Hert M, Detraux J, Vancampfort D. The intriguing relationship between coronary heart disease and mental disorders. *Dialogues Clin Neurosci.* 2018;20(1):31-40.2018.[accessed:23 July 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/29946209>.
27. Dunn SP, Birtcher KK, Beavers CJ et al. The role of the clinical pharmacist in the care of patients with cardiovascular disease. *J Am Coll Cardiol.* 2015;66(19):2129-39.2015.[accessed:09 August 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/26541925>.
28. World Health Organization. HEARTS technical package for cardiovascular disease management in primary health care: risk based CVD management. . Geneva: World Health Organization; 2020. [accessed: 09 August 2022]. Available at: <https://apps.who.int/iris/bitstream/handle/10665/333221/9789240001367-eng.pdf>.
29. World Health Organization. WHO CVD-risk management package for low- and medium-resource settings. Geneva: World Health Organization; 2002. [accessed: 09 Aug 2022]. Available at: <https://apps.who.int/iris/bitstream/handle/10665/42621/9241545852.pdf>.
30. Arnett DK, Blumenthal RS, Albert MA et al. 2019 ACC/AHA Guideline on the primary prevention of cardiovascular disease: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation.* 2019;140(11):e596-e646.2019.[accessed:09 August 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/30879355>.
31. Pharmacy Council of New Zealand. Competence standards for the pharmacy profession. New Zealand: Pharmacy Council of New Zealand; 2015. [accessed: 09 Aug 2022]. Available at: <https://pharmacycouncil.org.nz/wp-content/uploads/2021/04/CompStds2015Web.pdf>.
32. Royal Pharmaceutical Society. Pharmacy: Helping to prevent and support people with Cardiovascular disease. Royal Pharmaceutical Society; 2019. [accessed: 09 August 2022]. Available at: <https://www.rpharms.com/recognition/all-our-campaigns/policy-a-z/cardiovascular-disease>.
33. West R, Isom M. Management of patients with hypertension: general practice and community pharmacy working together. *Br J Gen Pract.* 2014;64(626):477-8.2014.[accessed:09 Aug 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/25179064>.
34. Peletidi A, Nabhani-Gebara S, Kayyali R. The Role of pharmacists in cardiovascular disease prevention: Qualitative studies from the United Kingdom and Greece. *J Res Pharm Pract.* 2019;8(3):112-22.2019.[accessed:09 Aug 2022].Available at:<https://www.ncbi.nlm.nih.gov/pubmed/31728341>.
35. Penín O, Villasuso B, Domenech M et al. Guide for the approach of hypertension by the Community Pharmacist in the field of Primary Care: Multidisciplinary consensus document. Madrid: SEFAC; 2022. [accessed: 03 October 2022]. Available at: https://www.semfyec.es/?download_file=88233&key=dc9173bec52dbf7c184801376bb52bod&free=1.
36. International Pharmaceutical Federation (FIP). The FIP handbook for providers of programmes - supporting the FIP platform for provision through partnerships -advancing pharmacy worldwide. The Hague: International Pharmaceutical Federation; 2022. [accessed: 17 July 2022]. Available at: <https://www.fip.org/file/5109>.

International
Pharmaceutical
Federation

Fédération
Internationale
Pharmaceutique

Andries Bickerweg 5
2517 JP The Hague
The Netherlands

-
T +31 (0)70 302 19 70
F +31 (0)70 302 19 99
fip@fip.org
-

www.fip.org

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