



**CORE COMPETENCIES REFERENCE
MANUAL FOR SONOGRAPHY
TECHNOLOGISTS
TO PRACTISE IN ZAMBIA**

CORE COMPETENCIES & MINIMUM STANDARDS

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QUALIFICATION AND RESPONSIBILITIES:

Title of the programme: Diploma in Diagnostic Ultrasound (Dip Sonography) or equivalent

Key accountability for the job: Provide quality ultrasound services in a health care facility

Primary roles and responsibilities:

- Knowledge of the basic and clinical sciences relevant to the practice of sonography
- Competence in clinical skills and patients care
- Professionalism and ethical practice
- Conducts basic sonographic examinations for best patient management
- Assessment of patients and Interpretation of clinical requirements to determine the most appropriate sonographic technique to employ for optimal diagnostic information

1.0 INTRODUCTION

The Health Professions Council of Zambia (HPCZ) is a statutory body that was established by the Health Professions Act No. 24 of 2009. The Act renames and continues the existence of the Medical Council of Zambia established by the Medical and Allied Professions Act of 1977. The Health Professions Act No. 24 provides for the registration of health practitioners and regulation of their professional conduct; provides for the licensing of health facilities and the accreditation of health care services provided by health facilities; and provides for the recognition and approval of training programmes for health practitioners.

Following the issuance of the guidelines for introduction of licensing examinations for health professionals registered with the Health Professions Council of Zambia, this bulletin provides an outline of the minimum competency standards for registrants who have successfully completed the Diploma in Diagnostic Ultrasound (Dip Sonography) seeking to practice as a Sonography technologist in Zambia

A Sonography technologist is a skilled medical imaging professional who performs medical diagnostic sonographic examinations

2.0 EXIT EXAMINATIONS AND AWARD OF THE DIPLOMA IN SONOGRAPHY BY TRAINING INSTITUTIONS

Training institutions, private or public (local and foreign), approved or recognised by the Health Professions Council of Zambia are mandated to examine and graduate their students under their own seal and authority. The Diploma in Sonography (Dip. Sonography) or equivalent award is designated the primary qualification of the technologist and it is a pre-requisite requirement for eligibility for licensure examinations. Accordingly, a holder of the Diploma in Sonography award will be required to take and pass the HPCZ licensure examination to qualify for registration with the Council as a Sonography Technologist practitioner.

3.0 LICENSURE EXAMINATIONS BY THE HEALTH PROFESSIONS COUNCIL OF ZAMBIA

A person shall not practise as a health practitioner, unless that person is registered as a health practitioner in accordance with the Health Professions Act No. 24 of 2009. In the exercise of its functions under this Act, the 2nd and the 3rd Council of the Health Professions Council of Zambia instituted Licensure Examinations to help maintain standards given the emergence of multiple private and public training institutions. This ‘Bulletin’ provides on the Core Competencies and Minimum Standards for the Licensing Examinations for sonographer to Work in Zambia” binds all parties regulated under this Act. Examination fees for licensure examinations, as prescribed by the Council, are payable to the Health Professions Council of Zambia as part of the eligibility to sit licensing examination.

The HPCZ Licensing Examination assesses a sonographer’s ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centred skills, that are important in health and disease and that constitute the basis for safe and effective patient care. The HPCZ Licensing Examination includes, but is not limited to, theoretical and clinical examinations which complement each other as prescribed in the curriculum for which this programme was approved. No component is a stand-alone in the assessment of readiness for practice as sonographer in Zambia.

The candidate will be assessed under three domains, namely:-

1. Knowledge
2. Skills
3. Attitude

The above domains will be assessed by means of a theory exam comprising of multiple choice questions followed by a composite objective structured clinical examination (OSCE).

The main **subject areas** (assessed under all three learning domains) for Sonography in Zambia are:

1. Obstetrics Ultrasound
2. Gynaecology Ultrasound
3. Small parts Ultrasound
4. Abdominal Ultrasound

The overall expected standards of the Licensure examination is to ensure that the candidate will meet the minimum standards for the role as a sonographer

4.0 OVERALL OUTCOME GUIDELINES

The curriculum must have identified attributes in each educational domain (knowledge, skills and attitude) and present them to guide student learning and assessment by examiners. HPCZ directs a sonography technologist to be compassionate and empathetic in caring for patients and to be trustworthy and truthful in all their professional dealings. A sonography technologist has a responsibility to respect and provide care that is up to standard for the lives and health that are entrusted by patients

Overall Outcomes

Knowledge, Skills and Performance

- a) Care of the patient is the first concern.
- b) Provision of a good standard of practice and care by keeping professional knowledge and skills up to date while recognizing the limits of one's competence.

Safety and Quality

- Prompt action if patient safety, dignity or comfort is compromised.
- Protect and promote the health of patients and the public.

Communication, Partnership, and Teamwork

- Uphold the respect of patient's autonomy and dignity.
- Uphold informed consent and confidentiality.
- Work with colleagues in ways that best serve the patient's interests.
- Work with honesty, integrity and fairness.

Maintaining Trust

- Work with honesty, openness and integrity.
- Uphold fairness with patients or colleagues.
- Safeguard the patient's and public's trust in the practitioner and the profession – never abuse the trust.

Management

- Demonstrate awareness and perform administrative duties and roles, and exhibit managerial skills
- Take up entrepreneurship challenges to complement public health services in the country

5.0 CORE COMPETENCIES: SONOGRAPHY TECHNOLOGIST

DOMAIN: Knowledge		
Competence	competence statement	Sub competences
<i>Application of Sonography</i>	Application of Sonography	<ul style="list-style-type: none"> i. Explain and apply Knowledge required in the use of ultrasound machines. ii. Apply knowledge required to perform sonographic examinations and interpretation of sonographic images. iii. Demonstrates understanding of common disease conditions and health problems in our environment, including those common at primary, secondary and tertiary levels of health care system. iv. Demonstrates understanding of research methods, epidemiology and biostatistics. v. Demonstrates understanding of principles of health care management vi. Applies and demonstrates professionalism and ethics.

DOMAIN: SCIENTIFIC KNOWLEDGE		
Competence	Competence statement	Sub-Competences
Basic Health Sciences	Demonstrates Understanding and Application of Basic Health Sciences Requisite to the Study of Sonography	<ul style="list-style-type: none"> i. Explains normal human sonographic anatomy and function. Explain normal human body structure and function. Explain the Patho-physiology of common and relevant disease processes ii. Explains the role of Physiology in health and disease

DOMAIN: SCIENTIFIC KNOWLEDGE		
Competence	Competence Statement	Sub-Competences
Medical Diagnostic Sonographic Procedures	Demonstrates Knowledge and Understanding of Medical Diagnostic Sonographic Procedures	Demonstrates understanding of a wide range of medical diagnostic and sonographic procedures that are essential to sonography Technologist's role in the healthcare team.

DOMAIN: SKILLS AND PERFORMANCE		
Competence	Competence Statement	Sub-Competences
Plan and conduct examinations	Demonstrates understanding and apply underpinning knowledge to plan and implement an examination	i. Apply knowledge of anatomy, physiology, normal and abnormal sonographic appearances of abdominal organs, abdominal blood vessels, prostate and urinary Bladder, gynecology, obstetrics, small parts (Breast, Thyroid).
		ii. Apply knowledge of ultrasound imaging systems
		iii. Requires comprehension of ultrasound physics, instrumentation and image
		iv. Optimise sonographic procedures

		v. Examination strategy is developed and implemented in accordance with standard operating procedures.
		vi. Undertake the examination according to the determined strategy; interpreting selecting and recording appropriate images.
		vii. Recognise the need to consult.

DOMAIN: SKILLS AND PERFORMANCE		
Competence	Competence Statement	Sub-Competencies
<i>Perform ultrasound examinations</i>	performs ultrasound examinations of the various body parts and systems	i. Performs ultrasound of General Abdomen
		ii. Performs ultrasound of Small PARTS, including prostate, breast and thyroid
		iii. Performs Gyneacology ultrasound
		iv. Performs Obstetrics ultrasound

DOMAIN: ATTITUDES, VALUES AND PROFESSIONALISM		
Competence	Competence statement	Sub-Competences
Communicate Effectively	Effectively communicate as a professional with peers, other healthcare professionals and the public in a professional context	<ul style="list-style-type: none"> i. Communicate clearly, sensitively and effectively with colleagues, patients and their care-givers by active listening, sharing and responding appropriately

DOMAIN: ATTITUDES, VALUES AND PROFESSIONALISM		
Competence	Competence statement	Sub-Competences
Adherence to health and Sonography safety guidelines	Adopt, comply and implement health and safety guidelines	i. Demonstrate awareness and adherence to local, regional and international standards of Sonographic unit, including protocols for management.
		ii. Promote health and occupational safety at the workplace.
		iii. Protect patients and improve care.

DOMAIN: ATTITUDES, VALUES AND PROFESSIONALISM

Competence	Competence Statement	Sub-Competences
Professionalism and Ethical Practice	Demonstrates professionalism and ethical conduct	i) Accountability-The Sonography technologist accounts for own actions and decisions and demonstrates commitment to accomplish work in an ethical, efficient and cost effective manner.
		ii) Adaptability-The Sonography technologist adjusts planned work by gathering relevant information and applying critical thinking to address multiple demands and competing priorities in a changing environment
		iii) Observes Professionalism and ethical practice

DOMAIN: ATTITUDES, VALUES AND PROFESSIONALISM

Competence	Competence statement	Sub-Competences
Provide Leadership, Manage Health Systems and Engage in Entrepreneurship	Provide leadership and manage health systems resources, including ability to engage in entrepreneurship opportunities within and beyond the profession in Zambia.	i. Applies principles of leadership and management of health systems.
		ii. Effectively manages the sonographic unit.
		iii. Selects and applies appropriate strategies and tools to plan, control and manage health system resources under their care.

COMPETENCE DEVELOPMENT & CONTENT GUIDE

Listing of Examples of Courses for the Diagnostic Ultrasound Diploma

Courses for Scientific Knowledge in Ultrasound		
1. Basic Health Sciences: Human Anatomy Human Physiology 2. Medical ethics and Communication Skills 3. Ultrasound physics, Instrumentation and Equipment maintenance	4. General Abdominal Ultrasound 5. Obstetrics & Gyneacology Ultrasound	6. Prostate 7. Breast 8. Thyroid
Courses for Skills & Performance in Ultrasound		
1. Ultrasound physics, Instrumentation and Equipment maintenance	4. Prostate 5. Breast 6. Thyroid	1. Medical Ethics and Communication skills

2. General Abdominal Ultrasound		
3. Obstetrics & Gyneacology Ultrasound		
Courses for Attitudes, Values & Professionalism		
Medical Ethics, Communication skills, and Enterpreuship		

6.0 BLUEPRINT WEIGHTING

	Theory	Practical
Outcome 1: Demonstrate Understanding and Application of Sonography Requisite to the Practice of the Profession	20%	5%
Outcome 2: Demonstrate Understanding and Application of Basic Health Sciences Requisite to the Study of Sonography	10%	5%
Outcome 3: Demonstrate Knowledge and Understanding of Medical Diagnostic Sonographic Procedures	5%	10%
Outcome 4. Plan and conduct examinations	5%	10%

Outcome 5: Perform ultrasound examinations	40%	50%
Outcome 6: Communicate Effectively	5%	5%
Outcome 7: Adherence to health and Sonography safety guidelines	5%	5%
Outcome 8: Professionalism and Ethical Practice	5%	5%
Outcome 9: Provide Leadership, Manage Health Systems and Engage in Entrepreneurship	5%	5%
TOTAL	100%	100%

7.0 CORE PROCEDURES

The following procedures are the minimum standards and a full list could be found in the curriculum

<p>Basic sonographic examinations</p>	<ul style="list-style-type: none"> i. Manages and conducts ultrasound examinations of the abdomen ii. Manages and conducts examinations of the pelvis iii. Manages and conducts obstetric ultrasound examinations iv. Manages and conducts ultrasound examinations of small parts (thyroid, prostate and breast)
<p>Sonographic Image Evaluation and Interpretation</p>	<ul style="list-style-type: none"> i. Make reasoned decisions pertaining to interpretation and documentation/reporting of ultrasound findings
<p>Assessment and Interpretation</p>	<ul style="list-style-type: none"> i. Manages and Conducts timely assessment on patients and interprets clinical requirements in order to determine the most appropriate sonographic technique for the patient in order to get optimal diagnostic information. ii. Manages complex and unpredictable situations including the ability to adapt planned diagnostic imaging examinations, interventions and to manage adverse, critical care incidents. iii. Manages and evaluates sonographic equipment and assess suitability for intended examinations

8.0 REFERENCES MATERIALS

Kindly refer to the curriculum for full list of books.

Human Anatomy and Physiology	<p>Barett KE, Barman SM, Boitano S, Brooks H. (2012). Ganong’s Review of Medical Physiology 24th Edition. McGraw Hill Medical. 978-0071780032</p> <p>Ryan, S., Mcicholas, M., and Eustace, S. (2010) Anatomy in Diagnostic Imaging, 3rd Edition. Elsevier. ISBN 9780702048326</p>
Imaging Pathology	<p>Eisenberg R.L, Johnson N.M. (2015), Comprehensive Radiographic Pathology, 6th ed. Mosby. ISBN- 9780323353243</p> <p>Robbins, S.L, Angell, M and Kumar, V (2012). Basic Pathology. W. B Saunders Company Philadelphia</p>
Patient Care & Interpersonal effectiveness	<p>Ehrlich. R.A &Coakes.D.M (2016), Patient Care in Radiography, 9th Ed. Elsevier, ISBN 9780323353762</p> <p>Plotnik R. & Kouyoumdjian H. (2013), Introduction to psychology, 10th Edition. Cengage Learning</p>
INTERPERSONAL & COMMUNICATION SKILLS	<p>Guffey ME (2007.) Essentials of Business Communication 7th ed. Australia: South-Western College Publishing.</p> <p>Hybels S, Weaver R (2004.) Communicating Effectively. 7th ed. New York: McGraw-Hill</p>
PROFESSIONALISM	<p>HPCZ (2016). Guidelines for good practice in the Healthcare profession – Maintaining Patient Confidentiality. HPCZ Lusaka</p> <p>HPCZ (2016). Guidelines for good practice in the Healthcare profession – Generation and management of patient records. HPCZ Lusaka</p> <p>HPCZ (2014.) Professional code of ethics and discipline: Fitness to Practice. HPCZ Lusaka</p>

