



**HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA
PROFESSIONAL BOARD FOR RADIOGRAPHY AND
CLINICAL TECHNOLOGY**

**GUIDELINES FOR THE SPECIAL BOARD EXAMINATION OF QUALIFIED DIAGNOSTIC
RADIOGRAPHERS TO OBTAIN APPROVAL TO CONTINUE
PERFORMING LIMITED ULTRASOUND PRACTICE AREAS, UNDER SUPERVISION
WITHOUT BEING REGISTERED IN THE CATEGORY: ULTRASOUND**

A. INTRODUCTION

All individuals who practice any of the health care professions incorporated in the scope of the HPCSA are obligated by the Health Professions Act, 1974, to register with the HPCSA in the relevant category, and field of practice. Failure to do so constitutes a criminal offence in respect of which disciplinary action may take place in terms of Chapter IV of the Act. In terms of the powers of professional Boards in Section 15B of the Act, a decision was taken by the Professional Board for Radiography and Clinical Technology (PBRCT – herein after referred to as the Board), that all qualified radiographers registered in the category Diagnostic who (i) commenced performing ultrasound examinations during the period 1 January 1994 to 31 December 2019, and **are still currently practicing**, without a qualification prescribed for registration in the category ultrasound and; (ii) who may have received informal education and training in a form of short courses (including those offered by higher education institutions), workshops, and or in-house training in ultrasound not prescribed by the Board for registration and that led them to perform ultrasound acts and procedures, are required to be assessed by undertaking a special Board ultrasound examination to determine their eligibility to be granted approval to continue performing limited ultrasound practice areas under supervision (as defined in the Act) without being registered in the category: Ultrasound. Qualifications currently approved by the Board for registration in the category of Ultrasound are the National Diploma (Ultrasound), BTech (Ultrasound), and Bachelor's degree in Ultrasound.

This is a once-off amnesty offered by the Board to enable such diagnostic radiographers to continue performing in their limited ultrasound practice area/s under supervision as prescribed by the Board. **Any** diagnostic radiographer who **commenced** performing ultrasound **after** 31 December 2019 without the Board approved, registerable ultrasound qualification, **does not qualify for the special Board ultrasound examination**. Such diagnostic radiographers should **cease this practice with immediate effect**.

Please note: These guidelines must be read in conjunction with the “Frequently Asked Questions” for further clarity. These and other documents can be found on the RCT Board website under the “Examinations” section.

<https://www.hpcsa.co.za/?contentId=0&menuSubId=53&actionName=For%20Professionals>

DEFINITION OF TERMS

According to the *Health Professions Act, 1974*, and *Ethical Rules of Conduct for Practitioners registered under the Health Professions Act, 1974* the following words and expressions are defined as follows:

¹ “**Supervision**” - means the acceptance of liability by a supervising practitioner for the acts of another practitioner.

² “**To be “supervised”**” - means to perform professional acts that are overseen by a supervising practitioner who by supervising, accepts liability for the acts of the supervised practitioner and ensures the required standard of care of the patient.

Supervision in the context of the category of diagnostic radiographers who will be permitted by the Board to continue practicing in limited ultrasound practice areas under supervision – means performing under the supervision of an appropriately qualified practitioner who:

- is physically on site in the department at the time of the clinical encounter to oversee and accept liability for the professional acts of the radiographer, OR
- is available telephonically or via Picture Archiving and Communications Systems (PACS) to oversee and accept liability for the professional acts of the radiographer.

Please note diagnostic radiographers who are/will be supervised telephonically or via PACS, must provide the Board with a letter signed by the designated supervisor detailing the procedure that the institution will apply in the event that urgent verification of the ultrasound examination is required by the supervisor.

The following categories of practitioners are deemed suitable to fulfil the role of clinical supervisor provided, that they have 2-year practical experience in the category of ultrasound:

- Sonographers qualified and registered in the category: Ultrasound
- Radiologists

B. ELIGIBILITY CRITERIA

1. Only candidates who qualified in the category Diagnostic after 01 January 1994: **and**
2. have been performing ultrasound examinations without the relevant qualification prescribed by the Board for registration in the category ultrasound; **and**
3. have been performing these ultrasound acts since before 31 December 2019 and are **STILL CURRENTLY** performing such acts; **and**
4. have received informal education and training in ultrasound in the form of short course(s), workshops and or, in-house training: **and**
5. wish to obtain written Board approval to continue practicing ultrasound in their limited practice area/s of competence, under supervision, without being registered in the category: ultrasound.

Please note that, a qualified diagnostic radiographer who wishes to practice **in all fields** of the category ultrasound and/or **without the supervision** of a qualified sonographer or radiologist must obtain the relevant three- or four-year qualification in ultrasound through an accredited Higher Education Institution, in accordance with the institution's policies. In other words, a qualified diagnostic radiographer who wishes to practice without supervision in all practice areas in the category **Ultrasound: Independent Practice** must obtain the relevant Board approved and prescribed three- or four-year qualification in ultrasound through a Higher Education Institution, in accordance with the institution's policies

C. EXCLUSION CRITERIA

1. The duration of commencement of ultrasound practice, without a prescribed qualification in the category ultrasound that is applicable in these guidelines, is between 1 January 1994 and 31 December 2019. Therefore, **any** diagnostic radiographer who **commenced** performing ultrasound acts and procedures after 31 December 2019 without the registerable ultrasound qualification does not qualify for the special Board ultrasound examination and **must cease this practice with immediate effect**.

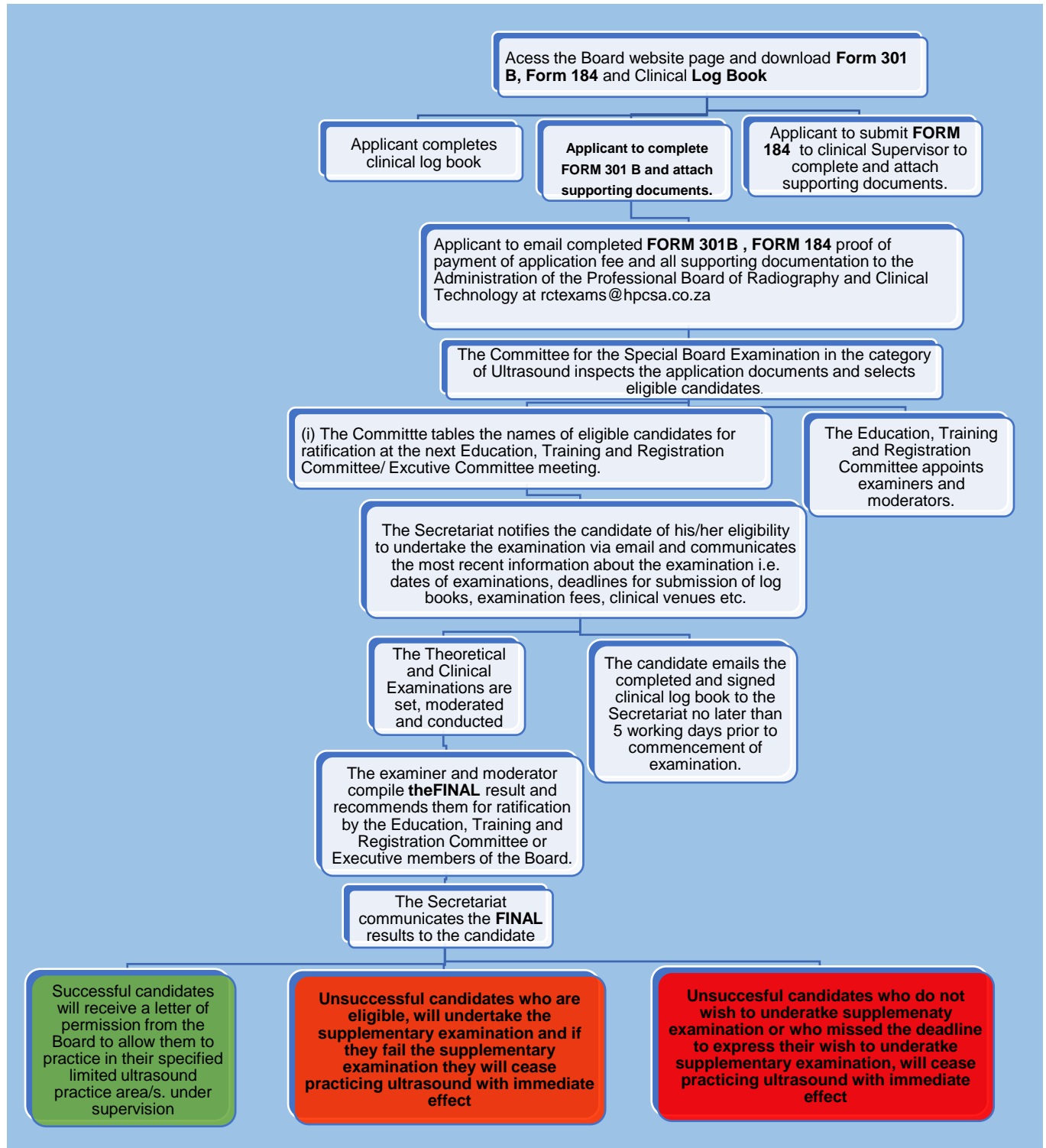
Please note:

- Radiographers registered in the category of Diagnostic and who have opened a private practice and are offering Ultrasound services without having a Board

prescribed registration and qualification in Ultrasound, and/or who have hired sonographers to work in their diagnostic private practice are contravening Business Practice Guidelines. The Board will not hesitate to forward their details to the inspectorate office for investigation and disciplinary action in terms of Chapter IV of the Act.

- Radiographers registered in the category of Diagnostic and who for the purposes of the Special Board Examination are now recruiting supervisors to supervise them and/or, are falsifying employment places and dates will be committing fraud. The Board will not hesitate to forward their details to the inspectorate office for investigation and disciplinary action in terms of Chapter IV of the Act.
- Any diagnostic radiographer qualified after 31 December 1993; **and** who has been practicing ultrasound without a prescribed qualification in the category ultrasound at any time after 1 January 1994; **and** who does not elect to write the Special Board examination, should cease practicing ultrasound with immediate effect.

D. APPLICATION AND EXAMINATION PROCESS



E. APPLICATION AND EXAMINATION TIMELINES

- Applications for the special Board ultrasound examination open **June 2020**.
- The application final deadline for the special Board ultrasound examination is **28 February 2021**.
- Due to disruptions caused by COVID-19 the Board will announce the exact dates for special Board ultrasound examination which is tentatively scheduled to commence at the end of November 2021. Please check the website of the Board regularly for this important communication. Please note - the Board may deem it necessary to conduct online theory and clinical assessments should the COVID-19 situation prevent safe face-to-face interactions. The special Board ultrasound examination will cover one day for theory and image evaluation. The total number of days for the clinical assessments will depend on the number of eligible candidates, however each candidate will only spend one day performing their clinical. Candidates **must first** pass the theory components to be deemed eligible for the clinical assessment.
- The Secretariat of the HPCSA will communicate the application status within **six (6) weeks** after receiving the application documents. This timeline will only apply provided that the application form for the Special Board ultrasound examination by the candidate and the application form for temporary accreditation for training by the clinical practice have been completed correctly, submitted on time, all supporting documents were included in both applications and that the proof of payment of the application fee was provided.
- The Secretariat of the HPCSA will notify, via email, all the candidates who are deemed eligible for the examination and include in its communication of the application status, updated information about the examination i.e., dates of examinations, deadlines for submission of logbooks, examination fees, examination venues etc.
- **Within six (6) weeks** of confirmation of application status, candidates deemed eligible for examination by the Board must:
 - email proof of payment of examination fee to Secretariat. Candidates must use their HPCSA registration number as the reference for payment,
- Candidate must email an electronic copy of the correctly compiled clinical logbook to the Secretariat no later than **five (5) working days prior to the date of the theory and image evaluation examinations.**
- The Committee for the special Board ultrasound examination will inspect the logbook and conduct an audit of the logbook whilst the examiners mark and moderate the theory

and image evaluation examinations. This process may take a minimum of **eight (8) weeks after the examination (theory and image evaluation) is undertaken - depending on the number of applications received.**

- NB: Candidates with incomplete or inaccurately completed logbooks **will forfeit the opportunity to be granted approval to continue performing ultrasound.**
- NB: Candidates who falsify examination dates in the logbooks will be disqualified from the special Board ultrasound examination and will be subjected to disciplinary action in terms of Chapter IV of the ACT.
- NB: Candidates who have passed the theoretical and image evaluation examinations but failed to comply with the requirements of the clinical logbook will also forfeit the opportunity to proceed to the clinical examination and will therefore not be granted approval to continue performing ultrasound.
- The Secretariat will communicate the results (i.e., either a **PASS** or **FAIL**) of the theory and image evaluation examinations (taking into account compliance with the clinical logbook) to the candidate **eight (8) weeks after** the examinations have been undertaken.
- Candidates **MUST** pass the theory and image evaluation components to be eligible for the clinical examination.
- Candidates who **do not meet** the minimum requirements to pass the theory and image evaluation examinations but do meet the criteria for the supplementary examination (Please see Section M of this document), must send an email to the Secretariat no later than **five (5) working** days after receipt of their examination results expressing, (in writing) their willingness or unwillingness to attempt a supplementary (final) examination.
- The Secretariat will acknowledge receipt and communicate the date of the supplementary (final) examination to those candidates who do not meet the minimum requirements to pass the theory and image evaluation examinations and are eligible for a supplementary (final) examination, within **five (5)** working days of such communication.
- Candidates who do not meet the minimum requirements to pass the theory and image evaluation examinations and are eligible for a supplementary (final) examination but, fail to reply to the Secretariat's communication of the examination results will be deemed to have expressed an unwillingness to undertake the supplementary (final) examination and must thus, **cease practicing ultrasound immediately.**

- Please note that **late** responses, i.e., responses that are submitted more than five (5) working days after receiving the examination results, **will not** be considered.
- The supplementary (final) examinations will be scheduled to take place **two (2) months** after the theory and image evaluation examination. The Board will communicate the date in due course.
- **ONLY** those candidates who pass the theory examination (50%) **and** the image evaluation examination (50%) will be eligible for the clinical examination.
- Dates for the clinical examinations will be communicated to eligible candidates after the Supplementary examinations have been marked and moderated.
- The final examination results (Theory, Image Evaluation and Clinical) will be communicated to the candidates **three (3) weeks** after all clinical examinations have been performed. The total number of days for the clinical examinations will depend on the number of candidates.

Illustration of Application and Examination Timelines



F. CRITERIA FOR ADMISSION INTO THE EXAMINATION VENUE

1. Approval for entry to the examination will be in writing and will be granted by the Education, Training and Registration Committee (ETRC) or members of the Executive Committee (EXCO) of the Board. Candidates must keep a copy of this approval or a copy of confirmation of application status sent to the candidate by the Secretariat, to allow entry into the examination venue.
2. No candidate will be allowed into the examination venue unless the following documents are produced.
 - Proof of identification in a form of the SA identity document indicating correct name and surname; and,
 - Copy of current HPCSA practice card; and,
 - Approval letter for examination granted by the ETRC or members of the Board's EXCO; and
 - Proof of payment of examination fee; and
 - Proof of electronic submission of clinical logbook to the Secretariat.
3. **Candidates who are more than 15 minutes late for the examination will not be allowed entry into the examination venue.**

G. CRITERIA FOR EXCLUSION INTO THE EXAMINATION VENUE

Any candidate who fails to comply with any one of the conditions set in Section F above, will not be allowed entry into the examination venue and will therefore forfeit the opportunity offered by the Board to continue performing limited ultrasound practice areas under supervision. Such candidates will cease practicing ultrasound with immediate effect.

H. EXAMINATION VENUE AND DATE

1. The Special Board Ultrasound Examination is scheduled as follows:
 - The theoretical and image evaluation component of the examination will be conducted on the first day of the examination.
 - Candidates who pass both the theory and image evaluation examinations will be eligible to perform the clinical examination.
 - Candidates will be clinically assessed on one (1) relevant scanning examination in their area of competence on one (1) day. The clinical component of

examination will be conducted at a venue/s approved by the Board. Selection of the venue/s will depend on the number and geographic distribution of candidates. Note – the Board may deem it necessary to conduct these examinations online should the COVID-19 situation prevent examiners and moderators from entering the clinical facilities.

2. Based on availability and number of applicants, the Secretariat will arrange four theory and image evaluation examination venues, one in each of the following provinces:
 - Gauteng
 - Eastern Cape
 - Kwazulu-Natal
 - Western Cape
3. Candidates are responsible for their own traveling, meals, and accommodation costs.

I. PURPOSE OF EXAMINATION AND EXIT LEVEL OUTCOMES

The purpose of the examination is a regulatory measure to establish whether eligible qualified diagnostic radiographers who are performing ultrasound examinations without a qualification that is prescribed by the Board for registration in the category ultrasound have, through informal or in-house training, have acquired a level of competency that makes them eligible to be granted written approval by the Board to continue such practices under supervision. This measure is required to enable the Board to fulfil its mandate to regulate and monitor the profession.

J. BENCHMARKING OF THE EXAMINATION WITH ASSESSMENT PRINCIPLES AND STANDARDS OF THE WORLD HEALTH ORGANIZATION (WHO).

The Special Board Ultrasound Examination has been adapted from the curriculum for ultrasonography for sonographers and other Allied Health professionals prescribed by *WHO Study Group on Training in Diagnostic Ultrasound: Essentials, Principles and Standards report of 1996*. The Special Board Examination will include an integration of the following exit level learning areas: anatomy and physiology, pathology, basic principles of ultrasound imaging, principles of ultrasound scanning and technique, patient care, ethics, human rights and law as well as quality assurance.

Anatomy and Physiology

A candidate wishing to undertake the special Board ultrasound examination should master the following in line with their relevant selected area/s of practice and competence:

Anatomy

- sectional anatomy, including the relationships of major structures in the sagittal, axial, and coronal planes.
- normal anatomical size and position.
- common anatomical variations.

Pathology

- congenital, inflammatory, degenerative, metabolic, and neoplastic pathology and pathophysiology and common traumatic conditions affecting the major organs, soft tissues, and vascular structures.
- the general indications for and limitations of ultrasonography.
- the basic diagnostic criteria for the interpretation of ultrasound images should be mastered, including tissue characteristics, normal and abnormal organ tissue patterns, and the differentiation of cystic and solid masses.
- standard methods for the reporting and documentation of results should be mastered.

Basic Principles of Ultrasound Imaging (Physics)

The candidate wishing to undertake the special Board ultrasound examination should master the physical principles relating to ultrasound and its interaction with tissues.

- basic terminology,
- the physics of waves and their interaction with different tissues of the body, including amplitude, intensity, attenuation, perpendicular and oblique incidence, and scattering, the range equation, transducer construction and its effect on ultrasound waves, methods of focusing and resolution, useful frequency ranges, artefacts, biological effects, and safety.

Principles of Ultrasound Scanning and Technique

The candidate wishing to undertake the special Board ultrasound examination should demonstrate competence with the following:

- orientation of the image for standard display formats (head/ foot and right/ left orientation) and image annotation.
- image background (light echoes on a dark background versus dark echoes on a light background).
- scanning planes (sagittal, parasagittal, axial, coronal, and oblique) and image annotation for the scanning planes.
- proper adjustment of equipment controls (system gain, time gain compensation (TGC), depth of field of view, and focal zone placement).
- protocols for routine examinations, including standard transducers,
- the area to be imaged, and any required measurements and documentation.
- frequency, resolution, and their relationship.
- the recognition and identification of common artefacts and strategies to reduce or eliminate them, as well as recognition of artefacts that can enhance diagnostic accuracy.
- permanent image documentation.

K. EXIT LEVEL LEARNING OUTCOMES AND ASSESSMENT CRITERIA

All eligible, qualified diagnostic radiographers undertaking the special Board ultrasound examination are required to demonstrate the ability to perform the following:

1. Integrate knowledge of anatomy, physiology, and pathology, to select the correct sonographic protocol and equipment applicable to a specific anatomical region.
2. Apply knowledge and skills to perform and adapt ultrasound techniques and protocols applicable to the clinical condition of the patient in the selected areas of practice.
3. Describe sonographic protocols of the most frequently encountered examinations in order to produce the required images for each examination.
4. Demonstrate basic competency in the execution of ultrasound techniques in the selected areas of practice.
5. Critically assess the sonographic images and apply pattern recognition to determine normal and abnormal ultrasound appearances in the selected areas of practice.
6. Critically assess and perform responsible patient care to ensure patient welfare and adhere to basic principles patient safety, human rights, and professional ethics.
7. Apply appropriate South African health and safety regulations, ethical principles, and codes of practice in performance of techniques.
8. Demonstrate knowledge, understanding and competency in the use of knobology.

9. Demonstrate knowledge and understanding of bioeffects associated with ultrasound and take steps to minimize them.
10. Demonstrate knowledge of artefacts common to ultrasound imaging.
11. Critically assess the quality of images produced and explain, where applicable, how image quality may be further improved in the selected areas of practice.
12. Demonstrate awareness and understanding of the South African health care system.
13. Demonstrate awareness and understanding of the requirements of the Health Professions Council of South Africa in guiding the practitioners and protecting the public.

Please note that a detailed list of expected outcomes per specific areas of practice is included in Annexure A of this document.

L. FORMAT OF EXAMINATION

The examination will comprise of four components, a theoretical (written), image evaluation, clinical assessment, and the submission of clinical logbooks.

Part 1: Theoretical Examination

1. The theoretical component of the special Board ultrasound examination consists of a written **three (3)-hour** paper set to assess competency in keeping with the requirements and criteria for Board approval.
2. The examination will include an integration of the following exit level learning areas: anatomy and physiology, pathology, basic physical principles, principles of ultrasound scanning technique in the selected practice areas, patient care, ethics, human rights and law as well as quality assurance as indicated in Section K above.
3. Candidate must obtain a **minimum of 50%** in this examination.

Part 2: Image Evaluation

1. This component of the examination consists of a **one (1) hour** assessment in image evaluation to assess competency in keeping with the requirements for Board approval to continue performing ultrasound under supervision. The image evaluation will comprise of an **average of fifteen (15) to twenty- (20) slides** containing ultrasound images of the selected area/s of practice and competence with **two (2) minutes** being allowed per image that will be projected onto a screen.

2. Image evaluation is the second component of the special Board ultrasound examination and will be conducted on the afternoon of the same day of the theoretical examination.
3. This examination includes the critical assessment/evaluation of ultrasound images to test the candidate's knowledge in image quality, ultrasound scanning technique, artefacts, anatomical structures, and identification of abnormal ultrasound patterns within the selected practice areas (candidates will not be required to make a diagnosis).
4. Candidate must obtain a **minimum of 50%** in this examination.

Part 3: Clinical Examination/Assessment

1. Candidates must first pass Parts 1 and 2 to be eligible for the clinical examination.
2. The ETRC or the Board EXCO will approve the clinical venue/s for the clinical examinations and this information will be made available on the website of the Board in due course.
3. During the clinical examination, candidates are required to perform a single clinical examination based on their selected area of practice and competence.
4. The clinical examinations will be conducted for eligible candidates after the theory examination on a date to be determined by the Education, Training and Registration Committee (ETRC) or members of the Executive Committee (EXCO) of the Board.
5. The assessment criteria for the clinical examination will include (but are not limited to) the following:
 - Assessment and understanding of request form and examination requested.
 - Introduction of him- herself to the patient.
 - Obtaining informed patient consent.
 - Correct identification of the patient and checking of all patient's details.
 - Room preparation including infection control.
 - Patient preparation.
 - Patient care and communication before, during and after the examination.
 - The use of a logical scanning protocol.
 - Safe use of the ultrasound to minimize bioeffects - application of ALARA principle to patient.
 - Competency in ultrasound scanning technique.
 - Assessment of the quality of images produced and corrective measures to improve quality.
 - Assessment of images including knowledge of anatomy and pathology.

- Assessment of images to include knowledge of artefacts, positioning errors and medico legal aspects.
- The candidate must obtain a **minimum of 65%** in this examination.

Part 4: Submission of Clinical Logbook

1. Candidates must keep an accurate and meticulous electronic record of examinations conducted in the workplace.
2. The following is a list of areas of practice that will be accepted for approval by the Board. Candidates may select any of the practice areas according to their competence. (See Appendix A below for details of each area)
3. Selected practice areas must **ONLY** be those that the candidate has been performing in since **BEFORE 31 December 2019** and is **still currently** performing. NO new practice areas may be added after 31 December 2019.

Practice Area – General (Limited Practice):

- Abdomen
- Gynaecological (including endovaginal scanning)
- Obstetrics
- Small parts
- Breast (NB This is **only** for diagnostic radiographers (Independent Practice) who have a registered Mammography certificate obtained through a Board approved higher educational institution).
- Doppler
- Musculoskeletal
- Neurosonography

A minimum of one hundred and fifty (150) ultrasound examinations must be recorded. Practitioners who practice in in a single limited area of ultrasound must record 100% of ultrasound examination in that specified area of practice. Practitioners who practice in multiple areas of ultrasound also need to record a total of 150 examinations. However, they need to select one area that they deem themselves most competent in. Approximately, 70% (105) of the examinations must be the practice area they deem themselves most competent and the remaining 30% (45) must be in all the other areas that they have been practicing in (and are still practicing) since before 31 December 2019.

The examinations recorded **must not be retrospective** and must be consistent with the protocol for ultrasound scanning contained in **Annexure A** of this document. Cases must be those performed and checked by the supervisor after June 2020 (date on which application for the special Board ultrasound examination was approved by the Board).

4. A completed and signed copy of the logbook must be submitted via email to the Secretariat no later than **five (5) working days** prior to the theory and image evaluation examination date. **The exact deadline for the submission of clinical logbooks will be confirmed in due course.**
5. Candidates with false, incomplete, or inaccurately completed logbooks **will forfeit approval from the Board to continue practicing ultrasound.** Candidates who have passed the theoretical, image evaluation and clinical evaluation but failed to comply with the requirements of the clinical logbook **will also forfeit the opportunity to obtain Board approval to continue practicing ultrasound.**
6. The Board will conduct an audit of the examinations recorded in the clinical logbooks.

M. CALCULATION OF FINAL EXAMINATION PASS MARK

The **FINAL** pass mark for the special Board ultrasound examination will be calculated as follows:

- i) FINAL mark for Theory examination must be a minimum of 50%; **AND**
- ii) FINAL mark for Image evaluation must be a minimum of 50%; **AND**
- iii) FINAL mark for the Clinical examination must be a minimum of 65%.

Candidates will be eligible to undergo the supplementary (final) examination in any of the three components provided they obtain the following marks in the relevant component:

- between **45% and 49%** for the theory component,
- between **45% and 49%** for the image evaluation,
- between **55% and 64%** for the clinical assessment.

N. FULFILLMENT FOR BOARD APPROVAL

Candidates will be eligible for Board approval to continue practicing ultrasound in their selected practice area/s under supervision if:

1. They have submitted a clinical logbook that compiles with the stipulated requirements for limited practice under supervision.

2. They have attained a pass mark of 65% for the clinical examination **AND** 50% for the image evaluation **AND** 50%, for the theory examination. **ALL three** must be achieved to pass, **PLUS** the successful completion of the logbook. Candidates will only be informed of a PASS or FAIL result.

If a candidate fails to obtain the above pass requirements because of having failed any of the three components (theoretical, image interpretation and clinical examination), AFTER undergoing the relevant Supplementary examination/s, they will be considered as having failed the Board examination.

A candidate is therefore required to obtain **all three minimum pass marks** as stated above as well as the successful completion of the logbook to be granted written approval by the Board to continue practicing in their selected, limited area/s of practice and competence, under supervision.

A candidate will only be allowed to sit for the entry examinations for a **maximum** of two (2) attempts. This means ONE first attempt in each of the three components and, ONE second attempt in any of the three components for which the candidate is eligible to write a supplementary examination.

O. SUGGESTED READING LIST

Title	Author(s)	Publication Date	Publisher	ISBN
Ultrasound Physics and Instrumentation	Hedrick, Wayne R; Hykes, David L; Starchman, Dale E	2005	Mosby	9780323080200
Diagnostic Ultrasound: Physics and Equipment	Peter R. Hoskins, Kevin Martin, Abigail Thrush	2014		
Sonography: Introduction to Normal Structure and Function	Curry, Reva Arnez; Tempkin, Betty Bates	2016	Saunders	
Sonography scanning: principles and protocols	Tempkin, BB	2014	Elsevier	9781455773213
Callen's ultrasonography	Norton, ME	2017	Elsevier	9780323497978

in obstetrics and gynaecology.				
Obstetric & Gynaecological Ultrasound: How, Why and When	Chudleigh, T; Smith, A; Cumming, S.	2017	Elsevier	9780702031700
Clinical Sonography: A Practical Guide	Sanders, Roger C; Winter, Tom C	2016	Lippincott Williams & Wilkins	9781469811475

P. REMARKING OF SCRIPTS

Only candidates who had obtained a mark of **45- 49 %** in the theoretical examination may apply for their scripts to be remarked.

A remarking fee of **50 % of the examination** fee will be charged for a re-mark.

The Administration of the Board at rctexams@hpcsa.co.za may be contacted for information about the remarking fee and the procedure to follow.

Should a candidate pass the theoretical examination but fail the image evaluation and/or the clinical examination, one further attempt will be allowed (See section M above).

P. ADDITIONAL INFORMATION

For further enquiry contact:

The Administration of the Professional Board for Radiography and Clinical Technology
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0001
Email: RCTBoard@hpcsa.co.za
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ANNEXURE A:

Q. BRIEF OVERVIEW OF THE CURRICULUM FOR LIMITED PRACTICE IN ULTRASONOGRAPHY (ACCORDING TO WHO)

The contents and exit learning areas consistent with general training in Ultrasound for sonographers and other allied health professionals are prescribed in the *WHO Study Group on Training in Diagnostic Ultrasound: Essentials, Principles and Standards report of 1996*. According to WHO, the following presents the specific content that should be mastered in the General (Limited Practice) or Obstetrics ultrasonography curriculum, according to the principal anatomical region (abdomen, chest, etc). Sonographers and other allied health professionals successfully completing the General (Limited Practice) or Obstetrics training should be able - safely, accurately, and consistently – to recognize the ultrasound appearance of the named structures or features, diagnose the conditions specified below, and perform the evaluations and measurements referred to. Variations in ultrasound appearance related to age and sex should be mastered.

The following learning outcomes will be assessed within the selected practice areas using the assessment criteria stated in Section K of this document. The following learning outcomes have been adapted from WHO's curriculum for ultrasonography.

ABDOMEN

Liver:

Size, shape, echogenicity and echotexture

Parenchyma;

Intrahepatic vessels;

Focal lesions, including cysts, abscesses, tumours, trauma and parasites;

Peri-hepatic fluid collections;

Normal and abnormal echogenicity (including both focal and diffuse disease).

Gallbladder and biliary tract:

Gallbladder size, wall, and contents. including calculi and Ascaris:

Biliary tract dilatation and evaluation of the jaundiced patient:

Normal bile duct measurements and physiological variations.

Pancreas:

Size, shape and echotexture

Normal and abnormal echogenicity:

Diffuse pancreatic disease:

Focal lesions, including cysts. Abscesses, tumours and calcifications.

Spleen:

Size, shape, echogenicity and echotexture

Focal lesions

Trauma.

Kidneys and adrenals:

Size. Shape and location;

Diffuse parenchymal disease:

Focal lesions including cysts, tumours and calculi:

Obstructive uropathy and perirenal fluid collections.

Ureters and bladder:

Obstruction;

Parasites:

Tumours;

Infections:

Diverticula;

Calculi.

Peritoneal cavity and gastrointestinal tract:

Intra-peritoneal fluid collections:

Bowel masses;

Obstruction;

Retroperitoneal space:

Masses:

Adenopathy:

Fluid collections.

Major abdominal vessels:

Normal measurements:

Aortic aneurysm:

Inferior vena cava thrombus.

Chest**Diaphragm.**

Sub-diaphragmatic and supra-diaphragmatic fluid collections.

Pleural effusions.

Pericardial effusion

FEMALE PELVIS

Normal physiological changes in the uterus and ovaries.

Diseases of the urinary bladder, uterus, ovaries,

Adnexal masses.

OBSTETRICS**Normal first trimester**

Intra-uterine

Embryonic and early foetal anatomy;

Yolk sac;

Amniotic and chorionic cavities;

Biometry including crown-rump length, amniotic sac diameter, and yolk sac size;

Multiple pregnancy:

Cardiac activity and confirmation of viability.

Abnormal first trimester

Ectopic pregnancy;

Retained products of conception

Foetal death;

Pelvic mass.

Normal second trimester

Liquor volume

Placenta

Multiple pregnancy

Gestational date: Femur length, abdominal circumference, head circumference, BPD (biparietal diameter).

OTHER APPLICATIONS

Neck ultrasound

Thyroid gland

Size, shape, echogenicity and echotexture

Focal lesions

Submandibular glands

Parotid glands

Parathyroid

Neck vasculature

Neck masses

Lymph nodes

Scrotal ultrasound

Scrotum and contents

Size and shape

Focal lesions

Intratesticular masses

Epididymis

Size, shape, echogenicity and echotexture

Focal lesions

Epididymitis, epididymal cysts/masses

Other abnormalities

Inguinal hernia

Hydrocele

Varicocele

Testicular torsion

Orchitis

Epididymitis, epididymal cysts/masses

Extraperitoneal and Inguinal lymphadenopathy

BREAST

(only for qualified Mammographers registered in the category Independent Practice)

Size, shape, echogenicity and echotexture.

Implants

Leakage and fluid collections

Focal lesions

Abscesses

Tumours

Fibroadenoma

Intraductal carcinoma

Mastitis

Mammary duct ectasia

NEUROSOGRAPHY

Gross intra-cranial pathology

Intra-cranial vascular lesions

Congenital structural anomalies

Ventriculomegaly

Intraventricular haemorrhage

Periventricular space for evaluations of haemorrhage.

DOPPLER

Abdominal Doppler

DVT of the IVC

Normal PWD of hepatic vein and portal vein in the assessment of portal hypertension

Abnormal PWD of hepatic vein and portal vein in the assessment of portal hypertension

Normal PWD of hepatic vein and portal vein in the assessment of portal hypertension

Abnormal PWD of the aorta in the assessment of stenosis due to atherosclerotic disease, re-stenosis as a result of stent or graft or stenosis in a presence of pseudoaneurysm.

Renal artery Doppler

Normal PWD of renal artery

Calculation of Renal aortic ratio

Abnormal PWD of renal arteries in the assessment of renal artery stenosis (RAS).

Renal vein thrombosis and infarcts

Peripheral Doppler

Anatomy of peripheral vessels in upper and lower limbs

DVT of upper limb and lower limb

Thrombophlebitis

Subcutaneous oedema

Ultrasound features of cellulitis

Carotid Doppler

Anatomy of carotid vessels

Normal PWD of ICA, ECA, CCA and VA

Abnormal PWD of ICA, ECA, CCA and VA

Amended: 09 February 2021