



CMSA

The Colleges of Medicine of South Africa NPC

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JOHANNESBURG OFFICE

EXAMINATIONS & CREDENTIALS

ACADEMIC OFFICE

July 2020

SPECIAL REGULATIONS

FOR THE FS 2020 MODIFIED CLINICAL/PRACTICAL/ORAL EXAMINATIONS

OF THE

SUB-SPECIALTY CERTIFICATE

IN

NEONATOLOGY

Cert Neonatology (SA)

1.0 ELIGIBILITY TO TAKE THE EXAMINATION

In order to be eligible to enter for this examination, the candidate:-

- 1.1 Must comply with the requirements for registration as a medical practitioner, as prescribed by the Medical, Dental and Supplementary Health Services Act.
- 1.2 Must be registered as a specialist Paediatrician

2.0 ADMISSION TO THE EXAMINATION

(to be read in conjunction with the Instructions)

The following are the requirements for admission to the examination:

- 2.1 Registration as a specialist Paediatrician
- 2.2 Certification of having completed at least 18 months as a subspecialty trainee in an accredited subspecialty unit in a teaching hospital, registered and approved by the Health Professions Council of South Africa
- 2.3 Submission of a written report from the head of the institution/programme in which he or she trained indicating satisfactory completion of all training requirements
- 2.4 Submission of a satisfactorily completed logbook
- 2.5 Presentation or acceptance for presentation of an original first author research poster or paper at a local or international congress OR submission or acceptance for publication of an original first or co-authored manuscript in a peer reviewed journal.

3.0 SYLLABUS AND TRAINING

See Appendix A

4.0 FORMAT AND CONDUCT OF THE EXAMINATION

See Appendix B

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APPENDIX A**1.0 SYLLABUS FOR TRAINING PROGRAMME IN NEONATOLOGY IN SOUTH AFRICA**

A hospital offering a training programme in Neonatology must be registered with The Medical and Dental Professional Board of the Health Professions Council of South Africa. The programme extends over a 24 month period and trainees must have a primary speciality in Paediatrics.

The training programme at a specific institution must have a programme director. It is possible to complete the programme at different institutions provided they are registered with The Medical and Dental Professional Board of the Health Professions Council of South Africa and that the rotation to other institutions is co-ordinated by the programme director.

1.1 The Neonatology programme consists of:

- a) theoretical knowledge
- b) technical and procedure skills
- c) application of knowledge and skills in daily practise
- d) organisational aspects of neonatology
- e) quality assurance and a perinatal audit
- f) ethical implications
- g) exposure to clinical research
- h) a written and oral examination set by a recognised examining authority, viz CMSA

1.2 Methods of achieving the goals of the programme are

- a) Exposure to fulltime experience in the different levels of neonatal care
- b) Daily rounds
- c) Systematic assessment of priorities of diagnostic and therapeutic procedures with co-ordination into an integrated patient management strategy
- d) Active participation in clinico-pathologic meetings, journal clubs and clinical meetings
- e) Active participation in local, national, and international seminars, postgraduate courses, symposia and congresses
- f) Participation in clinical research
- g) Teaching work (courses for nurses, paramedics, medical students, etc)
- h) Formal interaction with obstetricians and antenatal ultrasonographers in the evaluation of fetal well-being, anomalies, optimum timing and mode of delivery, etc

2.0 PROGRAMME CONTENT**2.1 Theoretical knowledge**

Physiology, Anatomy, Embryology and Pharmacology

Appropriate knowledge of:

- a) Physiology of the placenta, fetus, newborn/neonate and lactation
- b) The anatomical differences between the foetus/newborn and child
- c) Embryology of the foetus
- d) Pharmacology of drugs in treatment of fetus and newborn which includes the transfer of medicine to the fetus by the placenta and breast milk
- e) Applied physiology of the various organ systems of the newborn
- f) Physiology of nutrition

Microbiology, Virology, Immunology, etc

- a) Infections of the fetus and neonate:
- Clinical signs
 - Immune system of the newborn
 - Diagnostic procedures
 - Therapy

- b) Infection control and prevention

Genetics

Knowledge of basic genetics (Mendelian and non-traditional inheritance), ability to recognise the more common genetic disorders and to provide appropriate treatment and genetic counselling. A systematic approach to dysmorphology and common teratogens.

Nutrition

Theoretical and practical knowledge of:

- breastfeeding and human milk
- formula feeding
- parenteral and enteral nutrition
- supplementation
- feeding practices
- weaning
- metabolic disorders
- complications of feeding (all forms)
- different milk formulae available

Diseases of:

- a) Cardiovascular system

Recognition, assessment and management of cardiac abnormalities, patent ductus arteriosus, acute circulatory problems, hypertension and advanced cardiopulmonary resuscitation, including assessment and treatment of ECG abnormalities (arrhythmias)

- b) Neurology

Recognition, assessment and management of acute and chronic neurological conditions in the newborn, including:

- interpretation of cranial ultrasound and management of intraventricular haemorrhage
- recognition and treatment of convulsions
- basic interpretation of brain CT scan
- Interpretation and use of amplitude integrated EEG.
- diagnosis, assessment and treatment of hypoxic ischaemic encephalopathy (HIE)

- c) Renal

Recognition, assessment and management of acute and chronic renal conditions in the newborn, including:

- establishment of fluid and electrolyte balance
- interpretation of indices of renal function
- assessment and management of hypertension

- d) Gastro-intestinal system
Recognition, assessment and management of acute and chronic gastro-intestinal abnormalities, including:
- recognition and diagnosis of surgical conditions
 - liver diseases
 - necrotising enterocolitis
 - gavage feeding
 - interpretation of abdominal X-rays, CT scan, pH studies and liver function tests
- e) Haematological
Recognition, assessment and management of acute and chronic haematological conditions, including:
- interpretation of clotting profile and complete blood count
 - implementation and control of anticoagulant and fibrinolytic treatment
 - utilisation of blood component therapy
 - management of neonatal jaundice, phototherapy and exchange transfusion
 - management of polycythaemia
 - management of anaemia and thrombocytopenia
- f) Respiratory
Recognition, assessment and management of acute and chronic lung diseases in the preterm and term infant, including:
- resuscitation in labour ward and NICU
 - interpretation of chest X rays
 - interpretation of blood gases and basic lung function tests
 - thorough knowledge of oxygen therapy, its indications and complications, oxygen dissociation curve
 - indications of ventilatory support
 - types of ventilatory support
 - appropriate ventilatory settings
 - surfactant therapy
 - persistent pulmonary hypertension.../
 - persistent pulmonary hypertension
 - bronchopulmonary dysplasia and chronic lung disease
 - infection
 - complications of ventilatory support
 - apnoea of prematurity
 - sedation during ventilation
 - applied lung physiology
- g) Endocrinology
Recognition, assessment and management of infants with endocrine disturbances including:
- hyper- and hypothyroidism; screening for thyroid disease
 - adrenal hyperplasia and ambiguous genitalia
 - neonatal diabetes and hypoglycaemia
 - hypopituitarism
 - vitamin D deficiencies
- h) Dermatology
Recognition, assessment and management of infants with dermatological disorders

i) Infection

Recognition, assessment and management of acute and chronic infections of the fetus and newborn, including:

- sampling for cultures and interpretation of laboratory reports
- use of aseptic techniques
- prevention of nosocomial infection
- institution of infection control measures
- use of appropriate antibiotics
- thorough knowledge of infection screening and monitoring tests
- management of congenital and acquired infection
- reduction of mother to child transmission of HIV, Syphilis and TB

j) Metabolic diseases

Recognition, assessment and treatment of acute metabolic diseases and crises, including:

- appropriate metabolic screening
- interpretation of metabolic studies
- institution of appropriate therapy and nutrition
- monitoring of progress
- management of hypo- and hyperthermia

Ethics

- exposure to ethical aspects of therapeutic abortions, fetal reduction and neonatal intensive care
- implementation of the hospital's ethical guidelines
- ability to consider and discuss (dis)continuation or restriction of treatment
- implementation of treatment withdrawal
- support of bereaved parents

Organisational aspects of Neonatology

Knowledge of Level 1, 2, and 3 Neonatal Care, including:

- implementation of the different levels of neonatal care
- quality management
- allocation of human, spatial and technical resources
- implementation of cost containment
- implementation, training and support of a transport team: road, air, helicopter, fixed wing aircraft
- structured patient file system
- co-ordination of activities of the neonatal unit (residents, nurses, kangaroo unit)
- data collection, mortality and the morbidity audit
- community and follow-up clinics

Obstetric conditions

- theoretical knowledge of pre-eclampsia, HELLP syndrome, blood and platelet group incompatibilities, maternal infections such as syphilis, HIV, diabetes, chorio-amnionitis, prolonged rupture of membranes, different stages of delivery, antepartum haemorrhage, abruptio placentae, maternal auto-immune disorders
- fetal hypoxia
- birth trauma
- antenatal steroids
- audit of still births
- Fetal therapy, cordocentesis, amniocentesis and intra-uterine transfusions
- knowledge of Doppler umbilical artery flow studies
- ability to manage abnormal or sick fetuses with obstetricians and geneticists.
- fetal growth

Resuscitation at birth

Knowledge of:

- resuscitation and apgar score and interpretation of cord blood gases

Monitoring

Knowledge of appropriate monitoring of:

- glucose levels, heart and respiratory rate, pulse oximetry, apnoea monitoring
- blood pressure: invasive and non-invasive

Basic understanding of chest, abdominal, skeletal X-ray, CT brain and chest, ECG, and aEEG.

Research and biostatistics

Knowledge of basic research method study design and biostatistical analysis including:

- Literature search methodology
- Experimental design
- Types of variables
- Descriptive statistics
- Confidence intervals
- Hypothesis testing: p-value, confidence intervals, odds ratio and relative risk.
- Type I and II errors
- To apply the above concepts in the critical appraisal of publications

Anthropometry

Recognition, assessment and management of newborn infants with growth disturbances, including:

- underweight and overweight, lengths, head circumferences
- signs of wasting

Ability to perform a gestational assessment and interpret growth charts

Ophthalmology

Recognition of ophthalmia neonatorum and awareness of the potential causes and management of retinopathy of prematurity

Community Neonatology

- management of follow-up clinics
- education and training
- transfer of infants
- assessment of referral patterns

Developmental Assessment

Ability to screen for developmental abnormalities during the first year of life.

2.2 Practical procedures and knowledge of relevant applied anatomy:

a) Vascular access

- arterial, venous, peripheral percutaneous central lines, umbilical lines
- exchange transfusion
- intra-osseous cannulation
- bone marrow aspiration

b) Cardio-respiratory

- oral and nasal intubation
- Surfactant administration
- chest drain insertion
- thoracocentesis
- Use of ventilation modes: SIMV, Assist-control, nCPAP and HFOV
- Use of iNO
- ECG application
- Cardioversion

- c) GIT
 - paracentesis
 - naso- and orogastric tube placement
 - nasojejunal tube placement

- d) Renal
 - bladder catheter
 - suprapubic urine aspiration

- e) CNS
 - LP
 - Cranial ultrasonography
 - aEEG application

APPENDIX B

1.0 FORMAT AND CONDUCT OF THE EXAMINATION

1.1 Evaluation of Competence

1.1.1 Evaluation of overall competence of the trainee will be based on:

- a) an appraisal by the Head of Unit/Division/Department of the institution where training was undertaken
- b) an examination under the auspices of the Colleges of Medicine of South Africa (CMSA).

2.0 PORTFOLIO

2.1 A portfolio/logbook is a mandatory requirement for entry to the examination.

2.2 The portfolio for the sub-specialty is attached (Appendix C).

2.3 The portfolio includes six-monthly formative assessments (as a minimum) made by the supervisor/divisional head, which is signed by both candidate and trainer. These assessments should, however, be kept confidential and should not be submitted to the CMSA.

2.4 Each candidate will be expected to submit their portfolio/logbook to the CMSA by 15 January or 15 June of each year (for the relevant March or August examination).

2.5 Portfolios are viewed by the HOD and satisfactory performance must be indicated in their letter to the CMSA

3.0 EXAMINATION CONVENORS

3.1 A list of potential convenors will be provided by the College of Paediatricians (hereafter referred to as the "College").

3.2 The College will select convenors for each examination.

3.3 In the case of a convenor from each examining centre not being represented on the convenors' list, the College Council may at its discretion appoint a convenor from another centre for a particular examination.

4.0 CONVENOR RESPONSIBILITIES

The Convenor will:

4.1 Recommend an examiner's panel from the approved list of examiners supplied by the College.

4.2 Be sensitive to the following issues in selecting examiners:

4.2.1 Rotation of examiners (representation from different centres)

4.2.2 Exposure of junior sub-specialists (new examiners)

4.2.3 Representation from different centres in South Africa (must have representation from three different centres, except in exceptional circumstances)

4.2.4 The CMSA's transformation goals.

4.3 Forward the recommended examiners' panel to the College for approval

4.4 Recommend a moderator for the examination to the College.

4.5 Forward a copy of the draft written paper to the College for review by the moderator.

4.6 Submit a written report to the College Council after each examination outlining the conduct of the examination, marks achieved, success rates, problems identified and recommendations for future examinations. This report will also be sent to the Head of each training centre and the CMSA Examinations office.

5.0 EXAMINER SELECTION

- 5.1 Examiners will be appointed by the College following recommendation by the convenor.
- 5.2 A Certificate examiner must be registered with the Health Professional Council of South Africa (HPCSA) as a sub-specialist, and should be at least two years post his or her certification examination or registration as a sub-specialist.
- 5.3 Use of a non-specialist examiner or one from an allied subspecialty must be motivated for in writing to the College.
- 5.4 The examination panel will consist of three examiners, including the convenor. This number of examiners is considered fair to the needs of the candidate and the CMSA.
- 5.5 Any request to alter the examiner numbers for an individual examination must be motivated in writing to the College.
- 5.6 The written and oral/OSCE examinations will be conducted by the same set of examiners.
- 5.7 An examiner will not necessarily be excluded if he/she is the trainer/supervisor of the candidate.
- 5.8 Ideally, no more than one examiner will be chosen from any single centre in South Africa for each examination.
- 5.9 The selection of Certificate examiners will be independent of the FC Paed(SA) Part II examiner selection process.
- 5.10 Whenever possible the same examiner should not be involved in a Certificate examination and a FC Paed(SA) Part II examination simultaneously.
- 5.11 The CMSA Academic Office will be responsible for notifying examiners about their selection for an individual examination.

6.0 MODERATORS

- 6.1 In order to adhere to CMSA standards and for quality assurance, a process of 'moderation' of each examination is considered necessary.
- 6.2 A moderator shall be appointed by the College for the Certificate examination. This individual will ideally be a senior member of the sub-specialty.
- 6.3 Prior to the conduct of the written examination, the moderator will check that the examination questions and marking memorandum reflect a fair spread of the curriculum (reliability), match the curriculum (validity), and that the mark allocation of the questions is fair and appropriate.
- 6.4 The moderator will complete a report and return this to the College and the CMSA at the end of each examination. The College will formally review the report.

7.0 STRUCTURE OF THE EXAMINATION

7.1 The Certificate examination has two components:

- a) A written component
- b) A modified clinical/practical/oral exam will be conducted in the form of a Structured Oral Examination
 - Format of the Structured Oral Examination:
 - Number of virtual stations: 4
 - Duration of each station: 10 minutes each
 - Examination material: will include case histories and test results, still images, photos, diagrams and radiology imaging
 - Examination presentation: examination material and questions will be presented as PowerPoint slides
 - This examination will be conducted remotely on Zoom

7.2 Marking of the Examination:

- A Score of 50% or more will be deemed an overall pass score for each component of the examination.
- A memorandum with mark allocation per question will be used for each component of the examination.
- The marks for the Structured Oral Examination will be combined to obtain an average score
- The final mark will consist of
 - Written Papers 50%
 - Structured Oral Examination 50%

- 7.3 Each of the two components contributes 50% to the overall mark
- 7.4 The pass mark for the overall exam is 50%.
- 7.4 A sub-minimum pass mark of 50% is expected for each of the two (written and the oral/OSCE/clinical) components of the examination.
- 7.5 There is no sub-minima for individual papers, questions or sub-sections of the OSCE/oral/clinical examination.
- 8.0 EXAMINATION CENTRE
- 8.1 Ideally the centre/region hosting the FC Paed (SA) Part II examination will be the host centre for each Certificate examination.
- 8.2 The Convenor of the examination will preferably, but not necessarily, originate from that centre/region.
- 8.3 Exceptions may be granted where there is no suitable Convenor based at that centre/region or the sole candidate in an examination is from the host centre.
- 9.0 WRITTEN EXAMINATION
- 9.1 Certificate examinations will comprise of two three-hour written papers.
Paper I will consist of 4 long questions or scenarios (may contain sub-parts), worth 25 marks each (each examiner shall submit 2 such questions to the Convenor).
Paper II will consist of 10-12 short questions, worth 10 marks each (each examiner to submit 5 such questions to the Convenor).
- 9.2 A marking memorandum – a basic outline to the expected answer - will be provided, by each examiner at the time of question acceptance, including an indication of the allocation of marks for each section/part answer.
- 9.3 The language of written papers will follow College recommendations.
- 10.0 CLINICAL / ORAL / OSCE EXAMINATIONS
- 10.1 A modified clinical/practical/oral exam will be conducted in the form of a Structured Oral Examination
- 11.0 RESPONSIBILITY OF THE COLLEGE IN THE EXAMINATION PROCESS
- 11.1 Selection of Convenors, examiners, and moderators.
- 11.2 Monitoring of the conduct of each Certificate examination.
- 11.3 Reviewing all aspects of each examination on completion.
- 11.4 Tracking performance and success rates in individual examinations.
- 12.0 APPEALS PROCESS
- 12.1 The CMSA has an appeals process that will be followed.