CMS 01 MBS	**NATIONAL CURRICULLUM: MEDICAL BIOLOGICAL SCIENCE** **MEDICAL AND DENTAL PROFESSIONS BOARD: MEDICAL SCIENCE**

Describes the core national curriculum for Medical Biological Sciences. It is important to note the following:

a) *Core curriculum: The minimum prescribed requirements to be successfully completed to pass the Board examination (Portfolio of Evidence).*
b) *Evidence-based: Evidence of ALL components or elements has to be provided.*
c) *Facility-based training program: Every training facility should develop a facility-based training program based on the minimum requirements prescribed in this National Curriculum.*
d) *Assessment of components: All elements or components of the training program MUST be assessed, and documentation of mode and frequency of assessment must be prescribed.*

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NATIONAL CURRICULUM IN PREPARATION FOR REGISTRATION AS A MEDICAL BIOLOGICAL SCIENTIST WITH THE HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA (HPCSA)

The overall outcome of internship is knowledge, expertise, skills and experience in the integration of academic knowledge, scientific principles and practical laboratory methods into the clinical diagnostic platform. A medical scientist is part of a healthcare team which will impact the diagnosis, treatment and counselling of patients. The overall outcomes of internship are defined as:

1. OVERALL OUTCOMES

At the end of formal training, a medical biological scientist should have gained knowledge, expertise, skill and a certain degree of experience in the following areas:

1.1. The application of basic scientific principles and academic knowledge.

1.2 Performance of laboratory methods in accordance with standard operating procedures and interpretation of results relevant to a laboratory diagnostic environment. This needs to be done in a diagnostic environment and not in a research environment.

1.3 Administration and management of a laboratory in terms of staff, workflow management, budget, environment, TAT and maintaining the quality process.

1.4 Application of ethical principles, good clinical practice and good laboratory practice.

1.5. Database/s and bioinformatics used in a diagnostic laboratory environment

1.6. Research principles and scientific reporting

2. DISCIPLINE-SPECIFIC OUTCOMES

Internship determines the overall competency by assessing all the specific outcomes. These include:

2.1 MEDICO-LEGAL AND ETHICS

At the end of formal training, a medical biological scientist must have knowledge and understanding (where relevant for the appropriate discipline) of:

2.1.1 HPCSA guidelines and ethical rules which cover concepts such as responsibility, accountability, consent, confidentiality and disclosure in terms of professional conduct and patient care including reasonable practice and practicing in good faith (version available from the HPCSA website – Booklet 1) https://www.hpcsa.co.za/Conduct/Ethics

2.1.2 The relevant Acts such as the Occupational Health and Safety Act, Compensation for Occupational Injuries and Diseases Act, National Health Act including the regulations of the HPCSA, Labour Relations Act especially the aspects regarding HIV/AIDS and the Human Tissue Act

2.1.3. Medico-legal and ethics in dealing with patients and patient samples (version available from the HPCSA website – Booklet 2)

2.2 GOOD LABORATORY PRACTICE (GLP) AND LABORATORY SAFETY

At the end of formal training, a medical biological scientist must have knowledge and understanding of:

2.2.1 Correct use of personal protective equipment (PPE) (laboratory coats, gloves, masks, goggles, etc.)

2.2.2 Safe handling, storage and disposal of biological specimens

2.2.3 Safe handling, storage and disposal of chemicals (including radioactive materials where applicable)

2.2.4 Managing chemical and biological spills (including radioactive materials where applicable)

2.2.5 Fire hazards and safety drills

2.2.6 Physical and ergonomic hazards

2.2.7 Safe handling, service and maintenance of equipment

2.2.8 Exposure to laboratory management and administration in a diagnostic environment

2.3 QUALITY MANAGEMENT

At the end of formal training, the medical biological scientist should have knowledge and understanding of:

2.3.1 Laboratory accreditation and audits

2.3.2 Internal and External Quality Assurance programs

2.3.3 Validation of diagnostic test methods / platforms / kits

2.3.4 Standard Operation Procedures (SOP's) and guidelines

2.3.5 Operation and maintenance of laboratory equipment

2.3.6 Non-conformances – identification and resolution

2.4 SCIENTIFIC AND DISCIPLINE-SPECIFIC KNOWLEDGE

2.5.2 Understanding **At the end of formal training, the medical biological scientist should have knowledge and understanding of:**

2.4.1 List of appropriate textbooks

2.4.2 List of Journal clubs attended / presented

2.4.3 List of lectures / seminars / workshops / conferences / courses

2.4.4 List of assignments / case studies

2.5 COMPETENCY TRAINING

At the end of formal training, a medical biological scientist must have knowledge and understanding of:

2.5.1 List of all practical competencies (including competency levels).

of the principle of the test method, applying the most appropriate test method based on patient history and clinical information.

2.5.3 Troubleshooting of test methods.

2.5.4 Understanding the limitations of a test method (e.g. sensitivity and specificity, positive predictive value (PPV) and negative predictive value (NPV)).

2.5.5 Ability to interpret a finding in clinical practice and result reporting.

2.6 PRINCIPLES OF RESEARCH

At the end of formal training, a medical biological scientist must have knowledge and understanding of:

2.6.1 Protocol development and appropriate use of published literature (literature review)

2.6.2 Research ethics

2.6.3 Plagiarism

2.6.4 Funding and budgeting

2.6.5 Biostatistics and / or databases (if applicable)

2.6.6 Scientific report to be prepared in the following format:
Abstract (250-300 words), Introduction, Methods, Results, Discussion, Conclusion, References

2.6.7 Presentation (Power Point)

2.5.8 Peer-reviewed assessment

3. CONTINUOUS ASSESSMENT OF TRAINING

3.1 Formal evidence-based continuous assessment must be performed over the 24-month period, with at least annual reports.

3.2 All components of the training program have to be assessed.

3.3 The format of assessment and frequency of assessment have to be clearly indicated.

3.4 This is an evidence-based document and will not be accepted without original signatures and dates of each assessment.

3.5 Final exit assessment by training facility (Head of Training Program).

4. ROTATION ROSTER

A schedule or planning roster (over the 24-month period) has to be included in the training program including all the various components of the program (please specify each component) with a period, supervisor and specific laboratory.

5. OUTCOME ASSESSMENT BY PRESCRIBED HPCSA BOARD EXAMINATION (COMPETENCY ASSESSMENT)

5.1 A formal assessment process will be conducted to ensure the candidate has acquired the necessary skill / knowledge outlined in the syllabus.

5.2 The assessment is in the form of a Portfolio of Evidence – Refer to MSC A.