

	<b>BQA NCQF QUALIFICATION TEMPLATE</b>	Document No.	DNCQF.QIDD.GD02
		Issue No.	01
		Effective Date	04/02/2020

SECTION A: QUALIFICATION DETAILS														
<b>QUALIFICATION DEVELOPER (S)</b>		University of Botswana												
<b>TITLE</b>	Master of Medicine in Anaesthesia										<b>NCQF LEVEL</b>	9		
<b>FIELD</b>	Health and Social Services			<b>SUB-FIELD</b>		Health Science				<b>CREDIT VALUE</b>	640			
New Qualification						<input checked="" type="checkbox"/>		Review of Existing Qualification						
<b>SUB-FRAMEWORK</b>		General Education			<input type="checkbox"/>		TVET			<input type="checkbox"/>		Higher Education		<input checked="" type="checkbox"/>
<b>QUALIFICATION TYPE</b>	Certificate	I	II	III	IV	V	Diploma	Bachel or						
	Bachelor Honours			Post Graduate Certificate				Post Graduate Diploma						
	Masters					<input checked="" type="checkbox"/>		Doctorate/ PhD						

## RATIONALE AND PURPOSE OF THE QUALIFICATION

### RATIONALE

The need for specialist anaesthetists in Botswana is great. There are currently 30 registered hospitals in the country at different levels: three referral, seven district and sixteen primary; there are also two mission-run and three private hospitals with more being planned. Each of these requires anaesthetic services on a regular basis.

An international standard for the number of specialist anaesthetists per 100 000 population is 8.3, in Botswana the current figure is 1.5. (GMENAC: Graduate Medical Education National Advisory Committee, 2015). These figures speak for themselves. This situation therefore militates against the vision set out in the latest National Health Policy (Ministry of Health, Gaborone, 2011) which states that 'all Batswana will have access to good quality health facilities.'

The absence of sufficient numbers of specialist anaesthetists has led to several coping strategies. In the first place 'cold' patients are unnecessarily being referred to specialist centres. In the second place, and more importantly, anaesthesia is being administered by generalist doctors who can cope reasonably well with routine cases (such as caesarean sections) but struggle to deal safely with very sick patients needing

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emergency surgery locally. Thirdly, nurse anaesthetist are similarly faced with difficult patient, have to make clinically difficult decisions with little specialist support. The result is unacceptably high rates of current anaesthetic complications and deaths. If specialist anaesthetists were to be more widely available, for a start in the seven district hospitals and then more widely in the primary hospitals, the population of Botswana will receive a higher level of peri-operative care than is currently the case. An additional advantage of such wider availability would be skilled local management of emergency patients, since emergency and critical care are part of anaesthetists' skills profile.

The vision set out in the National Health Policy (Ministry of Health, Gaborone, 2011) which states that 'all Batswana will have access to good quality health facilities, including both primary and curative services within reasonable travelling distance.'

The absence of sufficient numbers of specialist anaesthetists has led to two coping strategies. In the first place 'cold' patients whom nurse anaesthetists and medical officers cannot anesthetize are unnecessarily being referred to specialist centres. In the second place, and more importantly, anaesthesia is being administered by generalist doctors who can cope reasonably well with routine cases (such as caesarean sections) but struggle to deal safely with very sick patients needing emergency surgery locally. This can result in unacceptably high rates of current anaesthetic complications and deaths. If specialist anaesthetists were to be more widely available, for a start in the seven district hospitals and then more widely in the primary hospitals, the population of Botswana will receive a higher level of peri-operative care than is currently the case. An additional advantage of such wider availability would be skilled local management of emergency patients, since emergency and critical care are part of anaesthetists' skills profile. However, there is at present no training programme for BQA-recognised qualification as a specialist anaesthetists in Botswana.

**PURPOSE:** The aim of the Master of Medicine in Anaesthesia is to meet national health care goals and improve access to quality care.

The qualification will produce graduates with advanced knowledge, skills and competences to:

- Provide quality anaesthetic and critical care (in both elective and emergency situations) and services in all components of the health care system.
- Educate the next generation of doctors and other anaesthesia service providers in Botswana and foster an interest in lifelong learning.
- Conduct clinical research to improve the quality of research in the field of anaesthesia.
- Engage in multi-disciplinary team collaboration with other specialties in the healthcare system.

#### **ENTRY REQUIREMENTS (including access and inclusion)**


- NCQF Level 7 Bachelor in Medicine and Bachelor in Surgery (MBBS or equivalent) from a recognized University;

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- Have completed at least two years of clinical practice that must include at least 12 months in a recognized supervised internship programme;
- Be registered or registrable with the Botswana Health Professions Council (BHPC)
- Recognition of prior learning (RPL) will be allowed for entry into this qualification as for the individual ETP's policies in-line with National RPL policy.

<b>SECTION B QUALIFICATION SPECIFICATION</b>	
<b>GRADUATE PROFILE (LEARNING OUTCOMES)</b>	<b>ASSESSMENT CRITERIA</b>
1. Assess patients requiring anaesthesia and critical care in accordance with current best practice in anaesthesia	1.1 Perform a clinical interview and physical examination required for the safe administration of anaesthesia in all cases 1.2 Identify accurately and interpret relevant clinical findings in order to formulate differential diagnoses 1.3 Define succinctly clinical problems and formulate a working plan for safe and effective anaesthesia management 1.4 Refer patients for further specialised care as appropriate and co-manage patients in an interdisciplinary team to address complex clinical problems. 1.5 Implement appropriate follow-up plans. 1.6 Maintain thorough clinical records. 1.7 Perform safe and precise procedural tasks in anaesthesia in critical care medicine.
2. Manage patients safely and in accordance with current best practice in anaesthesia	2.1 Apply knowledge of physiology, pharmacology, physics, clinical measurement and monitoring in the practice of anaesthesia 2.2 Conduct safe general anaesthesia , and perioperative care for patients at a high level of competence, including: <ul style="list-style-type: none"> <li>• basic and complicated gynaecological procedures</li> <li>• orthopaedic and trauma related surgical procedures</li> <li>• cardiothoracic and neurosurgical surgical procedures</li> </ul>

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	<ul style="list-style-type: none"> <li>• maxillo-facial, otorhinolaryngeal and dental surgery</li> <li>• complex surgical procedures</li> <li>• paediatric surgical procedures</li> </ul> <p>2.3 Perform nerve blocks and regional anaesthesia procedures and treat any complications arising from these procedures</p> <p>2.4 Perform a wide variety of procedures and techniques of vascular access</p> <p>2.5 Perform a wide variety of procedures and techniques to handle difficult airway management</p> <p>2.6 Manage critically ill patients in an intensive care unit</p> <p>2.7 Carry out competent pain management</p> <p>2.8 Conduct safe procedural sedation (remote anaesthesia) for MRI, CT scan, interventional radiology etc.</p> <p>2.9 Achieve mastery of clinical drills for crises management.</p> <p>2.10 Plan and provide appropriate post-anaesthetic follow-up</p> <p>2.11 Select and, where needed, perform appropriate investigations</p> <p>2.12 Refer patients for further specialised care, when appropriate, and co-manage patients with other specialists to address complex conditions affecting the administration of anaesthesia</p> <p>2.13 Maintain adequate clinical records of all practice activities</p> <p>2.14 Communicate effectively with health care workers in verbal and written format</p>
<p>3. Acquire new information and critically evaluate its quality and utility in accordance with current best practice in anaesthesia</p>	<p>3.1 Access information using electronic and traditional methods</p> <p>3.2 Engage in continuing professional development and life-long learning activities</p> <p>3.3 Appraise critically the quality, relevance and utility of new information</p> <p>3.4 Appraise and apply evidence based approaches to anaesthetic problems</p> <p>3.5 Apply national and international practice guidelines analytically to clinical practice</p>

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4. Function as an effective team member in accordance with institutional and professional guidelines	4.1 Establish a professional team approach with patients, families, colleagues and staff 4.2 Treat all health care workers with respect 4.3 Facilitate conflict resolution 4.4 Recognise the roles other health care workers play; consult appropriately 4.5 Provide leadership when called upon to do so 4.6 Practise comprehensive operating theatre management
5. Educate and counsel patients in accordance with current best practice in anaesthesia	5.1 Educate patients and their families comprehensively regarding anaesthetic procedures and the risks involved 5.2 Obtain consent from patients who are to undergo anaesthesia 5.3 Educate patients in the pre-anaesthetic encounter regarding conditions that may affect current and future administration of anaesthesia
6. Play an active role in training other healthcare workers in the institution, profession and nationally	6.1 Participate regularly in academic teaching activities: <ul style="list-style-type: none"> <li>As a learner studying for the MMed (Anaesthesia) qualification</li> <li>As a teacher of medical students, theatre staff and medical officers.</li> </ul> 6.2 Model compassionate care and professionalism with both patients and colleagues 6.3 Model accountability to the patient, society and the profession 6.4 Participate regularly in academic meetings 6.5 Mentor and teach medical students, junior doctors and other members of the health team.
7. Engage in research related to the discipline of Anaesthesia in accordance with current best practice in anaesthesia	7.1 Identify a suitable research topic 7.2 Conduct a literature search to establish current knowledge concerning the selected topic 7.3 Design a comprehensive protocol for submission for ethical approval for the research 7.4 Collect the necessary data 7.5 Analyse the data to arrive at conclusions 7.6 Prepare an original research thesis and/or article for publication in a recognised academic journal

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SECTION C	QUALIFICATION STRUCTURE				
COMPONENT	TITLE	Credits Per Relevant NCQF Level			Total (Per Subject/ Course/ Module/ Units)
		Level [ 9 ]	Level [ ]	Level [ ]	
<b>FUNDAMENTAL COMPONENT</b>  Subjects/ Courses/ Modules/Units	Communication, Ethics and Professionalism	4			4
	Introduction to Clinical Research	4			4
	Principles and Techniques of Medical Education	4			4
	Public Health Principles and International Health	4			4
	Introduction to Medical Literature	4			4
<b>CORE COMPONENT</b>  Subjects/Courses/ Modules/Units	Basic Science of Anaesthesia and the Practice of Anaesthesia	9			120
	Clinical Anaesthesia Practice	9			210
	Advanced Anaesthesia Practice	9			210
	Dissertation (I,II,III,IV, exam)	9			80

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<b>ELECTIVE/ OPTIONAL COMPONENT</b>  Subjects/Courses/ Modules/Units	N/A				

SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL	
TOTAL CREDITS PER NCQF LEVEL	
NCQF LEVEL	Credit Value
9	640
<b>TOTAL CREDITS</b>	<b>640</b>
<b>Rules of Combination:</b> <b>(Please Indicate combinations for the different constituent components of the qualification)</b>	
The Fundamental modules contributes 20 credits and the Core modules contributes 620 credits for a total of 640. There are no elective modules.	



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## ASSESSMENT ARRANGEMENTS

Assessment will be comprised of 40% formative assessment (clinical evaluations, assessment of competencies and logbook) and 60% summative assessment (examinations and final dissertation presentation).

## MODERATION ARRANGEMENTS

There will be internal and external moderation as a quality assurance measure, in line with the ETP policy. Moderators must be suitably qualified in the field of Anaesthesia or related field.

## RECOGNITION OF PRIOR LEARNING

Recognition of prior learning will be applicable for award of this qualification on a case by case assessment and as per the regulations of individual ETPs and in alignment with international policies.

## CREDIT ACCUMULATION AND TRANSFER

Credit accumulation and transfer will be applicable for award of this qualification on a case by case assessment and as per the regulations of individual ETPs and in alignment with international policies.

## PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Candidates who have completed this qualification will be registerable with the Botswana Health Professions Council or equivalent to practice independently as an Anaesthesia Specialist. They can go onto further horizontal or vertical career pathways.

### Horizontal articulation:

- Sub-specialty Fellowship training in anaesthesia is wide and consists of
  - Fellowship in Paediatric Anaesthesia,
  - Fellowship in Neuroanaesthesia,
  - Fellowship in Cardiac Anaesthesia,
  - Fellowship in Obstetric Anaesthesia,
  - Fellowship in Critical Care Medicine,
  - Fellowship in Pain Medicine,
  - Fellowship in Perioperative Medicine
  - and others)
- Masters in
  - MSc Paediatric Anaesthesia,



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- MSc Neuroanaesthesia,
- MSc Cardiac Anaesthesia,
- MSc Obstetric Anaesthesia,
- MSc Critical Care Medicine,
- MSc Pain Medicine,
- MSc Perioperative Medicine
- MSc Anaesthesia and Biomedical Research
- and others

#### **Vertical Articulation:**

PhD in a field of

- Anaesthesia or
- Basic Science of Anaesthesia (Anatomy, Pharmacology, Physiology, Biomedical Science and Engineering etc)
- Medicine
- Public Health

#### **Employment Pathway:**

- Specialist Anaesthetist
- Medical Educator
- Medical Researcher
- Administrator in a health system or hospital administration
- Advisor on Boards of medical, professional or companies.

### **QUALIFICATION AWARD AND CERTIFICATION**

The qualification of the Masters of Medicine in Anaesthesia and a certificate will be awarded to candidates who achieve 640 credits and satisfy the rules of combination as shown on page 9.

### **REGIONAL AND INTERNATIONAL COMPARABILITY**

Benchmarking has been done against qualifications offered by reputable entities within the region and beyond to appreciate what is typical of this level and type of qualification, in relation to graduate profiling, scope and depth of content, to ascertain regional and international comparability and articulation of the proposed qualification.

#### **Summary of similarities and differences observed**

The programme (MMed Anaesthesia) of the University of Pretoria (NQF level 9) is virtually identical to the proposed MMed (Anaesthesia) programme at the University of Botswana. Credits are calculated differently but

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the duration of the programme is the same and the summative exams for both programmes are conducted by the same institution, namely the College of Anaesthetists (South Africa). Both programmes develop specialist medical anaesthetists.

The 4 year 'Fellowship' programme (FRCA) of the Royal College of Anaesthetists (UK Ofqual level 7) is also very similar to the proposed MMed (Anaesthesia) programme at the University of Botswana in terms of exit outcomes. There are two very similar summative examinations at the same stages of the programme. Again the programme aims to produce highly competent specialist medical anaesthetists.

Comparability and articulation of the proposed qualification with the ones examined

Although the qualifications examined generally follow similar structures and standards there is a difference in the case of the Royal College of Anaesthetists programme, in terms of the required 'Post-fellowship' training programme which has the nature of a supervised internship. This is not however an academic qualification but a requirement of the UK General Medical Council.

The proposed qualification compares well with the qualifications studied, since the scope and depth of the exit-level descriptors are aligned to and typical of this level and type of qualification in the region and beyond. Since all three programmes aim to produce competent specialist anaesthetists there is little or no difference in the expected outcomes. The competencies resulting from the programme are similarly aligned to those required for registration and accreditation with professional bodies such as the Health Professions Council of South Africa and the General Medical Council of the UK. The significance in the University of Botswana programme is that it will produce locally trained Batswana anaesthetists, to fill a critical gap in the nation's current health services.

## REVIEW PERIOD

The qualification shall be reviewed every 5 years.