SECTION A:	***QUALIFICATION DETAILS***																
QUALIFICATION DEVELOPER (S)	University of Botswana																
TITLE	Master of Medicine in Emergency Medicine													***NCQF LEVEL***		9	
FIELD	Health and Social Services			***SUB-FIELD***		Emergency Medicine								***CREDIT VALUE***		640	
New Qualification			✓	*Review of Existing Qualification*													
SUB-FRAMEWORK	*General Education*			*TVET*										*Higher Education*		✓	
QUALIFICATION TYPE	*Certificate*	*I*		*II*		*III*		*IV*		*V*				*Diploma*		*Bachelor*	
	Bachelor Honours			*Post Graduate Certificate*										*Post Graduate Diploma*			
	Masters			✓		*Doctorate/ PhD*											

RATIONALE AND PURPOSE OF THE QUALIFICATION

RATIONALE:

Emergency Medicine is a new specialty. In many countries it is not even yet recognised; and in most countries where it exists, it has only been recognised for about 20 years. Botswana is one of few African countries where formal recognition by the Botswana Health Professions Council (BHPC) has taken place. This cadre is also listed among the 20 priority cadres in the 2016 HRDC Final Health Sector HRD Plan.

The need for specialist emergency physicians in Botswana is great. There are currently 30 registered hospitals in the country at different levels: three referral, seven district and sixteen primary hospitals; there are also two

mission-run and two private hospitals. Each of these requires emergency medical services on a regular basis and hardly any of them are appropriately staffed. More than 60 emergency care assistants ('paramedics'), mostly function in the ambulance transfer setting have been trained by privately owned colleges, who. While their services are essential their skills set is limited; the emergency team requires a highly trained doctor as expert clinician and team leader. The current situation therefore militates against the vision set out in the latest National Health Policy which states that 'all Batswana will have access to good quality health facilities.'

The absence of sufficient numbers of specialist emergency physicians has led to two coping strategies. In the first place, referral of patients whom medical officers or even specialists in other fields of medicine are unable to deal with effectively, is delayed due to logistical reasons. In the second place, emergency care is being provided by doctors who struggle to deal safely with very sick patients needing emergency help locally. In both cases mortality increases. If specialist emergency physicians were to be more widely available, for a start in the seven district hospitals, the population of Botswana will receive a higher level of emergency care than is currently the case. This indicates the acute need for a training programme for specialist emergency physicians in Botswana.

Besides the health benefits likely to accrue to the general population, recognition of the Master of Medicine (MMed) in Emergency Medicine qualification will have further advantages:

Local medical graduates will be able to undergo postgraduate training for this qualification within the country, which is less expensive than training outside Botswana. The curricula of other specialist cadre qualifications will benefit from quality, relevant Emergency Medicine training modules, as will undergraduate MBBS qualification training. Through Botswana's recognition of the Master of Medicine in Emergency Medicine qualification and specialists physicians with the advanced clinical competence to train and teach others, our nation's international status of the national health services in the SADC region will be strengthened.

In the Botswana Vision 2036 document 'Health and wellness' is a key component of Pillar 2, 'Human and Social Development'. To achieve the goal that 'Batswana will live long and healthy lives' there is a clear need to 'develop world class health care services' of which medical practitioners are a key component – this includes emergency physicians.

Information sources: National Health Policy (*Ministry of Health, Gaborone, 2011*; *HRDC. Final health sector HRD plan, 2016; Botswana Vision 2026: Achieving Prosperity For All, 2016.*

PURPOSE: The purpose of this qualification is to produce graduates with Knowledge skills and competences to.

- Apply detailed knowledge of health-related disciplines (Anatomy, Physiology, Pathology, Pharmacology, Microbiology, Bioethics, Psychology and Clinical Medicine) in emergency care settings.
- Apply a variety of communication and manual skills related to the practice of an emergency physician to the assessment and management of patients.
- Manage patients safely and effectively in emergency care settings at the different levels of the national health care system of Botswana.
- Contribute effectively to the management of emergency care units in which they are placed in in the national health care system of Botswana.
- Contribute to the national goal of access to quality health care and help to address the severe shortage of specialist physicians in our nation and region.

ENTRY REQUIREMENTS (including access and inclusion)

- The minimum entry qualification is a Bachelor (Honours) degree (NCQF level 8) in Medicine (MBBS or related undergraduate medical qualification) from a recognised university.
- Applicants must have completed at least two years of clinical practice as a medical practitioner. At least 12 months of such practice must occur in a recognised supervised internship programme.
- Registration as medical officer with the Botswana Health Professions Council (BHPC)
- Recognition of Prior Learning (RPL), Recognition Current Competencies (RCC), and Credit Accumulation and Transfer (CAT) are applicable as per the policies of individual Education and Training Providers (ETPs).

SECTION B	***QUALIFICATION SPECIFICATION***
GRADUATE PROFILE (LEARNING OUTCOMES)	***ASSESSMENT CRITERIA***

1. Apply current scientific knowledge and principles to the practice of Emergency Medicine.	1.1. Apply biomedical principles and knowledge to emergency practice. 1.2. Apply psychological and behavioural principles, methods and knowledge to emergency practice. 1.3. Apply scientific knowledge and principles to the management of emergency medical conditions. 1.4. Describe accurately the construction and operation of the range of instruments and apparatus necessary for the practice of Emergency Medicine.
2. Carry out an effective and comprehensive consultation with a patient in an emergency setting.	2.1. Conduct rapid, accurate triage of patients presenting in an emergency unit. 2.2. Take a prioritised, accurate, succinct, problem-focused medical history from emergency patients, and/or their families and/or their careers, within the time available. 2.3. Perform a prioritised, accurate, focused physical examination of emergency patients, within the time available. 2.4. Explain the findings and proposed next steps clearly concisely and in easily understood language to patients, their families and/or carers. 2.5. Make clear accurate patient records at the time of the consultation or as soon as possible afterwards, which report the relevant clinical findings, information given to the patient, decisions made, and treatment prescribed.
3. Apply clinical findings accurately and scientifically to lead to a comprehensive management plan for emergency patients.	3.1. Apply clinical reasoning to interpret the history and examination findings. 3.2. Rapidly generate a reasonable differential diagnosis. 3.3. Select the most appropriate and cost-effective investigations which will positively contribute to the ability to make an accurate diagnosis. 3.4. Interpret the results of investigations undertaken. 3.5. Rapidly reach the most likely working diagnosis, based on the results of history, examination and appropriate investigations. 3.6. Assess patients' fitness to understand the diagnosis and treatment options, to choose or decline specific treatment as appropriate, and to give consent for procedures and/or treatment if able to do so.

	3.7. Construct an appropriate emergency management plan – if possible, in cooperation with patients, their relatives, their careers, and other members of the healthcare team. 3.8. Adapt emergency management plans in the light of patients' culture, social situations, psychological states and religious beliefs. 3.9. Review and revise the management plan on a regular basis taking account of the patient's response to emergency treatment.
4. Carry out a range of practical procedures required in emergency medical practice.	4.1. Perform practical procedures related to the examination of all body systems of patients in emergency settings. 4.2. Perform a range of procedures required to support diagnostic conclusions for patients in emergency settings. 4.3. Instigate timely interventions including first aid, vascular access, haemostasis, basic life support, cardiopulmonary resuscitation and/or advanced life support in order to manage medical emergencies appropriately.
5. Prescribe and administer a wide range of relevant drugs competently to patients presenting in emergency medical practice.	5.1. Prescribe drugs accurately, safely and appropriately and economically for the management of emergency conditions, taking potential interactions between drugs into account. 5.2. Gain access to appropriate routes for drug administration rapidly, safely and effectively. 5.3. Administer drugs required rapidly and safely.
6. Function as an effective team member and leader in an emergency care setting.	6.1. Describe the roles that other health care workers play in an emergency setting (e.g., nurses, emergency paramedics). 6.2. Provide leadership to the emergency care team by giving clear and timely instructions to all members of the team, taking their experience and skills level into account. 6.3. Where appropriate, co-manage patients with other specialists to address complex emergency medicine problems.

	6.4. Build strong relationships with medical colleagues in other disciplines who will take responsibility for patients once they have been stabilised; refer such patients appropriately and without delay. 6.5. Treat all emergency care workers with respect.
7. Communicate effectively with patients, their relatives, other health professionals in an emergency medical context.	7.1. Communicate clearly with all patients and their relatives, colleagues, nurses and other health professionals and the public, using the method preferred by these persons, be it spoken or written. 7.2. Employ two-way communication, having regard for non-verbal communication and the importance of active listening. 7.3. Provide adequate explanation to patients regarding their conditions and advise on possible management options and likely prognosis in a sensitive, caring and respectful manner. 7.4. Counsel, advise, reassure, comfort and support patients and their relatives, and break bad news to patients and relatives in a compassionate and caring manner. 7.5. Communicate readily through an interpreter when this is required.
8. Apply the principles, skills and knowledge of evidence-based medicine to their emergency practice.	8.1. Define and carry out an appropriate literature search. 8.2. Critically appraise published medical literature and sources of information on Emergency Medicine (journals, websites and digests). 8.3. Interpret research findings appropriately and accurately. 8.4. Apply currently available published evidence to their emergency practice.
9. Use information and information technology effectively in the context of their emergency practice.	9.1. Make effective use of computers and other information systems, including locating, storing and retrieving information. 9.2. Access relevant and varied sources of information on Emergency Medicine and use such information appropriately and consistently.
10. Apply scientific methods and approaches to medical	10.1. Commit to and use the scientific method to acquire future knowledge through study and/ or research throughout their careers as emergency physicians.

research to inform their emergency practice.	10.2. Conduct or participate in regular and systematic audits, reviews and appraisals. 10.3. Respond constructively to audits, reviews and appraisals.
11. Consistently promote and advocate for measures that prevent medical emergencies.	11.1. Engage patients in risk reduction strategies for the prevention of medical emergencies and/or injury. 11.2. Use their expertise and influence in advocacy measures in community settings to promote safe living and prevent accidents and emergencies. 11.3. Work effectively in emergency units in various health care delivery settings and systems.
12. Apply ethical principles and legal requirements to all aspects of their emergency medical practice, including research.	12.1. Apply the ethical principles of beneficence, non-maleficence, justice and autonomy to emergency clinical care at all times. 12.2. Maintain patient confidentiality except in circumstances permitted by law or in the best interests of others. 12.3. Obtain informed consent for all procedures and treatments, whenever this is possible. 12.4. Certify death according to the Botswana certification procedure. 12.5. Request a post-mortem examination in appropriate circumstances. 12.6. Apply the stipulations of relevant laws of Botswana as they pertain to emergency healthcare.
13. Practise in a professional manner at all times, adhering to the principles set out in the Botswana Health Professions Council document 'Core competencies required of	13.1. Practise with commitment and accountability to patients in emergency healthcare settings 13.2. Develop own career choices and plans as emergency physicians. 13.3. Manage their own personal and professional lives, constantly reflecting on and self-regulating their lives and their practice. 13.4. Demonstrate commitment and accountability to the profession of Medicine in general, and Emergency Medicine in particular, including willingness to teach students. 13.5. Collaborate effectively with other healthcare and related professionals.

medical school graduates in Botswana' of July 2012.	13.6. Engage in sustained lifelong personal and professional learning
14. Demonstrate social responsiveness and social accountability in their practice as an emergency physician.	14.1. Work in areas of need as required, commit to stay working in Botswana, and avoid profit as a primary professional orientation. 14.2. Take up positions of leadership in the health system as required and exercise initiative as a change agent in dealing with problems encountered which limit the effectiveness of emergency care units

SECTION C	***QUALIFICATION STRUCTURE***		
COMPONENT	***TITLE***	***Level***	***Credits***
FUNDAMENTAL COMPONENT *Subjects/ Courses/ Modules/Units*	Communication, Ethics and Professionalism	9	4
	Introduction to Clinical Research	9	4
	Introduction to Medical Literature	9	4
	Public Health Principles & International Health	9	4
	Principles and Techniques of Medical Education	9	4
	Master of Medicine Preparation for Part I examination	9	4
	Master of Medicine Preparation for Part II examination	9	4
CORE COMPONENT *Subjects/Courses/ Modules/Units*	Basic practice of Emergency Medicine	9	258
	Advanced practice of Emergency Medicine	9	258
	Resuscitation Science	9	16
	Research and Dissertation[AH1]	9	80
Total hours for all courses			640

SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL		
TOTAL CREDITS PER NCQF LEVEL		
Component	***NCQF Level***	***Credit Value***
Fundamental	9	28
Core	9	612
TOTAL CREDITS		640

Rules of Combination:

(Please Indicate combinations for the different constituent components of the qualification)

The minimum time during which the programme can be completed is four (4) years.

Fundamental components contribute 28 credits and Core components (including research dissertation) contribute 612 credits, for a total of 640 credits. There are no elective components.

A Research Dissertation must be satisfactorily completed before the qualification can be awarded.

ASSESSMENT ARRANGEMENTS

For Fundamental Courses: each course is assessed on a pass/fail basis based on attendance and production of a project related to the content of the course.

For Core Courses:

- Formative assessment takes place throughput the programme and is clinical in nature (100%): clinical evaluation, assessment of competences and logbook.
- Summative assessments are conducted by the College of Emergency Medicine of South Africa:

- The Part I examination assesses the theory of basic medical science related to Emergency Medicine and must be passed before the Part II examination can be attempted.
- The Part II examination consists of three theory papers (50% of the final mark), one oral examination (25% of the final mark) and one practical examination (25% of the final mark).

A dissertation based on formal research must be assessed as satisfactory by internal and external examiners.

MODERATION ARRANGEMENTS

The qualification includes a commitment to rigorous internal and external moderation as a quality assurance measure. Internal moderators must be registered and accredited by the BQA.

RECOGNITION OF PRIOR LEARNING

Recognition of Prior Learning (RPL) will be applicable for the award of this qualification. Evaluation of prior learning to meet qualification requirements will occur on a case-by-case basis, per regulations of individual Education and Training Provider (ETP) in accordance with its and international policies.

CREDIT ACCUMULATION AND TRANSFER

Credit Accumulation and Transfer will be applicable for the award of this qualification, on a case-by-case basis, per regulations of individual Education and Training Provider (ETP) in accordance with professional regulatory body policies.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

In terms of horizontal progression qualification holders can enroll in relevant Masters programme such as:

- Master of Science in Biomedical Sciences
- Master of Science in Clinical Epidemiology
- Master of Philosophy in Health Economics
- Master of Philosophy in Health Systems Management

In terms of further professional development qualification holders may enrol in subspecialty programmes (Diplomas or Certificates) in the field of Emergency Medicine:

- Paediatric Emergency Medicine
- Intensive Care Medicine
- Pre-hospital Emergency Medicine
- Emergency Imaging/Ultrasound.

In terms of vertical progression qualification holders can enrol PhD or Doctor of Medicine programmes in fields related to Emergency Medicine.

Employment pathways open to qualification holders include:

- Emergency Medicine specialist
- Medical academic
- Medical researcher
- Medical administrator
- Advisory capacities (e.g. medical boards, medical insurance, drug company or medical device boards)

QUALIFICATION AWARD AND CERTIFICATION

The qualification of Master of Medicine in Emergency Medicine and certificate may be awarded to candidates who have achieved a minimum of 640 credits, including obtaining a pass result for Master of Medicine Part I and Part II examinations, and have adhered to the rules of combination indicated above.

REGIONAL AND INTERNATIONAL COMPARABILITY

The qualification has been compared to the following two similar qualifications (both undergraduate medical progammes):

Regional:

- University of Pretoria, South Africa; Master of Medicine (Emergency Medicine), NQF level 9, 2082 SAQA credits, 4 years full-time.

- University of Free State, South Africa; Master of Medicine in Emergency Medicine, NQF Level 9, 480 SAQA Credits, 4 years full-time.

International:

- Royal College of Emergency Medicine, United Kingdom; Fellow of the Royal College of Emergency Medicine, UK Ofqual level 7, 6 years full-time.

Summary of similarities and differences observed

- The qualification of the University of Pretoria (NQF level 9) is virtually identical to the proposed Master of Medicine in emergency Medicine qualification for Botswana. Credits are calculated differently but the duration of the qualification is the same and the summative exams for both qualifications are conducted by the same institution, namely the College of Emergency Medicine of South Africa. Both qualifications develop specialist emergency physicians. The duration of training in both cases is the same – 4 years.
- The 6 year 'Fellowship' qualification of the Royal College of Emergency Medicine (UK Ofqual level 7) is also very similar to the Botswana Master of Medicine in Emergency Medicine in terms of exit outcomes but differs in the length of the qualification (6 years vs. 4 years). Both qualifications aim to produce highly competent specialist emergency physicians.
- Although the qualifications examined generally follow similar structures and standards there is a difference in the case of the Royal College of Emergency Medicine qualification, in terms of the required 2 year 'post-fellowship' training qualification which follows the Fellowship qualification, and 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 the proposed Botswana qualification, in common with the South African and British ones, aim to produce competent specialist emergency physicians there is little or no difference in the expected outcomes. The competencies resulting from the qualification 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 proposed qualification for Botswana is

that it will produce locally trained Batswana emergency physicians, to fill a critical gap in the nation's current health services.

A detailed comparison is given in the attached appendix.

REVIEW PERIOD

The qualification will be reviewed within 5 years of being registered on the NCQF, and thereafter every 5 years. This rule also holds for the Botswana Health Professions Council.