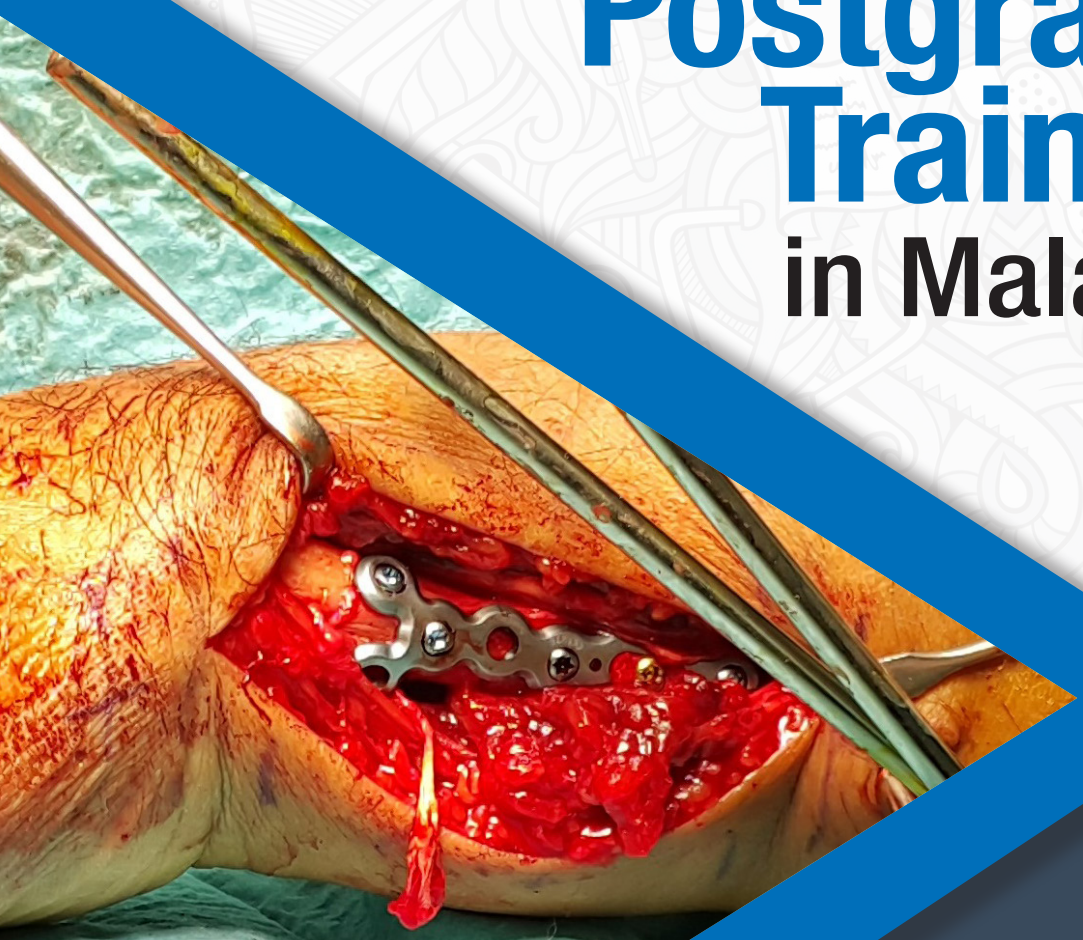
Orthopaedic Surgery Postgraduate Training in Malaysia



GUIDE FOR APPLICANTS

VERSION 1, 2020

Copyright

Published by:
Majlis Dekan Fakulti Perubatan Universiti Awam Malaysia
MERDU, Fakulti Perubatan, Universiti Malaya, 50603 Kuala Lumpur, Malaysia
npmcmy@gmail.com

First Publication, 2021

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Orthopaedic Surgery Postgraduate Training in Malaysia : GUIDE FOR APPLICANTS.
VERSION 1, 2020.
Mode of access: Internet
eISBN 978-967-19546-0-7
1. Medical education--Curricula--Malaysia.
2. Orthopedists--Training of.
3. Orthopedic surgery.
4. Orthopedics.
5. Government publications--Malaysia.
6. Electronic books.
610.7155

Acknowledgements

The steering group of the National Postgraduate Medical Curriculum Project would like to express their thanks to the following:

1. Professor Dr. Simon Frostick and Mr. David Pitts for the overall design of the curriculum templates, development of the Essential Learning Activities, editing of curriculum modules, consultation and coaching for writing groups.
2. Ministry of Higher Education for their funding support.
3. The Medical Development Division, Ministry of Health for their valuable support and practical insights.
4. Members of the Medical Deans Council for their unequivocal support for the project.
5. Members of Specialty/Conjoint Boards who have facilitated the work of individual specialties.

Table of Contents

Preface

What is this document?

This document is a guide for those applying to enter postgraduate training in Orthopaedics. It informs potential applicants of what will be required through a series of extracts from the National Postgraduate Orthopaedic Curriculum. The revised curriculum will be implemented after it is approved by the Malaysian Medical Council.

The National Postgraduate Medical Curriculum

The Orthopaedic curriculum is part of the National Postgraduate Medical Curriculum (NPMC) project and is a collaborative effort of the members of the Orthopaedic Specialty Committee (OSC). The OSC comprises Orthopaedic surgeons from the Ministry of Higher Education (MOHE), Ministry of Health (MOH), Malaysian Orthopaedic Association (MOA) and Academy of Medicine Malaysia (AMM).

There will be a single curriculum for training in Orthopaedics but trainees will have the option to either train through a degree programme and take the university examinations or to train entirely in Ministry of Health hospitals and take the Joint Surgical Fellowship Examination, an examination in development with the Royal College of Surgeons of Edinburgh. In some cases, trainees may choose to submit to both examinations.

The vision is of a unified training programme with a set of common standards for the whole country. The harmonisation of Orthopaedic specialist training aims to achieve high quality, effective and safe patient care in all hospitals throughout Malaysia.

The Writers

The process of developing the National Postgraduate Orthopaedic Curriculum, on which this guide is based, involved numerous clinicians who were appointed and supported by the Orthopaedic Specialty Committee. Throughout this project, there has been extensive consultation and a core team has transformed the results of those discussions into a structured written form. The core team of writers and contributors are acknowledged below. A full list of contributors can be found in the Appendix.

CHAIRMAN
Associate Prof. Dr. Kamarul Ariffin Khalid
IIUM

CORE WRITING TEAM
Dato' Dr. Mohammad Anwar Hau Abdullah
MOH – HRPZII
Professor Dr. Azlina Amir Abbas
UM
Dr. Sharifah Roohi Syed Waseem Ahmad
PHKL

CURRICULUM CONTRIBUTORS
Dato' Dr. Suresh Chopra
MOH – HSB
Dr. Teo Seow Hui
UM
Professor Datuk Dr. Sabarul Afian Mokhtar
UKM
Dr. Rizal Abdul Rani
UKM
Professor Dr. Abdul Razak Sulaiman
USM
Dr. Sahran Yahaya
USM
Professor Dr. Manohar Arumugam
UPM
Professor Dr. Chan Wai Hoong
UNIMAS
Dr Mohd Ashraff Mohd Ariff
PHKL

EXTERNAL EDITORS
Professor Simon Frostick
MA, DM,FRCS Eng, FRCS Ed, FFST Ed
International Curriculum Development Institute

Mr David Pitts
BSc. MCIPD
International Curriculum Development Institute

For glossary of hospital and institution acronyms, please refer to end of this guide

Introduction

Purpose of this guide

The purpose of this guide is to inform prospective applicants seeking a career in Orthopaedics, why someone would pursue a career in the field and what training entails. It summarises the key aspects of the Orthopaedic curriculum (entry requirements, process, training structure, assessments, some documentation and exit criteria) and provides a guide as to how to prepare and proceed with the application.

What is Orthopaedics?

Orthopaedics is a surgical specialty that focuses on injuries and diseases of the musculoskeletal system, which includes bones, joints, ligaments, tendons, muscles, relevant peripheral nerves, and the blood supply to them. The aim of treatment is to restore function and mobility following injury or after diseases such as osteoarthritis.

Size of the specialty

In 2018, there were an estimated 900 Orthopaedic surgeons in Malaysia, half of whom served in public hospitals and universities giving a ratio of 1 Orthopaedic surgeon per 40,000 population. Malaysia aims to be a developed nation by 2025, therefore the country will need to increase Orthopaedic surgeon numbers by at least 25% to meet the suggested World Health Organisation (WHO) ratio of 1:30,000.

Every year approximately 70 trainees are recruited into the specialty. They are placed at 30 accredited training centres throughout the country and trained by approximately 150 Orthopaedic trainers. Training in Orthopaedics is overseen by the Orthopaedic Specialty Committee or OSC (previously known as Conjoint Board of Orthopaedics - CBO) whose members are representatives from the universities offering postgraduate Orthopaedic training, Ministry of Health (MOH) Malaysia, Academy of Medicine Malaysia (AMM) and the Malaysian Orthopaedic Association (MOA). The majority of trainees are sponsored by the MOH or the universities. A small percentage are self-funded, most of whom are from overseas.

Unique features of Orthopaedics

Orthopaedics is a *practical, hands-on* specialty. Orthopaedic surgeons not only diagnose patients in clinics and Emergency Departments but also provide the care and surgical treatment that they need. This hands-on approach starts on day one and continues throughout Orthopaedic training.

Orthopaedics is *varied* in terms of the age, pathology and treatment modalities for each patient. Orthopaedic surgeons care for patients of all ages; new-borns with clubfeet, young athletes requiring arthroscopic surgery, the elderly with degenerative joint disease, and trauma patients of all ages suffering an almost infinite variety of injuries. They have to think and perform both as a surgeon and a physician to provide comprehensive care.

Orthopaedic surgeons use *implants and sophisticated instrumentation* in their practice. Using such devices to provide effective treatment requires a *commitment to ongoing knowledge and skills development,* often in collaboration with those who design and manufacture Orthopaedic tools.

Orthopaedics is at the *forefront of medical advances*. Regenerative medical therapies, neuro-prosthetics, robotic surgery and guided surgical equipment have all found their way into Orthopaedic practice. Widely accepted by surgeons and highly sought after by patients, these will inevitably revolutionise the way we practice and teach Orthopaedics.

Orthopaedic surgeons in Malaysia must assess their patients' needs in light of economic realities. The best treatment must be provided within the limitations of what public funding and the patient themselves can afford. *Creative and flexible thinking* is often a necessary component of clinical judgement when the cost of implants must be met by the patient who deserves the best possible care at a difficult time in their life.

Why choose Orthopaedics as a career?

Orthopaedics gives a unique opportunity to see the impact of treatment on function. Many patients respond to Orthopaedic treatment over a short time frame. Seeing a patient's improvement is extremely satisfying.

Orthopaedics rewards the investment a surgeon makes in developing high levels of skill. The trainee should seize every opportunity to enhance knowledge and improve surgical skills. Constant innovation in this technical discipline offers many opportunities for personal skills development, requiring a commitment to continuous learning and advancement of knowledge.

Orthopaedics allows the trainee to link scientific knowledge to clinical practice. The rate of technological change in Orthopaedics makes the impact of science and applied research very visible. A wide range of conditions (congenital conditions, musculoskeletal trauma, tumours, degenerative issues, occupational injuries, etc.) are now being treated with innovative solutions.

Is Orthopaedics for you?

Are you able to think on your feet and be flexible in managing patients in emergency situations? Do you have excellent hand-eye coordination to enable you to use the most basic to the most technologically advanced equipment? Can you see beyond the patient's injury to their recovery, rehabilitation and return to society? Do you have the ability to apply scientific theory to your practice in a rigorous and effective way?

If you have the above qualities, accompanied by passion and commitment, then Orthopaedics is for you!

1. The Orthopaedic Programme

Pathways

This curriculum utilises a single training programme via two pathways: the Ministry of Higher Education (MOHE)-University Pathway and the Parallel Pathway. This is to ensure standardisation in training from entry to exit for both options. It culminates in the OSC Exit Examination or the Joint Surgical Fellowship Examination (still under development) respectively as a means to qualify as an Orthopaedic Surgeon.

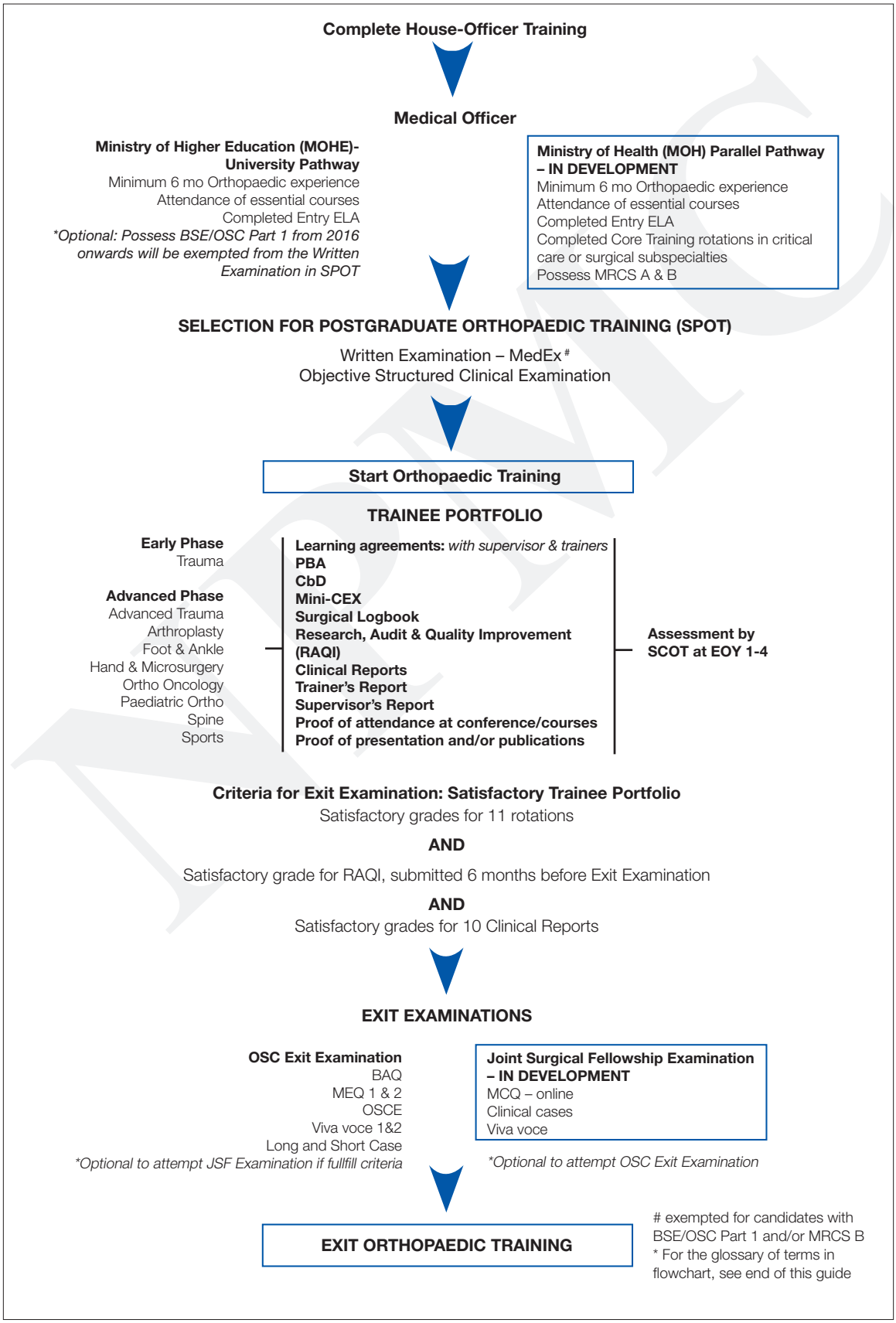
Phases of training

The Early Phase of training is in Year One. It is designed to build upon the basic knowledge and skills learnt prior to entry. This is an important phase where the trainee will build a foundation for future development. The emphasis in this phase will primarily be in the management of trauma patients. Trainees must complete this phase satisfactorily in order to progress to the next.

The Advanced Phase is from Years Two to Four. The three years of this phase require the trainee to develop increasing competence in the areas of trauma and elective Orthopaedic practice that will be required as a newly qualified specialist in a general hospital.

Figure 1 summarises the curriculum and the pathways.

Figure 1: Summary of Orthopaedic Training Curriculum



2. Entry requirements

Table 1 summarises the entry requirements for Orthopaedic training. The full or definitive version can be found in the curriculum document itself.

Table 1: Summary of Entry Requirements

Entry Requirement	MOHE-University Pathway	Parallel Pathway	Evidence on application
Medical Qualification recognised by the Malaysian Medical Council (MMC)	Yes	Yes	Certificate
Full registration with MMC or Medical Authority of country of origin	Yes	Yes	Full registration certificate and number Malaysian applicants: Annual Practicing Certificate (APC) International applicants: Letter of Good Standing
Clinical experience post full registration	**Minimum** 6 months of Orthopaedic experience	**Minimum** 6 months of Orthopaedic experience Completed Core Training rotations in critical care and/or surgical subspecialties Obtained MRCS A and B	MOH applicants: Buku Perkhidmatan (Service Records) Letter of verification from Orthopaedic HOD Letter of verification from the head of the respective departments Original certificates
Private applicants (Malaysian and Foreign)	Fulfil respective university requirements in terms of age and CGPA for basic medical degree. International applicants: English proficiency of minimum IELTS band 6 or TOEFL score 650	NA	Original Academic transcript International Applicants: English language proficiency certificate

(Continued)

Entry Requirement	MOHE-University Pathway	Parallel Pathway	Evidence on application
The evidence for the following requirements must be presented during Selection for Postgraduate Orthopaedic Training (SPOT)			
Essential Learning Activities (ELA)	Completed all entry ELA	Completed all entry ELA	Orthopaedic Logbook Ability to perform tasks outlined in entry ELA
Courses	Completion of courses in Orthopaedic and surgical-related skills	Completion of courses in Orthopaedic and surgical-related skills	Evidence of attendance/completion – certificate, letter or email

Essential Learning Activities (ELA)

It is essential that the trainees wishing to enter Orthopaedic training have had professional experience. The evidence that such experience has resulted in appropriate learning must be demonstrated through Essential Learning Activities (ELA).

"An ELA is the identification and description of a clinical task in such a way that the trainee is fully aware of the Knowledge, Skills and Attitudes needed to complete the task and the trainer is fully aware of what needs to be observed to deem the task completed to a professional level."

Frostick SPF, Pitts D.
Essential Learning Activities (ELA).
Residential Curriculum Workshop 2017.

In addition, a set of entry level ELA define activities that a trainee must be able to perform in a trustworthy manner on Day 1 of training. The ELA illustrate the level of knowledge, skills, attitudes and values that a trainee is expected to possess and highlight the desired positive and undesired negative or passive behaviours for this stage of training. Satisfactory demonstration of all ELA will be expected at entry.

The Entry ELA in Orthopaedics are:

a. Application of dynamic compression plate (DCP) to a simple long bone fracture.
b. Review and assessment of painful swollen extremities post trauma.
c. Fluid management in the injured patient.
d. Closed manipulative reduction and application of full length cast under sedation.
e. Initial assessment of patient with a possible acute musculoskeletal infection.
f. Debridement and suturing of a simple laceration wound under local anaesthesia.
g. Urgent assessment of patient with possible cervical spine injury.

Applicants for training in Orthopaedics may expect to be asked questions about their experience of the entry level ELA during the selection process. Any trainee who is not able to perform these procedures safely using accepted protocols will not be accepted into the programme.

An example is included below. The rest are included in the Appendix.

ENTRY ELA 1: Application of dynamic compression plate (DCP) to a simple long bone fracture

Activity	Application of dynamic compression plate (DCP) to a simple long bone fracture
Description (if necessary)	

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
DCP and their indications Bone biology and fracture healing Anatomy of long bones Surgical approaches for long bones	Able to choose a suitable plate Proper technique of instrument handling Achieve fracture reduction and good fixation Good soft tissue handling	Appreciates teamwork Knows personal limitation and when to call for help Responsible for actions and outcomes Keeps calm under stress
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	**Negative** Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Preoperative planning Correct plate choice Correct plate position Correct screw size and type	Inadequate / over drilling Wrong measurement of length Wrong screw choice Did not tap when required Use of power screw driver Plate alignment is off the bone	Did not reduce the fracture Forget to use saline flush (to reduce heat) during drilling
Assessment / Evidence		
Surgical Logbook Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Non-interactive OSCE, Interactive OSCE		

3. Entry Process

Eligible candidates (as determined by the criteria above) apply online either through MOH (government-MOH sponsored candidates) or to the university of their choice (private Malaysian and international candidates). Eligible candidates are called for an examination known as the Selection for Postgraduate Orthopaedic Training (SPOT), following which they are informed by MOH and the university respectively of the outcome of their application. SPOT is organised by the Orthopaedic Specialty Committee (OSC) whose members are appointed from the universities and MOH.

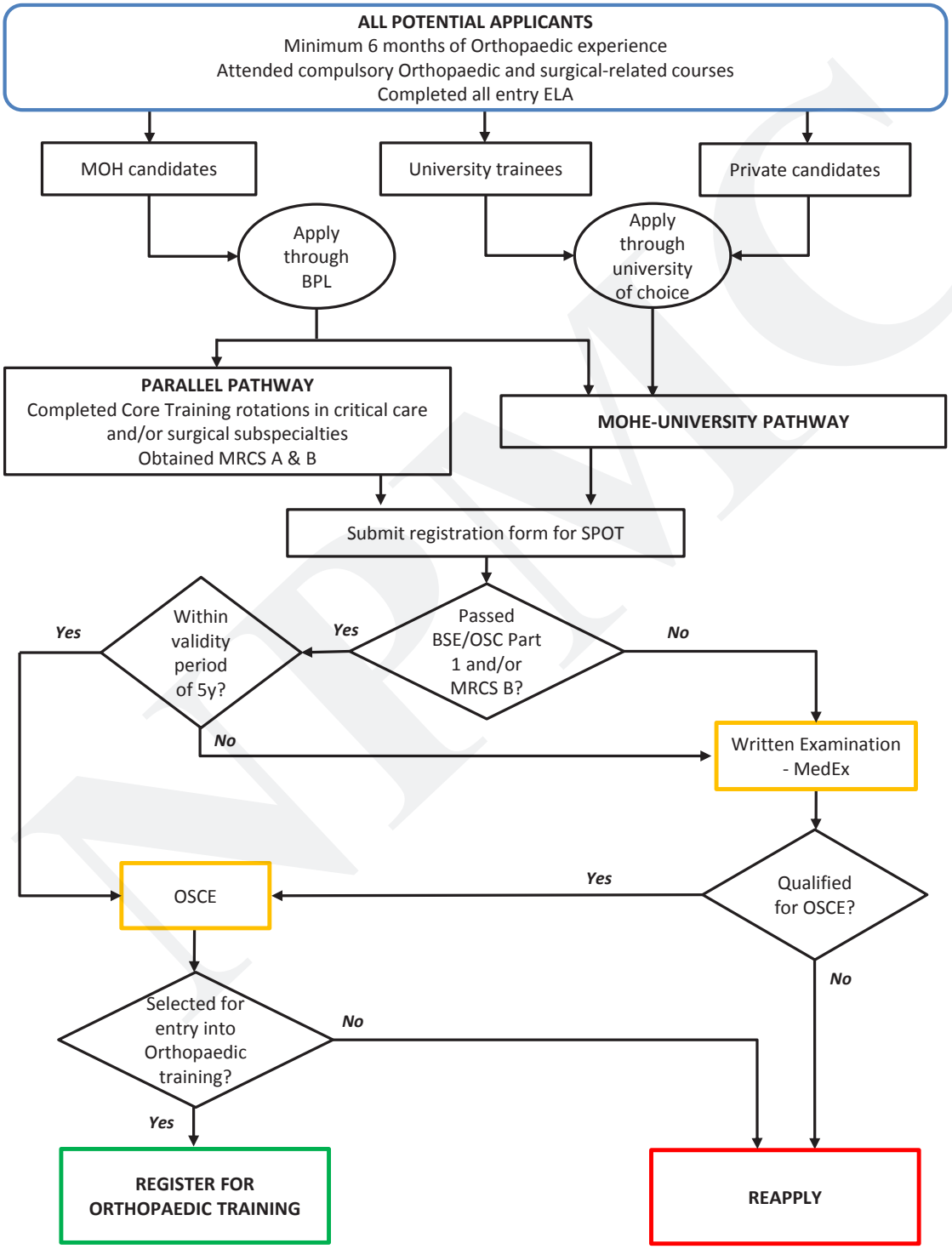
The timelines are summarised in the table below:

Table 2: Timelines for Entry Process

Activity	Timeline
Application to universities (for university and private candidates)	All Year-round
Application to Bahagian Perkembangan Latihan (BPL) for all MOH candidates	July-August
Register for Selection for Postgraduate Orthopaedic Training (SPOT) – ALL candidates with or without BSE/OSC Part 1, MRCS B	September
Register for Written Examination (WE)-MedEx*	As per MedEx website
WE-MedEx	As per MedEx website
List of applicants from BPL/MOH and universities forwarded to OSC	October-November
Invitation letters for OSCE will be sent to shortlisted and eligible candidates*	December
OSCE	January
Notification of acceptance into postgraduate Orthopaedic training	May

** Candidates with BSE/OSC Part 1 and/or MRCS B will be exempted from WE-MedEx and will be given invitation to attend OSCE*

Figure 2: Summary of Entry Process



4. Syllabus

The Syllabus defines what will be taught or learned throughout training in Orthopaedics. It is an outline of topics and the levels which must be achieved by the trainee in each phase of the programme. The syllabus helps to set expectations for both trainer and trainee about what should be achieved during a rotation. It describes four key aspects of what must be learned:

1. Knowledge of conditions, procedures and principles underpinning the practice of Orthopaedic surgery in Malaysia.
2. Competencies that must be demonstrated by a trainee before the end of the programme in specific procedures identified as essential in each sub-specialty.
3. Expectations for the level of knowledge and skills that should be attained prior to entering sub-specialty level training.
4. Attitudes and values that must be demonstrated by a general Orthopaedic surgeon practising in Malaysia.

There is a core syllabus that the trainee needs to be proficient in. It covers topics in anatomy, physiology, pathology, microbiology, imaging, rehabilitation, pharmacology, biomechanics and biomaterials. These provide the foundation of knowledge for Orthopaedics in general. As trainees advance through the programme, they are exposed to the various Orthopaedic sub-specialties, whilst still expected to increase their proficiency in general Orthopaedics.

There are 8 subspecialties listed in the syllabus. In hospitals around Malaysia, there may be some overlaps or exclusions. The curriculum provides guidance on the rotations that the trainee goes through, which may differ from training centre to training centre. It is the responsibility of the trainee to ensure that they reach the knowledge and skills that are appropriate for their level of training as outlined in the syllabus.

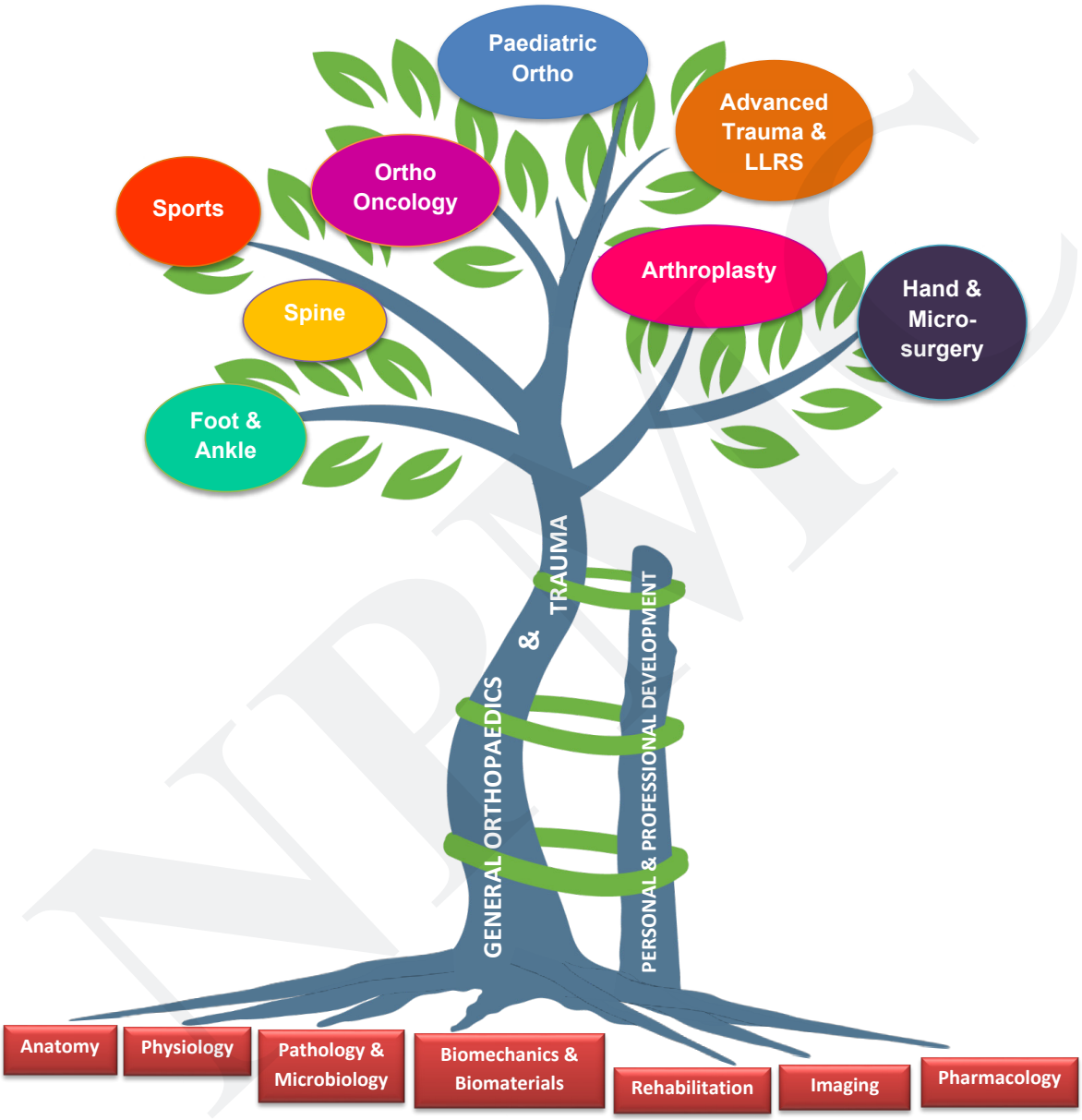
Personal and professional development ensures trainees achieve a high level of integrity and exhibit sound values throughout the programme and their career. This is an integral aspect of independent practice as an Orthopaedic surgeon. The acquired values are fundamental to ensuring trust between the public and health care professionals.

All trainees are expected to undertake a project in order to be proficient in audit and research. The aim is for all Malaysian specialists to have a basic understanding of medical research, and able to critically analyse medical literature.

It would be expected that trainees achieve proficiency in all the areas defined above, however learning should extend beyond the syllabus. Opportunities to learn and develop in other fields are encouraged.

This diagram portays an outline of core topics in Orthopaedics and how they are linked.

Figure 3: The Orthopaedic Tree of Knowledge



5. Assessment tools

Orthopaedics is a specialty in which there is a large component of practical skill (the use of tools and techniques to perform surgical procedures) as well as cognitive and communication skills. The assessment strategy in Orthopaedics has three primary functions:

1. To encourage and monitor learning through formative (workplace) tools.
2. To evaluate whether the trainee is ready to progress through the programme via summative tools.
3. To generate and evaluate evidence that the trainee is able to care for patients in a safe and effective way as a specialist.

Table 3 summarises the assessment tools and events used in the curriculum.

Table 3: Summary of Assessment Tools & Events

Assessment tools	Assessment events
Learning agreement and review reports	**Learning Agreement and review meetings**
Goal setting and Record of progress in a placement Trainer's Report Supervisor's Report	Preview / Review: Start of training, 4 monthly, end of year, end of training Placement: start of placement, mid placement, end of placement
Workplace assessments	
Procedure Based Assessment (PBA) Clinical Evaluation Exercise (Mini-CEX) Case-based Discussions (CbD)	Procedure Based Assessments conducted in operating room Mini-CEX conducted in clinic Case-based Discussion – clinic, MDT etc.
Reflective notes	
Incidents Successes and failures Courses and teaching sessions Presentations given	Events throughout training
Research/audit project	
Clinical Reports Research/audit/QI report	Throughout training Submitted in 4th year
Exit examination	
OSC Exit Examination • Modified Essay Question (MEQ) • Best Answer Question (BAQ) • Objective Structured Clinical Examination (OSCE) • Viva voce 1 & 2 • Clinical Long and Short Cases	MOHE-University Pathway examination at the end of the 4th year
Joint Surgical Fellowship (JSF) Examination • MCQ – online • Clinical cases • Viva voce	Parallel Pathway examination 4th/5th year

(Continued)

Assessment tools	Assessment events
Trainee Portfolio	
• Logbook of operative experience • Learning Agreement Records • Workplace assessment records • Supervisor and Trainer Reports • Reflective notes • Records of attendance at courses/conferences • Records of presentations • Publications / Presentations	Acquired over the 4 years of training

6. Appendices

Authors

ADVISORS	
Professor Dato' Dr. Adeeba Kamarulzaman	MOE
Dato' Sri Dr. Premchandran PS Menon	MOH

CHAIRMAN	
Associate Prof. Dr. Kamarul Ariffin Khalid	IIUM

CORE WRITING TEAM	
Dato' Dr. Mohammad Anwar Hau Abdullah	MOH – HRPZII
Professor Dr. Azlina Amir Abbas	UM
Dr. Sharifah Roohi Syed Waseem Ahmad	PHKL

CURRICULUM CONTRIBUTORS	
Dr. Teo Seow Hui	UM
Professor Datuk Dr. Sabarul Afian Mokhtar	UKM
Dr. Rizal Abdul Rani	UKM
Dr. Sahran Yahaya	USM
Dr. Imma Isniza Ismail	UPM
Professor Dr. Chan Wai Hoong	UNIMAS
Dr. Mohd Fairuz Suhaimi	UiTM
Professor Dr. Christina Tan Phoay Lay	UM

SELECTION FOR POSTGRADUATE ORTHOPAEDIC TRAINING (SPOT) ORGANISERS	
Professor Dr. Azlina Amir Abbas	UM
Dr. Gurmeet Singh A/L Dewa Singh	MOH – HPP
Dr. Mohd Azrin B. Shahul Hamid	MOH – HSelayang
Dr. Teo Seow Hui	UM
Dr. Rizal Abdul Rani	UKM
Dr. Sahran Yahaya	USM
Asst. Prof. Dr. Mohd. Adham Shah Bin Ayeop	IIUM
Dr. Ashraf Hakim	UPM
Dr. Imma Isniza Ismail	UPM
Dr. Mohd Fairuz Suhaimi	UiTM
Dr. Norsaidatul Nadriah Ahmad Shuhiamy	UiTM
Pn Sharifah Mazni binti Samsuddin	UM

EARLY CURRICULUM CONTRIBUTORS	
Dato' Dr. Suresh Chopra	MOH – HSB
Associate Prof. Dr. Chan Chee Ken	UM
Professor Dr. Abdul Razak Sulaiman	USM
Professor Dr. Manohar Arumugam	UPM
Dr Nik Mohd Fatmy Nik Mohd Najmi	IIUM
Dr Mohd Ashraff Mohd Ariff	PHKL

The curriculum writing committee would also like to acknowledge the support and constructive feedback from the members of:

- Academy of Medicine Malaysia
- Malaysian Orthopaedic Association
- Ministry of Health Medical Development Division and Subspecialty Committee
- Orthopaedic Specialty Committee
- Orthopaedic subspecialty interest groups, societies and associations
- Other specialty writing groups

Essential Learning Activities

ENTRY ELA 2: Review & Assessment of painful swollen extremities post trauma

Activity	Review & Assessment of painful swollen extremities post trauma
Description (if necessary)	Compartment syndrome, deep vein thrombosis

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
Anatomy of normal extremities including surface anatomy of peripheral neuro-vascular system. Radiographic features of normal extremities Causes of a painful swollen extremity	Able to obtain a relevant history and recognize symptoms Perform peripheral neurovascular examination Effective communication with patient and colleague Utilization of appropriate immobilisation methods	Recognize personal limitations and willing to call for help Perform well under pressure Able to prioritize well Early (and frequent) communication with colleagues, paramedics and other teams
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	**Negative** Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Requests appropriate imaging Thorough assessment of extremities Establish a clear line of communication Use of handheld Doppler Ultrasound Pulse oxymetry monitoring Able to measure compartment pressure when required	Failure to take an adequate history Poor documentation Poor follow-up in ward Unable to appreciate an abnormal peripheral pulse Rely solely on pulse oxymetry for monitoring	Failure to recognize an Orthopaedic emergency condition Failure to order appropriate blood test Inadequate pain management Did not perform frequent serial assessment
Assessment / Evidence		
Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Interactive OSCE		

ENTRY ELA 3: Fluid management in the injured patient.

Activity	Fluid management in the injured patient
Description (if necessary)	

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
Principles of fluid resuscitation Use of blood products Cardiovascular and respiratory physiology Pathophysiology of hypovolaemic shock Stress response to injury	Good trauma and life support skills Able to interpret vital signs and stage hypovolaemic shock well Insertion of large bore cannula including venous cut down Assessment of cardiovascular and respiratory systems Application of central venous pressure monitoring CBD insertion	Good communication with other disciplines Good teamwork and clear line of communication Keeps patient and relatives updated Able to handle difficult situations / people Recognize personal limitations and willing to call for help Self-reflection
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	**Negative** Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Initiate early resuscitation Orders correct fluid / blood products and checks before giving Looks for massive blood transfusion complications Apply compression dressing appropriately	Inadequate intravenous access Did not check for source of haemorrhage Inform senior colleagues late or did not call for help Use of crystalloids only for fluid resuscitation Non judicious use of pelvic binder	Failed to identify a non-orthopaedic cause of shock Did not perform secondary survey
Assessment / Evidence		
Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Interactive OSCE		

ENTRY ELA 4: Closed manipulative reduction and application of full length cast under sedation

Activity	Closed manipulative reduction and application of full length cast under sedation
Description (if necessary)	Upper limb or lower limb, closed fracture treated conservatively, adults

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
Cast materials and properties Biomechanics of casting Complications of casting Treatment of Closed fractures Type of Fractures Criteria for acceptable reduction Pharmacology of drugs and antidotes used for sedation	Good technique of CMR and cast application Taking informed consent Respond to cardio respiratory emergency Interpretation of pre and post CMR radiographic images	Good teamwork throughout the activity Recognize personal limitations Taking responsibility for actions Responsive to patients' discomfort Good communication with patient and relatives
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	**Negative** Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Use appropriate size and length of cast Apply the cast without tension Proper padding underneath cast Vital signs monitoring continuously Proper POP care advice	Giving too much sedation Not giving analgesia Leaving deep finger indentations on POP Poor reduction and wrong position of limb Inadequate cast strength/ thickness	Antidote and resuscitation precaution not readily available Did not achieve 3-point fixation where needed Did not tidy up after Did not highlight the potential complications of casting to patient when giving follow-up advice/appointment
Assessment / Evidence		
Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Non-interactive OSCE, Interactive OSCE		

ENTRY ELA 5: Initial assessment of patient with a possible acute musculoskeletal infection

Activity	Initial assessment of patient with a possible acute musculoskeletal infection
Description (if necessary)	Extensive infection of musculoskeletal tissues that requires emergency management

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
Anatomy of soft tissues layers and compartments Clinical features and complications of: • Cellulitis • Abscess • Acute osteomyelitis • Septic arthritis • Necrotising soft tissue infection (NSTI) Conditions mimicking infections (acute gouty arthritis, charcot joint, etc) Pathophysiology of septic shock Common causative organisms	Perform detailed history taking Examine patient's general condition Perform clinical examination to elicit relevant signs of infection such as: • Palpate for crepitations • Pain in relation to passive joint motion Interpret relevant investigations	Effective communication with relevant parties Recognize personal limitations and willing to call for help Able to prioritise well
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	**Negative** Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Marks out erythematous (inflammatory) outline on skin Initiate appropriate emergency intervention when necessary Frequent serial examinations	Giving antibiotics without obtaining samples for culture & sensitivity	Inappropriate use of analgesic No objective pain assessment
Assessment / Evidence		
Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Non-interactive OSCE, Interactive OSCE		

ENTRY ELA 6: Debridement & Suturing of a simple laceration wound under local anaesthesia

Activity	Debridement and suturing of a simple laceration wound under local anaesthesia
Description (if necessary)	

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
Anatomy of skin and peripheral nerves Types of wounds Types of sutures and needles Principles of debridement Wound healing • Pathophysiology • Factors contributing to complications • Pharmacology of local • anaesthetic agents	Cleaning and draping Able to recognize devitalized tissue Meticulous tissue handling Good debridement technique Secure haemostasis Proper suture placement Proper knot tying techniques Appropriate dressing Able to perform basic local blocks	Meticulous surgical technique Explains well to patients and relatives
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	**Negative** Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Use of appropriate cleansing solutions and dressing materials Universal precautions Aseptic technique Ensure appropriate anaesthesia	Injection of anaesthetic agent into blood vessel Did not excise necrotic tissue Excised vital structures that should be preserved/protected Poor soft tissue handling technique Wrong choice of suture material or needle Wrong suturing technique	Did not prescribe antibiotics / analgesics appropriately Initiates surgery immediately after administration of local anaesthetic Placing sutures too close to each other
Assessment / Evidence		
Surgical Logbook Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Non-interactive OSCE, Interactive OSCE		

ENTRY ELA 7: Urgent assessment of patient with possible cervical spine injury

Activity	Urgent assessment of patient with possible cervical spine injury
Description (if necessary)	

All items on the table below are examples, they do not constitute an exhaustive list in any aspect

Knowledge Know, Facts, Information	**Skill** Do, Practical, Psychomotor, Techniques	**Attitudes + Values** Feel, behaviours displaying underlying values or emotions
Anatomy and radiographic features of normal and injured cervical spine Resuscitation of cervical spine injured patient Neurological assessment Emergency management of cervical injured patient	Requests appropriate imaging Utilization of appropriate immobilization technique Perform neurological examination Effective communication with patient and colleague Able to prioritize well	Highly values teamwork Recognises personal limitations Takes responsibility Works well under pressure
Example Behaviours		
Positive Things that should be done, correct techniques or practices, things a trainee might do right	Negative Things that should not be done, incorrect techniques or practices, things a trainee might do wrong	**Negative Passive (Omitted)** Things that may be forgotten or omitted that constitute incorrect or substandard patient care, things a trainee might forget to do
Correctly applied hard collar using appropriate size Proper head control of patient with/without spinal board during transfer Review vital signs frequently Frequent neurological assessment Frequent clear and precise communication	Failed to identify inaccuracy in imaging Does not inform senior colleague early	Failed to perform bulbocavernosus reflex Does not insert CBD Failure to recognize neurogenic shock Failed to keep good record
Assessment / Evidence		
Selection for Postgraduate Orthopaedic Training assessments – Written Examination, Non-interactive OSCE, Interactive OSCE		

Glossary of Terms

AMM	Academy of Medicine Malaysia
BAQ	Best Answer Question
BPL	Bahagian Perkembangan Latihan (Training Management Division)
BSE	Basic Surgical Examination
CbD	Case-based Discussion
CBO	Conjoint Board of Orthopaedics
ELA	Essential Learning Activities
EOY	End of Year
HSI	Hospital Sultan Ismail
HPP	Hospital Pulau Pinang
HRPZII	Hospital Raja Perempuan Zainab II
HSB	Hospital Sultanah Bahiyah
IELTS	International English Language Testing System
IIUM	International Islamic University Malaysia
JSF	Joint Surgical Fellowship
MedEx	Medical Specialist Pre-Entrance Examination
MEQ	Modified Essay Question
Mini-CEX	Mini-Clinical Examination
MMC	Malaysian Medical Council
MOA	Malaysian Orthopaedic Association
MOE	Ministry of Education
MOH	Ministry of Health
MRCS	Membership of the Royal College of Surgeons
NPMC	National Postgraduate Medical Curriculum
NPOC	National Postgraduate Orthopaedic Curriculum
OSC	Orthopaedic Specialty Committee
OSCE	Objective Structured Clinical Examination
PBA	Procedure-Based Assessment
PHKL	Pantai Hospital Kuala Lumpur
SCOT	Sub-Committee for Orthopaedic Training
SPOT	Selection for Postgraduate Orthopaedic Training
TOEFL	Test of English as a Foreign Language
WE	Written Examination
UKM	Universiti Kebangsaan Malaysia
UM	University of Malaya
UNIMAS	Universiti Malaysia Sarawak
UPM	Universiti Putra Malaysia
USM	Universiti Sains Malaysia

Contact

National Postgraduate Medical Curriculum
npmcmy@gmail.com

e ISBN 978-967-19546-0-7

9 789671 954607