



Palestine Medical Council Surgical Board

Exams Manual in General Surgery

September 2016



USAID
FROM THE AMERICAN PEOPLE

جذور للإتعاا والصء والاأناعاا
Juzoor for Health & Social Development



IntraHealth
INTERNATIONAL
Because Health Workers Save Lives.



Table of Contents

Preface.....	3
Background.....	4
Acknowledgements.....	5
Introduction to the Manual.....	6
Section 1: Instructions for Candidates.....	7 – 13
Section 2: Instructions for Examiners.....	14 - 20
Appendices :	
- Appendix 1: Blue-printing list.....	
- Appendix 2: JCIE question writing checklist.....	
- Appendix 3: JCIE Single best answer guidelines.....	
- Appendix 4: A proforma for new questions.....	
-Appendix 5: Examples of MCQ.....	

PREFACE

The pages that follow represent the combined efforts, commitment and dedication of a group of professionals to review and revise the Palestinian Residency Training Board Exam. The overall aim of this endeavor is to raise standards in post-graduate medical education board exam on a national level and meet the health needs of the population as relates to the specialty.

These efforts have been supported by the Palestinian Health Capacity Project (PHCP), funded by USAID and implemented by IntraHealth International and Juzoor for Health and Social Development.

The aims of this Manual are

- 1) to provide standards how to set the board exam
- 2) to provide instructions for candidates under the Palestinian National Residency Programme
- 3) to provide instructions for examiners under the Palestinian National Residency Programme.

It is hoped that the enclosed information will enhance the uniformity and standardization of post-graduate medical education exam, according to evidence-based standards and practices, and ultimately contribute to improving the quality of care provided to Palestinian patients.

BACKGROUND

The Palestinian national residency programme began in 2008 under the auspices of the Palestine Medical Council (PMC). Prior to the establishment of the national programme, three Palestinian hospitals were accredited by the Jordanian Medical Council (JMC) as training centers. Al Makassed Hospital in Jerusalem was the only center with a fully accredited residency in General Surgery for all training years, having held accreditation from the (JMC) since 1988. Physicians were eligible to obtain partial specialty recognition from the JMC for time spent in service at select West Bank hospitals, according to a system of 1 year of specialty recognition for 2 years of service in a surgical unit, up to a maximum of two years. The remaining years of specialty training needed to be completed in a fully recognized facility in either Jordan or in Al Makassed, in addition to successful completion of the Jordanian Board exam. The system of recognition by the JMC for training undertaken at Al Makassed or in select West Bank hospitals continued until 2008.

The Palestine Medical Council was formed in 1996 and its status as an independent scientific medical body was established by the Palestinian Legislative Council in Law Number (1) in the year 2006. The PMC offered the first Palestinian Board exam in November 2001 for six medical specialties and has offered exams in several specialties on a regular basis since then. The Council has the authority to arrange Board examinations to certify physicians in all specialties and sub-specialties, even those not offered in local residency programmes. Law Number (1) established the authority of the PMC to (among other powers) set criteria for specialty medical training and be the sole body to certify physicians as specialists (this applied from 2006 onwards and did not change the status of specialists recognized prior to then by either the PMC or the JMC). Certification by the PMC is a basic requirement of specialist physician licensing.

In establishing the national residency programmes, the PMC adopted the Arab Board of Health Specializations' accreditation criteria. The Arab Board outlines the overall aims of residency training. It also provides guidance on a variety of scientific and administrative issues such examination and evaluation, scientific references, and accreditation principles for hospital training centers and requirements of programme directors.

The below manual is intended to provide Palestine Medical Council examiners with detailed instructions to assist in the setting of the Palestinian Residency Training programme exam questions, and clear instructions and information for the candidates about PMC board exam methodology.

ACKNOWLEDGEMENTS

This Manual could not have been developed without valuable contributions from several health professionals and experts who gave of their precious time and expertise.

The following individuals are hereby acknowledged for significant contribution to the preparation, writing and review of this Manual:

- His Excellency Dr. Jawad Awad, Minister of Health, for his overall leadership of the health sector and commitment to improving the health of all Palestinians
- Dr. Suleiman Barqawi, Secretary General of the Palestine Medical Council, for his unfailing support and active engagement at all stages
- Dr. Ameen Thalji, Head of the higher scientific committee at the Palestine Medical Council, for his support in reviewing and approving the Manual.
- Dr. Mohammad Luai Al-Mubaied, Consultant, Head of General Surgery Scientific committee at PMC, for his significant contributions in reviewing the Manual
- Dr. Fahmi Jubran, Consultant, Head of Palestinian Surgeons' Society, for his significant contributions in reviewing the Manual
- Dr. Ruth McKee, Consultant, for her significant contributions in developing the Manual
- Dr. Salwa Najjab, Executive Director, Juzoor for Health and Social Development
- Dr. Umaiye Khamash, Senior Technical Advisor, Juzoor for Health and Social Development
- Ms. Maha Khatib, Technical Specialist Education and Credentialing, PHCP / Juzoor
- Ms. Dina Nasser, Technical Advisor, Juzoor for Health and Social Development

Introduction to this Manual:

Two sections are included: for candidates, and for examiners.

The candidates' section describes the aim of the board exam, the classification of the exam (2 parts), general instructions and regulations, practical arrangements, part one exam description, and part two exam description.

The examiners' section describes the current exam (written exam, and OSCE) plans for the future, MCQ questions guidelines.

The users of this document are applicants for specialty board exam, and the examiners.

The examiners should be thoroughly familiar with the manual in order to meet the standards of setting board exams.

The Palestine Medical Council and scientific committees will find this manual useful to further develop and set the questions and methods for the board exams. Other disciplines may find this manual useful as a model for adaptation in other specialties as well.

Section one

PMC General Surgery Residency Board Exam Methodology

Instructions for Candidates

Section one: PMC General Surgery Residency Board Exam Methodology

Instructions for Candidates

Aim of the exam

This exam has two parts, with the aim that the both parts should be completed successfully to confirm a candidate's ability to practice general surgery independently within Palestinian Territories.

Part 1 focuses on basic science. This is taken after successful completion of first year of the residency program and success in this exam is essential for progression to year 3.

Part 2 consists of a multiple choice exam and a clinical exam in the form of verbal interview with committee members for 60 minutes divided into 3 equal parts:

- a- Clinical case
- b- Operative skills (virtual scenario)
- c- Surgical diseases and principles

This is taken after satisfactory completion of all five years of the residency program.

General instructions for both parts

Dates

There are two sittings per year, held in the Palestine Medical Council offices in Ramallah. Dates are confirmed 2 months before each sitting. Deadlines for application are published on the PMC website and local newspapers. <http://www.pmc.ps>

Availability of places

All eligible candidates can sit for exam.

Application and deadlines

Applications should be made on-line at least one month before the exam.

Candidates for each part will require producing evidence of eligibility in the form of

- a) A medical degree accepted by the PMC for registration

- b) Approval for exam application by Consultant trainer , Head of the department, and PMC Surgical committee
- c) Applications must be accompanied by the appropriate fee
- d) Deadlines for application will be published on PMC website and local newspapers.

Special arrangements

The Palestine Medical Council is committed to equality and fairness in the exam system. Special arrangements can be made for candidates with disabilities on a case by case basis with the aim that there is equal access to the exam but no unfair advantage is produced. The need for special arrangements for long term disability eg hearing or speech impediment, dyslexia must be intimated at the time of application. Unexpected disability eg injury will be considered on an individual basis but must be intimated as soon as possible.

Withdrawing

Candidates who wish to withdraw from a sitting of the exam should apply to PMC before deadline, stating the reason for withdrawal.

Financial penalty unless certified illness or permit issues.

Applications cannot be automatically carried forward to the next sitting unless there has been certified illness or a permit issue

Practical arrangements

Candidates should assemble at the Palestine Medical Council offices one hour before the start time of the exam.

Proof of ID in the form of ID card or passport will be required and checked before entry to the exam hall.

Candidates who arrive later than 30 minutes after the start of the exam cannot be permitted to enter the exam hall and sit the exam. No extra time to complete the exam will be permitted for late arrivals.

All candidates are required to follow the instructions of the invigilators before and during the exam. Bags and coats should be left outside the exam hall as instructed. No mobile communication devices of any kind are permitted in the exam hall.

Candidates should enter the exam hall and take their places as instructed before the exam. They are not permitted to start until the invigilator has given the signal to do so. When the invigilator signals that time is up, they must stop completing answers and follow instructions to leave the hall.

During the exam, communication with other candidates or any person outside the exam hall is not permitted. A candidate may ask permission for a toilet break and water will be available for candidates during the exam.

A candidate may not leave the exam hall in the first hour.

Any problems in the running of the exam which are perceived by the candidate should be reported to the invigilator at the time or to the PMC in writing within 3 days.

Marking

There will be no negative marking for wrong answers. MCQ paper marking will be automated. All results will be scrutinized by the PMC Surgical Board before publication.

Results

Results will be sent by email to each candidate and published on-line

Appeals

Appeals against the examiners' decision should be submitted to PMC personally and in writing.

Part 1

Entry criteria

See above for general criteria. Candidates for Part 1 must have completed Year 1 of the surgical training program and progressed to year 2. This must be certified by Consultant trainer and Head of the department,

Exam

Part 1 consists of 100 single best answer questions. Candidates will be presented with these questions via an electronic system on the secure intra-net at the PMC. Each question consists of a single stem (often a clinical scenario), a question and then a series of alternative answers, one

of which is correct. There may be some aspects of the alternative answers which are partly correct but one answer should be clearly superior.

The time allotted will be two and half hours.

This exam covers Basic Sciences. The first five sections of the Palestinian General Surgery syllabus (reference) cover Basic Sciences – Anatomy, Physiology, Pharmacology, Pathology, Microbiology. The other sections might be included to some extent in the application of these Basic Sciences.

Part 2

Entry criteria

See above for general criteria. Candidates for Part 2 must have completed all five years of the general surgery residency program to a satisfactory level. This must be certified by Consultant trainer, Head of the department and the surgical committee of the PMC.

Exam

Part 2 consists of a verbal interview with committee members for 60 minutes divided into 3 equal parts:

- a- Clinical case
- b- Operative skills (virtual scenario)
- c- Surgical diseases and principles

This is taken after satisfactory completion of all five years of the residency program.

This exam covers all areas of the Palestinian General Surgery syllabus (reference)

Example MCQ

A patient is undergoing surgery for an advanced carcinoma of the sigmoid colon. On CT scan the lesion is invading the mesentery and retroperitoneum in the left paracolic gutter. A radical resection is planned. Which significant structure is most at risk during the mobilisation phase of the operation?

- A.The aorta
- B.The left ureter
- C.The left gonadal vessels
- D.The inferior vena cava

The left ureter is the most concerning structure. The aorta is unlikely to be involved without complete fixation and irresectability of the tumour. The left gonadal vessels may be at risk but can be ligated and divided above and below the tumour without significant long term effects. The inferior vena cava lies on the right side of the retroperitoneum. Accidental and unidentified damage to the left ureter is the greatest concern, and might lead to post -operative sepsis and urinary leakage if damaged or divided or obstructed left kidney with obstructive nephropathy if inadvertently ligated.

Section Two
PMC General Surgery Residency Board Exam
Instructions for Examiners

PMC General Surgery Residency Board Exam Instructions for Examiners

The current exam

At present the PMC surgical board exam has two parts:

Part 1 general surgery consists of 100 MCQ about basic sciences. This is taken in year 2 of the residency program and success in this exam is essential for progression to year 3.

Part 2 general surgery consists of

- a) 100 MCQ on clinical surgery and applied basic sciences
- b) Clinical exam in the form of a verbal interview with committee members for 60 minutes divided into 3 equal parts:
 - 1- Clinical case
 - 2- Operative skills (virtual scenario)
 - 3- Surgical diseases and principles

This is taken after satisfactory completion of all five years of the residency programme.

There are two sittings per year of each level. Usually there are around 15 candidates per exam.

Current MCQ exams

The MCQ exams are held in the PMC office which has a well- organized intranet exam system, with a data manager for this system. The system is used for all Palestinian post-graduate exams in medicine.

The PMC offices include a large computer lab with 40 spaces for MCQ exams. The candidate enters a personal number to gain access to the questions. The on line system shows each question, allows an answer which can be changed and also demonstrates the questions which have already been answered and the elapsed time. A calculator is provided. The database controller can see a live output of which candidates have completed all/number of questions and can change the time allowance during the exam.

At present the MCQs are chosen by scientific committee each time with 60-80% new questions each time composed by members of the committee, who are asked to supply questions on a topic eg anatomy. There is no fixed number of answer options and no vetting of questions before use. After use, questions are categorized as easy/moderate/difficult depending on the percentage of candidates giving correct answers (75%/50-75%/>75%).

The MCQ database is run on an intranet system collecting the following data for each question

- 1.Question number
- 2.Question text
- 3.Status – draft or published (admin check only, no clinical quality control)
- 4.Created date
- 5.Latest date of use
- 6.Number of times used
- 7.Question type (Part 1 or 2)
- 8.Specialty
- 9.%correct answers in total
- 10.Enabled/disabled (can be disabled if thought unsuitable eg no candidates answered)

It would be possible to add further categories to enable blueprinting of each exam to the syllabus.

It is possible to add photos or video to the questions.

At present there are 322 questions in Part 1 bank and 497 questions in Part 2 bank.

The pass mark is a fixed mark, usually 60%. If it seems that the pass rate is very low this may be modified, usually by deleting questions which have no correct answers or have not been answered by anyone.

Objective Structured Clinical Exam (OSCE)

The objective structured clinical examination (OSCE) was introduced over 30 years ago as a reliable approach to assessing basic clinical skills. It is a flexible test format based on a circuit of patient based “stations.”

At each station, trainees interact with a patient or a “standardised patient” to demonstrate specified skills. Standardised patients are lay people trained to present patient problems realistically. The validity of interactions with real patients, however, may be higher than that with standardised patients. OSCE stations may be short or long (5-30 minutes). There may be as few as eight stations or more than 20. Scoring is done with a task specific checklist or a combination of checklist and rating scale.

The content of an OSCE should always be linked to the curriculum, as this link is essential for validity.

The PMC has decided to use the OSCE as a method of testing in the year 2017 for the postgraduate medical Palestine Board Examination. The OSCE component of this manual will therefore be annexed to this manual at the end of 2017

Examiners

On informal enquiry, the surgical board team feels they have enough examiners – these include the surgical committee + invitees from Palestinian territories.

No specific training is provided but some examiners also examine on the surgical board of the Arab Board of Medical Specializations.

Number and arrangement of Examiners is to be determined after OSCE implementation.

Plans for the future

It is hoped to improve the MCQ question bank both in quantity and quality of questions and to ensure that these questions are blueprinted to the new syllabus.

It is acknowledged that changing to an OSCE type of exam would be an improvement on the current viva and cases exam, which represents a significant body of work in development.

A change to an OSCE form of exam will necessitate training of the examiners.

The aim of this manual is to assist the surgical committee of the Palestinian Medical Council to achieve these changes

MCQ examinations

Well written multiple choice questions are acknowledged to be a reliable, valid and efficient means of assessment in the medical disciplines and are widely used.

MCQ exams enable broad coverage of a syllabus and can be administered by a computer system which aids marking and can aid assessment of the questions and the exam content. Although MCQ exams excel in the assessment of knowledge of factual information, MCQs can be designed to assess higher order thinking, in particular problem-solving or analysis.

Any MCQ paper needs good questions and a good mixture of questions but will not be affected by any examiner bias if this has been achieved.

There are three principal types of MCQs.

- a) Single best answer
- b) Matching question and answers
- c) Multiple true/false questions

The current Palestinian MCQ bank consists of single best answer questions and in the first instance it would seem best to expand this bank.

MCQ are designed with a single stem (often a clinical scenario), a question and then a series of alternative answers, one of which is correct, the others being distractors. At present the questions in the Palestinian MCQ bank have a variable number of alternative answers and this number should be standardised. In general MCQ are designed with one correct answer and three or four distractors, although there is some evidence that one correct answer and two distractors works as well as a larger number.

1.MCQ – how to blueprint to the syllabus

Having a spread of questions across the syllabus not only makes sense to achieve accurate assessment but also motivates students to cover the entire syllabus in their learning.

The process of matching the questions to the syllabus is known as “blue-printing”. Different topics in the syllabus should be sampled but also different types of skills eg diagnosis and management

The syllabus should be divided up into areas, codes given to each area and each question allocated a code . This code should be added as a category in the current MCQ database. It should then be possible to see the distribution of available questions across the syllabus.

Appendix 1 provides a list of the topics covered in the syllabus to aid the blue printing process. It is suggested that initially each MCQ is allocated to a syllabus section as listed under column A and that this is recorded as item11 in the data about each question in the MCQ database. In the future more detailed blueprinting could be done to record as item12 the syllabus subsection and as item 13 the syllabus domain.

Once the spread of the current questions has been identified, new question writing can be concentrated in appropriate areas of the syllabus.

2.MCQ - How to quality control MCQ

Each current available question should be assessed by several of the PMC surgical committee using a checklist such as the JCIE question writing checklist. It can then be categorised as enabled/disabled – or further item(s) could be added to the MCQ database to give the question a score and/or record whether it has been reviewed or improved.

Check the format for Single Best Answer – stem + question + 3 or 4 options

Appendix 2 - JCIE question writing checklist

3.MCQ - How to write new MCQ

It is usually more practical for individuals to write the first draft of new questions. These should then be reviewed by a small group of the PMC surgical committee as above.

The Single Best Answer format is currently used.

The stem is usually a clinical or science scenario. All the facts should be in the stem.

This is followed by a question. The question should be positive eg “What is the most likely diagnosis?” rather than negative “Which of these is NOT a likely diagnosis?”

There are then a number of answer options, listed as A,B,C,D etc. The candidate is asked to choose one “best” answer.

This method makes allowance for the reality of the biological sciences in which answers are not always black and white. The single best answer works most effectively if the options are homogenous eg a list of different treatments.

See Appendix 3 – JCIE SBA guidelines

Appendix 4- A proforma for new questions

4.How to choose MCQ for a single exam

Each MCQ exam contains 100 Single Best Answer MCQ and the time allowed is two and a half hours.

At present the Palestinian part 1 exam covers Basic Sciences. The first five sections of the syllabus cover Basic Sciences – Anatomy, Physiology, Pharmacology, Pathology, Microbiology (Appendix 1). The other sections might be included to some extent in the application of these Basic Sciences.

Part 2 MCQ exam could cover knowledge from all nineteen sections listed in Appendix 1.

Any single MCQ paper should cover a broad area of the relevant parts of the syllabus. There may be areas of the syllabus which are felt to be so important that it is essential that there is at least one question from this area on each occasion. The MCQ database allows a record of the number of times a question has been used, and the most recent date of use.

Once the question bank has been blueprinted to the syllabus, questions are selected from each relevant syllabus area. There should be consideration of whether the mix of questions merely tests knowledge or includes some questions requiring problem solving or analysis of data/situations.

5.Assessing each question after the exam

After each exam it will be possible to analyze each question in terms of difficulty (% of residents who answer correctly of those who complete the question) – the questions which have a very low or very high percentage of correct answers can then be disabled on the database, or improved for future use.

6.Setting the standard for pass/fail

With a small number of candidates for each sitting of the exam, using a relative standard (eg 70% of candidates will pass) is inappropriate. An absolute standard needs to be set for the exam (eg candidates who answer 60% of the questions correctly will pass). The setting of the pass mark will require judgement from the PMC. There are a number of statistical methods for setting this standard. In our case the **scientific committee after analysis of the results has the right if the success rate is below 40% to either 1) delete up to five difficult questions that are answered by no more than one candidate or 2) add up to five marks to results in order to improve the curve of scoring.**

Appendices

Appendix 1

Syllabus Topics to aid in blueprinting the exam

SYLLABUS SECTION	SYLLABUS SUBSECTION		SYLLABUS DOMAINS
Anatomy	thorax		Surgical Specialty
Anatomy	abdo/pelvis		Interpersonal+ Communications
Anatomy	limbs		Professionalism+ Ethics
Anatomy	head+ neck		Teamwork+ Interpersonal collaboration
Physiology	homeostasis+ thermoregulation		Leadership promotion
Physiology	metabolic pathways+ abnormalities		Teaching+ Learning
Physiology	hypovolemic shock		
Physiology	sepsis+ septic shock		
Physiology	fluid+ electrolytes		
Physiology	acid base		
Physiology	bleeding+ coagulation		
Physiology	nutrition+ metabolism		
Physiology	cardiorespiratory		
Physiology	GI tract		
Physiology	urinary tract		
Physiology	endocrine		
Physiology	neurological		
Pharmacology	antibiotics		
Pharmacology	cardiorespiratory drugs		
Pharmacology	drugs+ renal		
Pharmacology	endocrine especially diabetes drugs		
Pharmacology	local anaesthetics		

Pharmacology	principles of general anaesthesia		
Pharmacology	principles of oncology		
Pharmacology	alcohol		
Pathology	general principles		
Pathology	vascular		
Pathology	immunology		
Pathology	haematology		
Pathology	biochemistry		
Pathology	neoplasia		
Pathology	screening		
Pathology	cardiorespiratory		
Pathology	gastrointestinal		
Pathology	genitourinary		
Pathology	breast		
Pathology	endocrine		
Pathology	neurological		
Pathology	skin		
Microbiology	micro-organisms		
Microbiology	soft-tissue infections		
Microbiology	asepsis antisepsis		
Microbiology	principles of disinfection sterilisation		
Microbiology	antibiotics		
Microbiology	managing high risk patients		
Microbiology	hospital acquired infection+ infection control		
Imaging	principles of diagnostic+ interventional imaging		
Gastrointestinal Conditions	appendicitis		
Gastrointestinal Conditions	GI malignancy		

Gastrointestinal Conditions	inflammatory bowel disease		
Gastrointestinal Conditions	diverticular disease		
Gastrointestinal Conditions	intestinal obstruction		
Gastrointestinal Conditions	adhesions		
Gastrointestinal Conditions	abdominal hernia		
Gastrointestinal Conditions	peritonitis		
Gastrointestinal Conditions	intestinal perforation		
Gastrointestinal Conditions	benign oesophageal disease		
Gastrointestinal Conditions	peptic ulcer disease		
Gastrointestinal Conditions	benign+ malignant HPB disease		
Gastrointestinal Conditions	haemorrhoids+ perianal disease		
Gastrointestinal Conditions	abdominal wall stomata		
Breast Disease	benign+ malignant breast lumps		
Breast Disease	mastitis+ breast abscess		
Peripheral Vascular Disease	atherosclerotic arterial disease		
Peripheral Vascular Disease	embolic+ thrombotic arterial disease		
Peripheral Vascular Disease	venous insufficiency		
Peripheral Vascular Disease	diabetic ulceration		
Cardiovascular+ Pulmonary Disease	coronary heart disease		
Cardiovascular+ Pulmonary Disease	bronchial carcinoma		
Cardiovascular+ Pulmonary Disease	obstructive airways disease		
Cardiovascular+ Pulmonary Disease	space occupying lesions of the chest		
Genitourinary Disease	genitourinary malignancy		
Genitourinary Disease	urinary calculous disease		
Genitourinary Disease	urinary tract infection		

Genitourinary Disease	benign prostatic hypertrophy		
Genitourinary Disease	obstructive uropathy		
Gynaecological Disease	pelvic inflammatory disease		
Gynaecological Disease	ectopic pregnancy		
Gynaecological Disease	complicated ovarian masses		
Trauma	simple fracture+ joint dislocations		
Trauma	fractures round the hip+ ankle		
Trauma	degenerative joint disease		
Trauma	inflammatory joint disease		
Trauma	compartment syndrome		
Trauma	spinal nerve root involvement+ cord compression		
Trauma	metastatic bone cancer		
Trauma	peripheral neuropathies+ nerve injuries		
Disease of Skin, head+ neck	benign+ malignant skin lesions		
Disease of Skin, head+ neck	benign+ malignant lesions of mouth+ tongue		
Neurology+ Neurosurgery	space occupying lesions from bleeding		
Neurology+ Neurosurgery	space occupying lesions from tumour		
Endocrine	thyroid+ parathyroid disease		
Endocrine	adrenal gland disease		
Plastic Surgery	principles of amputation		
Plastic Surgery	burns		
Plastic Surgery	skin grafts+ flaps		
Plastic Surgery	pressure sores		
Paediatric Surgery	differences from adults		
Paediatric Surgery	child abuse+ legal aspects		
Paediatric Surgery	common neonatal problems		
Paediatric Surgery	acute abdominal pain		
Paediatric Surgery	groin surgery in children		
Paediatric Surgery	trauma in children		

Perioperative Care	risk factors+ scoring systems		
Perioperative Care	preoperative prescribing including antibiotics		
Perioperative Care	thromboprophylaxis		
Perioperative Care	day surgery		
Perioperative Care	postoperative monitoring		
Perioperative Care	multiorgan dysfunction		
Perioperative Care	postoperative analgesia		
Perioperative Care	effects of malnutrition, both over and undernutrition		
Perioperative Care	metabolic response to injury		
Perioperative Care	screening+ assessment of nutritional status		
Perioperative Care	enteral+ parenteral nutrition		
Perioperative Care	haemostasis		
Perioperative Care	blood product administration		
Perioperative Care	thromboembolism investigation +treatment		
Perioperative Care	metabolic disorders		

Appendix 2

JCIE Question writing checklist



Appendix 2 - JCIE
Question Writing Che

Appendix 3

JCIE Single best answer guidelines



Appendix 3 - JCIE
SBA Guidelines.pdf

Appendix 4

MCQ proforma

OSCE STATION PROFORMA		Number
SYLLABUS SECTION		
SYLLABUS SUB-SECTION		
SYLLABUS DOMAIN		
CLINICAL SKILL TO BE TESTED		
STEM		
QUESTION		
ANSWER OPTIONS	CORRECT ANSWER CLEARLY MARKED	
	A.	

	B.
	C.
	D.
JUSTIFICATION FOR CORRECT ANSWER	

Appendix 5

Examples of MCQ

Question 1

A patient is undergoing surgery for an advanced carcinoma of the sigmoid colon. On CT scan the lesion is invading the mesentery and retroperitoneum in the left paracolic gutter. A radical resection is planned. Which significant structure is most at risk during the mobilisation phase of the operation?

- A. The aorta
- B. The left ureter**
- C. The left gonadal vessels
- D. The inferior vena cava

The left ureter is the most concerning structure. The aorta is unlikely to be involved without complete fixation and irresectability of the tumour. The left gonadal vessels may be at risk but can be ligated and divided above and below the tumour without significant long term effects. The inferior vena cava lies on the right side of the retroperitoneum. Accidental and unidentified damage to the left ureter is the greatest concern, and might lead to post-operative sepsis and urinary leakage if damaged or divided or obstructed left kidney with obstructive nephropathy if inadvertently ligated.

Question 2

After sleeping in a chair because of rest pain a patient complains of numbness and inability to move his right hand. He was sleeping with his right arm pressing on the wooden chair arm. On examination he is unable to extend his fingers and he has reduced sensation on the back of his hand, thumb and first two fingers. Which nerve has suffered pressure damage?

- A. The radial nerve**
- B. The median nerve
- C. The ulnar nerve
- D. The brachial plexus, anterior limb

The radial nerve serves these functions and has probably been compressed as it winds round the humerus

Question 3

A 65 year old obese diabetic man is admitted with an ischiorectal abscess. He is drowsy, hypotensive, tachycardia and has a blood sugar of 20mmol (normal 7 mmol/l). On examination there is a dark, purple patch of skin over the abscess. What is the immediate management?

- A. Variable rate infusion of insulin, antibiotics, and intravenous fluids
- B. Drainage of the abscess
- C. Resuscitation with intravenous fluids
- D. Resuscitation and insulin infusion, intravenous antibiotics and wound debridement to drain the abscess and excise all non-viable tissue**

The concern is that this patient has necrotising fasciitis. He should be resuscitated rapidly, given antibiotics immediately, an insulin infusion commenced but operation should be performed as soon as possible to reduce further spread of the necrosis. The abscess should be drained and all possible ischaemic tissue excised until tissue bleeds freely.

Question 4

Which antibiotics are appropriate in the situation described in Question 3?

- A. Amoxicillin, gentamicin and metronidazole
- B. A broad spectrum antibiotic such as co-amoxiclav
- C. Amoxicillin gentamicin ,metronidazole and fluconazole
- D. Benzyl penicillin, flucloxacillin, gentamicin and metronidazole**

It is likely that this is a mixed infection but it is essential to cover haemolytic streptococci, as well as gut organisms and anaerobes.

Question 5

Following a road traffic accident, a 35 year old man requires resuscitation and massive transfusion because of liver and splenic injury. He has been given 12 units of red blood cells so far. What other intravenous therapy should be considered because of the amount of blood which has been needed?

- A. Platelets
- B. Fresh frozen plasma, platelets and calcium gluconate**
- C. Cryoprecipitate
- D. 5% dextrose

Massive haemorrhage is defined as the loss of at least one blood volume within 24 hours or 50% of blood volume in 3 hours. Platelet transfusion is likely to be needed at this level, coagulation will have become abnormal due to dilution and ionised calcium levels will have

fallen. It is likely that more than one component will be needed and although the ideal is that this should be guided by laboratory monitoring, if the turnaround time for the laboratory and for the availability of blood products is inadequate, giving these should be considered empirically.

Question 6

A 75 year old man presents with a history of worsening vomiting for several weeks. His laboratory findings are as follows –

Sodium 135 mmol/l
Potassium 2.5 mmol/l
Chloride 80 mmol/l
Urea 35 mmol/l
Creatinine 300 mmol
Bicarbonate 40mmol/l

What is the likely underlying diagnosis?

- A. Small bowel obstruction
- B. Gastritis
- C. Pyloric stenosis
- D. Severe pancreatitis

These results indicate dehydration, acute kidney injury secondary to this, and hypochloreaemic alkalosis. Loss of gastric hydrochloric acid leads to dehydration with alkalosis and low chloride levels. Potassium is lost from the kidneys to preserve hydrogen ions.

Question 7

A 40Kg patient with a small bowel fistula is losing approximately 2000ml of fluid from the fistula daily. She is being kept nil orally and is on intravenous fluid therapy. Which is the most appropriate fluid prescription for 24 hours assuming that urea and electrolytes are normal?

- A. 2 litres of 5% dextrose and 1 litre of Hartmann's solution
- B. 1 litre of 5% dextrose and 500ml of 0.9% saline
- C. 4 litres of Hartmann's solution
- D. 2 litres of 0.9% saline and 1 litre of 5% dextrose with KCl 80mmol

30ml/Kg of maintenance fluid = 1200ml + 2000ml for excess losses therefore volume requirement is approximately 3200ml

Na maintenance 60mmol + 280mmol for excess losses therefore Na requirement is approximately 340mmol

K maintenance 60mmol + 10 mmol for excess losses is approximately 70mmol

Hartmann's solution contains Na 130mmol/l and K 4mmol/l

0.9% saline contains Na 154mmol/l and no K

0.5% dextrose contains no Na and no K

Question 8

A 60 year old lady presents with an invasive carcinoma in the left upper outer quadrant of the breast. Ultrasound of the axilla does not show any suspicious lymph nodes. A wide local excision is performed with axillary clearance. Histology shows a 2cm diameter invasive carcinoma with resection margins of more than 2mm, no positive lymph nodes, oestrogen receptor positive. What further treatment is most appropriate?

- A. Radiotherapy to the breast and an aromatase inhibitor
- B. Adjuvant chemotherapy
- C. Mastectomy and reconstruction
- D. Tamoxifen

Further surgery is not indicated if margins are clear. Radiotherapy to the remaining breast tissue reduces local recurrence. An aromatase inhibitor is indicated in post-menopausal women who has oestrogen receptor positive rather than tamoxifen. Endocrine therapy is preferred to chemotherapy in early oestrogen positive breast cancer.

Question 9

A patient with a post-operative chest infection has his blood gases checked with the following results on 80% oxygen.

Hydrogen ion 40

pO₂ 7.0

pCO₂ 9.0

base excess – 18

What is the most likely ultimate type of treatment needed in the next 24 hours?

- A. A reduction in inspired oxygen concentration
- B. Intubation and mechanical ventilation
- C. An increase in inspired oxygen concentration
- D. An infusion of sodium bicarbonate

It is likely that this patient will need mechanical ventilation. He is retaining carbon dioxide but not maintaining his oxygenation and so an increase in inspired oxygen is likely to worsen the

pCO₂. He is likely to become tired or to become drowsy due to hypercapnia and require ventilation. The acidosis is secondary to CO₂ retention.

Question 10

A 45 year old man presents with left loin pain intermittent but severe for the past week. He has little to find on examination but has microscopic haematuria on dipstix testing. Bloods are normal. What is the most likely diagnosis?

- A. Urinary tract infection
- B. Aortic aneurysm
- C. Renal carcinoma
- D. Ureteric colic due to stone

Severe but intermittent pain with microscopic haematuria is characteristic of ureteric colic – the other diagnoses are possible but less likely. Urinary infection is unlikely to cause severe loin pain if bloods are normal. Aortic aneurysm is an important diagnosis to exclude clinically but unlikely with intermittent pain for a week. Renal carcinoma with a clot moving down the ureter is less common.

Question 11

A male infant of 6 months presents as an emergency at midnight with a swelling in the right groin, going down into the scrotum. It appears to be uncomfortable. There is no vomiting. His mother has noticed a smaller lump in the past. His recordings and inflammatory markers are normal. What is the immediate management overnight?

- A. Sedation and analgesia
- B. Emergency exploration of the scrotum
- C. Intravenous antibiotics
- D. Emergency exploration of the groin.

This is likely to be an inguinal hernia or a hydrocele, both of which are due to a patent processus vaginalis. It is very rare for there to be strangulation of an infant hernia and generally sedation and analgesia will result in a reduction in size of the lump. However because of the risk of incarceration urgent operation is generally carried out within a few days to avoid recurrent problems. Both hernia and hydrocele in infants are treated by ligation of the sac i.e. the patent processus vaginalis.

Question 12

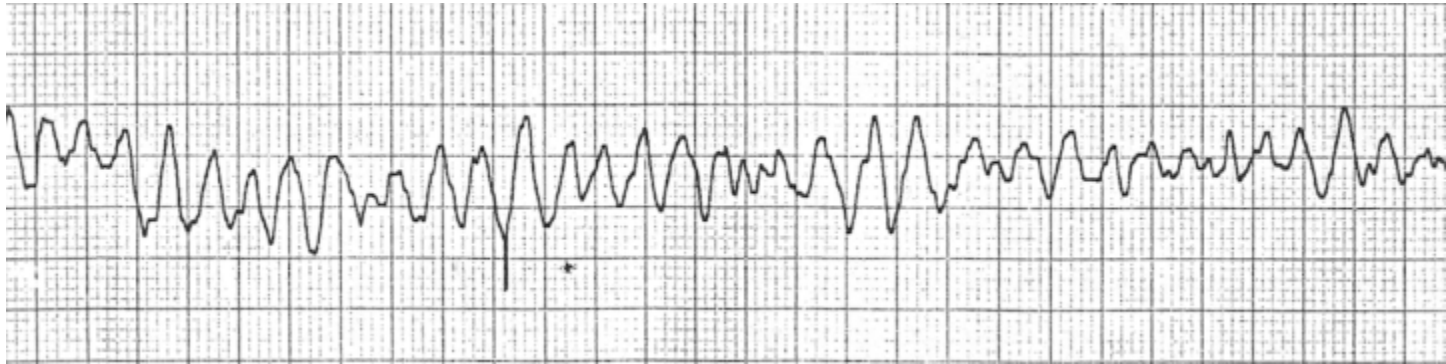
You are called to see a post-operative patient who has a pyrexia of 39 degrees centigrade, heart rate of 120 and blood pressure of 80/40. This has occurred 10 days after his surgery for colon cancer and he seemed to be making a good recovery. His abdomen is soft and his bowels are moving normally. He still has a central line in place and there is considerable cellulitis around it. What combination of treatments is the most appropriate?

- A. Removal of the central line and oral antibiotics
- B. Blood cultures, resuscitation with oxygen and iv fluids monitored by urine OP, intravenous flucloxacillin, and removal of the line
- C. Intravenous amoxicillin, cephalosporins and metronidazole
- D. CT scan and intravenous paracetamol.

It seems likely that the central line is the culprit here – present for 10 days with surrounding cellulitis. He needs to be assessed and treated for systemic sepsis – investigation of the source with cultures, resuscitated with oxygen and iv fluids and given iv antibiotics appropriate for staphylococcal infection.

Question 13

A 70 year old lady collapses in the ward and is being resuscitated by the cardiac arrest team. Her ECG is shown below.



What action should be taken?

- A. Adrenalin infusion
- B. Intravenous calcium
- C. CPR then defibrillation as soon as available
- D. Intubation and ventilation

This is ventricular fibrillation and immediate basic life support with cardiopulmonary resuscitation should be underway. Defibrillation is the key intervention.

Question 14

A vascular anastomosis is being performed in the femoral region – which is the best suture to use here?

- A. Interrupted 4/0 polydioxanone (PDS)
- B. Continuous 3/0 polyglactin 910 (Vicryl)
- C. Continuous 2/0 prolene
- D. **Continuous 4/0 prolene**

A non-absorbable monofilament suture is used with a continuous stitch. PDS is monofilament and absorbable. Vicryl is braided and absorbable. 2/0 is too heavy a suture for a femoral anastomosis.

Question 15

A 35 year old female presents with acute severe abdominal pain and the following blood results

Bilirubin 150 mmol/l
AST 45 units/l
ALT 55 units/l
Alkaline phosphatase 500 u/l
Albumin 30 g/l
C reactive protein 200 mg/l
White cell count 20×10^6

What is the most likely underlying diagnosis?

- A. Obstructive jaundice due to stone in the common bile duct
- B. Pancreatic cancer
- C. Viral Hepatitis
- D. **Ascending cholangitis due to stone in the common bile duct**

The raised bilirubin indicates jaundice and the high alkaline phosphatase in comparison to transaminases implies likely obstructive jaundice rather than hepatitis. The inflammatory indices are also raised which implies infection ie ascending cholangitis.

Question 16

A 15 year old girl presents as an emergency with right iliac fossa pain for seven days. She has had several previous episodes. She is afebrile but has some RIF tenderness. She has the following results on investigation –

Normal Full Blood Count

Normal CRP

Normal Urea +Electrolytes and Liver Function Tests

Normal urine dipstick and culture

Normal pelvic ultrasound

What is the likely underlying diagnosis?

- A. **Undiagnosed abdominal pain**
- B. Acute appendicitis
- C. Pelvic inflammatory disease
- D. Urinary tract infection

There is no evidence supporting any definite gynaecological diagnosis or any infective process and “undiagnosed abdominal pain” is the most common diagnosis made in this age-group with these symptoms.

Question 17

A 25 year old woman presents with acute severe headache and diplopia. Her left eye is partly closed. A CT scan shows subarachnoid blood and an intracranial aneurysm is suspected. What is the likely site of this aneurysm?

- A. Right Middle cerebral artery
- B. Basilar artery
- C. **Left posterior communicating artery**
- D. Anterior communicating artery

The third cranial nerve (oculomotor) runs close to the posterior communicating artery in the circle of Willis. Paralysis causes diplopia with the eye deviated down and out and also causes ptosis.

Question 18

What is the maximum volume of 2% lignocaine which can be used for infiltration in a 40kg patient?

- A. 20ml
- B. 2ml

- C. 6ml
- D. 15ml

The maximum safe dose of plain lignocaine is 3mg/Kg. This patient's maximum dose is 120mg. 2% lignocaine contains 20mg/ml therefore 6ml is the maximum volume which should be used.

Question 19

A heavy smoker presents with intermittent claudication affecting his right leg. On examination he has some loss of hair on his legs, palpable femoral pulses but very faint right popliteal pulse. Dorsalis pedis and posterior tibial pulses are palpable on both sides. An occlusion is identified on angiogram. Where is the likely site of occlusion?

- A. Right Common Femoral artery
- B. Right Superficial Femoral artery
- C. Right Iliac artery
- D. Aorta

Since the femoral pulse is palpable but the popliteal reduced the occlusion is likely to be between the two sites ie the superficial femoral artery.

Question 20

A fit 50 year old man has treatment for rectal cancer at 10cm from the anal verge. Biopsy confirms an adenocarcinoma. MRI shows a tumour which extends beyond the bowel wall to the edge of the mesorectum. CT does not show any metastatic disease. What is the likely treatment?

- A. Preoperative radiotherapy then anterior resection with loop ileostomy
- B. Preoperative chemotherapy then anterior resection
- C. Abdomino-perineal resection
- D. Anterior resection then postoperative chemoradiotherapy.

This tumour is margin threatening ie it is unlikely that proceeding directly to surgical resection will result in clear resection margins. Preoperative treatment is indicated, certainly radiotherapy and this is often accompanied by chemotherapy which can act as a radiosensitiser. The aim is to reduce the size of the tumour to enable achievement of clear margins. It should be possible to perform an anastomosis in a tumour at 10cm but most surgeons would defunction a low anterior resection. Preoperative radiotherapy causes fewer side-effects than postoperative radiotherapy because the small bowel is more likely to be fixed in the pelvis postoperatively.

"This Manual is made possible by the support of the American people through the United States Agency for International Development (USAID). The contents of this manual are the sole responsibility of IntraHealth and Juzoor and do not necessarily reflect the views of USAID or the United States Government."