

The Royal College of Surgeons of Edinburgh/

The College of Surgeons of Hong Kong/

Academy of Medicine, Singapore

JOINT SPECIALTY FELLOWSHIP EXAMINATION IN CARDIOTHORACIC SURGERY

SYLLABUS

This syllabus outlines the areas with which the candidate is expected to be familiar. The level of knowledge is that judged to be used by a fully trained surgeon in day to day practice of cardiac surgery and adult pulmonary surgery.

Cardiac Surgery

Basic Knowledge

Physiology

Myocardial cellular physiology

Haemodynamics, physiology and measurement

Electrophysiology, including conduction disorders

Haemostasis, thrombosis and bleeding

Acid base balance

Pulmonary physiology, ventilation and gas exchange

Metabolic response to trauma

Vascular biology and reactivity

Anatomy

Heart, pericardium and great vessels

Peripheral vascular system and vascular conduits

Revised by Professor MJ Underwood April 2015

Pathology

Inflammation and wound healing

Atheroma, medial necrosis and arteritis

Myocardial infarction and complications

Endocarditis

Pericarditis

Cardiac tumours

Systemic Inflammatory Response Syndrome

Pharmacology

Drugs used in the treatment of hypertension, heart failure and angina

Anti-arrhythmic drugs

Haemostatic drugs

Antiplatelet, anticoagulant and thrombolytic drugs

Analgesics

Antibiotics

Anaesthetic agents, local and general

Microbiology

Organisms involved in cardiorespiratory infection

Organisms involved in wound infection

Endocarditis

Antibiotic usage and prophylaxis

Antisepsis

Clinical knowledge

Data interpretation

Routine haematology and biochemical investigations

Chest radiograph

ECG including exercise ECG

Coronary Angiography

Cardiac Catheterisation data

Echocardiography including 2D, Doppler and TOE and stress echo

CT, including contrast enhanced CT

MRI

Nuclear cardiology

Patient Management – General

Diagnosis, investigation and treatment of ischaemic and valvular heart disease

Risk assessment and stratification

Cardiopulmonary Resuscitation

Treatment of cardiac arrhythmias

Management of Post Cardiac surgical Patient

Management of complications of surgery

Cardiac Rehabilitation

Blood transfusion and blood products

Wound infection and sternal disruption

Ischaemic Heart Disease

Diagnosis investigation and assessment

Operative Treatment – Off pump and On pump surgery

Results of surgery – survival, graft patency, recurrence

Revised by Professor MJ Underwood April 2015

Arterial revascularisation

Role of PCI and non operative treatment

Management of cardiovascular risk factors

Management of associated conditions – VSD MI LV aneurysm

Valvular Heart Disease

Diagnosis, investigation and assessment

Operative treatment – replacement and repair

Valve preservation techniques

Usage of stentless valves homografts and autografts

Timing of surgery

Outcomes of treatment and survival

Types of prosthesis

Management of native and prosthetic valve endocarditis

Management of small aortic root

TAVI

Surgery of the Great Vessels

Aortic Dissection

Aneurysms of the ascending, descending and thoracoabdominal aorta

Traumatic aortic transaction

Cerebral and spinal cord protection

Appropriate bypass techniques

Diseases of the Pericardium and other Cardiac Conditions

Constrictive Pericarditis

Pericardial Effusion

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Cardiac tamponade

Cardiac tumours and myxoma

Surgical treatment of cardiac arrhythmias including atrial fibrillation

Surgical management of heart failure

Left ventricular remodelling

Cardiac transplantation

Organ retrieval and preservation

Post transplant management and immunosuppression

Left Ventricular assist and bridge to transplantation

Cardiopulmonary Bypass

Principles and practice of CPB

Equipment and technology

Inflammatory and pathophysiological response to bypass

Cell salvage and blood conservation

Principles and practice of myocardial preservation

Safe conduct of CPB – problem solving and troubleshooting

Mechanical circulatory support

Cardiac trauma

Principles and practice of trauma management (ATLS)

Blunt and penetrating trauma

Cardiac tamponade and laceration

Intra cardiac trauma

Blunt cardiac trauma

Mediastinal traversing wounds

Emergency room thoracotomy

Surgery for Congenital Heart Disease

Trainees not specialising in congenital heart surgery will be expected to have knowledge of the clinical and morphological features of commonly occurring congenital abnormalities. They will be expected to have knowledge of the basic surgical principles used in the treatment of these conditions, including palliative and corrective techniques, and to discuss the timing and the outcomes of surgery.

Surgery for Congenital Heart Disease – Essential Knowledge

Morphology, classification, indications for surgery, techniques and results in:

ASD

VSD

Fallot's tetralogy

Valve replacement/valvotomy

Patent ductus arteriosus

Coarctation of the aorta

THORACIC SURGERY

Basic Knowledge

Physiology

Pulmonary physiology, ventilation and gas exchange

Haemostasis, thrombosis and bleeding

Acid base balance

Metabolic response to trauma

Digestive, renal and hepatic physiology

Nutrition

Anatomy

Tracheobronchial tree and lungs

Thoracic inlet and neck

Mediastinum

Chest wall and diaphragm

Pathology

Inflammation and wound healing

Bronchopulmonary infections

ARDS

Emphysema

Pulmonary fibrosis

Pulmonary manifestations of systemic disease

Systemic manifestations of pulmonary disease

Benign and malignant tumours of trachea, bronchus and lung parenchyma

TNM staging of lung tumours

Malignant and benign tumours of the pleura and chest wall, mediastinum and thyroid

Pharmacology

Bronchodilators

H2 antagonists and proton pump inhibitors

Haemostatic drugs

Analgesics

Antibiotics

Anaesthetic agents, local and general

Microbiology

Organisms involved in respiratory infection including TB

Organisms involved in wound infection

Antibiotic usage and prophylaxis

Antisepsis

Management of intra pleural sepsis

CLINICAL KNOWLEDGE

Data Interpretation

Routine haematology and biochemical investigations

Chest radiograph and ECG

CT, including contrast enhanced CT

MRI

Respiratory Function tests

Ventilation/Perfusion Scan

Blood gasses

Patient Management – General

Diagnosis, investigation and treatment of pulmonary oesophageal and other thoracic conditions

Risk assessment and stratification

Cardiopulmonary Resuscitation

Treatment of cardiac arrhythmias

Pain control

Management of Post thoracic surgical Patient

Management of complications of surgery

Physiotherapy and Rehabilitation

Blood transfusion and blood products

Wound infection and disruption

Palliative care

Lung

Congenital Lesions – lobar emphysema, sequestration

Bronchial carcinoma including adjuvant and non-operative treatment

Other primary tumours of the lung and trachea

Management of secondary tumours of the lung

Bronchopulmonary sepsis – bronchiectasis, empyema, abscess

Surgery of mycobacterial fungal and hydatid infections

Surgery for emphysema and end stage lung disease

Pleura

Pneumothorax

Plaural effusion

Empyema

Mesothelioma

Chest wall and diaphragm

Congenital lesions – hernia, pectus deformity cervical rib

Benign and malignant tumours

Chest wall reconstruction

Mediastinum

Tumours and cysts

Surgical and perioperative management of myasthenia

Retrosternal goitre

Thoracic Trauma

Principles and practice of trauma management (ATLS)

Blunt and Penetrating trauma

Treatment of airway injury

Pneumothorax – simple open and tension

Haemothorax – operative and non-operative intervention

Flail chest lung contusion and ARDS

Tracheobronchial disruption

Oesophageal rupture including iatrogenic

Mediastinal traversing wounds

Emergency room thoracotomy