



MALAYSIAN MEDICAL COUNCIL

SPECIALTY-SPECIFIC REQUIREMENTS (SSR)

(CARDIOTHORACIC SURGERY)

Prepared By:

Specialty Education Subcommittee (SEC)
of the Medical Education Committee (MEC),
Malaysian Medical Council

Approved by the Malaysian Medical Council:

19th April 2024

Preface

1. The Specialty-Specific Requirements (SSR) pertain to requirements within each specialty and specify the minimum requirements pertaining to the training curriculum, trainers, educational resources and head of programme.
2. The Specialty-Specific Requirements (SSR) are intricately linked to the MMC Malaysian Standards for Medical Specialist Training 2019, and the Standards and SSR must be read and applied together.

Specialty-Specific Minimum Requirements for Training Curriculum (Based on Area 1.2.4 of Malaysian Standards for Medical Specialist Training) - Cardiothoracic Surgery	
Specialty-Specific Requirements (Reference Standard)	Criteria
1) Minimum entry requirements for postgraduate training (Standard 3.1.)	i. Fully registered with the Malaysian Medical Council with a current annual practising certificate ii. 2 years of experience in surgery and its related fields post housemanship (including at least 6 months in cardiothoracic surgery) iii. Successful entry evaluation to programme, e.g: MEDEX or MRCS or equivalent
2) Minimum duration of training programme (Standard 1.2.4 - Table 2)	Completion of a minimum of 72 months (6 years) of specialised cardiothoracic surgery training in the specialty programme For example: 6 years, 2 years + 4 years or 4 years + 2 years programme
3) Structure of training (rotation/modules) (Standard 1.2.4 - Table 3 & Table 4)	

Training overview	The program should have a clear pathway encompassing phases of training which shall include the basic and advanced components in cardiothoracic surgery.												
Training rotation/ modules and case mix	Typical rotations will require candidates to undergo training in areas of cardiothoracic surgery for a minimum duration of 72 months <table><tr><th>Areas</th><th>Details</th><th>Months</th></tr><tr><td>Adult cardiac surgery</td><td>On-pump and off-pump coronary artery bypass graft, open and minimally-invasive valve surgery, aortic surgery – aneurysms and dissection</td><td>36 - 54</td></tr><tr><td>Adult thoracic surgery</td><td>Open and video assisted thoracoscopic surgery, thoracic surgery for lung and mediastinal structures</td><td>12 - 18</td></tr><tr><td>Paediatric cardiac surgery</td><td>Closed and open heart procedures including simple and complex paediatric cardiac surgeries</td><td>6 - 12</td></tr></table> *Duration of training per year is 48 weeks The core modules will include the following: 1. Critical care, pre and postoperative management 2. Cardiopulmonary bypass 3. Myocardial protection 4. Circulatory support 5. Ischaemic heart disease 6. Heart valve disease	Areas	Details	Months	Adult cardiac surgery	On-pump and off-pump coronary artery bypass graft, open and minimally-invasive valve surgery, aortic surgery – aneurysms and dissection	36 - 54	Adult thoracic surgery	Open and video assisted thoracoscopic surgery, thoracic surgery for lung and mediastinal structures	12 - 18	Paediatric cardiac surgery	Closed and open heart procedures including simple and complex paediatric cardiac surgeries	6 - 12
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	7. Aorto-vascular disease 8. Cardiothoracic trauma 9. General management of a patient undergoing thoracic surgery 10. Neoplasms of the lung 11. Disorders of the pleura 12. Disorders of the chest wall 13. Disorders of the diaphragm 14. Emphysema and bullae 15. Disorders of the pericardium 16. Disorders of the mediastinum 17. Disorders of the airway 18. Congenital heart disease 19. Intrathoracic transplantation and surgery for Heart Failure
4) Assessments (Standard 2.2.1)	Assessments should i. Employ appropriate methods and levels that are well-aligned with learning outcomes. These include a variety of methods and tools such as written assessments, clinical assessments, supervisor's report, logbook, attendance, training attended, practice diary, research report, formative assessment, communication skills including methods appropriate to assess ethics and professionalism. ii. Include formative and summative assessments throughout each rotation, semester, or year of study. iii. Include clear criteria for progression to next year of study. iv. Include an exit examination.
5) Additional requirements for completion of training (Standard 1.2.4)	i. Completion of graduate-level research or clinical audit project ii. Basic life support and advanced cardiothoracic life support courses / cardiothoracic advanced life support courses iii. Advanced trauma life support course iv. Good clinical practice course v. Research methodology course
6) List of competencies to be acquired upon completion of training	<u>Generic competencies</u> Able to: i. Independently manage common cardiothoracic surgery cases holistically, including complications, whilst considering social, health economics and preventive aspects. ii. Function competently and professionally in a team-based environment. iii. Maintain a high level of integrity and ethical conduct in

(Standard 1.1.4)	practice. iv. Ensure effective communication with patients, colleagues and other healthcare-adjacent providers. v. Advance the evidence-based practice of surgery through research, audit and scientific writing. vi. Exemplify life-long learning through continual professional development, including acquisition of new skills and competencies. vii. Demonstrate exemplary leadership qualities, including setting and maintaining standards, supporting others and having the resilience to cope with pressure. viii. Cultivate an entrepreneurial mindset, balancing risks and benefits, for creative problem-solving. <u>Specific specialty competencies</u> Perform the following procedures competently including pre-operative and post-operative care: <table border="1"> <thead> <tr> <th>Type of cases</th><th>Type of surgery (no. of cases)</th></tr> </thead> <tbody> <tr> <td>Coronary artery bypass surgery</td><td rowspan="5">Open heart (100 cases)</td></tr> <tr> <td>Aortic valve replacement</td></tr> <tr> <td>Mitral valve replacement</td></tr> <tr> <td>Patent ductus arteriosus ligation</td></tr> <tr> <td>Atrial septal defect closure</td></tr> <tr> <td>Thoracotomy and open lobectomy, pneumonectomy and lung wedge resections</td><td rowspan="3">Thoracic procedures (30 cases)</td></tr> <tr> <td>Open thymectomy</td></tr> <tr> <td>video assisted thoracoscopic surgery bullectomy and lung biopsies</td></tr> </tbody> </table>	Type of cases	Type of surgery (no. of cases)	Coronary artery bypass surgery	Open heart (100 cases)	Aortic valve replacement	Mitral valve replacement	Patent ductus arteriosus ligation	Atrial septal defect closure	Thoracotomy and open lobectomy, pneumonectomy and lung wedge resections	Thoracic procedures (30 cases)	Open thymectomy	video assisted thoracoscopic surgery bullectomy and lung biopsies
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***Note : These criteria represent the minimum standards. Each educational programme provider may exercise their autonomy to state criteria above and beyond these minimum standards**

**Specialty-Specific Minimum Requirements (Items 4-7)
for Training Centres (Based on Areas 3-6 of Malaysian
Standards for Medical Specialist Training) -**

Cardiothoracic Surgery

Item no	Specialty-Specific Requirements (Reference standard)	Criteria				
4	Trainer-to-trainee ratio (Standard 3.1.3)	1:3				
5	Minimum qualifications and experience of trainers (Standard 4.1.2)	i. Registered with National Specialist Register ii. Completed Training-of-Trainer course				
6	Minimum requirements for educational resource (Standard 5.1.1)	The diagnostic facilities and equipment requirement of the programme training centres must collectively be able to accommodate the following minimum requirement: i. Services <table><tr><th>Services</th></tr><tr><td>Diagnostic and interventional cardiology</td></tr><tr><td>Cardiac anaesthesia and intensive care monitoring</td></tr><tr><td>Cardiac perfusion (cardiopulmonary bypass) team</td></tr></table>	Services	Diagnostic and interventional cardiology	Cardiac anaesthesia and intensive care monitoring	Cardiac perfusion (cardiopulmonary bypass) team
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		ii. Equipment						
		<table><tr><th>Equipment</th><th>Quantity</th></tr><tr><td>Intra aortic balloon pump</td><td>1</td></tr><tr><td>Extracorporeal membrane oxygenation</td><td>1</td></tr></table>	Equipment	Quantity	Intra aortic balloon pump	1	Extracorporeal membrane oxygenation	1
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		iii. Case Mix and Case Load						
The case mix and case load of the programme training centres must collectively be able to accommodate the following minimum requirements for each trainee:								
<table><tr><th>Areas</th><th>Quantity (surgeries/trainee/year)</th></tr><tr><td>Open heart surgeries</td><td>25</td></tr><tr><td>Thoracic surgeries</td><td>8</td></tr><tr><td>Paediatrics cardiac surgeries</td><td>5</td></tr></table>	Areas	Quantity (surgeries/trainee/year)	Open heart surgeries	25	Thoracic surgeries	8	Paediatrics cardiac surgeries	5
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Thoracic surgeries	8							
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7	Minimum qualifications and experience of Head of Programme	i. 5 years of working experience after national specialist registration						

		ii. Experience in administration and/or academic management
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ACKNOWLEDGEMENT

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