CARDIOTHORACIC SURGERY PROFORMA

Domain: O - Objective / K - Knowledge / CS - Clinical skills / TS - Technical skills

CARDIOTHORACIC SURGERY- CURRICULUM DOCUMENT CHANGES

Section	Page	Change	Reason
Cover	1	Release and version dates amended	Date revised to ensure sufficient time for communication and implementation
Acknowledgements	2	Updated authorship	To reflect accurate authorship and align with release in August 2026
2.1 2.3 Appendix 6	4 5 99	Addition of Republic of Ireland	Typographical oversight - the curriculum covers the UK and Republic of Ireland
2.1	4	Wording changed to reference the SCTS-SAC Cardiothoracic Workforce Report 2025 with new footnote with hyperlink is as follows: https://scts.org/_userfiles/pages/files/workforce_report_18032025_44.pdf	A more accurate statement
2.3	5 6	Updated text Modified on call text	Update To give more detail about on call arrangements, not all trainees need to be on-call
2.3	7	Training pathway diagram updated. See also attachment 2c	There is no longer any ST3 entry and training is run-thorough.
3.4	12	Table 1: minor formatting with first point indentation and headings	Typographical change

3.5.1	13	Addition of generic paragraphs on Genomics, Clinical Informatics and Sustainability.	These paragraphs have been included in surgical curricula to emphasise the importance of emerging areas in healthcare, ensuring that trainees remain adaptable and informed as surgical practice evolves. In light of GMC feedback we added the following wording: Whilst these areas are of growing importance and relevance, they are not expected to be fully evidenced by all trainees at this stage due to current disparities in training opportunities. Where feasible, trainee engagement in these emerging areas is encouraged, with continued focus on demonstrating the essential skills and behaviours in the GPC framework.
5.3.6	34	To change the word 'twenty' to 'thirty'	The Cardiothoracic Surgery ISB exam has been in place for over thirty years
5.4	36	Certification Requirements for Management and Leadership – added that evidence of an understanding of management structures and challenges of the health service should be <u>across relevant health services and the variations between nations</u>	In response to lay/patient feedback, there is a recognised need to strengthen trainees' understanding of the structure and functioning of health systems across the UK. Knowledge limited to the trainee's immediate training jurisdiction may not sufficiently prepare them for the realities of working within or alongside other devolved health systems.
5.4	37	In Clinical experience section – added wording – ' To ensure opportunities to acquire the breadth of curricular competencies in a variety of learning environments and cultures, trainees should, where	This generic wording has been incorporated into all curricula where possible to ensure optimal exposure and learning from different training cultures and environments, as well as clarifying the need for full curricula coverage. This update version aligns with existing language in the Urology, Plastic Surgery and Otolaryngology curricula. It has been further improved in light of stakeholder feedback, in particular from lead deans.

		geographically possible, complete a training programme that includes rotation through multiple units or sites. This recognises the importance of an ability to constructively compare different approaches to delivering surgical patient care and work-based cultures'.	
5.4	37	Operative experience. Level 4 corrected to Level 4a/b Added the word 'typically' for level of PBA	A more accurate statement Certain operations such as mitral surgery would not be within the routine practice for all consultants but some level of familiarity with the operative principles is encouraged with their inclusion as index cases. We have added the word 'typically' reflecting that a level of competence at PBA level 3a/b is accepted as appropriate for the general cardiac trainee, where the surgeon can perform the procedure but may lack fluency or benefit from advice.
5.4	37	Table 3: minor formatting with cardiac index procedures alignment	Typographical change
5.4	37/38	Index Procedures Cardiac 2.Isolated AVR changed to Isolated *uncomplicated* Aortic Valve Replacement	To highlight the inclusion only of straightforward AVR surgery as well as MVR

		4.Added *Isolated uncomplicated Mitral Valve Replacement* Thoracic 2.*Decortication for empyema* changed to *Decortication and/or washout of empyema* 4.Added *Resection of mediastinal lesion*	Request from trainees. An operation in which all Thoracic surgeons should be competent. Supporting evidence included. Almost 1000 operations per year in 30 centres, all trainees need to be able to perform this.
5.4	38	Table 3: Added the word 'typically' for level of PBA Documented evidence of Index Procedures stated to be at PBA level 4 corrected to 4a/b	A more accurate statement of assessment levels Certain operations such as mitral surgery would not be within the routine practice for all consultants but some level of familiarity with the operative principles is encouraged with their inclusion as index cases. We have added the word 'typically' reflecting that a level of competence at PBA level 3a/b is accepted as appropriate for the general cardiac trainee, where the surgeon can perform the procedure but may lack fluency or benefit from advice.

Additional editorial changes

- Amended cover page and additional authors related to this curriculum update
- Health Education England (HEE) replaced with NHS England (update)
- HEE local offices removed (update)
- Corrected hyperlinks (updates)
- Minor changes in light of feedback – see summary of feedback
- Minor typographical corrections

CARDIOTHORACIC SURGERY - SYLLABUS CHANGES

Section	Page	Change	Reason
Appendix 2 introduction	48	Skill level 2 exit descriptor updated - the words *'under direct supervision'* have been added	To clarify that, while trainees at this level can perform a straightforward procedure fluently, they must do so with continuous oversight from a supervisor to ensure patient safety and proper skill development. This addition also helps to better differentiate this level from others, particularly level 3, where trainees begin to work more independently.
	49	Skill level 4 exit descriptor updated to 'Is at the level at which one would expect a *day-one* UK consultant surgeon to function'	Consistent with outcomes-based curriculum standard
Appendix 2	48	Inserted text to clarify standard - why some boxes in the matrix have numbers 1-4 and others do not.	The standard of knowledge which is assessed by the ISB is set at the level of a day-one consultant in the generality of the specialty. Some topics for a level or phase of training also have a competence level ascribed to them for knowledge ranging from 1 to 4 which indicates the depth of knowledge required:
Appendix 3	95	Table aligned	Minor formatting
Appendix 4	96	Thoracic Major Cases – added robotic approach to Anatomical lung resection	To enable trainees to achieve completion of certification in this area through knowledge of several different approaches including robotic.
Appendix 4	96	Added the word 'typically' for level of PBA Isolated uncomplicated Mitral Valve Replacement PBA level 3 corrected to level 3a/b	Certain operations such as mitral surgery would not be within the routine practice for all consultants but some level of familiarity with the operative principles is encouraged with their inclusion as index cases. We have added the word 'typically' reflecting that a level of competence at PBA level 3a/b is accepted as appropriate for the general cardiac trainee, where the surgeon can perform the procedure but may lack fluency or benefit from advice.

			A more accurate statement of assessment levels
Syllabus topic	**Domain (O / K / CS / TS)**	**Describe the change**	**Reason for change**
Cardiac Surgery			
Cardiopulmonary bypass	**K** **TS**	1. Added minimal access approaches for coronary, aortic and mitral valve surgery 2. As above. Technical skill levels modified in light of stakeholder feedback from 2 / 3 / 3 / 2 / 2 to 1 / 2 / 2 / 1 / 1	Increasing utilisation of minimal access approaches for cardiac surgery
Myocardial Protection			
Circulatory Support			
Ischaemic Heart Disease	**K** **TS**	1. Added *Minimal Access Saphenous Vein Harvest* 2. Added *Minimal Access Incisions for coronary surgery* Skill levels modified in light of stakeholder feedback from 2 / 3/ 3 / 2/ 2 to 1 / 2 / 2 / 1 / 1	Increasing use of the technique clinically to harvest saphenous veins. Expanding role of minimal access coronary artery bypass surgery.
Heart Valve Disease	**TS**	1. Added Minimal Access Incisision for coronary, aortic and mitral valve surgery Skill levels modified in light of stakeholder feedback from 2 / 3/ 3 / 2/ 2 to 1 / 2 / 2 / 1 / 1 2. Added Isolated Uncomplicated Mitral Valve Replacement as Index Procedure	Increasing use of minimal access in aortic and mitral valve surgery Should be an operation that can be performed by 1st day consultant

		Skill levels modified in light of stakeholder feedback from 1 / 3 / 4 / 2 / 2 to 1 / 2 / 3 / 2 / 2 3. Mitral valve repair skill levels modified in light of feedback from 1 / 3 / 4 / 1 / 1 to from 1 / 2 / 3 / 1 / 1 4. Isolated, uncomplicated aortic valve replacement (sutureless) skill levels modified in light of stakeholder feedback from 2 / 3 / 4 to 1 / 2 / 3 5. Minimally invasive mitral valve repair/replacement skill levels modified in light of stakeholder feedback from 1 / 2 / 3 to 1 / 2 / 2 /	
Aorta Vascular Disease	**K** **TS**	1. Added Aortic dissection non A non B dissection management 2. Added knowledge of Frozen Elephant Trunk Procedure 3. Added knowledge of debranching techniques of head and neck vessels 4. Surgery for acute dissection of the ascending aorta skill levels modified in light of stakeholder feedback from 1 / 1 / 2 / 1 / 1 to 1 / 2 / 3 / 1 / 1	This is becoming a common classification and has management implications Increasing use of this procedure with improved technology Increased popularity of the technique
Miscellaneous Cardiac Conditions	**K**	1. Added Pathophysiology of Atrial fibrillation 2. Added Standalone surgical options for management of Atrial Fibrillation	Increasing knowledge of pathophysiology of atrial fibrillation. Convergent procedure with or without hybrid approach with cardiologists

	TS	3. Standalone surgical options for management of Atrial Fibrillation skill levels modified in light of stakeholder feedback from 2 / 3 / 3 / 1 / 1 to 1 / 2 / 2 / 1 / 1	
Thoracic Surgery			
General Management of a Patient Undergoing Thoracic Surgery	**K** **TS**	Page 17. CLINICAL KNOWLEDGE / Thoracic Incisions: Added robotic approaches to Types of incisions and appropriate use, including lateral, anterior, muscle sparing, video-assisted and robotic approaches. Page 19. OPERATIVE MANAGEMENT / incisions: Added robotic approach to Perform and repair thoracic incisions, including lateral, anterior, muscle sparing, VATS and robotic incisions. OPERATIVE MANAGEMENT / Mediastinal Exploration: Added robotic approach to Surgical evaluation of the mediastinum using cervical, anterior, VATS and robotic approaches.	To enable trainees to achieve completion of certification in this area through knowledge of several different approaches including robotic. To enable trainees to achieve completion of certification in this area through knowledge of several different approaches including robotic.
Neoplasms of the Lung	**TS**		
Disorders of the Pleura	**TS**		
Disorders of the Chest Wall			

Disorders of the Diaphragm	**TS**		
Emphysema and Bullae	**TS**	Change to Procedures to deal with pneumothorax and bullae by open techniques (removed 'secondary'). Page 27. Change to Procedures to deal with pneumothorax and bullae by VATS techniques (removed 'secondary'). Page 27. Added – Robotic approach to Lung volume reduction surgery using open and VATS techniques. Page 27.	References to surgery for secondary pneumothorax removed, consistent with Thoracic Index Procedures. This facilitates alignment of Thoracic Index cases for pneumothorax throughout the curriculum. References to surgery for secondary pneumothorax removed, consistent with Thoracic Index Procedures. This facilitates alignment of Thoracic Index cases for pneumothorax throughout the curriculum. To enable trainees to achieve completion of certification in this area through knowledge of several different approaches including robotic.
Disorders of the Pericardium			
Disorders of the Mediastinum	**TS**	Excision of thymus – added 'Index' to 'Index Procedure' column. Isolated resection of mediastinal cysts and tumours - added 'Index' to 'Index Procedure' column. Resection of mediastinal cysts and tumours including extended resection involving adjacent structures - added 'Index' to 'Index Procedure' column. Page 30.	To enable trainees to achieve completion of certification in this area through several different procedures. To enable trainees to achieve completion of certification in this area through several different procedures. To enable trainees to achieve completion of certification in this area through several different procedures which are common to mainstream thoracic practice (index and major).

Disorders of the Airway			
Transplantation			
Intrathoracic transplantation and surgery for heart failure	**TS**	Donor Retrieval skill level changed from 2 / 1 / 2 / 1 / 2 to 1 / 1 / 2 / 1 / 2	Correction identified from stakeholder review
Congenital			
Congenital Heart Disease			
Generic Cardiothoracic			
Critical Care and Post-operative Management			
Cardiothoracic Trauma			

APPENDIX CHANGES

Page	Appendix	Change	Reason
94	2a	New appendix, Collation of Oesophageal Requirements: 1. Oesophageal anatomy and physiology. 2. Oesophageal function tests and contrast studies. 3. Oesophageal injury. 4. Repair of oesophageal injuries. 5. Prevention, evaluation, and treatment of fistulae in the aerodigestive tract due to benign, malignant, and iatrogenic causes. 6. Management of fistulae in the aerodigestive tract by surgical and endoscopic techniques.	This change has been made in response to trainee feedback. It consolidates the requirements for oesophageal management into a dedicated appendix, providing clear guidance on certification completion. The appendix outlines multiple procedures, commonly performed in mainstream thoracic practice (both index and major), to support trainees in meeting certification standards efficiently.

96	Appendix 4 Index Procedures	<u>Cardiac index procedure changes</u> 2.*Isolated AVR* changed to *Isolated uncomplicated Aortic Valve Replacement* 4.Added *Isolated uncomplicated Mitral Valve Replacement* <u>Thoracic index procedure changes</u> 1.*Anatomical lung resection (VATS / Open)* changed to include robotic - *Anatomical lung resection (VATS / Open / Robotic)* 2.*Decortication for empyema* changed to *Decortication and/or washout of empyema* 4.Added *Resection of mediastinal lesion* Thoracic Surgery Major Cases • 3rd bullet, *Decortication for empyema* changed to *Decortication and/or washout of empyema* • 7th bullet, removed 'secondary' from *Surgery of <u>secondary</u> pneumothorax (VATS/Open)* to *Surgery of pneumothorax (VATS/Open)* • 10th bullet, added *Resection of mediastinal*	To highlight the inclusion only of straightforward AVR surgery as well as MVR This is consistent with Thoracic Index Procedures. This facilitates alignment of Thoracic Index cases for pneumothorax throughout curriculum To align with major case list and to facilitate accrual of decortication cases via other indications To enable trainees to achieve completion of certification in this area through several different procedures which are common to mainstream thoracic practice. To enable trainees to achieve completion of certification in this area through knowledge of several different approaches including robotic.

		• 11th bullet, added *Diaphragmatic surgery* • 12th bullet, added *Lung volume reduction surgery*	