General Medical Council

Anaesthetics

Appendix - Special Interest Areas (SIAs)

This guidance is to help doctors who are applying for entry onto the Specialist Register via the Portfolio pathway in Anaesthetics. You will also need to read the Anaesthetics CCT curriculum and the Specialty Specific Guidance.

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Contents

Introduction 4

SIA Groups 5

Examples of evidence required for an SIA 6

SIA – Acute Inpatient Pain 8

SIA – Additional Intensive Care 11

SIA – Anaesthesia for Bariatric Surgery 14

SIA – Anaesthesia for Cardiac Surgery 16

SIA – Anaesthesia for Complex Orthopaedic Surgery 19

SIA - Anaesthesia for Hepato-Pancreato-Biliary Surgery Complex 21

SIA – Anaesthesia for Major General Surgery 24

SIA – Anaesthesia for Neurosurgery 26

SIA – Anaesthesia for Ophthalmic Surgery 29

SIA – Anaesthesia for Patients with Complex Airway 31

SIA – Anaesthesia for Plastic Surgery and Burns Management 34

SIA – Anaesthesia for Thoracic Surgery 37

SIA – Anaesthesia for Vascular Surgery 39

SIA – Anaesthesia in Resource Poor Environments 41

SIA – Military Anaesthesia 44

SIA – Obstetric Anaesthesia 47

SIA – Paediatric Anaesthesia 50
SIA – Pain Medicine 53
SIA – Perioperative Medicine 57
SIA – Regional Anaesthesia 59
SIA – Transfer Medicine 61
SIA – Trauma and Stabilisation 64

Introduction

Special interest areas (SIAs) allow the anaesthetist to demonstrate the knowledge, skills and experience (KSE) required to be an independent practitioner. They also indicate KSE in specialised areas of anaesthetic practice that the anaesthetist may want to pursue as a consultant in the UK.

There are 22 clinical Special Interest Areas (SIAs) and currently four non-clinical SIAs (SIAs that relate to generic professional domains of learning). Applicants need to submit evidence to align with the HLO and required KSE in at least one area.

Portfolio pathway applicants are expected to evidence an indicative time of 12 months (whole time equivalent) worth of evidence in a Special Interest Area (SIA), which can be demonstrated through a single SIA or a combination of SIAs. Spending time in SIAs allows doctors to develop knowledge, skills and experience required to be an independent practitioner in a more specialised area of anaesthetics practice. The SIA experience does not have to be completed as a continuous block, and specific/minimum numbers of cases/procedures are not mandated. However, applicants should provide logbooks and SLEs at the required supervision level, alongside examples of a broad scope of evidence *related to the SIA*, such as audits/quality improvement projects, development of guidelines and policies, or presentations at national and international level, which demonstrate acquisition of the SIA learning outcomes. Examples of how you might evidence achievement of the SIAs KSE can be found here.

Applicants must therefore demonstrate one of the following:

- Minimum of one Group 1 SIA (indicative time of 12 months)
- Two SIAs from Group 1 (indicative time of six months in each)
- One SIA from Group 1 (indicative time of six months) plus one SIA from Group 2 (indicative time of six months)
- One SIA from Group 1 (indicative time of six months) plus two SIAs from Group 2 (indicative time of three months each)
- Two SIAs from Group 2 (indicative time of six months each)
- Three SIAs from Group 2 (indicative time of four months each)
- Additional Intensive Care (indicative time of six months) PLUS one SIA from Group 1 (indicative time of six months)
- Additional Intensive Care (indicative time of six months) PLUS one SIA from Group 2 (indicative time of six months)
- Additional Intensive Care (indicative time of six months) PLUS two SIAs from Group 2 (indicative time of three months each)

There are also non-clinical SIA's which include '*Research and Managing Data', 'Safety and Quality Improvement', Management and Professional and Regulatory Requirements', and 'Education and Training'*. Each of these options is a maximum of an indicative six months, and applicants may select **only one** as their SIA. If they do so, they must also demonstrate one of the following:

- One SIA from Group 1 (indicative time of six months)
- One SIA from Group 2 (indicative time of six months)
- Two SIAs from Group 2 (indicative time of three months each)

SIA Groups

Group 1

Clinical SIAs

- Anaesthesia for Cardiac Surgery
- Anaesthesia for Neurosurgery
- Obstetric Anaesthesia
- Paediatric Anaesthesia
- Pain Medicine

Group 2

Clinical SIAs

- Acute Inpatient Pain
- Anaesthesia for Bariatric Surgery
- Anaesthesia for Complex Orthopaedic Surgery
- Anaesthesia for Hepato-Pancreato-Biliary Surgery
- Anaesthesia for Major General Surgery

- Anaesthesia for Ophthalmic Surgery
- Anaesthesia for Patients with Complex Airway
- Anaesthesia for Plastic Surgery and Burns Management
- Anaesthesia in Resource Poor Environments
- Anaesthesia for Thoracic Surgery
- Anaesthesia for Vascular Surgery
- Military Anaesthesia
- Perioperative Medicine
- Regional Anaesthesia
- Transfer Medicine
- Trauma and Stabilisation
- Additional ICM

Non-Clinical SIAs

- Safety and Quality Improvement
- Research and Managing Data
- Education and Training
- Management and Professional Regulatory Requirements

Examples of evidence required for an SIA

The following are generic illustrations of KSE required across all 26 areas, but each SIA will have its own specifications with further information and evidence that needs to be provided, as detailed in this document. Please refer to the SSG for specific details on the type and format of evidence accepted and how to present and organise your evidence.

Experience & Logbook

- Experience in Special Interest area

SLEs or similar WPBA methods can be used to demonstrate:

- Experience of and SLEs for cases in special interest area
- Practical procedures relevant special interest area (at least supervision level 3)

Personal Activities and Personal Reflections may include:

- Courses: National and International meetings relevant to special interest area, leadership, management
- Abstract presented at meeting relevant to special interest area
- Evidence of a quality improvement project with a 'fully closed loop'
- Development of policies and guidelines relevant to special interest area
- Satisfactory MSF
- Satisfactory consultant feedback

SIA – Acute Inpatient Pain

Standard expected
SIA High-level Learning Outcome(s):
1. Managing pain in inpatients (acute pain, acute on chronic pain, chronic pain, and cancer pain)

Knowledge	• Delivers evidence-based pain medicine • Recognises need to liaise with specialty services such as liaison psychiatry and addiction medicine services and refers where appropriate
Skills	• Provides safe and effective pharmacological management of acute and procedural pain in all age groups • Demonstrates an ability to perform necessary practical pain-relieving procedures for safe, effective evidence-based practice • Demonstrates effective consultation skills in challenging areas (e.g. ventilated in ICM, non-verbal patient and those with learning difficulties)
Experience	• Can lead an acute inpatient pain team and use a biopsychosocial model of care • Delivers complex patient centred care emphasising shared decision making with the patient and other health professionals • Facilitates referrals to specialist palliative care and end of life care when needed

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook**

and Experience (KSE)	• Experience of managing acute and acute on chronic pain in the acute hospital setting and in pain management clinics, pain intervention lists (if available in that area), pain interventions as part of end of life care which may include terminal care setting. **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Safe and effective pharmacological management of acute, acute on chronic and procedural pain in all groups • Explanation of clinical reasoning behind diagnostic and clinical management decisions to patients/carers/guardians and other colleagues • Appropriate pharmacological knowledge for safe short and long term prescribing of opioids • Ability to manage complications from interventional procedures and pharmacological management for pain • Appropriate clinical reasoning by analysing physical and psychological findings • Appropriate and timely liaison with other medical specialty services when required • Application of effective team working strategies to ensure that effective prioritisation, communication and shared decision making occurs • Development of an individualised care plan, including anticipatory prescribing at end of life • Appropriate application of evidence based treatments for pain management • Practical procedural skills for management of acute inpatient pain • Lead inpatient pain review round in collaboration with MDT. **Personal Activities and Personal Reflections may include:** • National and international courses or conferences related to Acute Inpatient Pain • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies related to Acute Inpatient Pain • Leadership training and demonstration of ability to lead an inpatient acute pain service • Attendance at multi-disciplinary pain meetings.

	Other evidence • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 9 – General Anaesthesia Domain 13 – Pain

SIA – Additional Intensive Care

Standard expected
SIA High-level Learning Outcome(s):
1. Provides safe and effective care for critically ill patients with occasional specialist help and guidance

Knowledge	• Recognises the limitations of intensive care; employs appropriate admission criteria • Recognises, assesses and initiates management for acutely ill adults across the spectrum of single or multiple organ failure • Recognises the acutely ill child and initiates management of paediatric emergencies • Recognises and manages the patient with sepsis and employs local infection control policies
Skills	• Performs safely and effectively the clinical invasive procedures required to maintain cardiovascular, renal, and respiratory support • Undertakes and evaluates laboratory and clinical imaging investigations to manage patients while critically ill during their intensive care stay • Plans and communicates the appropriate discharge of patients from intensive care to healthcare professionals, patients and relatives • Liaises with transplant services when appropriate, can perform brain stem death testing and provides the physiological support of the donor
Experience	• Manages the medical / surgical needs and organ support of patients during their critical illness, including the holistic care of patients and relatives • Manages end of life care within the intensive care environment with patients, relatives and the multi-professional team • Supports clinical staff outside the ICU to enable the early detection of the deteriorating patient

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Experience in an ICU. • ICU follow up clinics. **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Assessment and management of cases in accordance with capability levels set out above • Examples may include management of severe sepsis, multi-trauma, post-operative management following complex major surgery, severe burns, diagnosis of brain stem death and management of the potential organ donor • Assessment of acutely ill child including initial resuscitation of paediatric emergencies • Practical procedures appropriate to "*maintain cardiovascular, renal and respiratory support*" • Other practical procedures may include percutaneous tracheostomy, bronchoscopy, use of ultrasound in intensive care including use of echocardiography • ICU Ward round management and discharge planning • Critical Care Outreach review • Communication with relatives including discussion of withdrawal of support. **Personal Activities and Personal Reflections may include:** • National or international meetings related to Intensive Care Medicine • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies related to Intensive Care Medicine • Leadership of QI projects related to ICM • Review of mortality • Teaching and training of other medical and nursing staff and allied health professionals • Simulation training related to management of critical care scenarios • Attendance at debriefing sessions following stressful episodes

	• Leadership training and demonstration of ability to lead ICU ward rounds • Attendance at ICU follow up clinics and appreciation of post intensive care syndrome • Attendance at ICU business or multidisciplinary meetings • Attendance at Trust or Health Board senior management meetings. **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 9 – General Anaesthesia Domain 11 - Resuscitation and Transfer Domain 14 - Intensive Care

SIA – Anaesthesia for Bariatric Surgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative airway and anaesthetic care independently for patients undergoing bariatric surgery***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge	• Describes the pathophysiology and anaesthetic implications of different sleep disordered breathing conditions • Describe methods of testing and be able to interpret and act on the results of sleep studies
Skills	• Provides risk stratification to patients with obesity related co-morbidity on their peri operative risk profile • Demonstrate techniques to prolong safe apnoea time, and techniques for managing the difficult airway in the patient requiring bariatric surgery
Experience	• Provides safe anaesthesia and ventilation strategies for all main weight loss surgical procedure

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Experience of a range of bariatric surgical procedures • Pre-operative assessment of patients planned for bariatric surgery including use of different risk scoring systems and indications for further investigation. **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:**

	• Assessment and management of cases with high BMI including those undergoing obesity surgery • Understanding of the different factors relevant to airway management in these patients • Evaluation of sleep studies and their impact on the perioperative management including indications for referral • Assessment and management of complications associated with high Body Mass Index (BMI) such as OSA and VTE management • Use of TIVA in management of bariatric patients including discussion of the different models involved. **Personal Activities and Personal Reflections may include:** • National and international meetings related to anaesthesia for bariatric surgery and specialist societies • Presentation at relevant meeting e.g., abstract or free paper • Development of guidelines and policies related to management of patients with high BMI • Leadership of QI projects related to patients with high BMI undergoing surgical procedures • Leadership training. **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia

SIA – Anaesthesia for Cardiac Surgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Is able to deliver safe perioperative care for the cardiac surgical patient or for an interventional procedure***
2. ***Can contribute to a multidisciplinary ward round within the cardia intensive care unit***

Knowledge	• Evaluates point of care tests and utilises appropriate bleeding algorithms to manage peri and post bypass operative bleeding • Explains the principles of cardiac transplantation • Undertakes learning and delivery of transoesophageal echocardiography
Skills	• Manages the anaesthetic care of a complex valve case and a major aortic case with local supervision • Can assess and provide perioperative care for off pump cardiac surgical procedures independently • Manages cardiac surgical cases with poor biventricular function and plans on-going care • Can manage emergency anaesthesia for post cardiac surgical complications • Manages patients requiring mechanical circulatory support during the perioperative period
Experience	• Provides anaesthesia for a cardiac surgical lists of uncomplicated CABG, AVR or combined procedures independently • Provides anaesthesia for a cardiac surgical lists of uncomplicated CABG, AVR or combined procedures independently • Provides intensive care to the post operative cardiac surgical patient

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Appropriate preoperative assessment whether in a preoperative clinic or ward based assessment with interpretation of the relevant preoperative investigations to plan appropriate care for the patient

and Experience (KSE)	• Logbook should demonstrate a range of cardiac cases - elective, urgent and emergency including coronary artery bypass surgery, valve surgery, and surgery on the thoracic aorta. Some time should be spent in the cardiac catheter suite to support minimally invasive and structural work • Experience in / exposure to transplant or ECMO services • Intraoperative care should include appropriate use of inotropes and vasopressors and management of cardiac surgical bleeding supported by Point of Care analysis • Development of trans-oesophageal echocardiography hands on skills and interpretation of basic images. • Participate and go on to lead a cardiac intensive care ward round with the relevant communications to surgeons, senior nurses, and other members of the MDT and escalation or de-escalation of care to patients which may include haemofiltration, percutaneous tracheostomy and referral to a specialist unit. **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Understanding and discussion of the principles of safe cardiopulmonary bypass • Effective communication triad between lead surgeon, lead anaesthetist and clinical perfusionist • Advanced vascular access - pulmonary artery catheter • Basic TOE logbook with attendance at appropriate course • Delivery of anaesthesia with distant supervision for an elective aortic valve replacement, CABG or combination of both • Returning a patient to theatre for bleeding independently and escalate the appropriate haemorrhage management • Participation in patient MDT in preparation for theatre and/or Cardiac ICU **Personal Activities and Personal Reflections may include:** • National and international meetings related to anaesthesia for cardiac surgery • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies related to management of patients for cardiac surgery • Leadership of QI projects related to anaesthesia for cardiac surgery • Leadership training.

	Other evidence • Satisfactory MSF
Supervision Level	**3** - supervisor on call from home for queries able to provide directions via phone or non-immediate attendance.
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 14 – Intensive Care Medicine

SIA – Anaesthesia for Complex Orthopaedic Surgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex orthopaedic procedures independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice to the benefit of both patients and the organisation***

Knowledge	• Engages in local policy making for orthopaedic anaesthetic and analgesic techniques
Skills	• Independently manages the perioperative care of patients for major complex orthopaedic surgery including scoliosis surgery, pelvic surgery and major orthopaedic cancer surgery • Ability to perform a variety of regional anaesthesia techniques for peri-operative analgesia and to facilitate rehabilitation
Experience	• Can independently practice safely a wide range of regional techniques for all upper limb and shoulder surgery under block alone, including the management of continuous nerve catheters for post-operative analgesia • Can independently practice safely a wide range of regional techniques for lower limb surgery, including the management of continuous nerve catheters for post-operative analgesia

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Preoperative clinic based assessment and preparation for surgery of patients • A wide range of cases including patients for revision arthroplasty, major complex oncological resections and scoliosis/oncological spinal surgery.

and Experience (KSE)	**Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Preoperative assessment for high risk orthopaedic cases • Ability to manage major haemorrhage • Ability to provide safe and effective postoperative analgesic options • Effective list management. **Personal Activities and Personal Reflections may include:** • National and International meetings related to anaesthesia for complex orthopaedic surgery • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to anaesthesia for complex orthopaedic surgery • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 10 – Regional Anaesthesia

SIA - Anaesthesia for Hepato-Pancreato-Biliary Surgery Complex

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex hepta-pancreato-biliary procedures***
2. ***Is capable of leading the delivery of care in this area of practice, to the benefit of both patients and the organisation***

Skills	• Provides comprehensive safe anaesthetic perioperative care for major hepatobiliary surgery
Experience	• Manages the perioperative care of patients undergoing major pancreatic surgery recognising and planning for the metabolic consequences of the procedure • Manages the perioperative care for patients undergoing intra-abdominal organ transplantation • Management of portal hypertension with an emphasis on provision of anaesthesia or monitored anaesthesia care for transjugular intrahepatic portosystemic shunt (TIPS) procedure

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Attendance at hepatobiliary pre-assessment clinic, assessing patients for major cancer work affecting the liver and pancreas • Attend theatre - deliver anaesthesia for a wide range of cases including lap and open liver resections, pancreatic surgery – PPPD, Whipple procedure, distal pancreatectomy and splenectomy; understand the differences in techniques and the risks associated for the patient • Gain an understanding of neuroendocrine and adrenal tumours, such as phaeochromocytomas where experience is available

	• Liver transplantation – risks/ benefits/assessment – attendance at inpatient and outpatient assessment clinics and MDT • Attendance at monthly hepatobiliary and liver MDT • Assess patients for surgery secondary to liver transplants – hernias/ biliary reconstruction • Understand thrombo-elastography (TEG) and the management of major haemorrhage • Vascular access / Lidco / TOE / Pulmonary artery floatation catheters. **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Pre-operative assessment for hepatobiliary patients including high risk cases • Understanding and discuss of the techniques used for different operations and understand why they are used • Delivery of anaesthesia for simple liver resections and pancreatic surgery independently • Discussion of the management of neuro-endocrine tumours and adrenal patients where experience is available • Management of parts of a liver transplant operation based on skillset and abilities • Planning post-operative analgesia based on the operation • Observed practice of practical skills – TEG interpretation/ venous access/ thoracic epidurals. **Personal Activities and Personal Reflections may include:** • National and international meetings related to anaesthesia for HPB surgery • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies related to management of patients for HPB surgery • Leadership of QI projects related to anaesthesia for HPB surgery • Leadership training • Participation in audit and/or research in the liver unit **Other evidence** • Satisfactory MSF
Supervision Level	**3** - supervisor on call from home for queries able to provide directions via phone or non-immediate attendance.

Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 14 – Intensive Care

SIA – Anaesthesia for Major General Surgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex general surgical, urological and gynaecological patients***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge	• Knows and can evaluate developments in the anaesthetic care for complex procedures for cancer surgery across the general surgical, gynaecological and urological disciplines
Skills	• Provides and evaluates safe perioperative care for patients with significant co-morbidities for complex intra-abdominal surgery across all surgical disciplines • Provides expert perioperative care for patients with complex endocrine surgery
Experience	• Can assist colleagues in the perioperative planning and management of major cases

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Pre-operative assessment clinics including risk assessment for patients undergoing major abdominal surgery and planning for high-risk patients • Involvement with pre-operative surgical preparation pathways such as enhanced recovery • Experience of broad range of elective and emergency major procedures in general, gynaecological and urological surgery including major cancer and intra-abdominal endocrine surgery such as adrenal gland and carcinoid tumours.

	Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate: • Involvement of multi-disciplinary team in shared decision making for high-risk patients undergoing major procedures • Pre-operative preparation of patients with endocrine abnormalities for example thyroid and parathyroid disease • Assessment and peri-operative management of patient undergoing elective major intra-abdominal cancer surgery • Analgesic strategies and techniques for patients undergoing intra-abdominal procedures • Management of patients for minimally invasive abdominal and pelvic surgery including effects of positioning for prolonged laparoscopic procedures **Personal Activities and Personal Reflections may include:** • National and international meetings related to anaesthesia for major general surgery • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies related to management of patients for major general surgery including pre-operative preparation and enhanced recovery programmes • Leadership of QI projects related to anaesthesia for major general surgery • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 14 – Intensive Care

SIA – Anaesthesia for Neurosurgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex neurosurgical and neuroradiological procedures independently***
2. ***Is capable of leading the delivery of care in this area of practice, to the benefit of both patients and the organisation***

Knowledge	• Describes and implements an anaesthetic plan for the complex endocrine and electrolyte disorders that accompany intracranial pathology
Skills	• Delivers safe perioperative care to adults requiring elective intracranial surgery both supratentorial and infratentorial including craniotomies for vascular lesions, pituitary surgery • Delivers safe peri-operative anaesthetic care to adults for emergency intracranial surgery, CSF diversions, spinal surgery and endovascular thrombectomy • Delivers safe perioperative care to adults requiring complex spinal surgery • Delivers safe anaesthetic care for neuro-radiological investigations and interventions such as coiling, embolisation and endovascular thrombectomy
Experience	• Analyses the risks and benefits of available anaesthetic techniques for differing neuroscience procedures including TIVA, processed EEG, neurophysiological monitoring, awake testing, and the implications of patient positioning

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)

Experience and logbook

- Preoperative clinic experience and the assessment and optimisation of patients presenting for elective neurosurgical procedures
- A wide range of elective cases, which may include simple and complex spinal procedures, neurovascular procedures (surgical and interventional neuro-radiological), other neuroimaging e.g. MRI, trans-sphenoidal cases, neuro-oncology, functional neurosurgery, paediatric neurosurgery and may include awake craniotomies
- Perioperative management of emergency neurosurgical presentations which may include decompressive craniectomy, emergency craniotomies, CSF diversion procedures, emergency spinal surgery, urgent neuro-radiological procedures such as aneurysm coiling or mechanical thrombectomy, and management of the patient with traumatic brain or spinal injury
- Experience may also include neuro-critical care, and the resuscitation and transfer of patients with neurological injury or pathology

Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:

- Management of any of the above cases
- Effective list management of an elective or emergency neurosurgical or neuroradiology session
- Pre-operative assessment and optimisation of patients with complex neurological needs, for example patients with movement disorders, complex epilepsy, endocrine sequelae of pituitary disease, or with medical comorbidities, which may complicate neurosurgery e.g. conditions requiring anticoagulation
- Appreciation of the balance between risks and benefits of neurosurgery and anaesthesia in complex or frail patients and ability to work with patients, their families and multidisciplinary colleagues to plan best care
- Ability to safely position patients in a variety of positions for surgery and with different equipment, e.g. prone or park bench positioning, use of Allan table or stereotactic or robotic head-frames
- Advanced airway management skills relevant to neuro-anaesthesia e.g. awake intubation techniques, video-laryngoscopy
- Ability to adapt anaesthetic technique to facilitate neurophysiological monitoring, e.g. TIVA anaesthesia and intraoperative neuro-monitoring, awake cranial procedures, intra-operative EEG monitoring

Personal Activities and Personal Reflections may include:

	• National and international meetings related to neuro-anaesthesia • Presentation at relevant meeting e.g. abstract or free paper • Development of neuro-anaesthetic or neuro-critical care guidelines and policies • Leadership of QI projects related to neuro-anaesthesia • Attendance at neurosurgical or neuro-radiological MDT meetings • eLearning relevant to neuro-anaesthesia and neurological conditions • Sessions with radiology learning interpretation of neuroimaging • Participation and leadership in local/regional/national neuro-anaesthesia teaching • Simulation in neuro-anaesthesia and related emergencies **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 14 – Intensive Care

SIA – Anaesthesia for Ophthalmic Surgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex ophthalmic procedures independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice to the benefit of both patients and the organisation***

Knowledge	• Delivers perioperative anaesthetic management of patients having orbital surgery or vitreo-retinal surgery including specific considerations in laser treatment • Delivers safe anaesthetic management of patients for glaucoma surgery appreciating the different types of procedures undertaken and any specific anaesthetic requirements
Skills	• Provides safe and effective peribulbar and sub-Tenon's regional anaesthesia in appropriate patients for ophthalmic surgery, understanding implications of biometry measurements and B scan results • Provides safe perioperative management of children for ophthalmic surgery including those with complex congenital syndromes
Experience	• Manages the perioperative care of patients having complex cornea surgery including the issues relating to tissue transplant

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for	**Experience and logbook**

Knowledge, Skills and Experience (KSE)	• Experience of a wide range of elective and emergency ophthalmic procedures including those in children **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Assessment and management of cases as detailed in key knowledge, Skills and Experience • Management of intra-ocular pressure • Implications of use of laser in ophthalmic theatres • Ability to provide ophthalmic regional anaesthesia • Liaison with surgical team in the management of complex patients • Safe sedation for ophthalmic surgery under local anaesthesia • Management of ophthalmic trauma including open globe injuries **Personal Activities and Personal Reflections may include:** • National and international meetings related to ophthalmic anaesthesia • Presentation at relevant meeting e.g. abstract or free paper • Teaching and training junior staff; this can include the use of part simulators for ophthalmic regional anaesthesia • Development of guidelines and policies related to ophthalmic anaesthesia • Leadership of QI projects related to ophthalmic anaesthesia • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 10 – Regional Anaesthesia

SIA – Anaesthesia for Patients with Complex Airway

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative airway and anaesthetic care for a wide variety of patients with complex airway problems independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge	• Can plan and manage at-risk extubation • Utilises techniques for apnoeic oxygenation and ventilation
Skills	• Performs awake and asleep intubation in all patients with advanced airway pathology • Proficient in front of neck access to the airway
Experience	• Is a senior decision maker within the multi-disciplinary team in planning the appropriate airway management in patients with advanced airway pathology • Can proficiently manage the difficult paediatric airways that may present in any non-specialist hospital • Is proficient in independently managing anaesthesia for patients needing a wide range of major head and neck surgeries

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Pre-operative clinic based assessment and multi-disciplinary planning for the suitability of surgery of patients with complex head and neck pathology like cancer, infection and congenital or acquired anatomical deformities

and Experience (KSE)	• Range of experience in theatres including ENT and head and neck surgery and specialist paediatric lists
	
	Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:
	
	• Pre-operative assessment and management of complex head and neck surgery patient
	• Leadership of multi-disciplinary planning for patients with complex airways
	• Practical procedures such as:
	  ○ Video-laryngoscope assisted intubations using both MAC and hyper angulated blades
	  ○ Pre-operative nasendoscopy
	  ○ Awake and asleep fibre-optic intubation
	  ○ Awake bronchoscopies
	  ○ Front of neck access techniques: ultrasound guided, mannequin, cadaver
	  ○ Jet ventilation (tube-less surgeries)
	  ○ Apnoeic oxygenation techniques
	• Ability to interpret investigations like CT head and neck and CT chest to aid the planning of complex airway management
	• Use of innovative techniques for complex airway management
	
	Personal Activities and Personal Reflections may include:
	
	• National and international meetings related to management of complex airways, for example Difficult Airway Society meetings
	• Difficult airway training courses
	• Presentation at relevant meeting i.e. abstract or free paper
	• Development of guidelines and policies related to airway management
	• Leadership of QI projects related to airway management
	• Involvement with local/regional educational programs for teaching airway skills
	• Leadership training
	• Attendance at MDT ENT - radiology teaching sessions
	• Attendance at ENT clinics (nasendoscopy experience)
	• Attendance at respiratory bronchoscopy sessions.

	Other evidence • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 9 – General Anaesthesia

SIA – Anaesthesia for Plastic Surgery and Burns Management

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide range of complex plastics and burns cases independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge and Skills	• Provides the perioperative care of a patient independently undergoing complex plastic surgical procedures or major burns excision and grafting • Manages the initial assessment, plans, manages and evaluates the ongoing care of a severely burned patient from any cause • Management of inhalational injuries including use of bronchoscopy and management of carbon monoxide and cyanide poisoning • Provides effective analgesia and sedation for change of dressing in a severely burn injured patient
Experience	• Acts as a senior decision maker in the burns multidisciplinary ward round • Is proficient in the performance of regional anaesthetic techniques for the upper and lower limb

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Experience of a wide range of elective and emergency plastic surgery and burns procedures including those in children

and Experience (KSE)	• Experience in the emergency management of major burns injuries **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Emergency assessment, resuscitation, and ongoing management of patients with major burn injury including airway management and organ support • Management of fluid resuscitation following major burn injury • Bronchoscopy assessment of inhalational lung injury • Perioperative management of patients undergoing major burns excision and grafting • Management of dressing changes including different analgesia and sedation techniques • ICU management of patients with major burn injury requiring multi organ support • Perioperative management of patients undergoing free flap surgery • Perioperative management of patients undergoing reconstructive surgery • Management of major haemorrhage during major burns/plastics surgery including blood conservation techniques • Perioperative management of emergency plastic surgery cases including the use of regional techniques **Personal Activities and Personal Reflections may include:** • National and international meetings related to plastic surgery and burns management • Attendance at regional education meetings • Presentation and discussion of cases at local, regional, and national network meetings • Burns specific resuscitation courses • Development of guidelines and policies for management of Burns • Leadership of QI projects related to plastic surgery and burns management • Leadership training • Simulation training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).

Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 11 - Resuscitation and Transfer Domain 13 - Pain Domain 14 - Intensive Care

SIA – Anaesthesia for Thoracic Surgery

Standard expected
SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a thoracic surgical patient***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge and Skills	• Can assess and management the perioperative care thoracoscopic video assisted lung or pleural biopsy independently • Preoperative assessment and anaesthetic management of patients with recurrent pneumothoraces, pleurectomy or bullectomy • Manages airway interventions for benign and malignant disease including tracheal stents and tumour debulking • Manages independently the patient with pleuro-pulmonary sepsis
Experience	• Manages independently the perioperative care of patients for a wide range of major thoracic surgical procedures • Provides a range of appropriate perioperative multimodal pain management for thoracic procedures

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Preoperative clinic based assessment of suitability and preparation for surgery of patients with diseases of the lungs, pleura, mediastinum and chest wall • A wide range of cases including patients undergoing lung resection, mediastinal surgery, and pleural surgery • Management of thoracic trauma including haemothorax and pneumothorax

	• Management of patients undergoing tracheal surgery **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Pre-operative assessment for thoracic surgical patients including high risk cases • Understanding of techniques for airway management during tracheal surgery • Ability to manage patients undergoing lung resection, pleural surgery, mediastinal surgery and diagnostic procedures • Management of single lung ventilation and its consequences • Ability to achieve lung isolation with double lumen tubes and bronchial blockers • Ability to provide safe and effective postoperative analgesia • Effective list management **Personal Activities and Personal Reflections may include:** • National and international meetings related to thoracic anaesthesia • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to thoracic anaesthesia • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 10 - Regional Anaesthesia Domain 13 - Pain

SIA – Anaesthesia for Vascular Surgery

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex vascular cases independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge	• Appreciates the complexities in organising regional vascular services
Skills	• Capable of providing advanced cardiovascular risk assessment relating to vascular surgery
Experience	• Manages the perioperative care of elective and emergency open AAA repair • Manages the perioperative care of complex endovascular repair of thoracic and aortic aneurysms • Manages the perioperative care for patients requiring carotid endarterectomy under general and regional anaesthesia • Provides perioperative care for patients requiring vascular access procedures for renal dialysis

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Pre-operative assessment clinics including evaluation of cardiovascular risk • Broad experience of elective and emergency vascular surgery including carotid arterial procedures, aortic surgery, aorto-iliac occlusive disease procedures **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:**

	• Perioperative care of high risk patient undergoing vascular surgery • Involvement of multi-disciplinary team in shared decision making for high risk surgery • Regional anaesthesia for vascular procedures including techniques for carotid endarterectomy. • Management of major haemorrhage during emergency vascular surgery including blood conservation techniques. • Ability to use specific techniques during anaesthesia to minimise effect of surgery such as spinal cord protection and maintenance of renal function • Intra-operative monitoring techniques for vascular procedures including cardiovascular and neurophysiological monitoring • Management of complications relating to carotid surgery • Assessment and management of patients with ruptured abdominal aortic aneurysm **Personal Activities and Personal Reflections may include:** • National and international meetings related to vascular anaesthesia • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to vascular anaesthesia • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 11 – Resuscitation and Transfer Domain 13 – Pain Domain 14 – Intensive Care Medicine

SIA – Anaesthesia in Resource Poor Environments

Standard expected
SIA High-level Learning Outcome(s):
1. Provide safe perioperative anaesthetic care in a resource poor environment

Knowledge	• Describes the culture, customs and political influence (if appropriate) to healthcare in the particular resource poor environment • Explains the impact of local epidemiology that may influence delivery of anaesthesia and peri-operative care • Works with the local hospital governance and management structure
Skills	• Provides perioperative management of patients undergoing a wide range of surgical procedures and acutely sick patients requiring post-operative care within the local environment adapting to the available resources • Teaches and trains the multidisciplinary team including anaesthetic clinical officers, doctors, theatre staff and medical students within limited educational resources
Experience	• Describes the challenges to deliver sustainable healthcare within the particular environment

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Logbook demonstrating use of appropriate regional or general techniques, for resource limited environment, of a wide range of patients undergoing elective or emergency surgery

and Experience (KSE)	• Logbook evidence of experience managing anaesthesia particularly in obstetric, trauma and paediatric patients • Experience in delivering multidisciplinary team teaching and clinical anaesthesia in resource poor environment **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Ability to manage patients using draw-over or hybrid anaesthesia machine, ketamine anaesthesia, and resource appropriate regional or local techniques • Safe pre-operative management of patients presenting with undiagnosed or poorly treated chronic conditions • Ability to manage the perioperative care of emergency cases including the post-operative level 2 or 3 care with available local resources, including referral • Inclusive approach to list management, leading a multidisciplinary team of mixed abilities and language • Understanding of the cultural and political influences on low resource health systems • A systematic approach to theories of change and principles of sustainable development **Personal Activities and Personal Reflections may include:** • Attendance at national and international meetings or courses related to world anaesthesia, including presenting/speaking • Development of guidelines and policies alongside local counterparts • Involvement in teaching opportunities for the multidisciplinary team • Training focused on delivery of education in low resource settings (e.g. SAFE) • Development of skills in a foreign language • Understanding of the impact conscious and unconscious biases on delivery of healthcare and education to low resource settings • Involvement in organisations promoting safe global anaesthesia (e.g. World Anaesthesia Society, RCoA Global Partnerships, GASOC, MSF) • Diploma in Tropical Medicine and Hygiene • Global Health Medicine certification (PGCert, Dip or MSc) • Diploma in the Medical Care of Catastrophes **Other evidence**

	• Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 10 - Regional Anaesthesia Domain 13 – Pain

SIA – Military Anaesthesia

Standard expected

SIA High-level Learning Outcome(s):

1. ***Considers the knowledge, skills and behaviours necessary to provide resuscitation, anaesthesia and ongoing care for patients in the deployed military environment***

Knowledge	• Contrasts interoperability and cultural issues between UK Defence Medical Services and multinational partners and intergovernmental agencies • Evaluates different medical treatment facilities and their capabilities, considering the knowledge and skills necessary to operate and sustain them • Compares the structures and responsibilities within the Defence Medical Services, as well as Land, Fleet and Air Commands
Skills	• Evaluates the roles of anaesthesia within the operational patient care pathway • Evaluates the impact of Human Factors, Ergonomics and Crew Resource Management on performance during management of military patients in a deployed environment • Considers the challenges of delivering clinical care, with potential prolonged holding, in a resource limited environment • Considers Chemical, Biological, Radiological and Nuclear issues in the context of anaesthesia • Considers the role of anaesthesia in rehabilitation and anaesthetic considerations specific to the care of veterans
Experience	• Plans the management of military trauma including major bleeding • Operates and safely uses relevant military clinical equipment

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • A wide range of cases including major trauma, management of haemorrhage and massive blood transfusion, regional anaesthesia (particularly in trauma) and inter-hospital critical care transfers **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Ability to manage the resuscitation and anaesthesia requirements of patients suffering major trauma • The management of resuscitation in major haemorrhage including massive blood transfusion • Ability to use deployed anaesthetic equipment • Understanding of the operational patient care pathway **Personal Activities and Personal Reflections may include:** • National and international meetings related to military anaesthesia • Presentation at relevant meeting e.g., abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to military anaesthesia • Leadership training • Simulation training • Attending the Military Operational Surgical Team Training (MOSTT) Course, the Defence Anaesthesia Simulation Course (DASC), the Medical Emergency Response Team (MERT) Course and the CBRN Clinical Course • Deployment on operations and exercises in Land, Air and Maritime Medical Treatment Facilities (MTFs) **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).

Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 14 – Intensive Care Medicine

SIA – Obstetric Anaesthesia

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex obstetric cases independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge	• Is up to date with evidence-based guidance and publications to be equipped to represent obstetric anaesthetic services at a range of Trust maternity management meetings • Explains the essential principles of obstetric practice including basic CTG interpretation
Skills	• Provides safe anaesthetic care for complex deliveries in all patients • Develops, organises and evaluates multidisciplinary drills training and teaching in obstetrics
Experience	• Evaluates and triages the daily obstetric anaesthesia workload for labour ward and obstetric theatre to maximize patient and service benefit • Evaluates and introduces evidence-based obstetric anaesthetic practice • Collaboratively manages the critically ill parturient requiring single-organ support on labour ward, recognising when to escalate care, including safe transfer if required

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for	**Experience and logbook**

Knowledge, Skills and Experience (KSE)	• Experience in obstetric unit with wide range of cases including mothers with complex medical needs and high dependency unit caring for obstetric patients • Exposure to multi-disciplinary team (MDT)meetings and obstetric management meetings **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Pre-operative assessment for high-risk cases • Understanding and knowledge of difficult airway management in obstetric cases • Management of obstetric emergencies • Management of critically ill patients • Ability to manage and provide safe and effective anaesthesia and analgesia for obstetric patients in the elective and emergency setting • Elective Caesarean section list management • Labour ward management of workload • Effective management of high-risk patients • Management of non-obstetric surgery in pregnancy • Leading ward round of high dependency unit obstetric patients • Leadership and delegation by leading anaesthetic handover, managing elective list and delivery suite workload • Involvement with obstetric patients with complex medical needs e.g. congenital cardiac diagnoses • Safeguarding issues in obstetric patients with learning difficulties, mental health issue or under age pregnancy • Ethical dilemmas e.g., consent for delivery and anaesthetic in pregnant patients with severe mental health issue • Perioperative assessment and MDT discussion for pregnant women with complex medial background **Personal Activities and Personal Reflections may include:** • Attending and leading high risk obstetric anaesthetic clinics to formulate management plans • Attending MDT meetings to plan patient care • Attending Obstetric management meetings • Shadowing members of the MDT to appreciate their roles e.g. Lead Labour Ward Midwife, Consultant Obstetrician • Teaching on PROMPT, BOAST, simulation courses • Attending CTG teaching

	• Attendance at joint obstetric specialist clinics e.g. cardiac/haematology • Supervision/mentorship of junior anaesthetists doing IACOA/stage 1 obstetric anaesthesia • National and International meetings related to obstetric anaesthesia • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to obstetric anaesthesia • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 10 – Regional Anaesthesia

SIA – Paediatric Anaesthesia

Standard expected
SIA High-level Learning Outcome(s):
<u>For a district general hospital anaesthetist with a regular commitment to children's anaesthesia:</u>

1. ***Provides safe perioperative anaesthetic care for a wide variety of paediatric procedures performed in the district general hospital environment independently***

<u>For the paediatric specialist in a tertiary centre, additionally:</u>

1. ***Provides safe perioperative anaesthetic care for a wide variety of complex paediatric (including neonates) surgery and other procedures independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

For those intending to practice and potentially lead paediatric anaesthesia in a non-tertiary setting:	
Knowledge	• Explains NHS policy for the provision of paediatric services
Skills	• Provides safe anaesthesia in both the emergency and elective setting utilising techniques to reduce anxiety in all ages including premature babies • Can gain arterial, intraosseous, peripheral and central vascular access in children and babies
Experience	• Delivers safe perioperative care to all paediatric patients requiring surgery in a district general setting, including those with complex co-existing disease • Uses a wide range of analgesic strategies perioperatively including simple regional techniques for surgeries routinely performed in a district general hospital setting • Manages massive transfusion in children

For those intending to practice in a tertiary paediatric setting (in addition to above):

Skills	• Delivers safe perioperative care to all paediatric patients requiring surgery in tertiary paediatric setting including those with complex co-existing disease
Experience	• Uses a wide range of analgesic strategies perioperatively for complex paediatric patients requiring major surgery

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Experience of a wide range of paediatric cases in an elective and emergency setting including paediatric trauma, emergency surgery and procedures such as laryngotracheobronchoscopy • Experience of neonatal anaesthesia • Resuscitation and stabilisation of the critically ill child **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Preoperative assessment including planning for induction of anaesthesia • Premedication and management of the anxious child • Neonatal anaesthesia including neonatal laparotomy • Management of post-operative analgesia in different age groups of child • Transfer and handover of the postoperative child to PICU • Indications and the practice of venous access in children • Regional anaesthesia in children **Personal Activities and Personal Reflections may include:** • National and international meetings related to paediatric anaesthesia such as APAGBI annual meeting

	• Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to paediatric anaesthesia • Leadership training • Simulation training such as: Positive Outcome and Experience Management Strategies (POEMS), Managing Emergencies in Paediatric Anaesthesia (MEPA), Advanced Paediatric Life Support (APLS) **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 13 – Pain

SIA – Pain Medicine

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides comprehensive management of patients with acute, acute on chronic, chronic and cancer related pain using physical, pharmacological, interventional and psychological techniques in a multidisciplinary setting***

Knowledge	• Has an understanding of the socioeconomic, occupational health and medicolegal aspects of pain medicine • Describes the healthcare infrastructure and the pain service
Skills	• Participates effectively within a pain MDT • Performs interventions in cancer patients • Assessing patients for neuromodulation • Performs neuromodulation techniques
Experience	• Manages referrals/triages within pain service • Manages an outpatient pain medicine clinic • Manages pain procedural cases • Manages inpatient pain and acute pain rounds • Manages patients who are taking drugs of potential addiction • Manages pain in paediatric patients (chronic pain) • Manages pain in paediatric inpatients (acute pain) • Manages pain in cancer patients

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Experience of multidisciplinary approaches to managing inpatient and outpatient pain in a variety of setting including inpatient ward rounds, outpatient clinics, advanced interventional techniques, pharmacological therapies and pain management programmes • A wide range of clinical assessments and formulation of management plans for adults and children with acute, acute on chronic, chronic and cancer pain seen in both inpatient and outpatient clinic settings • A wide range of pain management interventional procedures for acute, chronic and cancer pain using landmark, ultrasound and X-ray guided techniques **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Ability to work within a multidisciplinary pain team, collaborating with other specialties in primary and secondary care and allied health professions such as physiotherapy, occupational therapy, nursing and clinical psychology • Leading inpatient ward rounds and pain MDT • Comprehensive assessment of adults and children presenting with acute, acute on chronic and cancer pain, applying a biopsychosocial model of care • Assessment of pain in complex scenarios, including those with cognitive impairment, limited verbal interaction and settings such as intensive care • Formulation and review of management plans for adults and children presenting with acute, acute on chronic and cancer pain • Recognition of patients with pain who have psychological problems and who require psychological evaluation, and the ability to apply established treatments for the management of psychological distress in those with pain • Management of complex patients with painful conditions, including those requiring coordinated care with other specialties and agencies, such as transition from paediatric to adult health and social services or those with drug dependences or mental health conditions • Pharmacological management of acute, acute on chronic, cancer and procedural pain in all age groups with different co-morbidities

- Management of inpatient acute pain including postoperative pain; infusion pumps including PCAs, wound catheters, epidurals
- Ability to plan, undertake and follow up interventional procedures for acute, chronic and cancer pain, including management of complications
- Advanced interventional techniques for the management of cancer pain including but not exclusively, percutaneous cordotomy
- Management of external and internal implantable drug delivery systems, both peripheral and central, for the management of cancer pain
- Impact of pain on occupation and aspects of daily living; support structures for these patients
- Assessment of pain in the context of neuromodulation
- Referral criteria and process for patients requiring assessment and treatment by specialised pain services, e.g. neuromodulation, paediatric chronic pain
- Management of outpatient clinics and pain intervention lists, including appropriate prioritisation of referrals

Personal Activities and Personal Reflections may include:

- National and international courses or conferences related to Pain Medicine
- Presentation at relevant meeting e.g. abstract or free paper
- Development of guidelines and policies related to inpatient and outpatient pain
- Leadership training and demonstration of ability to lead an inpatient acute pain service including supervision of nurse led services
- Ability to lead multi-disciplinary pain meetings
- Attend service development meetings
- Deliver pain training to other professionals
- Quality improvement and research projects in Pain Medicine.
- Courses/e-learning/personal reading: Role of pain management programmes, basic concepts of welfare benefits, Equality Act 2010, Mental Capacity Act, legal aspects of reasonable adjustments in context of occupation, role of social services in supporting patients with disability, Misuse of Drugs Act 1971 and Misuse of Drugs Regulations 2001, the Controlled Drugs (Supervision of Management and Use) Regulations 2013, guidance for healthcare professionals on drug driving

	Other evidence • Satisfactory MSF • Option to take FFPMRCA exam
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 13 – Pain

SIA – Perioperative Medicine

Standard expected
SIA High-level Learning Outcome(s):

1. ***Provides clinical management of patients in the preoperative, intraoperative and both immediate and longer term postoperative periods independently***
2. ***Is capable of leading the delivery of care in this area of anaesthetic practice, to the benefit of both patients and the organisation***

Knowledge and Skills	• Provides expert opinion in the clinical management of patients in the whole perioperative process • Leads in decision making about the suitability of high-risk patients for surgery • Manages the perioperative services, ensuring that the care delivered is safe and timely, benefiting both patients and the organisation
Experience	• Develops and evaluates local services and practice • Seeks to ensure that perioperative services are fully integrated, consistent, and reliable and sustainable • Develops, maintains and evaluates partnerships with colleagues in other disciplines, in particular primary care

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Pre-operative assessment clinics, cardio-pulmonary exercise clinics, acute pain rounds, surgical multi-disciplinary team (MDT) meetings **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Assessment of risk and management of high-risk patients

	• Involvement of MDT and patient in shared decision making about high risk surgery • Pre-operative assessment and management of, for example: anaemia, anticoagulant medication, diabetes, obstructive sleep apnoea, pacemakers, hypertension • Assessment of frailty • Use of risk scoring tools and models of functional capacity • Perioperative analgesia management including regional techniques • Assessment of post-operative pain • Assessment and management of post-operative delirium **Personal Activities and Personal Reflections may include:** • National and international meetings related to perioperative medicine • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to perioperative medicine • Leadership training • Experience of inpatient rounds such as orthogeriatrics • Attendance at medical clinics such as cardiology and respiratory • Courses and eLearning: shared decision making **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 - Perioperative Medicine and Health Promotion Domain 9 – General Anaesthesia Domain 10 - Regional Anaesthesia Domain 13 – Pain

SIA – Regional Anaesthesia

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides a wide variety of regional anaesthetic techniques independently***
2. ***Is capable of leading the delivery of care in this area of practice, to the benefit of both patients and the organisation***

Skills	• Can independently practice safely a wide range of regional techniques for all upper limb and shoulder surgery under block alone, including the management of continuous nerve catheters for post-operative analgesia • Can independently practice safely a wide range of regional techniques for lower limb surgery, including the management of continuous nerve catheters for post-operative analgesia • Can independently practice safely a wide range of regional techniques for chest and abdominal wall surgery • Can evaluate the place of regional anaesthesia, and any developments, within the patient perioperative pathway and advise on potential changes in practice
Experience	• Ability to independently organise, lead and evaluate the effectiveness and efficiency of an operating list planned under regional anaesthesia alone • Supervises and advises colleagues on the suitability and delivery of regional anaesthesia in complex cases

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Preoperative clinic based assessment of suitability and preparation for surgery of patients utilising regional anaesthesia

and Experience (KSE)	• A wide range of cases and techniques for awake and asleep surgical procedures **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Understanding and implementing comprehensive consent for regional techniques • Meticulous attention to wrong site block prevention based on national guidance • Ability to manage awake, sedated and general anaesthetic patients with a regional anaesthetic component • Ability to use ultrasound and needle techniques safely for a variety of procedures including nerve catheters • Ability to provide safe and effective postoperative analgesia through a variety of regional techniques • Management of regional anaesthesia lists **Personal Activities and Personal Reflections may include:** • National and international meetings related to regional anaesthesia • Presentation at relevant meeting e.g. abstract or free paper • Development of guidelines and policies • Leadership of QI projects related to regional anaesthesia • Leadership training **Other evidence** • Satisfactory MSF
Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 8 – Perioperative medicine and Health Promotion Domain 9 – General Anaesthesia Domain 13 – Pain

SIA – Transfer Medicine

Standard expected

SIA High-level Learning Outcome(s):

1. ***Provides safe and effective multi-disciplinary care to all patients requiring retrieval and/or transfer, however complex, independently***
2. ***Is capable of leading the delivery of care in this area of practice, to the benefit of both patients and the organisation***

Knowledge	• Describes relevant law and procedures in relation to international medical transfers and repatriations
Skills	• Leads the clinical care of complex patients requiring transfer or retrieval by road or air • Works safely in the prehospital environment to resuscitate and stabilise patients • Communicates and works effectively with multiagency partners • Can triage casualties appropriately for evacuation by road or air • Can prepare, package and transfer patients appropriately by air safely
Experience	• Is familiar with aircraft operating and safety procedures, crew communications systems, and emergency procedures • Is able to co-ordinate transfer and retrieval services across an area or network Including ability to liaise with road or air transport providers, transfer teams, and referring and receiving hospitals

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook** • Logbook demonstrating experience managing transfer of patients of all ages across a range of transport modalities **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:**

and Experience (KSE)	• Strategies for optimising a patient's physiology prior to transfer
	• Ability to coordinate and plan patient transfer demonstrating concurrent activity in managing clinical and non-clinical aspects of the transfer
	• Consideration for ethical challenges posed by inter-facility transfer
	• Understanding of the regulations related to land Ambulance, HEMS and Air Ambulance deployment
	• Ability to differentiate the risks and benefits of road, helicopter and fixed wing transport modalities
	• Knowledge of the physiological effects of transfer and how these can be effectively minimised
	• Ability to undertake safe transfer of all age groups of ventilated patients
	• Knowledge of the potential patient and operational complications with transfer, and how to prepare/mitigate these
	• Understanding of minimum standards of monitoring during transfer
	• Clear understanding of the law and principles related to safety; actions taken to ensure safety of both patient and crew
	• Acknowledgment of futility and avoidance of inappropriate inter-facility transfer
	
	Personal Activities and Personal Reflections may include:
	• Attendance at local or national courses related to transfer
	• Leadership of QI projects related to transfer
	• Involvement in teaching opportunities relating to transfer
	• Attendance at pre-hospital/transfer conferences, study days or lectures
	
	Other evidence
	• Satisfactory MSF
	• Suggested (optional) further qualifications:
	  ○ Diploma in Immediate Retrieval and Transfer from the Royal College of Surgeons of Edinburgh
	  ○ Diploma in Immediate Medical Care from the Royal College of Surgeons of Edinburgh
	  ○ Fellowship in Immediate Medical Care from the Royal College of Surgeons of Edinburgh

Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).

Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 9 – General Anaesthesia Domain 11 - Resuscitation and Transfer Domain 13 – Pain

SIA – Trauma and Stabilisation

Standard expected
SIA High-level Learning Outcome(s):

1. ***Provides safe and effective multi-disciplinary care to multiply-injured patients as Trauma Team Leader***
2. ***Is capable of leading the delivery of care in this area of practice, to the benefit of both patients and the organisation***

Knowledge	• Explains and acts within the multidisciplinary nature of trauma care from pre-hospital to rehabilitation • Explains the structure and setup of trauma services and trauma databases
Skills	• Can lead the trauma team from arrival in hospital to definitive investigation and management for all critically ill trauma patients • Can lead triaging of trauma patients
Experience	• Delivers a detailed explanation of and has the ability to contribute to major incident planning

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook** • Logbook demonstrating experience managing a wide range of trauma patients in both the pre-hospital and in-hospital settings • Logbook evidence for major interventions related to trauma (some of which can be achieved through simulation) **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Understanding of trauma triage tools and appropriate triage of patients in the pre-hospital environment

- Leadership qualities when managing multi-casualty scenarios
- Clinical management of the trapped patient and interagency team working to support extrication
- Ability to provide safe sedation and pre-hospital emergency anaesthesia to major trauma patients
- Ability to recognise and treat the hypovolemic patient including initiation of massive transfusion protocols
- Systematic approach to the management of polytrauma patients ensuring effective prioritisation, communication and shared decision making occurs
- Safe and effective pharmacological and non-pharmacological management of pain in trauma patients of all age groups
- Understanding of the key principles relating to emergency preparedness and initial decontamination and management relating to chemical, biological and radiological (CBR) emergencies. This may be achieved through the use of table top or major incident exercises.
- Ability to provide safe clinical assessment, stabilisation and resuscitation of paediatric, obstetric and elderly major trauma patients

Personal Activities and Personal Reflections may include:

- National and international courses or conferences related to trauma
- Leadership of QI projects related to trauma
- Attendance at pre-hospital governance days / major trauma meetings
- Attendance at pre-hospital conferences, study days or lectures
- Presentations at relevant meetings e.g. abstract or free paper
- Involvement in teaching opportunities relating to trauma
- Attendance at local Emergency Preparedness / Major Incident exercises
- Development of guidelines and policies
- Leadership training

Other evidence

- Satisfactory MSF
- Suggested (optional) further qualifications:
    - Diploma in Immediate Medical Care from the Royal College of Surgeons of Edinburgh
    - Fellowship in Immediate Medical Care from the Royal College of Surgeons of Edinburgh

Supervision Level	**4** - should be able to manage independently with no supervisor involvement (although should inform consultant supervisor as appropriate to local protocols).
Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 – All generic professional domains of learning Domain 9 – General Anaesthesia Domain 11 - Resuscitation and Transfer Domain 12 – Procedural Sedation Domain 13 – Pain Domain 14 – Intensive Care

SIA – Safety and Quality Improvement

Standard expected

SIA High-level Learning Outcome(s):

1. Supervises and mentors others with quality improvement projects at different stages of training and able to lead a team to introduce a quality improvement project

2. Can contribute to Multidisciplinary training in Quality Improvement principles and methodology

Knowledge	• Demonstrates knowledge in the use of different types of control charts to present data for improvement appropriately • Uses control charts to interpret the impact of changes and differentiate between unexpected and unwarranted variation • Evaluates the impact of quality improvement training and develops a strategy for further learning
Skills	• Supervises quality improvement projects at different stages of development and testing • Demonstrates the ability to communicate the different outcomes of a quality improvement project to a multidisciplinary audience to effect change
Experience	• Effectively able to plan and deliver multidisciplinary quality improvement training sessions on a comprehensive range of QI principles (including different methodologies and measurement)

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills	**Experience and logbook:** • Supervises and mentors others with QI projects • Leads a QI project team with a focus on patient safety • Experience in delivery of QI training sessions on a range of topics to different audiences

and Experience (KSE)	If clinical work is done during this time then cases should be documented in the log book **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • should be completed as part of any clinical work undertaken and linked to relevant KSEs on domains 1-14 • A-QIPAT can be used to illustrate own project progression; may also be used to provide feedback on QI projects undertaken by others at different stages of development **Personal Activities and Personal Reflections may include:** • Experience in application of QI as it relates to patient safety in healthcare • Experience with the collection, organisation and analysis of data for improvement • Experience in mapping and design of safety critical processes against clinical goals • Selection and development of appropriate charts to present data • Presentation of project findings in the form of posters, abstracts and presentations • The skills necessary to communicate the findings to a wider audience • Engagement with the improvement community through attendance of relevant scientific meetings and conferences • Experience of supervising others undertaking QI projects and able to provide appropriate feedback and guidance • Development of QI educational resources to support learning **Other evidence** • Satisfactory MSF
Supervision Level	Not applicable
Cross links with other domains and Knowledge,	Domains 1 to 7 - All generic professional domains Domains 8 to 14 - clinical KSEs where appropriate

Skills and Experience

SIA – Research and Managing Data

Standard expected

SIA High-level Learning Outcome(s):

1. Demonstrates the experience and skill required to coordinate and lead a research project

Knowledge	• Demonstrates understanding of the steps necessary to conduct research, including funding, patient and public involvement, ethics approval, delivery of a project, data analysis, publication • Demonstrates understanding of the processes involved in delivering research and governance required to ensure its proper conduct • Demonstrates understanding of research governance
Skills	• Develops the skills necessary to support others to succeed in research • Develops the critical thinking skills required to enable robust evaluation of published data and the formulation of new research questions • Communicates the findings of research to colleagues, patients and the public
Experience	• Develops detailed knowledge and experience within a chosen field of research along with a broad understanding of how this integrates with other areas of research to continuously improve patient outcomes

Documentation required:

The illustrations listed are examples of how you might evidence achievement of the KSE required for a particular HLO. A single piece of evidence can be utilised to evidence KSE across various Domains/SIAs. These illustrations are not exhaustive.

Examples of evidence for Knowledge, Skills and Experience (KSE)	**Experience and logbook:** • Supervised research project that may be stand alone or form part of a larger project such as that for a higher degree (PhD, MD). If clinical work is done during the research time then cases should be documented in the log book **Supervised Learning Events (SLEs) or similar Workplace based Assessment modalities can be used to demonstrate:** • Should be completed as part of any clinical work if done and linked to relevant KSEs in domains 1-14 **Personal Activities and Personal Reflections may include:** • Understanding and experience of applying for research funding • Understanding and experience of applying for ethical approval for research • Involvement in the day to day running of a research project • For clinical trials, a thorough understanding of the governance structures required (e.g. trial steering groups and data monitoring committees) • For clinical research, experience of recruiting patients into studies • Experience with the collection, organisation and analysis of data • Development of relevant statistical knowledge • The ability to write up results in the form of posters, abstracts, manuscripts and presentations • The skills necessary to communicate the findings of research to patients and the public • Engagement with the research community through attendance of relevant scientific meetings and conferences • Experience of supervising others wishing to participate in research **Other evidence** • Satisfactory MSF
Supervision Level	Not applicable

Cross links with other domains and Knowledge, Skills and Experience	Domains 1 to 7 - All generic professional domains Domains 8 to 14 - clinical KSEs where appropriate