Specialty Training Requirements (STR)

Name of Specialty:	General Surgery
Chair of RAC:	A/Prof Tan Kok Yang
Date of submission:	9 September 2025

Contents

Note: In addition to the training requirements stated in this STR, residents must comply with any other regulatory requirements or practice-based requirements mandated by the healthcare institutions or place of practice.

Scope of General Surgery

The practice of GS encompasses the provision of comprehensive care to the patient with surgical disorders of the abdomen and its contents, the alimentary tract, skin, soft tissues, vascular, breast, endocrine organs, and trauma. The practice of surgery also encompasses surgical evaluation and management of patients with oncologic, transplantation, paediatric, and intensive care disorders including burns; and recognition and initial management of acute severe conditions of the cardiothoracic, urologic, gynaecologic, neurologic, and otolaryngologic systems. Surgeons possess surgical judgement, which includes knowledge and technical skills, and the ability to integrate the acquired knowledge into the clinical situation to provide comprehensive care. Comprehensive surgical care includes the evaluation, diagnosis, operative and non-operative treatment of surgical disorders and the appropriate disposition and follow-up of patients.

Purpose of the Residency Programme

GS residency programme is designed to provide the resident with individualised surgical training and progressive patient care responsibilities that stimulate inquiry and a passion for lifelong learning. They will be equipped with core competencies in patient care, medical knowledge, practice-based learning, interpersonal and communication skills, and professionalism and system-based practice. Residents will receive broad-based training to achieve core competencies in the entire spectrum of sub-disciplines of GS. The programme aspires that each resident develops into a well-grounded and independent General Surgeon who provides high quality, patient-centred care, has sound decision making and ownership for patient safety.

Admission Requirements

At the point of application for this residency programme,

a) Applicants must be employed by employers endorsed by Ministry of Health (MOH); and

b) Residents who wish to switch to this residency programme must have waited at least one year between resignation from his / her previous residency programme and application for this residency programme.

At the point of entry to this residency programme, residents must have fulfilled the following requirements:

a) Hold a local medical degree or a primary medical qualification registrable under the Medical Registration Act (Second Schedule);

b) Have completed Post-Graduate Year 1 (PGY1); and

c) Have a valid Conditional or Full Registration with Singapore Medical Council (SMC).

Selection Procedures

Applicants must apply for the programme through the annual residency intake matching exercise conducted by MOH Holdings (MOHH).

Continuity plan: Selection should be conducted via a virtual platform in the event of a protracted outbreak whereby face-to-face on-site meeting is disallowed and cross institution movement is restricted.

Less Than Full Time Training

Less than full time training is not allowed. Exceptions may be granted by Specialist Accreditation Board (SAB) on a case-by-case basis.

Non-traditional Training Route

The programme should only consider the application for a mid-stream entry to residency training by an International Medical Graduate (IMG) if he / she meets the following criteria:

a) He / She is an existing resident or specialist trainee in the United States, Australia, New Zealand, Canada, United Kingdom and Hong Kong, or in other centres / countries where training may be recognised by the SAB; and
b) His / Her years of training are assessed to be equivalent to the local training by Joint Committee on Specialist Training (JCST) and / or SAB.

Applicants may enter residency training at the appropriate year of training as determined by the Programme Director (PD) and RAC. The latest point of entry into residency for these applicants is Year 1 of the senior residency phase.

Separation

The PD must verify residency training for all residents within 30 days from the point of notification for residents' separation / exit, including residents who did not complete the programme.

Duration of Specialty Training

The training duration must be 60 months, comprising of 36 months of Junior Residency and 24 months of Senior Residency. From AY25 intake onwards, the training duration must be 72 months, comprising of 36 months of Junior Residency and 36 months of Senior Residency.

Maximum candidature: All residents must complete the training requirements, requisite examinations and obtain their exit certification from JCST not more than 36 months beyond the usual length of their training programme. The total candidature for GS is 60 months GS residency + 36 months candidature. From AY25 intake, the total candidature for GS is 72 months GS residency + 36 months candidature.

"Make-up" Training

"Make-up" training must be arranged when residents:

- Exceed days of allowable leave of absence / duration away from training; or
- Fail to make satisfactory progress in training.

The duration of make-up training should be decided by CCC and should depend on the duration away from training and / or the time deemed necessary for remediation in areas of deficiency. The CCC should review residents' progress at the end of the "make-up" training period and decide if further training is needed.

Any shortfall in core training requirements must be made up by the stipulated training year and / or before completion of residency training.

Learning Outcomes: Entrustable Professional Activities (EPAs)

Residents must achieve level 3 of the following EPAs by end of R2 (excluding EPA 4), and Level 4 by the end of residency training:

	Title
EPA 1	Managing Surgical Outpatient Clinics
EPA 2	Leading Ward Rounds
EPA 3	Managing Patients During Calls
EPA 3A	Performing Calls
EPA 3B	Performing Emergency Surgical Procedures Appendicectomy: Level 3 by R3, Level 4 by R4 Rest of procedures listed: Level 4 by the end of residency training
EPA 4	Running Elective Outpatient Endoscopy Sessions

Residents must achieve level 4 of the following EPAs by the end of R3:

	Title
EPA 5	Performing Elective Surgical Procedures: 1. Ray or partial foot amputation for peripheral vascular disease 2. Open inguinal hernia repair

Residents must achieve level 3 of the following EPAs by the end of residency training:

	Title
EPA 5	Performing Elective Surgical Procedures:

	3. Laparoscopic cholecystectomy with or without intraoperative cholangiogram 4. Open segmental colectomy 5. Small bowel resection or gastrojejunostomy 6. Hemithyroidectomy 7. Simple mastectomy

Information on each EPA is provided in *Annex C.R3*.

Learning Outcomes: Core Competencies, Sub-competencies and Milestones

The programme must integrate the following competencies into the curriculum, and structure the curriculum to support resident attainment of these competencies in the local context.

Residents must demonstrate the following core competencies:

1) Patient Care and Procedural Skills

Residents must demonstrate the ability to:

- Gather essential and accurate information about the patient
- Counsel patients and family members
- Make informed diagnostic and therapeutic decisions
- Prescribe and perform essential medical procedures
- Provide effective, compassionate and appropriate health management, maintenance, and prevention guidance

Residents must demonstrate proficiency in the following areas:

(a) Manual dexterity appropriate to their level of training
(b) Ability to develop and implement patient care plans suitable for their level including effective pain management
(c) Management of patients with complex and severe illnesses, as well as major injuries
(d) Management of general surgical issues in transplant patients.

2) Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioural sciences, as well as the application of this knowledge to patient care.

Residents must demonstrate a solid understanding of the following areas:

(a) Core knowledge across key surgical areas, including: the abdomen and its contents, the alimentary tract, skin, soft tissues, and breast, endocrine surgery, head and neck surgery, paediatric surgery, surgical critical care, surgical oncology, trauma (including non-operative management), and the vascular system
(b) Critical appraisal of relevant scientific literature
(c) Basic science principles as they relate to clinical surgical practice
(d) Applied surgical anatomy and pathology
(e) Principles of wound healing
(f) Homeostasis, shock, and circulatory system physiology
(g) Hematologic conditions
(h) Immunobiology and the fundamentals of transplantation
(i) Oncology
(j) Surgical aspects of endocrinology
(k) Surgical nutrition, along with fluid and electrolyte management
(l) Metabolic response to injury
(m) Physiology of burns and the initial management of burn injuries

3) Systems-based Practice

Residents must demonstrate the ability to:

- Work effectively in various health care delivery settings and systems relevant to their clinical specialty
- Coordinate patient care within the health care system relevant to their clinical specialty
- Incorporate considerations of cost awareness and risk/benefit analysis in patient care
- Advocate for quality patient care and optimal patient care systems
- Work in inter-professional teams to enhance patient safety and improve patient care quality. This includes effective transitions of patient care and structured patient hand-off processes
- Participate in identifying systems errors and in implementing potential systems solutions

4) Practice-based Learning and Improvement

Residents must demonstrate a commitment to lifelong learning.

Resident must demonstrate the ability to:

- Investigate and evaluate patient care practices
- Appraise and assimilate scientific evidence
- Improve the practice of medicine
- Identify and perform appropriate learning activities based on learning needs

5) Professionalism

Residents must demonstrate a commitment to professionalism and adherence to ethical principles including the SMC's Ethical Code and Ethical Guidelines (ECEG).

Residents must:

- Demonstrate professional conduct and accountability
- Demonstrate humanism and cultural proficiency
- Maintain emotional, physical and mental health, and pursue continual personal and professional growth
- Demonstrate an understanding of medical ethics and law

6) Interpersonal and Communication Skills

Residents must demonstrate ability to:

- Effectively exchange information with patients, their families and professional associates
- Create and sustain a therapeutic relationship with patients and families
- Work effectively as a member or leader of a health care team
- Maintain accurate medical records

Other Competency: Teaching and Supervisory Skills

Residents must demonstrate ability to:

- Teach others
- Supervise others

Refer to *Annex C.R4* for the milestones.

Learning Outcomes: Others

Residents must attend Medical Ethics, Professionalism and Health Law course conducted by Singapore Medical Association (SMA) and Geriatric Medicine Modular Course by Academy of Medicine Singapore (AMS).

Residents must complete the following courses as stipulated:

Mandatory course	Requirements
Basic Cardiac Life Support (BCLS)	Valid Certification throughout residency
Advanced Cardiac Life Support (ACLS)	Valid Certification throughout residency
Advanced Trauma Life Support (ATLS)	Valid Certification throughout residency
Basic Surgical Skills Course (Suturing, Wound Closure, Anastomosis) or equivalent	To be completed by end of R1
Fundamental Critical Care Support (FCCS) or equivalent	To be completed by end of R2

Basic Laparoscopic Surgery or equivalent	To be completed by end of R2
Evidence Based Medicine and Biostatistics Course or equivalent	To be completed by end of R3

Curriculum

The curriculum and detailed syllabus relevant for local practice must be made available in the Residency Programme Handbook and given to the residents at the start of residency.

The PD must provide clear goals and objectives for each component of clinical experience.

Refer to ***Annex C.R6*** for the curriculum.

Learning Methods and Approaches: Scheduled Didactic and Classroom Sessions

Residents must attend the teaching sessions as stipulated below:

1. Ten Multidisciplinary conferences yearly
2. Twenty Morbidity and mortality conferences yearly
3. Five Journal or evidence-based reviews yearly
4. Five Case-based planned didactic experiences yearly

Learning Methods and Approaches: Clinical Experiences

The programme must schedule clinical rotations based on the following principles:

1. Residents must, at a minimum, undergo rotations covering the following core clinical services: Breast, Upper GI, Colorectal, Hepato-pancreato-biliary, Vascular and Head & Neck / Endocrine Surgery. A single rotation can serve to fulfil more than one core service (e.g. breast and head and neck surgery combined under “endocrine surgery”), provided the programme is satisfied that the core clinical competencies relevant to that sub-specialty can be achieved.
2. Residents must have adequate clinical exposure to surgical oncology, acute care surgery and trauma as part of their rotations.
3. Residents must rotate to Anaesthesiology / ICU for at least three months during junior residency.

Each Junior Residency rotation must be a minimum of one month (preferably two months with some exceptions), while each Senior Residency rotation must be a minimum of three months.

Training requirement for AY2025 intake onwards:
Residents must do three months of rotations in another sponsoring institution during Senior Residency.

In the event of a protracted outbreak, arrangements should be made for requisite postings to be done within the same hospital or re-arrangements to the order of the postings within the same training year should be made, to allow for the postings to be completed in due course.

Learning Methods and Approaches: Scholarly/Teaching Activities

Training requirement for AY2025 intake onwards:

Residents must complete a quality improvement or patient safety learning module before completion of residency.

Residents must produce 1 scholarly activity per year; this would include, a quality improvement project, or a publication in a peer reviewed journal, a poster, abstract or oral presentation at a local or overseas conference, or a departmental journal club where significant effort has been put into the research and presentation of a topic. The scope must be surgical topics, quality improvement, patient safety or medical education.

In the event of a protracted outbreak, research and quality improvement projects should continue *(as they are conducted within the site of practice)*, with meetings for the research and quality improvement projects conducted via virtual platforms.

Learning Methods and Approaches: Documentation of Learning

Residents must log the following cases in MedHub:

1. Minimum 750 cases with specified minimum number of cases for each surgical domain, including minimum of 150 cases in the chief residency year, as first performing surgeon.
2. Endoscopy: OGD (Min. 200), Colonoscopy (Min. 100).

To ensure sufficient breath of operative experience, residents must complete the following minimum number of cases for the various categories:

- Skin, Soft Tissue and Breast 25
- Head and Neck 24
- Alimentary Tract 72
- Abdomen 65
- Liver 4
- Pancreas 3
- Vascular 44
- Endocrine 8
- Operative Trauma 5
- Trauma Non-Operative 20

- Laparoscopic 85

The documents will be reviewed by PDs and CCC during CCC meetings. The documents will be submitted to RAC for review as eligibility criteria to take the Joint Specialty Fellowship Examination (GS).

Summative Assessments

	Summative assessments	
	Clinical, patient-facing, psychomotor skills etc.	Cognitive, written etc.
R6 Applicable for AY 2025 intake onwards	**JSF Examination (Clinical)**: At least 6 short cases and 2 medium-length cases, total 60 mins	**JSF Examination (Viva):** 4 stations, 90 mins total
R5 Applicable for AY 2024 and before intake	**JSF Examination (Clinical)**: At least 6 short cases and 2 medium-length cases, total 60 mins	**JSF Examination (Viva):** 4 stations, 90 mins total The written exam is applicable to all intakes including residents not successful in the last ABMS MCQ 2026 diet. **JSF Examination (Written):** 200 SBA questions, 320 mins total
R4	N.A.	N.A.
R3	N.A.	Training requirement for AY2024 and before intake: MMed (Surgery) Viva 5 stations,100 mins total Training requirement for AY2025 intake onwards: Primary MMed (Surgery) Part 3 / MHKICBSC Part 3 Examination Part 3: OSCE 16 stations (with 2 additional preparatory stations) to assess basic and applied sciences, communication and clinical skills Each station is 9 minutes inclusive of a 1-minute reading time

R2 R1	N.A.	Training requirement for AY2025 intake onwards: Primary MMed (Surgery) Part 1&Part 2 / MHKICBSC Part 1& Part 2 Examination Part 1: MCQ format 180 items of applied basic science 3 hours Part 2: Extended matching questions (EMQ) 150 items that assess clinical problem-solving 3 hours Training requirement for AY2024 and before intake: The IMRCS Part A is a five-hour MCQ exam consisting of two papers taken on the same day. The AM paper is three hours and the PM paper is two hours in duration. Part B of the IMRCS is an objective structured clinical exam (OSCE). It tests: Anatomy and surgical pathology; Applied surgical science and critical care; Clinical and procedural skills; and Communication skills.

S/N	**Learning outcomes**	**Summative assessment components**			
		Component a: MCQ	Component b: Exit Viva	Component c: Clinical Examination	Component d: Direct Observation
1	Managing a surgical outpatient clinic	✓	✓	✓	✓
2	Perform a ward round	✓	✓	✓	✓
3	Perform calls	✓	✓	✓	✓
4	Running endoscopic session	✓	✓	✓	✓
5	Run elective surgery/procedure	✓	✓	✓	✓

Annex C.R3: EPAs

General Surgery Entrustable Professional Activities

Contents

Entrustment Scale

Level 1: Be present and observe, but no permission to enact EPA
Level 2: Practice EPA with direct (pro-active) supervision
Level 3: Practice EPA with indirect (re-active) supervision
Level 4: Unsupervised practice allowed (distant oversight)
Level 5: May provide supervision to junior learners

EPA 1: Managing Surgical Outpatient Clinics

1. Title	**Managing Surgical Outpatient Clinics**
2. Specifications and limitations	1. Surgical outpatient clinics refer to the following: • Breast • Colorectal • Head and neck • Endocrine • Hepato-pancreatico-biliary • Trauma • Upper GI • Vascular • Surgical Oncology • Minimally invasive surgery • General surgery The above list is not exhaustive because institutions may name their clinics differently. 2. This EPA contains the following elements: • Gather information: take history, perform physical examination • Generate diagnosis • Prioritise and order relevant investigations, and interpret investigations • Formulate management plan, adjust management plan as needed • Counsel patient, obtain informed consent for procedure • Escalate to a senior surgeon appropriately • Identify and plan the management of co-morbidity and medical complications, referring to other specialties as appropriate • Make appropriate referrals to allied health • Book operative cases with appropriate urgency, duration, and equipment and patient preparation
	Limitations: • Paediatric patients and acutely unwell patients are excluded

3. Sub-competencies relevant for this EPA	PC 1. Assessment, investigation, diagnosis of surgical conditions and injuries PC 4. Decision making PC 5. Assessment, diagnosis, and management of complications of surgeries MK 1. Fundamental surgical knowledge SBP 2. System navigation for patient-centred care PBLI 1. Evidence based and informed practice Prof 1. Professional behaviour and ethical principles Prof 2. Accountability / conscientiousness ICS 1. Patient- and family-centred communication ICS 3. Communication within healthcare systems aka documentation ICS 4. Consent, patient counselling and shared decision making	
4. Potential risks in case of failure	• Misdiagnosis and delayed diagnosis of serious conditions • Investigation results are not followed up, leading to missed or delayed diagnosis and waste of resources • Litigation	
5. Required Knowledge, Skills,	K:	Refer to the core and advanced conditions in related sections of Singapore General Surgery Residency curriculum

<table>
<tr><td rowspan="3">Attitudes and Experiences</td><td>S:</td><td colspan="3">Clinical examination skills for
Breast lesions
Colorectal: proctoscopy, identification of fistula-in-ano and anal fissures, stoma care (examination, troubleshooting)
Head and neck lesions, ultrasound examination of neck lesion (where appropriate)
Hepato-Pancreatico-Biliary (HPB) lesions
Trauma and general cases
Upper GI: nutritional assessment associated with upper GI pathologies
Vascular: peripheral vascular disease, doppler ultrasound examination of blood vessels (where appropriate)
<table><tr><td>Clinic</td><td>Specific procedures</td></tr><tr><td>Breast</td><td>Fine needle aspiration
Core needle biopsy of breast</td></tr><tr><td>Colorectal</td><td>Rubber band ligation of piles
Incision and drainage of abscesses/haematoma
Wound dressings</td></tr><tr><td>Head and neck</td><td>Where appropriate, fine needle aspiration of neck lesion</td></tr><tr><td>Trauma and general</td><td>Wound assessment, care and dressings</td></tr></table></td></tr>
<tr><td>A:</td><td colspan="3">Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented
Reliable: conscientious, pays attention to details, accountable, responsible, predictable
Integrity: truthful, good intentions, patient-centred
Humility: observes limits, willing to ask for help, receptive to feedback</td></tr>
<tr><td>E:</td><td colspan="3">Familiar with IT system</td></tr>
<tr><td>6. Sources of information to support summative entrustment decisions</td><td colspan="2">Tools</td><td>Number to be completed satisfactorily</td><td>Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)</td></tr>
</table>

	Mini-CEX with entrustment-based discussion	Junior residency: 1 per posting/different kind of clinic Senior residency: 1 per posting/different kind of clinic	Suitable raters to be decided by programme
	MSF	1 MSF per year	Suitable raters to be decided by programme
7. Which supervision level when?	Level 3 i.e., with supervisor distantly available, by end of R2 Level 4 i.e., allowed to practice EPA unsupervised, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

EPA 2: Leading Ward Rounds

1. Title	**Leading Ward Rounds**
2. Specifications and limitations	This EPA contains the following elements: • Identify at the start of a ward round if there are acutely unwell patients who require immediate attention • Ensure that all documentation (including results of investigations) will be available when required and interpret them appropriately • Make a full assessment of patients by taking a structured history and by performing a focused clinical examination • Request, interpret and discuss appropriate investigations to synthesise findings into an overall impression, management plan and diagnosis • Identify when the clinical course is progressing as expected and when medical or surgical complications are developing, and recognise when operative intervention or re-intervention is required and ensure this is carried out • Manage complications safely, requesting help from colleagues where required • Identify and initially manage co-morbidity and medical complications, referring to other specialties as appropriate • Make good use of time, ensuring all necessary assessments are made and discussions held, while continuing to make progress with the overall workload of the ward round • Identify when further therapeutic manoeuvres are not in the patient's best interests, initiate palliative care, refer for specialist advice as required, and discuss plans with the patient and their family • Summarise important points at the end of the ward rounds and ensure all members of the multi-disciplinary team understand the management plans and their roles within them • Give appropriate advice for discharge documentation and follow-up
	Limitations: • Paediatric patients and patients in the High Dependency Unit and ICU are excluded

3. Sub-competencies relevant for this EPA	PC 1. Assessment, investigation, diagnosis of surgical conditions and injuries PC 2. Pre-operative optimisation and planning PC 4. Decision making PC 5. Assessment, diagnosis, and management of complications of surgeries MK 1. Fundamental surgical knowledge MK 2. Peri-operative knowledge SBP 2. System navigation for patient-centred care SBP 3. Physician role in health care systems PBLI 1. Evidence based and informed practice Prof 1. Professional behaviour and ethical principles Prof 2. Accountability / conscientiousness ICS 1. Patient- and family-centred communication ICS 2. Interprofessional and team communication ICS 3. Communication within healthcare systems aka documentation ICS 4. Consent, patient counselling and shared decision making	
4. Potential risks in case of failure	• Misdiagnosis and delayed diagnosis of serious conditions or complications of procedures • Making inappropriate orders leading to wastage in the system • Litigation	
5. Required Knowledge, Skills,	K:	Refer to the core and advanced conditions in the Singapore General Surgery Residency curriculum

Attitudes and Experiences	S:	• Gather and process information:
		  ○ Seek information on the ward from history, clinical examination, charts, notes, operative findings, and other staff
		  ○ Update one's mental picture by interpreting the information gathered and comparing it with existing knowledge to identify the match or mismatch between the situation and the expected state
		  ○ Develop and maintain a dynamic situation awareness of the on the ward by assembling data from the environment (patient, team, time, charts, equipment); understanding what they mean and thinking about what may happen next
		• Anticipate future states: Predict what may happen in the near future as a result of possible actions, interventions or non-intervention
		• Decision-making: also see PC 4
		  ○ Diagnose the situation, and reach a judgment to choose an appropriate course of action
		  ○ Generate alternative possibilities or courses of action to solve a problem
		  ○ Assess the hazards and weigh the threats and benefits of potential options
		  ○ Adapt management plan to new information
		• Communication and teamwork: see ICS 2 and ICS 3
		• Leadership:
		  ○ Lead the team and provide direction
		  ○ Demonstrate high standards of clinical practice and care, support safety and quality by adhering to established protocols and principles of good clinical practice
		  ○ Maintain a calm demeanour when under pressure
		  ○ Be assertive if appropriate without undermining the role of other team members
		  ○ Acknowledge team members' contribution, provide cognitive and emotional support, and be considerate about needs of team members
		  ○ Strive to create an inclusive and constructive ward round environment

	A:	• Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented • Reliable: conscientious, pays attention to details, accountable, responsible, predictable • Integrity: truthful, good intentions, patient-centred • Humility: observes limits, willing to ask for help, receptive to feedback
	E:	Familiar with IT system

6. Sources of information to support summative entrustment decisions	Tools	Number to be completed satisfactorily	Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)
	Mini-CEX with entrustment-based discussion (EbD)	1 mini-CEX with EbD per year in R1, R2, R3, R4 and R5	Suitable raters to be decided by programme
	MSF	1 MSF per year	Suitable raters to be decided by programme
7. Which supervision level when?	Level 3 i.e., with supervisor distantly available, by end of R2 Level 4 i.e., allowed to practice EPA unsupervised, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

EPA 3: Managing Patients During Calls

1. Title	**Managing Patients During Calls**
2. Specifications and limitations	This EPA comprises two nested EPAs: 1. Performing Calls, and 2. Performing Emergency Surgical Procedures, which include the following: • Appendicectomy • Cholecystectomy • Exploratory Laparotomy • Emergency endoscopy • Emergency surgery for incarcerated hernias • Start a Colectomy Performing calls and emergency surgical procedures are integrated professional activities when the resident goes on call. Please see the nested EPAs for the specifications.
	Limitations: • Paediatric patients are excluded
3. Sub-competencies relevant for this EPA	PC 1. Assessment, investigation, diagnosis of surgical conditions and injuries PC 2. Pre-operative optimization and planning PC 3. Technical skills PC 4. Decision making PC 5. Assessment, diagnosis, and management of complications of surgeries MK 1. Fundamental surgical knowledge MK 2. Peri-operative knowledge SBP 2. System navigation for patient-centred care SBP 3. Physician role in health care systems PBLI 1. Evidence based and informed practice Prof 1. Professional behaviour and ethical principles Prof 2. Accountability / conscientiousness ICS 1. Patient- and family-centred communication ICS 2. Interprofessional and team communication ICS 3. Communication within healthcare systems aka documentation ICS 4. Consent, patient counselling and shared decision making
4. Potential risks in case of failure	• Misdiagnosis and delayed diagnosis of serious conditions or complications of procedures • Unnecessary surgery / procedures • Litigation

5. Required Knowledge, Skills, Attitudes and Experiences	K:	

Surgical area	**Clinical conditions**
Resuscitation	Acute respiratory failure, shock
General abdominal conditions	Abdominal pain, abdominal mass, peritonitis, haemoperitoneum, retroperitoneal abscesses
Intestinal obstruction	Adhesions, incarcerated hernias, cancers, volvulus, intussusceptions
Upper gastrointestinal tract	Upper gastrointestinal bleed, peptic ulcer disease, fistulae, gastrostomy, small intestinal cancers, ileus, Meckel's diverticulum, bowel perforations, appendix
Hepatic-pancreatic-biliary	Gallstones and related diseases, pancreatitis, hepatic abscesses
Colorectal	Lower gastrointestinal bleed, diverticular disease, inflammatory bowel disease, colorectal cancers, colitis, colonic perforations, megacolon, regional enteritis, colostomy/ileostomy, haemorrhoids, perianal and perirectal fistulas and infections, anorectal stenosis, rectal prolapse
Hernias	Inguinal, femoral, umbilical, incisional, ventral, diaphragmatic
Soft tissue	Cellulitis, abscesses, fasciitis, wound care, pressure ulcers, compartment syndrome
Vascular	Ruptured aneurysms, acute intestinal ischemia, acute peripheral ischemia, phlebitis
Trauma	Airway-Breathing-Circulation, injury to face, neck, chest, abdomen and / or pelvis
Cardiothoracic	Cardiac tamponade, empyema, pneumothorax, oesophageal perforation
Others	Foreign bodies

	S:	Please see the nested EPAs for the Skills	
	A:	• Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented • Reliable: conscientious, pays attention to details, accountable, responsible, predictable • Integrity: truthful, good intentions, patient-centred • Humility: observes limits, willing to ask for help, receptive to feedback	
	E:	ATLS provider course Familiar with IT system	
6. Sources of information to support summative entrustment decisions	Tools	Number to be completed satisfactorily	Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)
	See nested EPAs for details	See nested EPAs for details	See nested EPAs for details
7. Which supervision level when?	Performing calls: Level 3 i.e., with supervisor distantly available, by end of R2 Performing calls: Level 4 i.e., allowed to practice EPA unsupervised, by end of R6 Performing emergency surgical procedures: • Appendicectomy: Level 3 by R3, Level 4 by R4 • Rest of procedures listed: Level 4 i.e., allowed to practice EPA unsupervised, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

EPA 3A: Performing Calls

1. Title	**Performing Calls** This is a nested EPA in Managing Patients During Calls
2. Specifications and limitations	This EPA contains the following elements: • Assess acutely unwell and deteriorating patients promptly • Deliver resuscitative treatment and initial management, and ensure sepsis is recognised and treated in compliance with protocol • Make a full assessment of patients by taking a structured history and by performing a focused clinical examination • Request, interpret and discuss appropriate investigations to synthesise findings into an overall impression, management plan and diagnosis • Identify and manage co-morbidity in the context of the surgical presentation, referring to other specialties as appropriate • Select patients for conservative and operative treatment plans as appropriate, explaining these to the patient, and carrying them out • Consider urgency and potential for deterioration, in advocating for the timely execution of a procedure or therapy • Make appropriate peri- and post-operative management plans in conjunction with anaesthetic colleagues and other specialists • Deliver ongoing post-operative surgical care in ward and critical care settings, recognising and appropriately managing medical and surgical complications, and referring for specialist care when necessary • Make appropriate discharge and follow up arrangements • Give and receive appropriate handover
	Limitations: • Paediatric patients are excluded

3. Sub-competencies relevant for this EPA	PC 1. Assessment, investigation, diagnosis of surgical conditions and injuries PC 2. Pre-operative optimization and planning PC 4. Decision making PC 5. Assessment, diagnosis, and management of complications of surgeries MK 1. Fundamental surgical knowledge MK 2. Peri-operative knowledge SBP 2. System navigation for patient-centred care SBP 3. Physician role in health care systems PBLI 1. Evidence based and informed practice Prof 1. Professional behaviour and ethical principles Prof 2. Accountability / conscientiousness ICS 1. Patient- and family-centred communication ICS 2. Interprofessional and team communication ICS 3. Communication within healthcare systems aka documentation ICS 4. Consent, patient counselling and shared decision making
4. Potential risks in case of failure	• Misdiagnosis and delayed diagnosis of serious conditions or complications of procedures • Unnecessary surgery / procedures • Litigation

5. Required Knowledge, Skills, Attitudes and Experiences	K:	

Surgical area	**Clinical conditions**
Resuscitation	Acute respiratory failure, shock
General abdominal conditions	Abdominal pain, abdominal mass, peritonitis, haemoperitoneum, retroperitoneal abscesses
Intestinal obstruction	Adhesions, incarcerated hernias, cancers, volvulus, intussusceptions
Upper gastrointestinal tract	Upper gastrointestinal bleed, peptic ulcer disease, fistulae, gastrostomy, small intestinal cancers, ileus, Meckel's diverticulum, bowel perforations, appendix
Hepatic-pancreatic-biliary	Gallstones and related diseases, pancreatitis, hepatic abscesses
Colorectal	Lower gastrointestinal bleed, diverticular disease, inflammatory bowel disease, colorectal cancers, colitis, colonic perforations, megacolon, regional enteritis, colostomy/ileostomy, haemorrhoids, perianal and perirectal fistulas and infections, anorectal stenosis, rectal prolapse
Hernias	Inguinal, femoral, umbilical, incisional, ventral, diaphragmatic
Soft tissue	Cellulitis, abscesses, fasciitis, wound care, pressure ulcers, compartment syndrome
Vascular	Ruptured aneurysms, acute intestinal ischemia, acute peripheral ischemia, phlebitis
Trauma	Airway-Breathing-Circulation, injury to face, neck, chest, abdomen and/or pelvis
Cardiothoracic	Cardiac tamponade, empyema, pneumothorax, oesophageal perforation
Others	Foreign bodies

	S:	• Recognise and manage physiologic derangement and deterioration • Recognise and manage sepsis • Manage/reverse anticoagulants and manage antiplatelets • Institute venous thromboembolism prophylaxis • Perform age-appropriate cognitive and frailty assessment • Recognise and select patients for conservative and operative treatment plans as appropriate • Perform postoperative review and adjust management plan • Use multimodal approach to manage postoperative pain	
	A:	• Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented • Reliable: conscientious, pays attention to details, accountable, responsible, predictable • Integrity: truthful, good intentions, patient-centred • Humility: observes limits, willing to ask for help, receptive to feedback	
	E:	ATLS provider course Familiar with IT system	
6. Sources of information to support summative entrustment decisions	Tools	Number to be completed satisfactorily	Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)
	Chart Stimulated Recall with entrustment-based discussion	Junior residency: 1 Senior residency: 1	Suitable raters to be decided by programme
	MSF	1 MSF per year	Suitable raters to be decided by programme
7. Which supervision level when?	Level 3 i.e., with supervisor distantly available, by end of R2 Level 4 i.e., allowed to practice EPA unsupervised, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

EPA 3B: Performing Emergency Surgical Procedures

1. Title	**Performing Emergency Surgical Procedures** This is a nested EPA in Managing Patients During Calls
2. Specifications and limitations	1. This EPA contains the following elements: • Select patients for conservative and operative treatment plans as appropriate, explaining these to the patient, and carrying them out • Consider urgency and potential for deterioration, in advocating for the timely execution of a procedure or therapy • Carries out the operative procedures to the required level for the phase of training as described in the specialty syllabus • Uses sound judgement to adapt operative strategy to take account of pathological findings and any changes in clinical condition • Undertakes the operation in a technically safe manner, using time efficiently • Give and receive appropriate handover 2. Emergency surgical procedures include the following: • Appendicectomy • Cholecystectomy • Exploratory Laparotomy • Emergency endoscopy • Emergency surgery for incarcerated hernias • Start a Colectomy
	Limitations: • Paediatric patients are excluded
3. Sub-competencies relevant for this EPA	PC 2. Pre-operative optimization and planning PC 3. Technical skills PC 4. Decision making PC 5. Assessment, diagnosis, and management of complications of surgeries MK 1. Fundamental surgical knowledge MK 2. Peri-operative knowledge SBP 2. System navigation for patient-centred care SBP 3. Physician role in health care systems PBLI 1. Evidence based and informed practice Prof 1. Professional behaviour and ethical principles Prof 2. Accountability / conscientiousness ICS 1. Patient- and family-centred communication ICS 2. Interprofessional and team communication ICS 3. Communication within healthcare systems aka documentation

4. Potential risks in case of failure	• Misdiagnosis and delayed diagnosis of serious conditions or complications of procedures • Unnecessary surgery / procedures • Litigation

5. Required Knowledge, Skills, Attitudes and Experiences	K:	

Surgical area	**Clinical conditions**
Resuscitation	Acute respiratory failure, shock
General abdominal conditions	Abdominal pain, abdominal mass, peritonitis, haemoperitoneum, retroperitoneal abscesses
Intestinal obstruction	Adhesions, incarcerated hernias, cancers, volvulus, intussusceptions
Upper gastrointestinal tract	Upper gastrointestinal bleed, peptic ulcer disease, fistulae, gastrostomy, small intestinal cancers, ileus, Meckel's diverticulum, bowel perforations, appendix
Hepatic-pancreatic-biliary	Gallstones and related diseases, pancreatitis, hepatic abscesses
Colorectal	Lower gastrointestinal bleed, diverticular disease, inflammatory bowel disease, colorectal cancers, colitis, colonic perforations, megacolon, regional enteritis, colostomy/ileostomy, haemorrhoids, perianal and perirectal fistulas and infections, anorectal stenosis, rectal prolapse
Hernias	Inguinal, femoral, umbilical, incisional, ventral, diaphragmatic
Soft tissue	Cellulitis, abscesses, fasciitis, wound care, pressure ulcers, compartment syndrome
Vascular	Ruptured aneurysms, acute intestinal ischemia, acute peripheral ischemia, phlebitis
Trauma	Airway-Breathing-Circulation, injury to face, neck, chest, abdomen and/or pelvis
Cardiothoracic	Cardiac tamponade, empyema, pneumothorax, oesophageal perforation
Others	Foreign bodies

	S:	For emergency surgical procedures: refer to PC 3. Technical skills	
	A:	• Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented • Reliable: conscientious, pays attention to details, accountable, responsible, predictable • Integrity: truthful, good intentions, patient-centred • Humility: observes limits, willing to ask for help, receptive to feedback	
	E:	ATLS provider course Familiar with IT system	
6. Sources of information to support summative entrustment decisions	Tools	Number to be completed satisfactorily	Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)
	DOPS with entrustment -based discussions	Junior residency: 1 for each procedure Senior residency: 1 for each procedure	Suitable raters to be decided by programme
	MSF	1 MSF per year	Suitable raters to be decided by programme
	Products to be evaluated	Procedure log: See national requirement as per Specialty Training Requirements	Reviewed by PD every 6 months
7. Which supervision level when?	Appendicectomy: Level 3 by R3, Level 4 by R4 Rest of procedures listed: Level 4 i.e., allowed to practice EPA unsupervised, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

EPA 4: Running Elective Outpatient Endoscopy Sessions

1. Title	**Running Elective Outpatient Endoscopy Sessions**	
2. Specifications and limitations	This EPA includes the following elements: • Provide analgesia and sedation to ensure patient safety and comfort • Perform upper and lower GI diagnostic and therapeutic endoscopies, including but not limited to biopsies, polypectomies, and other therapeutic interventions • Recognise need to refer for advanced endoscopy (e.g., ERCP, EUS, EMR, ESG etc.) by other surgical/non-surgical colleagues • Arrange for post-endoscopic care including management of co-morbidity • Identify and respond to immediate complications of the procedure if applicable	
	Limitations: • Inpatient and emergency endoscopies are excluded	
3. Sub-competencies relevant for this EPA	PC 2. Pre-operative optimisation and planning PC 3. Technical skills PC 4. Decision making MK 1. Fundamental surgical knowledge MK 2. Peri-operative knowledge Prof 1. Professional behaviour and ethical principles Prof 2. Accountability / conscientiousness ICS 1. Patient- and family-centred communication ICS 2. Interprofessional and team communication ICS 3. Communication within healthcare systems aka documentation	
4. Potential risks in case of failure	• Misdiagnosis and delayed diagnosis of serious conditions • Severe and potentially life-threatening complications e.g., perforation, bleeding • Litigation	
5. Required Knowledge, Skills,	K:	Refer to the core and advanced conditions in upper and lower GI sections of Singapore General Surgery Residency curriculum

<table>
<tr><td rowspan="3">Attitudes and Experiences</td><td>S:</td><td colspan="3">Generic endoscopic skills:
• Prepare for the procedure, reviewing relevant investigations and preoperative assessments/consults
• Set-up, position, and drape the patient for the procedure
• Participate in the surgical safety checklist or equivalent
• Assemble and verify endoscope function
• Intubate the GI track under direct vision
• Maintain luminal view
• Achieve clear visualization of the mucosa using a variety of techniques, including air, water and suction
• Identify key anatomic landmarks and clinically relevant findings
• Perform tissue biopsies in quantity and quality as appropriate to indication
• Use diathermy and other therapeutic techniques appropriately and safely
• Demonstrate appropriate pace and progress during insertion and withdrawal
• Demonstrate appropriate care of the endoscope

Colonoscopic skills - in addition to generic endoscopic skills, the following are applicable to colonoscopy:
• Use torque steering appropriately
• Recognize and resolve loop formation
• Use position change and abdominal pressure to aid luminal views
• Perform polypectomies as appropriate to indication</td></tr>
<tr><td>A:</td><td colspan="3">• Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented
• Reliable: conscientious, pays attention to details, accountable, responsible, predictable
• Integrity: truthful, good intentions, patient-centred
• Humility: observes limits, willing to ask for help, receptive to feedback</td></tr>
<tr><td>E:</td><td colspan="3">Endoscopic and/or simulation workshop</td></tr>
<tr><td rowspan="3">6. Sources of information to support summative entrustment decisions</td><td colspan="2">Tools</td><td>Number to be completed satisfactorily</td><td>Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)</td></tr>
<tr><td colspan="2">DOPS with entrustment-based discussion</td><td>1 DOPS with EbD per year in R1, R2, R3, R4 and R5</td><td>Suitable raters to be decided by programme</td></tr>
<tr><td colspan="2">MSF</td><td>1 MSF per year</td><td>Suitable raters to be decided by programme</td></tr>
</table>

	Products to be evaluated	Procedure log: JR: 10 colonoscopy, 10 OGD SR: 10 colonoscopy, 10 OGD	Reviewed by PD every 6 months
7. Which supervision level when?	Level 3 i.e., with supervisor distantly available, by end of R4 Level 4 i.e., allowed to practice EPA unsupervised, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

EPA 5: Performing Elective Surgical Procedures

1. Title	**Performing Elective Surgical Procedures**
2. Specifications and limitations	1. Elective surgical procedures refer to the following: • Ray or partial foot amputation for peripheral vascular disease • Open inguinal hernia repair • Laparoscopic cholecystectomy with or without intraoperative cholangiogram • Open segmental colectomy • Small bowel resection or gastrojejunostomy • Hemithyroidectomy • Simple mastectomy 2. This EPA contains the following elements: • Review the operating list, accounting for case mix, skill mix, operating time, clinical priorities, and patient co-morbidity • Ensure the “Time-Out” / safety checklist (or equivalent) is completed for each patient • Understand when prophylactic antibiotics should be prescribed and follow local protocol • Synthesise the patient’s surgical condition, the technical details of the operation, comorbidities, and medication into an appropriate operative plan for the patient • Carry out and/or assist the operative procedures to the required level for the phase of training • Use judgement to adapt operative strategy to take account of pathological findings and any changes in clinical condition • Undertake and/or assist the operation in a technically safe manner, using time efficiently • Demonstrate application of knowledge and non-technical skills in the operating theatre, including situation awareness, decision-making, communication, leadership, and teamwork • Arrange for post-operative care including initial management of medical co-morbidities, referring to relevant specialties as appropriate • Review all patients post-operatively • Write a full operation note for each patient, ensuring inclusion of all post-operative instructions
	Limitations: • Paediatric patients are excluded

<table>
<tr><td>3. Sub-competencies relevant for this EPA</td><td colspan="3">PC 3. Technical skills
PC 4. Decision making
MK 1. Fundamental surgical knowledge
MK 2. Peri-operative knowledge
SBP 1. Patient safety and quality improvement
Prof 1. Professional behaviour and ethical principles
Prof 2. Accountability / conscientiousness
ICS 2. Interprofessional and team communication
ICS 3. Communication within healthcare systems aka documentation</td></tr>
<tr><td>4. Potential risks in case of failure</td><td colspan="3">Patient morbidity due to poor surgical technique</td></tr>
<tr><td rowspan="4">5. Required Knowledge, Skills, Attitudes and Experiences</td><td>K:</td><td colspan="2">Refer to the core and advanced conditions in the Singapore General Surgery Residency curriculum</td></tr>
<tr><td>S:</td><td colspan="2">For elective surgical procedures: refer to PC 3. Technical skills</td></tr>
<tr><td>A:</td><td colspan="2">• Agency: appropriate self-confidence, proactive toward work, team-player, safety-oriented
• Reliable: conscientious, pays attention to details, accountable, responsible, predictable
• Integrity: truthful, good intentions, patient-centred
• Humility: observes limits, willing to ask for help, receptive to feedback</td></tr>
<tr><td>E:</td><td colspan="2">Familiar with IT system</td></tr>
<tr><td rowspan="2">6. Sources of information to support summative entrustment decisions</td><td>Tools</td><td>Number to be completed satisfactorily</td><td>Additional specifications if needed (Who can be raters - staff, nursing, peers? In which context?)</td></tr>
<tr><td>DOPS with entrustment-based discussions</td><td>Junior residency: 1 for each procedure for ray amputation and inguinal hernia

Senior residency: 1 for each procedure for cholecystectomy, segmental colectomy, small bowel resection or gastrojejunostomy, hemithyroidectomy and simple mastectomy</td><td>Suitable raters to be decided by programme</td></tr>
</table>

	MSF	1 MSF per year	Suitable raters to be decided by programme
	Products to be evaluated	Procedure log: See national requirement as per Specialty Training Requirements	Reviewed by PD every 6 months
7. Which supervision level when?	1. Ray or partial foot amputation for peripheral vascular disease 2. Open inguinal hernia repair • Level 3 i.e., with supervisor distantly available, by end of R2 • Level 4 i.e., allowed to practice EPA unsupervised, by end of R3 3. Laparoscopic cholecystectomy with or without intraoperative cholangiogram 4. Open segmental colectomy 5. Small bowel resection or gastrojejunostomy 6. Hemithyroidectomy 7. Simple mastectomy • Level 3 i.e., with supervisor distantly available, by end of R6		
8. Expiry	If not practiced, after how many months or years will more close supervision be required again?		24 months

Annex C.R4: Surgery Milestones

Milestones - Surgery Singapore v

Annex C.R6: Curriculum

1. General Surgery Residency Curriculu