

(A) INTRODUCTION

Definition

Intensive Care Medicine (ICM) is a medical subspecialty concerned with the prevention, diagnosis and management of patients who are critically ill and are under imminent threat of severe morbidity or mortality, due to the derangement of critical physiologic and organ system(s). An Intensivist is a specialist who is an expert in the diagnosis and management of all aspects of critical illness.

Objective(s) of Training

This objective of this Training Programme is to produce specialists in ICM who are able to provide the total management required by critically ill patients, through administering management modalities appropriate to the patient's problems and needs, deployment and coordination of the ICU health care team, engaging health care professionals of other disciplines, and the management and organization of the physical environment. As such, the trainee should achieve the following during their formal period of training:

1. Acquire competencies in the prompt and effective management of urgent life threatening problems through systematic and prioritized approaches in problem identification, good grasp of the knowledge and concepts in pathophysiologies, developing practical skills in appropriate procedures and the prevailing recommended standards of management.
2. Acquire the knowledge and concepts, competency in skills and the use of equipment, systematic approach to problem identification, problem solving capabilities, attitudes towards the safe and effective management of the entire period of critical illness. These include the diagnosis and management of all pathological processes present, continuous life support, maintenance of basic physiological needs, ensuring comfort and alleviation of suffering, the prevention of hospital acquired complications, and the provision of end-of-life management.
3. Acquire the knowledge, concepts and communicative skills to facilitate appropriate psychological, emotional and social management of the patients' relatives, including end-of-life issues.
4. Acquire the knowledge and skills in other aspects of medicine, surgery, paediatrics, obstetrics, anaesthesiology, radiology and other specialties which are relevant in the treatment of critically ill patients.
5. Be conversant with the principles of medical ethics, with special emphasis on its application in critical illness and end of life issues.
6. Cultivate the attitude and skills to be a team player, either as a member or the leader, in the context of teams consisting of multidisciplinary personnel (ICM, other specialties, nursing, therapists etc.).
7. Develop the clinical managerial competence to be the ICU "specialist in-charged", able to provide, lead and coordinate the overall management for patients, and where necessary to coordinate a team of other consultants for this purpose.
8. Develop the attitude and relational skills to facilitate coordinated inter-disciplinary care of patients, through amicable working relationships, effective communication processes, multi-disciplinary protocols and work processes.
9. Understand the organizational, administrative and managerial aspects of an ICU and how that would affect the prompt and effective delivery of care. Develop the ability to work within the limits of available resources and yet provide the best care for patients.
10. Develop capabilities to design and implement processes for clinical audits and quality improvement.
11. Be involved in research through participation in their design, implementation, data analysis and interpretation, and formal publication.
12. Understand the special concepts, requirements and processes for the provision of critical care in mass disaster situations (e.g. epidemics, mass traumatic casualty events).

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13. Acquire the capability to identify and modify the stresses and hazards that the ICU environment exerts on patients, their relatives and fellow healthcare providers, in order to facilitate the optimization of their wellbeing.
14. Develop and enquiring mind for clinical and scientific problems, and to adopt systematic and critical appraisal of available information.
15. Participate in educational activities of fellow healthcare providers of various disciplines (students, medical, nursing, respiratory therapy, physiotherapy, pharmacy, etc.)
16. Develop the habit to constantly update oneself in the changes in Medicine, society and the world which requires adaptation of their practice.
17. Acquire a process of constant self-appraisal to improve one's areas of deficiencies in ICM.

(B) PROGRAMME OVERVIEW

Traineeship Duration for Advanced Specialty Training

Refer to Annex 2 for an overview of the traineeship duration and posting structure for Advanced Specialty Training in Intensive Care Medicine.

(C) ADMISSION REQUIREMENTS

Eligibility

C.1 Application for entry to programme

C.1.1 Candidates may apply for ICM AST programme with the JCST once they have either (1) exited from; or (2) are in their final year of Senior Residency (SR) in one of the following base specialties:

- a) Anaesthesiology
- b) Advanced Internal Medicine
- c) Respiratory Medicine

C.1.2 The applicant must also have obtained one of the following postgraduate qualifications (or an approved foreign equivalent):

- a) Master of Medicine in Anaesthesiology, MMed (Anaes), or
- b) Master of Medicine in Internal Medicine, MMed (Int Med), or
- c) Member of Royal College of Physicians, UK (MRCP(UK)), or
- d) Member of Royal College of Physicians, Ireland (MRCPI).

C.2 Commencement of ICM AST

C.2.1 Candidates can only commence ICM AST programme after they have exited from their base specialties.

C.3 Exit requirements for ICM AST

The ICM Trainee will be conferred the exit certification in ICM when all of the following have been fulfilled:

- a) Completed 12 months of pre-requisite ICM relevant postings (see D.1)
- b) Completed 12 months of Core ICU Postings (see D.2)
- c) Passed the ICM Exit Examinations organized by SSTC (ICM)/JCST (see section H)

C.4 Other Base Specialties as entry requirements for ICM training

After the initial establishment of the ICM Training Programme, the SSTC (ICM) may consider the application of Specialist Training Committees (STC) of other Base Specialties (eg. Emergency Medicine, Cardiology, Surgery etc) to be included as entry specialties. These Base Specialties may have to modify their programmes for BST and AST to include adequate components that are relevant to ICM. Until then, entry to the ICM AST is limited only for Anaesthesiology, Respiratory Medicine and Advanced Internal Medicine.

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(D) TRAINING SYLLABUS

D.1 Pre-requisite ICM Relevant Postings (12 months)

D.1.1 Type of Postings

For Exit Certification, the trainees must provide evidence of having completed 12 cumulative months of ICM relevant postings. ICM relevant postings may be in one or a combination of the following:

- Anaesthesiology (minimum 3 months' continuous postings + multiple shorter postings of at least 1 month each)
- Respiratory Medicine (a minimum total of 3 months: a 2 month minimum continuous postings + multiple shorter postings of at least 1 month each)
- Intensive Care Unit (a minimum total of 3 months: can be done continuously or as multiple postings of at least 1 month each) – Trainee using ICU rotations as Pre-requisite ICM Relevant Postings would still need to complete 12 months' Core ICU Postings (see D.2). Sub-specialty ICUs are not recognized towards Pre-requisite ICM Relevant Postings.

D.1.2 Combination of the Postings

For the postings stated in D.1.1, the trainee has the option of spending all 12 months in one type of posting, or have a combination of the different postings, subject to the minimum number of months stated for each type.

D.1.3 Relationship of Postings vs Base Specialties SR

For Trainees from the base specialties of Anaesthesiology and Respiratory Medicine, these posting must be done as part of their respective base specialty's SR. For Trainees from the base specialty of Advanced Internal Medicine, ideally 2 months of Respiratory Medicine and 2 months of ICU could be done during their Advanced Internal Medicine SR, while the remaining 8 months of the ICM Pre-requisite ICM Relevant Postings may be done during their ICM AST.

D.2 Core ICU Postings (12 Months)

D.2.1 The duration for this period of training is 12 months.

D.2.2 Approved Training Centres

This period must be spent entirely on clinical ICU work rotations, and in local or overseas units approved by the SSTC (ICM).

D.2.3 Adequate exposure to ICU Patient Types

To ensure good clinical experience with a wide spectrum of critically ill patients, the ICM Trainee must rotate to both Medical Type ICUs and Surgical Type ICUs to ensure good exposure to both "medical" and "surgical" types of critically ill patients. Such a requirement can also be achieved by the following possible combinations:

12 months of Core ICU Postings	
Possible Combination – 1	Possible Combination - 2
<p><u>12 months posting in a Multidisciplinary ICU Unit</u>, of which up to 4 months may be spent in Subspecialty ICUs.</p> <p>The 4 months spent in subspecialty ICUs is limited to:</p> <ul style="list-style-type: none"> maximum of 2 <u>Medical Type</u> Subspecialty ICU (maximum 1 month posting each) maximum of 2 <u>Surgical Type</u> Subspecialty ICU (maximum 1 month posting each) 	<p><u>6 months posting in MICU</u>, of which 2 months may be spent in Medical Type Subspecialty ICU:</p> <ul style="list-style-type: none"> Maximum of 2 Medical Type Subspecialty ICU (maximum 1 month posting each) <p><u>AND</u></p> <p><u>6 months posting in SICU</u>, of which 2 months may be spent in <u>Surgical Type</u> Subspecialty ICU:</p> <ul style="list-style-type: none"> Maximum of 2 Surgical Type Subspecialty ICU (maximum 1 month posting each)

- Approved Medical Type Subspecialty ICUs include (not exhaustive): Coronary Care Unit, Neurological ICU
- Approved Surgical Type Subspecialty ICUs include (not exhaustive): Burns ICU, Cardiothoracic ICU, and Neurosurgical ICU

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- **Definitions:** The terms “MICU”, “SICU” and “Subspecialty ICUs” are defined based on the ICU structure in Singapore hospitals. Multidisciplinary ICUs are defined as ICUs that cater to all critically ill patients in the hospital without categorization based on surgical vs medical disciplines (e.g. in Australia, New Zealand and Canada).
- These 12 months must be done continuously with each rotation lasting at least 1month and consisting of at least 44 supervised hours per week.

D.2.4 Maximum Candidature of ICM training

In accordance with the JCST Circular 005-2016 Maximum Period for Specialist Training for BST AST Seamless Trainees.

- All trainees must complete training requirements, requisite examinations, and obtain their exit certification from JCST not more than 3 years beyond the standard length^[1] of their training programme.
- Statutory leave due to SAF liabilities and entitled maternity leave (currently four months) will be excluded in the computation of the maximum allowable period, and the maximum allowable period would be extended accordingly to allow the trainees to make up the equivalent period of statutory leave.
- All other leave including leave for research for trainees is counted into the three year allowable extension of traineeship.

D.2.5 Supervisor

The ICM Trainee's Core ICU Postings must be supervised by an ICM Trainer from the Trainee's home institution. If the posting is done outside the home institution, name(s) of the immediate supervisor at the training unit(s) must also be submitted to JCST through the SSTC (ICM) for approval prior to the commencement of the posting.

D.2.6 Submission of Proposed ICU Rotation Plan

ICM Trainees must submit a proposed ICU rotation plan to SSTC (ICM) through JCST, for approval prior to commencement of their Core ICU training.

D.3 Competency Based Requirements

- ICM Trainees must fulfil Competency Based Requirements during their period training. A portion of these may be obtained during their Pre-requisite ICM-relevant Postings (e.g. specific technical skills), while the majority must be obtained during the Core ICU Postings (e.g. specific patho-physiological conditions)
- The fulfilment of these requirements must be verified and endorsed by the relevant training supervisors.
- The details of these requirements will be specified in the Trainees' Log Books, and updates will be communicated with ICM Trainees.

(Refer to *Annex 3* for detailed training content and syllabus.)

(E) INSTITUTIONAL REQUIREMENTS (FACILITIES & RESOURCES)

TRAINING DELIVERABLES

All training units must provide all trainees, except for SAF sponsored trainees, (irrespective of the specialties pursued) with the training deliverables, as follows:

- At least one session (half day) of protected time per week to be dedicated to pure training/learning activities.
- 12 days of study leave per year for their training activities (e.g. in-training exams and reviews).

^[1] The standard length of training for each specialist training programme is determined by the Specialists Accreditation Board and is made known to all its programmes.

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TRAINING REQUIREMENTS

To achieve the objectives of training, all Training Programmes must ensure that each ICM Trainee receives the appropriate level of supervised exposure to an adequate number of critically ill patients, participates in an organized didactic program, develops and executes a guided research project, and is allowed to develop leadership and management skills in caring for the critically ill in an ICU. A graduated progression during the subspecialty training should lead the clinician to increasing responsibility and independent decision making. It is essential that this training and experience occur in appropriately staffed and equipped ICUs under the direction of certified critical care physicians. Since not all clinical problems will occur during the advanced training program, an exhaustive, detailed didactic curriculum must supplement the clinical experience. Each ICM Trainee has unique strengths and weaknesses, and it is the responsibility of the program to ensure that each trainee achieves these competencies. The program must evaluate its effectiveness in developing competent intensivists and make changes based on these evaluations.

(F) SUPERVISION OF TRAINEES

All AST trainees will be supervised by a designated consultant/ supervisor but in general all the consultant staff will be duty bound to take an active part in teaching. Assessment of progress and log should take place at least 6 monthly. The supervisors should be full-time and in full Intensive Care Medicine Practice.

Associate Consultants/supervisor may supervise up to a maximum of 2 BSTs or 1 BST and 1 AST (with minimum of 2 years training gap. E.g. First year Associate Consultant may supervise 1st year AST)

(G) ASSESSMENT AND FEEDBACK

Logbook

All trainees are expected to keep a log book which will be reviewed on a monthly basis by the main supervisor. The log book will have a record of cases managed or consulted. Notes should be made regarding difficult or complicated cases. CME activities should also be recorded.

All other teaching experiences e.g. conferences, seminars, papers presented should also be recorded.

Assessment

1. The trainee will be continuously assessed by the Training Supervisors during their clinical postings. Training assessment forms formulated by the SSTC (ICM) will be issued to the respective Training Supervisors and these forms must be submitted to the SSTC (ICM) after each clinical posting.
2. Trainees are required to repeat the particular posting(s) if they failed to obtain a satisfactory report. This implies that the training period might be extended.
3. Trainees need to log in the procedures and review by the SSTC (ICM) every 6 monthly.

Feedback

Six-monthly interviews with the trainees should be conducted to ensure that the training objectives for each rotation have been adequately met, as well as to monitor for any difficulties in workload and training activities. Feedback forms should also be provided at the end of each posting, and the programme supervisor is responsible for collating the results and instituting the appropriate changes to the training programmes.

(H) EXIT EXAMINATION

Introduction

1. The Exit Examination will serve as the final independent evaluation of the trainee's adequacy in knowledge, concepts and clinical evaluation of patients.
2. The Panel of Examiners will be appointed by the Joint Committee for Specialist Training (JCST), with recommendations from the Subspecialist Training Committee (SSTC) for ICM.
3. Candidates will only be eligible to sit for the Exit Examination upon successful completion of all the sub-specialty postings and training requirements (acquired satisfactory reports from respective Training Supervisors) during the Advanced Specialist Training (AST) period.

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Examination Format

1. The examination will consist of 2 sections:
 - (i) Multiple Choice Questions
 - (ii) Viva/ Clinical Sections
2. Passing the entire examination requires a pass in all of the sections above.

(I) OVERSEAS TRAINING

Approval for accreditation for training programmes conducted in overseas centres has to be sought prospectively from JCST through the SSTC.

(J) GENERAL GUIDELINES

Please refer to Annex 1 General JCST Guidelines on the following:

- Leave Guidelines
- Training Deliverables
- Retrospective Recognition
- Changes to Training Period
- Part-time Training
- Overseas Training
- Withdrawal of Traineeship
- Exit Certification

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Annex 2: Overview of ICM AST Traineeship Duration and Posting Structure

	Entry from Base Specialties						
		Respiratory Medicine SR	Anaesthesiology SR	Advanced Internal Medicine SR			
				Option A	Option B	Option C	Option D
Period of AST for base specialty:	Respiratory Medicine	12 mth	0 mth	2 mth*	0 mth	2 mth*	0 mth
Possible combinations of Pre-requisite ICM Relevant Postings:	Anaesthesiology	0 mth	12 mth	Nil			
	ICU	0 mth	0 mth	0 mth	2 mth*	2 mth*	0 mth
Status at Base Specialty Exit		Exit Respiratory Medicine	Exit Anaesthesiology	Exit AIM	Exit AIM	Exit AIM	Exit AIM
		Completed ICM relevant postings	Completed ICM relevant postings	Lack 10 mth of ICM relevant postings	Lack 10 mth of ICM relevant postings	Lack 8 mth of ICM relevant postings	Lack 12 mth of ICM relevant postings
Period of AST for ICM: Required Core ICU Postings + ICM relevant postings		12 mth ICU	12 mth ICU	12 mth ICU + 10 mth ICM relevant posting	12 mth ICU + 10 mth ICM relevant posting	12 mth ICU + 8 mth ICM relevant posting	12 mth ICU + 12 mth ICM relevant posting
Total period from beginning of Base specialty SR to end of AST ICM required postings	Senior Residency	3 year	2 year	2 year			
	ICM Core	1 year	1 year	1 year			
	ICM relevant	0	0	10 mth	10 mth	8 mth	12 mth
	Total	4 year	3 year	3 year 10 mth	3 year 10 mth	3 year 8 mth	4 year

*Based on current AIM curriculum guidelines stipulating a maximum duration of 2 months for elective rotations to Resp Med & MICU each.

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Annex 3: Core Skills and Knowledge

Definition: Core Skills and Knowledge are defined as essential skills and knowledge that a trainee can progressively be able to perform competently. A trainee should sufficiently demonstrate competence in these skills and knowledge and enter into unsupervised practice. Milestones describe sequential behaviours, providing a learning roadmap for trainees.

Level of Competency for Each Expectations / Milestones:

1	Unable to achieve outcome (Novice)
2	Requires a lot of guidance to achieve outcome (Advanced beginner)
3	Requires moderate guidance to achieve outcome (Competent)
4	Able to achieve outcomes with little or no guidance (Proficient)
5	Has the ability to guide or teach others (Expert ,master, educator)

Competencies:

- PCTS: Patient care & Technical Skills
- MK: Medical Knowledge
- P: Professionalism
- SBP: System based Practice
- PBLI: Practice based learning and Improvement
- CS: Communication skills

No.	Core Skills and Knowledge Description	Main Competencies Addressed	Outcomes/Milestones of the Core Skills and Knowledge At the end of senior residency, the trainee should be able to:	Level of Competency	Time needed to achieve milestone (e.g. end of senior residency training)	Training	Assessment Tools
1	Lead a multi-disciplinary ICU team, to oversee the management of critically ill patients, specifically in: <ul style="list-style-type: none"> • obtaining history, • performing physical examination, • reviewing prior medical records, • carrying out relevant diagnostic evaluation, • carrying out therapeutic interventions, • coordinating care between multiple speciality care physicians, allied health professionals • setting appropriate care goals <i>Leading the decision making and execution of the plans at the ICU bedside</i>	PCTS MK CS P	➤ Obtain relevant and accurate patient history and perform physical examination	5	End of AST	Formal ICU rounds On-site supervision Inter-disciplinary rounds	Supervisor rating Multi-Rater (360) feedback Mini-CEX Exit MCQ Exit Clinical Case Discussion
			➤ Formulate a thorough problem list, propose a reasonable working and differential diagnoses	5	End of AST		
			➤ Determine the diagnostic evaluation plan, taking into consideration benefits / risks / complications / costs	5	End of AST		
			➤ Determine the therapeutic plan, taking into consideration alternatives / benefits / risks / complications / costs	5	End of AST		
			➤ Initiate appropriate and timely referrals to other healthcare providers	5	End of AST		
			➤ Ensure effective and respectful teamwork by the multi-disciplinary ICU team, within and out-with the ICU	5	End of AST		
			➤ Demonstrate compassion, empathy, openness and respect for patients and NOK that includes cultural and faith-related sensitivities	5	End of AST		
			➤ Ensure appropriate task management by the ICU team, including task distribution, task prioritization, monitoring of task completion	5	End of AST		

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2	Manage transitions of care of critically ill patients <i>Ensuring that care does not fall through the gaps when the patient flows through the system</i>	CS P SBP	<ul style="list-style-type: none"> ➤ Coordinate the handoff of care of ICU patients transferring to 'step-down' sites of care such as the High-Dependency Unit and General Ward ➤ Coordinate outreach care of patients, where appropriate, after transfer out of ICU ➤ Work with other teams to effect good handoff of care for patients transferring into the ICU from ED, General Wards, OT ➤ Ensure effective handoffs between ICU consultants going on/off service ➤ Ensure effective handoffs between covering ICU junior staff going on/off shift 	5 5 5 5 5	End of AST End of AST End of AST End of AST End of AST	Formal ICU rounds On-site supervision Inter-disciplinary rounds	Supervisor rating Multi-Rater (360) feedback Mini-CEX Exit MCQ Exit Clinical Case Discussion

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3	Perform core ICU procedures* <i>Mastering the procedures</i>	PCTS CS P	➤ Demonstrate knowledge of indications, contraindications, benefits, risks, complications of the procedures	5	End of AST	On-site supervision Courses / workshops	Supervisor rating Case log DOPS Exit MCQ Exit Clinical Case Discussion
			➤ Communicate effectively with patients and NOK on the above	5	End of AST		
			➤ Perform the procedures safely and effectively	5	End of AST		
			➤ Supervise the performance of the procedures safely and effectively	5	End of AST		

* List of core ICU procedures

1	Oro-tracheal intubation (routine)	7	Basic cardiac life support	13	Chest tube insertion
2	Oro-tracheal intubation (difficult airway)	8	Advanced cardiac life support	14	Pleural catheter insertion
3	Percutaneous tracheostomy	9	Therapeutic hypothermia	15	Pleural fluid aspiration
4	CVC insertion	10	Intra-hospital transport	16	Needle decompression (pleural cavity)
5	Dialysis catheter insertion	11	Inter-hospital transport	17	Bronchoscopy (w/o interventional procedures)
6	Intra-arterial line insertion	12	Peritoneal fluid aspiration		

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4	Manage patients on core ICU devices and techniques** <i>Mastering the technology & techniques</i>	PCTS CS P	➤ Demonstrate knowledge of indications, contraindications, benefits, risks, complications of the devices	5	End of AST	Formal ICU rounds On-site supervision Case-based discussions Formal presentations Journal clubs Courses / workshops	Supervisor rating Case log DOPS Exit MCQ Exit Clinical Case Discussion
			➤ Communicate effectively with patients and NOK on the above	5	End of AST		
			➤ Utilize the devices safely and effectively	5	End of AST		
			➤ Supervise the utilization of the devices safely and effectively	5	End of AST		

** List of core ICU devices and techniques

1	Mechanical ventilation	7	Volume resuscitation	13	Abdominal ultrasound
2	Non-invasive ventilation	8	Vasopressor, vasodilator & inotropic therapy	14	Renal replacement therapy
3	Prone positioning	9	Invasive BP monitoring	15	Intra-abdominal pressure monitoring
4	Liberation from mechanical ventilation	10	Cardiac output monitoring	16	Intra-cranial pressure monitoring
5	Pulse oximetry	11	Cardiac ultrasound	17	Early ICU based rehabilitation
6	Capnography	12	Lung ultrasound	18	Comfort care in the dying ICU patient

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5	Manage core ICU syndromes*** <i>Mastering the conditions</i>	PCTS CS P	➤ Demonstrate current knowledge of the syndromes	5	End of AST	Formal ICU rounds On-site supervision Case-based discussions Formal presentations M&M rounds Journal clubs Courses / workshops	Supervisor rating Case log Mini-CEX Exit MCQ Exit Clinical Case Discussion
			➤ Formulate an effective management plans for patients	5	End of AST		
			➤ Prognosticate with a reasonable degree of accuracy	5	End of AST		
			➤ Communicate effectively with patients and NOK on the above	5	End of AST		

*** List of core ICU syndromes

A	Airway	E	Renal	I	Environmental
1	Acute upper airway obstruction	1	Acute kidney injury	1	Severe trauma
2	"Cannot intubate can ventilate" crisis	2	Circulatory / fluid overload	2	Severe toxidromes & poisonings
3	"Cannot intubate cannot ventilate" crisis			3	Severe heat injury
				4	Exsanguinating haemorrhage
B	Respiratory	F	Endocrine	J	General
1	Acute respiratory distress syndrome	1	DKA & HHS	1	Severe sepsis
2	Acute respiratory failure	2	Thyroid storm	2	Imminent death
3	Post-extubation respiratory failure	3	Addisonian crisis	3	Pre-surgical "optimization"
4	Massive haemoptysis	4	Severe electrolyte derangements	4	Post-surgical care
C	Cardiac / Circulatory	G	Rheumatologic / Immunologic		
1	Circulatory shock	1	Severe SLE		
2	Post cardiac arrest MOF	2	Severe anaphylaxis		
3	Acute coronary syndrome	3	Severe acute adverse drug reaction		
4	Acute cardiac failure				
5	Cardiac tamponade				
6	Unstable arrhythmias				
D	Neurological	H	Gastrointestinal / Hepatic		
1	Acute stroke	1	Acute liver failure & hepatic decompensation		
2	Refractory status epilepticus	2	Abdominal compartment syndrome		
3	Encephalopathy & delirium	3	Acute abdomen		
4	Severe traumatic brain injury	4	Severe acute pancreatitis		
5	Severe ICP elevation	5	Severe intestinal obstruction		
6	Acute spinal cord injury	6	Severe upper GI haemorrhage		
7	Acute PNS weakness	7	Severe lower GI haemorrhage		
8	Brain death				

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6	Lead patient / family updates and family conferences <i>Upholding the families</i>	CS p	➤ Identify and prioritize the medical, ethical, emotional and social issues prior to a family conference	5	End of AST	Family conferences On-site supervision Courses / workshops Simulation training	Supervisor rating Multi-Rater (360) feedback Case log DOPS
			➤ Lead the family conference, paying attention to clarity, inclusiveness, emotions, pace, confidentiality, maintaining a non-judgmental attitude	5	End of AST		
			➤ Demonstrate compassion and empathy, and allow NOK to clarify, air feelings and grievances, especially when communicating bad news	5	End of AST		
			➤ Resist any reactionary or rude behaviour (verbal and non-verbal) even when provoked and maintain a professional attitude in all dealings	5	End of AST		
			➤ Document the discussions during the conference	5	End of AST		
			➤ Follow through on issues agreed upon during the conference	5	End of AST		

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o.	Core Skills and Knowledge Description	Main Competencies Addressed	Outcomes/Milestones of the Core Skills and Knowledge At the end of senior residency, the trainee should be able to:	Level of Competency	Time needed to achieve milestone (e.g. end of senior residency training)	Training	Assessment Tools
7	Facilitate the effective working of multiple medical disciplines, nursing and allied health in the ICU <i>Optimizing the team: before, during & after clinical crisis at the bedside</i>	P CS SBP	<ul style="list-style-type: none"> ➤ Understand and facilitate the role of nursing and allied health in the multi-disciplinary approach to critically ill patients ➤ Demonstrate respect for other members in the care team ➤ Understand the principles of crisis resource management and team psychology ➤ Communicate the patient status and care goals effectively to other members in the care team ➤ Balance and de-conflict where necessary, competing opinions and plans of management of members in the care team ➤ Co-ordinate efforts with providers outwith the immediate care team. 	4 4 4 4 4 4	End of AST End of AST End of AST End of AST End of AST End of AST	Formal ICU rounds On-site supervision Inter-disciplinary rounds Family conference Case-based discussions Simulation training	Supervisor rating Multi-Rater (360) feedback

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8	Facilitate the learning of patients, families, nursing and allied health professional in the ICU <i>Developing the team (the patients & families are part of the team)</i>	CS P PBLI	<ul style="list-style-type: none"> ➤ Demonstrate rapport building with patients and NOK ➤ Educate patients and NOK on preventive aspects of illness (where applicable) ➤ Enable the learning and professional development of members of the care team 	4 4 4	End of AST End of AST End of AST	On-site supervision Inter-disciplinary rounds Family conference Case-based discussions Simulation training	Supervisor rating Multi-Rater (360) feedback

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No.	Core Skills and Knowledge Description	Main Competencies Addressed	Outcomes/Milestones of the Core Skills and Knowledge At the end of senior residency, the trainee should be able to:	Level of Competency	Time needed to achieve milestone (e.g. end of senior residency training)	Training	Assessment Tools
9	Promote patient safety in the ICU <i>Making the care safer</i>	PCTS SBP PBLI	➤ Understand the principles of patient safety and system causes of errors	4	End of AST	Case-based discussions Courses / workshops Formal presentations Project participation	Supervisor rating Multi-Rater (360) feedback
			➤ Assist with the development of safe care protocols	4	End of AST		
			➤ Identify system weaknesses to improve patient safety	4	End of AST		

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10	Improve the quality of healthcare at a systems level in the ICU <i>Making the care better</i>	PCTS SBP PBLI	➤ Understand the principles of quality improvement in healthcare	4	End of AST	Case-based discussions Courses / workshops Formal presentations Project participation	Supervisor rating Multi-Rater (360) feedback
			➤ Understand the processes involved in adverse event investigation (e.g. RCA) and apply the tools for improvement initiatives	4	End of AST		
			➤ Understand the processes involved in quality improvement work (e.g. SWOT analysis, PDSA cycle) and apply the tools for improvement initiatives	4	End of AST		

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11	Demonstrate ability to engage in lifelong learning, professional development and practice improvement <i>Developing oneself</i>	MK PBLI	➤ Identify sources of credible sources of medical evidence	4	End of AST	Case-based discussions Courses / workshops Formal presentations Project participation	Supervisor rating Multi-Rater (360) feedback
			➤ Utilize current information to care for patients.	4	End of AST		
			➤ Utilize seniors' and peer feedback to improve overall practice	4	End of AST		
			➤ Modify practice in response to research evidence, outcomes and feedback	4	End of AST		

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12	Demonstrate professional and ethical behaviour <i>Upholding the practice of ICM & the health laws ethically & with professionalism</i>	MK CS P	➤ Be trustworthy in all circumstance	5	End of AST	On-site supervision Family conference Case-based discussions Courses / workshop Formal presentations Simulation training	Supervisor rating Multi-Rater (360) feedback Mini-CEX Exit Clinical Case Discussion
			➤ Be collegial in all circumstances	5	End of AST		
			➤ Understand and comply with the health laws of particular relevance to ICM practice: <ul style="list-style-type: none"> • Human Organ Transplant Act • Advanced Medial Directive Act • Coroner's Act • Mental Capacity Act 	5	End of AST		
			➤ Understand and apply the principles of open disclosure	5	End of AST		
			➤ Understand and apply the ethical pillars of autonomy, beneficence, non-maleficence and justice in ICM practice	5	End of AST		
			➤ Understand medico-legal responsibilities, especially when the critical illness is possibly resultant from medical error	5	End of AST		
			➤ Understand and apply the principles of acting in the patient's best interest in the absence of mental capacity and valid anticipatory decisions	5	End of AST		
			➤ Understand, apply and communicate the ethical considerations and decisions of withholding and withdrawing of life support when faced with end-of-life circumstance, to patients, NOK, member of the care team	5	End of AST		

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