

# **Surgical specialties**

## **Anaesthesia and Intensive Care Medicine**

## Description of skills

The specialty of Anaesthesia and Intensive Care is characterised by a cross-disciplinary professional approach and covers:

- Perioperative medicine,
- Anaesthesia and pain management in diagnostic and therapeutic procedures,
- Intensive care,
- Emergency treatment of patients with serious illness or injury,
- Prehospital care and transport and catastrophe medicine, and
- Pain management.

## Skills requirements

For Anaesthesia and Intensive Care, learning objectives a1-a6, b1-b3, b5 and c1-c13 apply.

### Learning objectives a and b

Learning objective a1 Teamwork, leadership and pedagogy	Programme activities	Assessment
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Be able to take responsibility for his/her continuous learning in the workplace</li> <li>– Be able to exercise leadership in his/her daily work, including lead a healthcare team</li> <li>– Be able to take responsibility for the development of multi-professional teamwork</li> <li>– Be able to take responsibility for cooperation with patients and their families**</li> <li>– Be able to work in networks looking after the patient</li> <li>– Be able to collaborate with agencies outside the hospital healthcare system such as social welfare boards, agencies within the social services, schools and Försäkringskassan (the Swedish Social Insurance Agency)</li> <li>– Be able to present and explain medical information in a way that is understandable to the recipient, orally and in writing</li> <li>– Be able to plan and carry out teaching and training</li> <li>– Be able to supervise and instruct colleagues and students</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Participation in intra- or inter-professional reflection in groups  Supervise under supervision  Teach under supervision	

<b>Learning objective a2 Ethics, diversity and equality</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Demonstrate knowledge and understanding of the principles of medical ethics and be able to identify ethical problems and analyse these in a structured way</li> <li>– Be able to handle conflicts in values in his/her daily work</li> <li>– Be able to treat people as individuals and with respect regardless of gender, transgender identity or expression, ethnic origin, religion or other faith, disability, sexual orientation or age.</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Participation in intra- or inter-professional reflection in groups	

<b>Learning objective a3 Infection Prevention and Control</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Be able to take responsibility for the prevention and control of healthcare-associated infections</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor

<b>Learning objective a4</b> <b>Systematic quality and patient safety management</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Critically examine his/her own practice and be able to conduct a risk and outcome analysis</li> <li>– Be able to take responsibility for systematically implementing measures, processes and procedures to improve patient care</li> <li>– Be able to take responsibility for the integration of new technologies and procedures into his/her daily work as a doctor</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Quality and development work	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	<b>General recommendations</b>  Participation in seminars  Attendance at large professional gatherings	

<b>Learning objective a5</b> <b>Medical science</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Demonstrate a deeper knowledge and understanding of medical scientific methodology and ethical principles</li> <li>– Be able to critically examine and evaluate scientific papers</li> <li>– Demonstrate a scientific evidence based approach to his/her daily way of working and routines</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Independent written work based on scientific methodology	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Participation in seminars  Attendance at large professional gatherings	

<b>Learning objective a6 Legislation and other regulations and the health and medical care system's organisation</b>	<b>Programme activities</b>	<b>Assessment</b>
<p>The specialist doctor shall:</p> <ul style="list-style-type: none"> <li>– Demonstrate knowledge of the legislation and regulations which govern the healthcare system and its staff</li> <li>– Demonstrate knowledge of the health and medical care system's organisation and administration</li> <li>– Demonstrate knowledge of the health and medical care system's various financial control systems and their importance for the balancing of priorities in his/her daily work</li> </ul>	<p>Participation in one or more courses</p>	<p>Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor</p>

<b>Learning objective b1</b>	<b>Programme activities</b>	<b>Assessment</b>
<b>Communication with patients and families</b>		
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Be able to adapt his/her way of communicating based on the patient's and their relatives' individual needs and communication capabilities</li> <li>– Be able to give patients and their families difficult news with respect, empathy and sensitivity</li> <li>– Be able to support the patient's ability to manage a change in life situation as a result of an illness or disability</li> <li>– Be able to consult with patients and their families concerning the patient's self-care</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>	
	Participation in intra- or inter-professional reflection in groups	
	Clinical attachment	

<b>Learning objective b2</b>	<b>Programme activities</b>	<b>Assessment</b>
<b>Prevention of disease and ill-health</b>		
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Be able to guide patients in matters of lifestyle choices in order to:</li> <li>– Prevent the development of diseases associated with one or more lifestyle habits</li> <li>– Improve the prognosis in patients with diseases associated with one or more lifestyle habits</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>	
	Attendance at large professional gatherings	

<b>Learning objective b3 Medicines</b>	<b>Programme activities</b>	<b>Assessment</b>
<p>The specialist doctor shall:</p> <ul style="list-style-type: none"> <li>– Be able to adapt pharmacotherapy to the patient’s age, sex, weight, kidney and liver function as well as any comorbidity and other medication</li> <li>– Be able to assess the risks of interactions and side effects with pharmacotherapy</li> <li>– Be able to work with patients and their families to achieve compliance with medications</li> <li>– Be able to work with other parties in the patient care chain with regard to pharmacotherapy</li> <li>– Be able to critically review and evaluate scientific evidence surrounding pharmacotherapy</li> <li>– Demonstrate knowledge of the environmental impacts of pharmacotherapy</li> <li>– Demonstrate knowledge of the health economics aspects of pharmacotherapy</li> </ul>	Clinical practice under supervision	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained required competencies requirements issued by the course provider or the supervisor



<b>Learning objective b5 Palliative care in the final stages of life</b>	<b>Programme activities</b>	<b>Assessment</b>
<p>The specialist doctor shall:</p> <ul style="list-style-type: none"> <li>– Be able to identify the need for and initiate palliative care in the final stages of life</li> <li>– Be able to hold conversations with patients and their families concerning transiting to palliative care</li> <li>– Be able to apply the fundamental principles of palliative symptom relief with regard to physical, psychological, social and existential needs</li> </ul>	Clinical practice under supervision or alternatively clinical attachment	Certificate of completed programme activities and attained the required competences issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competences issued by the course provider or the supervisor
	<p><b>General recommendations</b></p> <p>Participation in seminars</p> <p>Attendance at large professional gatherings</p> <p>Clinical attachment</p> <p>Training in simulated environment</p>	

### **Learning objectives c**

The specialist doctor shall have the skills required to be able to work independently at hospitals with a broad spectrum of emergency specialties, and with round-the-clock activities.

The specialist doctor shall have:

- Knowledge and skills in monitoring, supporting and restoring the body's vital functions in patients of all age groups having surgical interventions, major injuries or serious illnesses,
- Knowledge of anaesthesiology and medical technology,
- Knowledge of nosology, diagnostic techniques and therapeutic procedures, and
- The ability to make cost-benefit assessments.

In addition, the specialist doctor has to take the lead in managing critically ill patients within and outside the hospital. This includes the prioritisation of patients with different illnesses or injuries and stabilising the patient during transport.

An additional important skill is to be able to manage complex acute situations adequately, and to have the ability to make ethical decisions in the case of life-threatening conditions.

<b>Learning objective c1</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Master relevant basic scientific knowledge	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b> Theoretical studies	

<b>Learning objective c2</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Master the medical technology used in the specialty	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b> Theoretical studies	

<b>Learning objective c3</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Master risk assessment and perioperative care of patients undergoing surgical interventions as well as diagnostic and therapeutic procedures	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Clinical attachment  Theoretical studies	

<b>Learning objective c4</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Master diagnostic and therapeutic procedures as well as risk scoring tools	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Clinical attachment  Theoretical studies	

<b>Learning objective c5</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Master anaesthesia for surgical interventions and in diagnostic and therapeutic procedures	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Clinical attachment  Theoretical studies	

<b>Learning objective c6</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Be able to manage intensive care for medical and surgical patients – Be able to identify and care for potential organ donors	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Clinical attachment  Theoretical studies	

<b>Learning objective c7</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Have a professional approach to patients and their relatives when dealing with ethical decisions in life-threatening conditions and when stopping treatment	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	<b>General recommendations</b>  Participation in diagnostic and treatment conferences  Clinical attachment	

<b>Learning objective c8</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Master the assessment and treatment of acute pain and labour pain – Be able to initiate the management of cancer pain	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Clinical attachment  Theoretical studies	

<b>Learning objective c9</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Master the care of the critically ill and injured patients, including children</li> <li>– Be able to manage complex emergency situations under stress</li> <li>– Be able to take adequate steps when there is a suspicion of child neglect or abuse</li> </ul>	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Theoretical studies  Training in simulated environment	

<b>Learning objective c10</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: <ul style="list-style-type: none"> <li>– Be able to manage patients injuries at sites outside hospital</li> <li>– Be able to manage the transport of patients with failing vital functions between and within hospitals</li> <li>– Have a good knowledge of catastrophe medicine</li> </ul>	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Theoretical studies  Training in simulated environment	

<b>Learning objective c11</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Be able to manage patients within at least one specialised area of anaesthesia with associated intensive care	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor
	<b>General recommendations</b>  Clinical attachment  Theoretical studies	

<b>Learning objective c12</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Have knowledge of the activities and approaches of other specialties relevant to a multi-disciplinary approach	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor

<b>Learning objective c13</b>	<b>Programme activities</b>	<b>Assessment</b>
The specialist doctor shall: – Be able to apply legislation and other regulations applicable to the specialty	Clinical practice under supervision at one or more units conducting such activities or managing such cases	Certificate of completed programme activities and attained the required competencies issued by the supervisor
	Participation in one or more courses	Certificate of completed programme activities and attained the required competencies issued by the course provider or the supervisor



## **General recommendations**

### **Programme structure**

It is of the utmost importance that specialty training is through clinical attachments at the care units required for the specialty resident to fulfil the educational goals of the education programme. Depending on the structure of the current healthcare provider, this can entail specialty training at on one or more units. The units where the main part of the specialty training takes place should provide both anaesthesia and intensive care work with rostered on-call duty at the hospital, where the specialty trainee should be a member of the on-call group.

An introductory period should be spent on clinical practice in anaesthesia and intensive care. The goal is for the specialty trainee to be able to manage routine anaesthesia with associated perioperative care, so that he/she can then be rostered to be on-call for the hospital. The specialty trainee should devote the period after the introductory period to further their knowledge and skills in anaesthesia and intensive care.

Part of his/her intensive care clinical placement should be at a multi-disciplinary Intensive Care Unit. The programme should include long continuous periods at an intensive care unit as well as in specialised anaesthesia, that is, specialty anaesthesia training at a tertiary referral hospital providing anaesthesia with associated intensive care which, based on the pathophysiology of the illness and the complexity of the intervention and specific needs, constitute a specialised area.

The goal is for the specialty trainee to gain insight into illnesses which entail an increased perioperative risk and in illnesses relevant for intensive care. Through this, the specialty trainee should gain a better understanding of the activities and approaches of both his/her own specialty and other specialties, enabling excellent collaborations.

Throughout the entire programme, theoretical studies should be alternated with clinical practice. The periods of specialty training in clinical practice should be continuous. The theoretical training should take the form of self-study, learning activities at the clinic and participation in scientific gatherings.