Curriculum standards

Advanced Training in Neonatal and Perinatal Medicine

(Paediatrics and Child Health)

DRAFT

August 2024

RACP
Specialists. Together

About this document

This document outlines the draft curriculum standards for Advanced Training in Neonatal and Perinatal Medicine for trainees and supervisors.

The curriculum standards should be used in conjunction with the Advanced Training in Neonatal and Perinatal Medicine learning, teaching, and assessment programs.

For more information or to provide feedback contact curriculum@racp.edu.au.

Contents

Program overview

Purpose of Advanced Training

The RACP offers Advanced Training in 33 diverse medical specialties as part of Division, Chapter, or Faculty training programs.

The purpose of Advanced Training is to develop a workforce of physicians who:

- have received breadth and depth of focused specialist training, and experience with a wide variety of health problems and contexts
- are prepared for and committed to independent expert practice, lifelong learning, and continuous improvement
- provide safe, quality health care that meets the needs of the communities of Australia and Aotearoa New Zealand.

Specialty overview

Neonatal and perinatal medicine encompasses the diagnosis, treatment, and management of health and developmental issues in newborn infants, including those born preterm, low birth weight, or with medical, surgical, or developmental conditions. This speciality collaborates in multidisciplinary teams that include allied health professionals, nurses, and midwives, and works closely with obstetrics and maternal fetal medicine in the antenatal counselling of high-risk pregnancies.

Neonatal and perinatal medicine focuses on the provision of family-centred care to newborn infants, including critically ill neonates, using a multidisciplinary team approach. This care can occur in pre-hospital, hospital, and follow-up settings.

Neonatal and perinatal specialists provide a range of care, including:

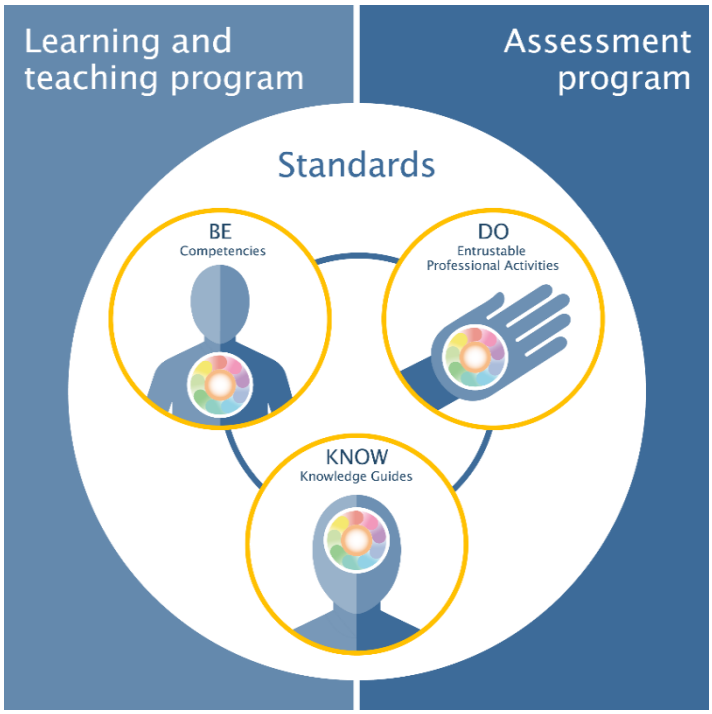
- **assessing, diagnosing, and managing complex medical and surgical issues.** Neonatologists lead the coordination of care, in consultation with subspecialty medical, surgical, and allied health specialists, where required, to formulate management plans for their patients. In some settings, neonatologists provide ongoing management following discharge from the acute setting, such as the neonatal intensive care unit (NICU), including long-term growth and developmental follow-up in the outpatient clinic setting, before transitioning care to another physician.
- **perform challenging technical procedures.** Neonatologists are expected to be able to perform challenging technical procedures on sick infants.
- **provide resuscitation.** Neonatologists provide initial and ongoing resuscitation of sick newborn infants with respiratory and hemodynamic support.
- **manage transport.** Neonatologists manage the transport of newborns and infants who require transfer to a care setting more appropriate to their needs.
- **counselling expecting parents and carers.** Neonatologists counsel expectant parents following the diagnosis of fetal anomalies or threatened preterm labour.
- **provide end-of-life care.** Neonatologists provide care for dying sick neonates at all gestational ages, with knowledge of providing appropriate palliative treatment.

- **work in a range of settings.** Neonatal and perinatal medicine practice is predominantly in an academic setting within NICUs, and with outreach to other areas of the hospital, including the delivery room and postpartum ward, as well as hospitals outside the academic institution. With increasing complexity of perinatal care, neonatologists are also required to practice in hospitals without NICUs, including private and public community hospitals.

Neonatal and perinatal medicine specialists provide leadership and work effectively in multidisciplinary teams. These specialists have skills and knowledge in:

- **multidisciplinary collaboration.** The highly specialised care neonatologists provide is delivered by working effectively with multidisciplinary teams of doctors and nurses from different specialities, psychologists, other allied health care professionals, and social workers to improve the physical and mental conditions in which families with an unwell infant find themselves.
- **leadership and management.** Neonatologists have the ability to provide team leadership and clinical skills training.
- **care for patients and family.** Specialists in neonatology recognise the needs of the parents, carers, and families of newborn infants as a whole, and care for them compassionately.
- **professional and ethical practice.** Neonatologists often face difficult discussions with families in the antenatal and postnatal environment regarding counselling about care, management, prognostication, and, potentially, palliative care. Ethical and medicolegal knowledge and its application are central to many of these discussions.
- **medical knowledge and emotional intelligence.** It is the combination of intensive care skills, ethical and emotional support, and clinic follow up that make this a unique specialty.

Advanced Training curricula standards



The **RACP curriculum model** is made up of curricula standards supported by learning, teaching, and assessment programs.

Learning and teaching programs outline the strategies and methods to learn and teach curricula standards, including required and recommended learning activities.

Assessment programs outline the planned use of assessment methods to provide an overall picture of the trainee's competence over time.

The **curricula standards** outline the educational objectives of the training program and the standard against which trainees' abilities are measured.

- **Competencies** outline the expected professional behaviours, values, and practices of trainees in 10 domains of professional practice.

- **Entrustable Professional Activities** (EPAs) outline the essential work tasks trainees need to be able to perform in the workplace.

- **Knowledge guides** outline the expected baseline knowledge of trainees.

Professional Practice Framework

The Professional Practice Framework describes 10 domains of practice for all physicians.

Learning, teaching, and assessment structure

The learning, teaching, and assessment structure defines the framework for delivery

Advanced Training learning, teaching, and assessment structure

- An **entry decision** is made before entry into the program.
- **Progress decisions**, based on competence, are made at the end of the specialty foundation and specialty consolidation phases of training.
- A **completion decision**, based on competence, is made at the end of the training program, resulting in eligibility for admission to Fellowship.

Advanced Training is a **hybrid time- and competency-based training program**. There is a minimum time requirement of between three to five years' full-time equivalent experience, depending on the training program undertaken. Progress and completion decisions are based on evidence of trainees' competence.

Curriculum standards

Competencies

Competencies outline the expected professional behaviours, values and practices that trainees need to achieve by the end of training.

Competencies are grouped by the 10 domains of the professional practice framework.

Competencies will be common across training programs.

Medical expertise

Professional standard: Physicians apply knowledge and skills informed by best available current evidence in the delivery of high-quality, safe practice to facilitate agreed health outcomes for individual patients and populations.

Knowledge: Apply knowledge of the scientific basis of health and disease to the diagnosis and management of patients.

Synthesis: Gather relevant data via age- and context-appropriate means to develop reasonable differential diagnoses, recognising and considering interactions and impacts of comorbidities.

Diagnosis and management: Develop diagnostic and management plans that integrate an understanding of individual patient circumstances, including psychosocial factors and specific vulnerabilities, epidemiology, and population health factors in partnership with patients, families, whānau, or carers[1], and in collaboration with the healthcare team.

[1] References to patients in the remainder of this document may include their families, whānau, and/or carers.

Communication

Professional standard: Physicians collate information, and share this information clearly, accurately, respectfully, responsibly, empathetically, and in a manner that is understandable.

Physicians share information responsibly with patients, families, carers, colleagues, community groups, the public, and other stakeholders to facilitate optimal health outcomes.

Effective communication: Use a range of effective and appropriate verbal, nonverbal, written and other communication techniques, including active listening.

Communication with patients, families, and carers: Use collaborative, effective, and empathetic communication with patients, families, and carers.

Communication with professionals and professional bodies: Use collaborative, respectful, and empathetic clinical communication with colleagues, other health professionals, professional bodies, and agencies.

Written communication: Document and share information about patients to optimise patient care and safety.

Privacy and confidentiality: Maintain appropriate privacy and confidentiality, and share information responsibly.

Quality and safety

Professional standard: Physicians practice in a safe, high-quality manner within the limits of their expertise.

Physicians regularly review and evaluate their own practice alongside peers and best practice standards, and conduct continuous improvement activities.

Patient safety: Demonstrate a safety focus and continuous improvement approach to own practice and health systems.

Harm prevention and management: Identify and report risks, adverse events, and errors to improve healthcare systems.

Quality improvement: Participate in quality improvement activities to improve quality of care and safety of the work environment.

Patient engagement: Enable patients to contribute to the safety of their care.

Teaching and learning

Professional standard: Physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and evaluating evidence.

Physicians foster the learning of others in their profession through a commitment to mentoring, supervising, and teaching.

Lifelong learning: Undertake effective self-education and continuing professional development.

Self-evaluation: Evaluate and reflect on gaps in own knowledge and skills to inform self-directed learning.

Supervision: Provide supervision for junior colleagues and/or team members.

Teaching: Apply appropriate educational techniques to facilitate the learning of colleagues and other health professionals.

Patient education: Apply appropriate educational techniques to promote understanding of health and disease amongst patients and populations.

Research

Professional standard: Physicians support creation, dissemination and translation of knowledge and practices applicable to health.[2]

They do this by engaging with and critically appraising research, and applying it in policy and practice to improve the health outcomes of patients and populations.

Evidence-based practice: Critically analyse relevant literature and refer to evidence-based clinical guidelines, and apply these in daily practice.

Research: Apply research methodology to add to the body of medical knowledge and improve practice and health outcomes.

[2]Adapted from Richardson D, Oswald A, Chan M-K, Lang ES, Harvey BJ. Scholar. In: Frank JR, Snell L, Sherbino J, editors. The Draft CanMEDS 2015 Physician Competency Framework – Series IV. Ottawa: The Royal College of Physicians and Surgeons of Canada; 2015 March.

Cultural safety

Professional standard. Physicians engage in iterative and critical self-reflection of their own cultural identity, power, biases, prejudices, and practising behaviours. Together with the requirement of understanding the cultural rights of the community they serve, this brings awareness and accountability for the impact of the physician's own culture on decision making and health care delivery. It also allows for an adaptive practice where power is shared between patients, family, whānau, and/or community and the physician, to improve health outcomes.

Physicians recognise the patient and population's rights for culturally safe care, including being an ally for patient, family, whānau, and/or community autonomy and agency over their decision making. This shift in the physician's perspective fosters collaborative and engaged therapeutic relationships, allows for strength-based (or mana-enhanced) decisions, and sharing of power with the recipient of the care, optimising health care outcomes.

Physicians critically analyse their environment to understand how colonialism, systemic racism, social determinants of health, and other sources of inequity have and continue to underpin the healthcare context. Consequently, physicians then can recognise their interfacing with, and contribution to, the environment in which they work to advocate for safe, more equitable and decolonised services, and create an inclusive and safe workplace for all colleagues and team members of all cultural backgrounds.[3]

This is a placeholder for the competencies in the cultural safety domain.

This content is in development and will be added at a later date.

[3] The RACP has adopted the Medical Council of New Zealand's definition of cultural safety (below): Cultural safety can be defined as:

- the need for doctors to examine themselves and the potential impact of their own culture on clinical interactions and healthcare service delivery
- the commitment by individual doctors to acknowledge and address any of their own biases, attitudes, assumptions, stereotypes, prejudices, structures, and characteristics that may affect the quality of care provided
- the awareness that cultural safety encompasses a critical consciousness where health professionals and health care organisations engage in ongoing self-reflection and self-awareness, and hold themselves accountable for providing culturally safe care, as defined by the patient and their communities.

Curtis et al. "Why cultural safety rather than cultural competency is required to achieve health equity". International Journal for Equity in Health (2019) 18:174

Ethics and professional behaviour

Professional standard: Physicians' practice is founded upon ethics, and physicians always treat patients and their families in a caring and respectful manner.

Physicians demonstrate their commitment and accountability to the health and wellbeing of individual patients, communities, populations, and society through ethical practice.

Physicians demonstrate high standards of personal behaviour.

Beliefs and attitudes: Reflect critically on personal beliefs and attitudes, including how these may impact on patient care.

Honesty and openness: Act honestly, including reporting accurately, and acknowledging their own errors.

Patient welfare: Prioritise patients' welfare and community benefit above self-interest.

Accountability: Be personally and socially accountable.

Personal limits: Practise within their own limits and according to ethical principles and professional guidelines.

Self-care: Implement strategies to maintain personal health and wellbeing.

Respect for peers: Recognise and respect the personal and professional integrity, roles, and contribution of peers.

Interaction with professionals: Interact equitably, collaboratively, and respectfully with other health professionals.

Respect and sensitivity: Respect patients, maintain appropriate relationships, and behave equitably.

Privacy and confidentiality: Protect and uphold patients' rights to privacy and confidentiality.

Compassion and empathy: Demonstrate a caring attitude towards patients and endeavour to understand patients' values and beliefs.

Health needs: Understand and address patients', families', carers', and colleagues' physical and emotional health needs.

Medical and health ethics and law: Practise according to current community and professional ethical standards and legal requirements.

Judgement and decision making

Professional standard: Physicians collect and interpret information, and evaluate and synthesise evidence, to make the best possible decisions in their practice.

Physicians negotiate, implement, and review their decisions and recommendations with patients, their families and carers, and other health professionals.

Diagnostic reasoning: Apply sound diagnostic reasoning to clinical problems to make logical and safe clinical decisions.

Resource allocation: Apply judicious and cost-effective use of health resources to their practice.

Task delegation: Apply good judgement and decision making to the delegation of tasks.

Limits of practice: Recognise their own scope of practice and consult others when required.

Shared decision making: Contribute effectively to team-based decision-making processes.

Leadership, management, and teamwork

Professional standard: Physicians recognise, respect, and aim to develop the skills of others, and engage collaboratively to achieve optimal outcomes for patients and populations.

Physicians contribute to and make decisions about policy, protocols, and resource allocation at personal, professional, organisational, and societal levels.

Physicians work effectively in diverse multidisciplinary teams and promote a safe, productive, and respectful work environment that is free from discrimination, bullying, and harassment.

Managing others: Lead teams, including setting directions, resolving conflicts, and managing individuals.

Wellbeing: Consider and work to ensure the health and safety of colleagues and other health professionals.

Leadership: Act as a role model and leader in professional practice.

Teamwork: Negotiate responsibilities within the healthcare team and function as an effective team member.

Health policy, systems, and advocacy

Professional standard: Physicians apply their knowledge of the nature and attributes of local, national, and global health systems to their own practices. They identify, evaluate, and influence health determinants through local, national, and international policy.

Physicians deliver and advocate for the best health outcomes for all patients and populations.

Health needs: Respond to the health needs of the local community and the broader health needs of the people of Australia and Aotearoa New Zealand.

Prevention and promotion: Incorporate disease prevention, health promotion, and health surveillance into interactions with individual patients and their social support networks.

Equity and access: Work with patients and social support networks to address determinants of health that affect them and their access to needed health services or resources.

Stakeholder engagement: Involve communities and patient groups in decisions that affect them to identify priority problems and solutions.

Advocacy: Advocate for prevention, promotion, equity, and access to support patient and population health needs within and outside the clinical environment.

Resource allocation: Understand the factors influencing resource allocation, promote efficiencies, and advocate to reduce inequities.

Sustainability: Manage the use of healthcare resources responsibly in everyday practice.

Entrustable Professional Activities

Entrustable Professional Activities (EPAs) outline the essential work tasks trainees need to be able to perform in the workplace.

#	Theme	Title
1	Team leadership	Lead a team of health professionals
2	Supervision and teaching	Supervise and teach professional colleagues
3	Quality improvement	Identify and address areas of improvement in health care delivery and value-based care
4	Clinical assessment and management	Clinically assess and provide management to sick and healthy neonates
5	Management of transitions in care and longitudinal care	Manage a transition of patient care between health care providers and health settings to ensure the optimal continuation of care
6	Acute care	Manage the early care of acutely unwell patients before and in the neonate period
7	Communication with patients	Discuss diagnoses and management plans with patients
8	Prescribing	Prescribe therapies tailored to patients' needs and conditions
9	Procedures	Plan, prepare for, perform, and provide aftercare for important practical procedures
10	Investigations	Select, organise, and interpret investigations relevant to the care of sick and healthy infants
11	Clinic management	Manage and lead outpatient services for infants
12	End-of-life care	Understand and manage the care of patients at the end of their lives in consultation with other health disciplines, including palliative care teams

EPA 1: Team leadership

Theme	Team leadership	AT-EPA-01
Title	**Lead a team of health professionals**	
Description	This activity requires the ability to: • prioritise workload • manage multiple concurrent tasks • articulate individual responsibilities, expertise, and accountability of team members • understand the range of team members' skills, expertise, and roles • acquire and apply leadership techniques in daily practice • collaborate with and motivate team members • encourage and adopt insights from team members • act as a role model.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• synthesise information with other disciplines to develop optimal, goal-centred plans for patients[4] • use evidence-based care to meet the needs of patients or populations • assess and effectively manage clinical risk in various scenarios • demonstrate clinical competence and skills by effectively supporting team members	• demonstrate adequate knowledge of healthcare issues by interpreting complex information • assess the spectrum of problems to be addressed • apply medical knowledge to assess the impact and clinical outcomes of management decisions • provide coordinated and quality health care for populations or patients as a member of a multidisciplinary team
Communication	• provide support and motivate patients or populations and health professionals by effective communication • demonstrate a transparent, consultative style by engaging patients, families, carers, relevant professionals and/or the public in shared decision making • work with patients, families, carers, and other health professionals to resolve conflict that may arise when planning and aligning goals	• communicate adequately with colleagues • communicate adequately with patients, families, carers, and/or the public • respect the roles of team members

[5] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• demonstrate rapport with people at all levels by tailoring messages to different stakeholders	
Quality and safety	• identify opportunities to improve care by participating in surveillance and monitoring of adverse events and 'near misses' • identify activities within systems to reduce errors, improve patient and population safety, and implement cost-effective change • place safety and quality of care first in all decision making	• participate in audits and other activities that affect the quality and safety of patients' care • participate in interdisciplinary collaboration to provide effective health services and operational change • use information resources and electronic medical record technology where available
Teaching and learning	• self-evaluate personal professional practice regularly, and implement changes based on the results • seek feedback proactively from supervisors and colleagues on own performance • identify personal gaps in skills and knowledge, and engage in self-directed learning • maintain current knowledge of new technologies, health care priorities, and changes of patients' expectations • teach competently by imparting professional knowledge • manage and monitor learner progress, providing regular assessment and feedback	• accept feedback constructively, and change behaviour in response • recognise the limits of personal expertise, and involve other health professionals as needed • demonstrate basic skills in facilitating colleagues' learning
Cultural safety	• demonstrate culturally competent relationships with professional colleagues and patients • demonstrate respect for diversity and difference • take steps to minimise unconscious bias, including the impact of gender, religion, cultural beliefs, and socioeconomic background on decision making	• demonstrate awareness of cultural diversity and unconscious bias • work effectively and respectfully with people from different cultural backgrounds
Ethics and professional behaviour	• promote a team culture of shared accountability for decisions and outcomes • encourage open discussion of ethical and clinical concerns • respect differences of multidisciplinary team members • understand the ethics of resource allocation by aligning optimal patients and organisational care • consult with stakeholders effectively, achieving a balance of alternative views	• support ethical principles in clinical decision making • maintain standards of medical practice by recognising the health interests of patients or populations as primary responsibilities • respect the roles and expertise of other health professionals • work effectively as a member of a team • promote team values of honesty, discipline, and commitment to continuous improvement

	• acknowledge personal conflicts of interest and unconscious bias • act collaboratively to resolve behavioural incidents and conflicts such as harassment and bullying	• demonstrate understanding of the negative impact of workplace conflict
Judgement and decision making	• evaluate health services and clarify expectations to support systematic, transparent decision making • make decisions when faced with multiple and conflicting perspectives • ensure medical input to organisational decision making • adopt a systematic approach to analysing information from a variety of specialties to make decisions that benefit health care delivery	• monitor services and provide appropriate advice • review new healthcare interventions and resources • interpret appropriate data and evidence for decision making
Leadership, management, and teamwork	• combine team members' skills and expertise in delivering patient care and/or population advice • develop and lead effective multidisciplinary teams by developing and implementing strategies to motivate others • build effective relationships with multidisciplinary team members to achieve optimal outcomes • ensure all members of the team are accountable for their individual practice	• understand the range of personal and other team members' skills, expertise, and roles • acknowledge and respect the contribution of all health professionals involved in patients' care • participate effectively and appropriately in multidisciplinary teams • seek out and respect the perspectives of multidisciplinary team members when making decisions
Health policy, systems, and advocacy	• engage in appropriate consultation with stakeholders on the delivery of health care • advocate for the resources and support for healthcare teams to achieve organisational priorities • influence the development of organisational policies and procedures to optimise health outcomes • identify the determinants of health of the population, and mitigate barriers to access to care • remove self-interest from solutions to health advocacy issues	• communicate with stakeholders within the organisation about health care delivery • understand methods used to allocate resources to provide high-quality care • promote the development and use of organisational policies and procedures

EPA 2: Supervision and teaching

Theme	Supervision and teaching	AT-EPA-02
Title	**Supervise and teach professional colleagues**	
Description	This activity requires the ability to: • provide work-based teaching in a variety of settings • teach professional skills • create a safe and supportive learning environment • plan, deliver, and provide work-based assessments • encourage learners to be self-directed and identify learning experiences • supervise learners in day-to-day work, and provide feedback • support learners to prepare for assessments.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• combine high-quality care with high-quality teaching • explain the rationale underpinning a structured approach to decision making • consider the patient-centric view during consultations • consider the population health effect when giving advice • encourage learners to consider the rationale and appropriateness of investigation and management options	• teach learners using basic knowledge and skills
Communication	• establish rapport and demonstrate respect for junior colleagues, medical students, and other health professionals • communicate effectively when teaching, assessing, and appraising learners • encourage a collaborative and safe learning environment with learners and other health professionals • encourage learners to tailor communication as appropriate for different patients[5], such as younger or older people, and different populations	• demonstrate accessible, supportive, and compassionate behaviour

[6] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• support learners to deliver clear, concise, and relevant information in both verbal and written communication • listen and convey information clearly and considerately	
Quality and safety	• support learners to deliver quality care while maintaining their own wellbeing • apply lessons learned about patient safety by identifying and discussing risks with learners • assess learners' competence, and provide timely feedback to minimise risks to care • maintain the safety of patients and organisations involved with education, and appropriately identify and action concerns	• observe learners to reduce risks and improve health outcomes
Teaching and learning	• demonstrate knowledge of the principles, processes, and skills of supervision • provide direct guidance to learners in day-to-day work • work with learners to identify professional development and learning opportunities based on their individual learning needs • offer feedback and role modelling • participate in teaching and supervision professional development activities • encourage self-directed learning and assessment • develop a consistent and fair approach to assessing learners • tailor feedback and assessments to learners' goals • seek feedback and reflect on own teaching by developing goals and strategies to improve • establish and maintain effective mentoring through open dialogue • support learners to identify and attend formal and informal learning opportunities • recognise the limits of personal expertise, and involve others appropriately	• demonstrate basic skills in the supervision of learners • apply a standardised approach to teaching, assessment, and feedback without considering individual learners' needs • implement teaching and learning activities that are misaligned to learning goals • adopt a teaching style that discourages learner self-directedness
Research	• clarify junior colleagues' research project goals and requirements, and provide feedback regarding the merits or challenges of proposed research	• guide learners with respect to the choice of research projects • ensure that the research projects planned are feasible and of suitable standards

	• monitor the progress of learners' research projects regularly, and may review research projects prior to submission • support learners to find forums to present research projects • encourage and guide learners to seek out relevant research to support practice	
Cultural safety	• role model a culturally appropriate approach to teaching • encourage learners to seek out opportunities to develop and improve their own cultural safety • encourage learners to consider culturally appropriate care of Aboriginal and Torres Strait Islander peoples and Māori into patients' management • consider cultural, ethical, and religious values and beliefs in teaching and learning	• function effectively and respectfully when working with and teaching with people from different cultural backgrounds
Ethics and professional behaviour	• apply principles of ethical practice to teaching scenarios • act as a role model to promote professional responsibility and ethics among learners • respond appropriately to learners seeking professional guidance	• demonstrate professional values, including commitment to high-quality clinical standards, compassion, empathy, and respect • provide learners with feedback to improve their experiences
Judgement and decision making	• prioritise workloads and manage learners with different levels of professional knowledge or experience • link theory and practice when explaining professional decisions • promote joint problem solving • support a learning environment that allows for independent decision making • use sound and evidence-based judgement during assessments and when giving feedback to learners • escalate concerns about learners appropriately	• provide general advice and support to learners • use health data logically and effectively to investigate difficult diagnostic problems
Leadership, management, and teamwork	• maintain personal and learners' effective performance and continuing professional development • maintain professional, clinical, research, and/or administrative responsibilities while teaching • create an inclusive environment in which learners feel part of the team	• demonstrate the principles and practice of professionalism and leadership in health care • participate in mentor programs, career advice, and general counselling

	• help shape organisational culture to prioritise quality and work safety through openness, honesty, shared learning, and continued improvement	
Health policy, systems, and advocacy	• advocate for suitable resources to provide quality supervision and maintain training standards • explain the value of health data in the care of patients or populations • support innovation in teaching and training	• incompletely integrate public health principals into teaching and practice

EPA 3: Quality improvement

Theme	Quality improvement	AT-EPA-03
Title	**Identify and address areas of improvement in health care delivery and value-based care**	
Description	This activity requires the ability to: • adhere to current evidence-based best practice guidelines • identify and report actual and potential ('near miss') errors • undertake and further evaluate system improvement activities • audit clinical practice and outcomes • contribute to the development of policies, guidelines, and protocols designed to protect patients and enhance health care • participate in local / state / national benchmarking activities • review own practice and develop individual improvement plans.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• use evidence-based outcomes to identify and implement opportunities for improvement in delivering appropriate care • audit local patients' or population health outcomes regularly to identify opportunities for improvement in delivering appropriate care • evaluate the effects of parents' environmental and lifestyle health risks on the fetus or infant, and advocate for healthy lifestyle choices • lead development of up-to-date policies, guidelines, and protocols to adhere to best practice • undertake yearly professional performance reviews	• contribute to processes on identified opportunities for improvement • recognise the importance of prevention and early detection in clinical practice • use local policies, guidelines, and protocols to assist patient care and decision making
Communication	• support patients to have access to, and use, easy-to-understand, high-quality information about health care • support patients[6] to share decision making about their own health care, to the extent they choose	• apply knowledge of how health literacy might affect the way patients or populations gain access to, understand, and use health information

[6] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• assist patients gain access to their health information, as well as complaint and feedback systems • discuss any safety and quality concerns patients have relating to their care • discuss adverse or unexpected, unplanned, iatrogenic events according to hospital or regional policy and frameworks, such as the open disclosure policy	• demonstrate awareness of the evidence for consumer engagement and its contribution to quality improvement in healthcare
Quality and safety	• demonstrate safety skills, including infection control, adverse event reporting, and effective clinical handover • participate in organisational quality and safety activities, including morbidity and mortality reviews, clinical incident reviews, root cause analyses, and corrective action and preventative action plans • participate in systems for surveillance and monitoring of adverse events and 'near misses', including reporting such events • ensure that identified opportunities for improvement are raised and reported appropriately • use clinical audits and registries of data on patients' experiences and outcomes, learnings from incidents, and complaints to improve care	• demonstrate understanding of a systematic approach to improving the quality and safety of health care
Teaching and learning	• translate quality improvement approaches and methods into practice • participate in professional training in quality and safety to ensure a contemporary approach to safety system strategies • supervise and manage the performance of junior colleagues in the delivery of high-quality, safe care	• work within organisational quality and safety systems for the delivery of clinical care • use opportunities to learn about safety and quality theory and systems
Research	• ensure compliance with Good Clinical Practice guidelines • ensure that any protocol for human research is approved by a human research ethics committee, in accordance with the relevant national statement on ethical conduct in human research • review, present, publish and disseminate results	• recognise that patient participation in research is voluntary and based on an appropriate understanding about the purpose, methods, demands, risks, and potential benefits of the research

	• undertake clinical research, including design, collaboration, enrolment, collation of data, and analysis and interpretation of results • participate in and provide education for junior doctors about critical appraisal of research, as well as the use of evidence-based medicine	
Cultural safety	• undertake professional development opportunities that address the impact of systemic inequity on health outcomes	• communicate effectively with patients from culturally and linguistically diverse backgrounds
Ethics and professional behaviour	• align improvement goals with the priorities of the organisation • contribute to developing an organisational culture that enables and prioritises quality and safety of patient care and the team	• comply with professional regulatory requirements and codes of conduct
Judgement and decision making	• use decision-making support tools, such as guidelines, protocols, pathways and reminders • analyse and evaluate current care processes to improve healthcare	• access information and advice from other health practitioners to identify, evaluate, and improve patients' care management
Leadership, management, and teamwork	• formulate and implement quality improvement strategies as a collaborative effort, involving all key health professionals • support multidisciplinary team activities to reduce patients' risk of harm, and promote interdisciplinary programs of education • involve clinical pharmacists in the medication-use process	• demonstrate attitudes of respect and cooperation among members of different professional teams • partner with clinicians and managers to ensure patients receive appropriate care and information on their care
Health policy, systems, and advocacy	• participate in all aspects of the development, implementation, evaluation, and monitoring of governance processes • participate regularly in multidisciplinary meetings where quality and safety issues are standing agenda items, and where innovative ideas and projects for improving care are actively encouraged • measure, analyse, and report a set of specialty-specific process of care and outcome clinical indicators, and a set of generic safety indicators • use the Australian and New Zealand Neonatal Network to	• maintain a dialogue with service managers about issues that affect patient care • contribute to relevant organisational policies, guidelines, and procedures • help shape an organisational culture that prioritises safety and quality through openness, honesty, learning, and quality improvement

	guide benchmarking and management of clinical information • take part in the design and implementation of the organisational systems for: » clinical, safety and quality education and training » defining the scope of clinical practice » performance monitoring and management

EPA 4: Clinical assessment and management

Theme	Clinical assessment and management	AT-EPA-04
Title	**Clinically assess and provide management to sick and healthy neonates**	
Description	This activity requires the ability to: • identify and access sources of relevant information about patients • obtain patient histories • examine patients • synthesise findings to develop provisional and differential diagnoses • discuss findings with patients[7] • formulate management plans • present findings to other health professionals.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• elicit accurate, systematic, and problem-focused medical histories, considering physical, psychosocial, and risk factors • perform systematic physical examinations to establish the nature and extent of problems in sick and healthy neonates • recognise the significance of maternal and fetal conditions on the health and developmental outcomes of the neonate • assess the severity of problems, the likelihood of complications, and the nature and extent of potential clinical outcomes • assess if patients' current location (such as a regional unit, postnatal ward, or perinatal centre) can provide the appropriate level of care or if the patient needs to be transferred to another location • synthesise findings on histories and physical examinations to develop provisional and differential diagnoses • formulate patient-centred management plans	• elicit limited patient-centred histories • perform targeted physical examinations • recognise and correctly interpret abnormal findings • synthesise pertinent information to direct clinical encounters and diagnostic categories • develop appropriate management plans

[7] References to patients in the remainder of this document may include their families, whānau, and/or carers.

Communication	• communicate openly, listen and take patients' concerns seriously, giving them adequate opportunity to ask questions • provide information to patients and their family or carers to enable them to make fully informed decisions • communicate clearly, effectively, respectfully, and promptly with other health professionals involved in patients' care	• anticipate, read, and respond to verbal and nonverbal cues • demonstrate active listening skills • communicate patients' dispositions to colleagues, including senior clinicians
Quality and safety	• provide accurate, clear, complete, and timely documentation of clinical information in patients' medical records • demonstrate safety skills, including infection control, adverse event reporting, and effective clinical handover • obtain informed consent before undertaking any investigation or providing treatment (except in an emergency) • inform patients of the material risks associated with any part of proposed management plans	• perform hand hygiene, and take infection control precautions at appropriate moments
Teaching and learning	• set defined objectives for clinical teaching encounters, and solicit feedback on mutually agreed goals • reflect regularly upon and self-evaluate professional development • obtain informed consent before involving patients in teaching activities • turn clinical activities into an opportunity to teach and learn, appropriate to the setting	
Research	• search for, find, collate, analyse, interpret, and evaluate information relevant to the research subject	• refer to guidelines and medical literature to assist in clinical assessments when required • demonstrate an understanding of the limitations of evidence and the challenges of applying research in clinical practice
Cultural safety	• use plain-language patient education materials, and demonstrate cultural and linguistic sensitivity • demonstrate effective and culturally safe communication and care for Aboriginal and Torres Strait Islander peoples and Māori,	• demonstrate respect for patients' cultures, and attentiveness to social determinants of health • appropriately access interpretive or culturally focused services • demonstrate an understanding of at least the most prevalent cultures in society, and an appreciation of their sensitivities

	and members of other cultural groups • use a professional interpreter, health advocate, or a family or community member to assist in communication with patients, and understand the potential limitations of each • acknowledge patients' beliefs and values, and how these might impact on their health	
Ethics and professional behaviour	• demonstrate professional values, including compassion, empathy, respect for diversity, integrity, honesty, and partnership to all patients and colleagues • hold information about patients in confidence, unless the release of information is required by law or public interest • assess patients' capacity for decision making, involving a proxy decision maker appropriately • demonstrate awareness of medicolegal and social issues around child protection • identify and manage families at high psychosocial risk, including taking a full drug and alcohol history • identify strategies for the safe discharge and community support of families at high psychosocial risk	• demonstrate professional conduct, honesty, and integrity • consider patients' decision-making capacity • identify patients' preferences regarding management and the role of families in decision making • not advance personal interest or professional agendas at the expense of patient or social welfare
Judgement and decision making	• apply knowledge and experience to identify patients' problems, making logical, rational decisions, and acting to achieve positive outcomes for patients • use a holistic approach to health, considering comorbidity, risk, and uncertainty • use the best available evidence for the most effective therapies and interventions to ensure quality care	• demonstrate clinical reasoning by gathering focused information relevant to patients' care • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• work effectively as a member of multidisciplinary teams to achieve the best health outcomes for patients, such as liaising with ophthalmologists in development and implementation of a comprehensive screening program for retinopathy of prematurity • demonstrate awareness of colleagues in difficulty, and work	• share relevant information with members of the healthcare team

	within the appropriate structural systems to support them while maintaining patient safety	
Health policy, systems, and advocacy	• participate in health promotion, disease prevention and control, screening, and reporting notifiable diseases • aim to achieve the optimal cost-effective patient care to allow maximum benefit from the available resources • demonstrate a collaborative approach to developing protocols, such as for prevention and management of perinatal sepsis, hand washing, and infection control measures in clinical practice • advocate and support infection control policies and practices in the neonatal unit	• identify and navigate components of the healthcare system relevant to patients' care • identify and access relevant community resources to support patients' care

EPA 5: Management of transitions in care and longitudinal care

Theme	**Management of transitions in care and longitudinal care**	**AT-EPA-05**
Title	**Manage the transition of patient care between healthcare providers and health settings to ensure the optimal continuation of care**	
Description	This activity requires the ability to: • manage chronic and advanced conditions, complications, impairments, and comorbidities • ensure continuity of patient[8] care • identify the appropriate care providers and other stakeholders with whom to share patients' information • collaborate with other healthcare providers and exchange pertinent, contextually appropriate, and relevant patient information • facilitate patients' self-management and self-monitoring • perform this activity in multiple settings, appropriate to the speciality, including inpatient, ambulatory, retrieval, and critical care settings • develop follow-up management plans and goals in consultation with patients engage with the broader health policy context.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• facilitate an optimal transition of care for patients • identify and manage key risks for patients during transition • anticipate possible changes in patients' conditions, and provide recommendations on how to manage them • assess and review care plans for patients with chronic conditions and impairments based on short- and long-term clinical and quality of life goals • provide documentation on patients' presentation, management, and progress, including key points of diagnosis and decision making to inform coordination of care • ensure patients contribute to their needs assessments and care planning • monitor treatment outcomes, effectiveness, and adverse events	• explain the details of patients' conditions, illness severity, and potential emerging issues with appropriate actions • provide accurate summaries of patients' information with accurate identification of problems or issues • assess patients' knowledge, beliefs, concerns, and daily behaviours related to their chronic condition and/or disability and its management • contribute to medical record entries on histories, examinations, and management plans in a way that is accurate and sufficient as a member of multidisciplinary teams

[8] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• manage patients at risk of adverse neurodevelopment	
Communication	• write accurate, clear, complete, and timely medical record entries, including clinical assessments and management plans • write comprehensive and accurate summaries of care, including discharge summaries, clinic letters, and transfer documentation • initiate and maintain verbal communication with other health professionals, when required • communicate with patients about transitions of care and follow-up plans, and engage and support these parties in decision making • apply communication and networking skills within the regional perinatal service • encourage patients' self-management through education to take greater responsibility for their care, and support problem solving • encourage patients' access to self-monitoring devices and assistive technologies • communicate with multidisciplinary team members, and involve patients in that dialogue • communicate with health providers for continuity of ongoing care outside the neonatal and early childhood setting • counsel patients about the impact of long-term illness on the child and family	• communicate clearly with clinicians and other caregivers • use standardised verbal and written templates to improve the reliability of information transfer and prevent errors and omissions • communicate accurately and in a timely manner to ensure effective transitions between settings and continuity and quality of care • provide healthy lifestyle advice and information to patients on the importance of self-management • work in partnership with patients, and support them in accessing the care they need
Quality and safety	• identify patients at risk of poor transitions of care, and implement strategies to mitigate this risk • use standardised handover tools to ensure a systematic and complete handover of relevant patient information • use electronic tools (where available) to securely store and transfer patient information • use consent processes, including written consent if required, for the release and exchange of information • demonstrate understanding the medicolegal context of written communications	• ensure that handover is complete, or work to mitigate risks if incomplete • ensure all outstanding results or procedures are followed up by receiving units and clinicians • keep patients' information secure, adhering to relevant legislation regarding personal information and privacy • participate in continuous quality improvement processes and clinical audits on chronic disease management • identify activities that may improve patients' quality of life

	• use innovative models of chronic disease care, using telehealth and digitally integrated support services • review medicine use, and ensure patients understand safe medication administration to prevent errors • support patients' self-management by balancing between minimising risk and helping patients become more independent • participate in quality improvement processes impacting on patients' abilities to undertake normal activities of daily living • follow up patients with the multidisciplinary team • discuss the impact of polypharmacy in chronic illnesses	
Teaching and learning	• integrate clinical education in handover sessions and other transition of care meetings • tailor clinical education to the level of the professional parties involved • contribute to the development of clinical pathways for chronic diseases management based on current clinical guidelines • educate patients to recognise and monitor their symptoms, and undertake strategies to assist their recovery	• take opportunities to teach junior colleagues during handover, as necessary • use clinical practice guidelines for chronic diseases management
Research	• prepare reviews of literature on patients' encounters to present at journal club meetings • search for and critically appraise evidence to resolve clinical areas of uncertainty	• search literature using problem / intervention / comparison/ outcome (PICO) format • recognise appropriate use of review articles
Cultural safety	• communicate with careful consideration to health literacy, language barriers, and culture regarding patient preferences, and whether they are realistic and possible, respecting patient choices • recognise the timing, location, privacy, and appropriateness of sharing information with patients • encourage patients from culturally and linguistically diverse backgrounds to join local networks to receive the support needed for long-term self-management	• include relevant information regarding patients' cultural or ethnic background in handovers, and whether an interpreter is required • provide culturally safe chronic disease management

	• apply culturally safe practices to enhance patients' and families' care journeys	
Ethics and professional behaviour	• disclose and share only contextually appropriate medical and personal information • demonstrate understanding of the clinical, ethical, and legal rationale for information disclosure • share information about patients' health care in a manner consistent with privacy law and professional guidelines on confidentiality • demonstrate understanding of the additional complexity related to some types of information, such as genetic information and blood-borne-virus status, and seek appropriate advice about disclosure of such information • interact in a collegiate and collaborative way with professional colleagues during transitions of care • use consent processes for the release and exchange of health information • assess patients' decision-making capacity, and appropriately identify and use alternative decision makers	• maintain respect for patients and other health professionals, including respecting privacy and confidentiality • share information between relevant service providers • acknowledge and respect the contribution of health professionals involved in patients' care
Judgement and decision making	• ensure patients' care is in the most appropriate facility, setting, or provider • implement stepped care pathways in the management of chronic diseases and disabilities • recognise patients' needs in terms of both internal resources and external support on long-term health care journeys	• use a structured approach to consider and prioritise patients' issues • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• share the workload of transitions of care appropriately, including delegation • demonstrate understanding of the medical governance of patient care, and the differing roles of team members • show respect for the roles and expertise of other health professionals, and work effectively as a member of professional teams • ensure that multidisciplinary teams provide the opportunity for patients' engagement and participation when appropriate	• recognise factors that impact the transfer of care, and help subsequent health professionals understand the issues to continue care • work to overcome the potential barriers to continuity of care, appreciating the role of handover in overcoming these barriers • participate in multidisciplinary care for patients with chronic diseases and impairments, including organisational and community care on a continuing basis, appropriate to patients' context

	• coordinate whole-person care through involvement in all stages of patients' care journeys • use a multidisciplinary approach across services to manage patients with chronic diseases and impairments • develop collaborative relationships with patients and a range of health professionals • collaborate with paramedical staff, multidisciplinary teams, and community services • integrate care of sick neonates considering multisystem interactions and long-term implications of complications of care in severely ill neonates • demonstrate multidisciplinary support, including local medical officers and community services • plan and appropriately manage transitions of patients and their families to ongoing care providers	
Health policy, systems, and advocacy	• explain the regional organisation of health services in the outpatient setting and how to access them, such as postnatal services, dietetics, or physiotherapists • explain the organisation of hospital extension services as transitions to outpatient care, such as extended postnatal care, hospital in the home, and home enteral nutrition services for enteral tube feeding • understand the organisation of outreach educational programs • understand the organisation of perinatal / neonatal transport programs • understand the requirements for down transfers of convalescent infants • contribute to processes for managing risks, and identify strategies for improvements in transitions of care • engage in organisational processes to improve transitions of care, such as formal surveys or follow-up phone calls after hospital discharge • use health screening for early intervention and chronic diseases management	• factor transport issues and costs to patients into arrangements for transferring patients to other settings • demonstrate awareness of government initiatives and services available for patients with chronic diseases and disabilities, and display knowledge of how to access them

	• assess alternative models of health care delivery to patients with chronic diseases and impairments • participate in government initiatives for chronic disease management to reduce hospital admissions and improve patients' quality of life • help patients access initiatives and services for patients with chronic diseases and impairments

EPA 6: Acute care

Theme	Acute care	AT-EPA-06
Title	**Manage the early care of acutely unwell patients before and in the neonate period**	
Description	This activity requires the ability to: • assess seriously unwell or injured patients[9] • stabilise patients, and initiate appropriate investigations and management • anticipate and recognise clinical deterioration • reassess responses to interventions, and adjust plans accordingly • work effectively within a team to complete tasks and coordinate efforts • follow local processes for escalation of care, and involve appropriate additional services, including transport, subspecialists, or intensive care • document events, interventions, and patient responses • participate in event debriefing to review management and identify areas for improvement.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• recognise immediate life-threatening conditions and deteriorating and critically unwell patients, and respond appropriately • anticipate the need for resuscitation at complex births • perform advanced neonatal life support, according to Australian and New Zealand Committee on Resuscitation guidelines, to a high level of advanced resuscitation skills • demonstrate effective team leadership in acute resuscitation events • demonstrate knowledge of the potential risks and complications of resuscitation • assess, diagnose, and manage acute undifferentiated clinical presentations • select investigations that ensure maximum patient safety through excluding or diagnosing critical patient issues	• recognise seriously unwell patients requiring immediate care • identify antenatal factors that may require life support interventions at birth • apply basic neonatal life support as indicated • demonstrate effective team membership in acute resuscitation events • explain general medical principles of caring for patients with undifferentiated and undiagnosed conditions • identify potential causes of current or anticipated deterioration, and comply with escalation protocols • facilitate initial tests to assist in diagnosis, and develop management plans for immediate treatment • document information to outline the rationale for clinical decisions and action plans

[9] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• identify systematic causes of acute deterioration in health status • manage escalations or transitions of care in a proactive and timely manner • develop clear and concise plans of ongoing multidisciplinary treatment following acute events	• assess perioperative and periprocedural patients
Communication	• communicate clearly with other team members, and coordinate efforts of multidisciplinary team members • use closed-loop and clear communication with other healthcare team members during resuscitation • facilitate and lead debriefs following resuscitations • facilitate early communication with patients and healthcare team members to allow shared decision making • negotiate realistic treatment goals, and determine and explain the expected prognoses and outcomes • employ communication strategies appropriate for neonates • explain the situation to patients in a sensitive and supportive manner, avoiding jargon and confirming their understanding • determine the level of health literacy of individual patients, and their level of understanding of agreed care decisions • demonstrate principles of counselling parents in the case of an imminent extremely preterm birth	• demonstrate communication skills to sufficiently support the function of multidisciplinary teams • determine patients' understanding of the diseases and what they perceive as the most desirable goals of care
Quality and safety	• maintain up-to-date certification in advanced neonatal life support • use clinical information technology systems for conducting prospective and retrospective clinical audits • analyse adverse incidents and sentinel events to identify system failures and contributing factors • identify evidence-based practice gaps using clinical indicators, and implement changes to improve patients' outcomes	• evaluate the quality of processes through well-designed audits • recognise the risks and benefits of operative interventions • raise appropriate issues for review at morbidity and mortality meetings • evaluate the quality and safety processes implemented within the workplace, and identify gaps in their structure

	• coordinate and encourage innovation, and objectively evaluate improvement initiatives for outcomes and sustainability	
Teaching and learning	• demonstrate supervision skills and teaching specifically in neonatal resuscitation to a multidisciplinary team • seek guidance and feedback from healthcare teams to reflect on encounters and improve future patients' care	• provide constructive feedback to junior colleagues to contribute to improvements in individuals' skills • coordinate and supervise junior colleagues from the emergency department, obstetrics, and the wards
Research	• select studies based on optimal trial design, freedom from bias, and precision of measurement • evaluate the value of treatments in terms of relative and absolute benefits, cost, potential patient harm, and feasibility • evaluate the applicability of the results of clinical studies to the circumstances of individual patients, especially those with multiple comorbidities • specify research evidence to the needs of individual patients	• demonstrate efficient searching of literature databases to retrieve evidence • use information from credible sources to aid in decision making • refer to evidence-based clinical guidelines and protocols on acutely unwell patients • demonstrate an understanding of the limitations of the evidence and the challenges of applying research in daily practice
Cultural safety	• negotiate health care decisions in a culturally safe way by considering variation in family structures, cultures, religion, or belief systems • integrate culturally safe care of Aboriginal and Torres Strait Islander peoples and Māori into patients' management • consider cultural, ethical, and religious values and beliefs in leading multidisciplinary teams	• practise cultural safety appropriate for the community serviced • identify barriers to access to health care proactively
Ethics and professional behaviour	• develop management plans that are based on medical assessments of the clinical conditions and multidisciplinary assessments of functional capacity • advise patients of their rights to refuse medical therapy, including life-sustaining treatment • consider the consequences of delivering treatment that is deemed futile, directing to other care as appropriate • facilitate interactions within multidisciplinary teams, respecting values, encouraging involvement, and engaging all participants in decision making	• communicate medical management plans as part of multidisciplinary plans • establish, where possible, patients' wishes and preferences about care • contribute to building a productive culture within teams

	• demonstrate critical reflection on personal beliefs and attitudes, including how these may affect patient care and health care policy	
Judgement and decision making	• recognise the need for escalation of care, and escalate to appropriate staff or services • integrate evidence related to questions of diagnosis, therapy, prognosis, risks, and cause into clinical decision making • reconcile conflicting advice from other specialties, applying judgement in making clinical decisions in the presence of uncertainty • use care pathways effectively, including identifying reasons for variations in care	• involve additional staff to assist in a timely fashion when required • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• work collaboratively with staff in nursing, midwifery, obstetrics, and other subspecialty inpatient units • manage the transition of acute medical patients through their neonatal journeys • lead a team by providing engagement while maintaining a focus on outcomes	• collaborate with and engage other team members, based on their roles and skills • ensure appropriate multidisciplinary assessment and management • encourage an environment of openness and respect to lead effective teams
Health policy, systems, and advocacy	• use a considered and rational approach to the responsible use of resources, balancing costs against outcomes • prioritise patient care based on need, and consider available healthcare resources • collaborate with obstetric staff and other colleagues to develop policies and protocols for the investigation and management of common acute medical problems	• explain the systems for the escalation of care for deteriorating patients • explain the role of clinician leadership and advocacy in appraising and redesigning systems of care that lead to better patient outcomes

EPA 7: Communication with patients

Theme	Communication with patients	AT-EPA-07
Title	**Discuss diagnoses and management plans with patients**	
Description	This activity requires the ability to: • select suitable contexts, and include family and/or carers and other team members • adopt a patient-centred perspective[10], including adjusting for cognition, cultural practices, disabilities, and linguistic diversity • select and use appropriate modalities and communication strategies • structure conversations intentionally • negotiate mutually agreed management plans • verify patients' understanding of information conveyed • develop and implement plan to ensure actions occur • ensure conversations are documented.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• anticipate and be able to correct any misunderstandings patients may have about their conditions and/or risk factors • inform patients of all aspects of their clinical management, including assessments and investigations, and give them adequate opportunity to question or refuse interventions and treatments • seek to understand the concerns and goals of patients, and plan management in partnership with them • provide information to patients to enable them to make informed decisions about diagnostic, therapeutic, and management options	• apply knowledge of the scientific basis of health and disease to the management of patients • demonstrate an understanding of clinical problems being discussed • formulate management plans in partnership with patients
Communication	• use appropriate communication strategies and modalities for communication, such as emails, face-to-face, or phone calls, and the use of interpreting services as required	• select appropriate modes of communication • engage patients in discussions, avoiding the use of jargon • check patients' understanding of information

[10] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• elicit patients' views, concerns, and preferences, promoting rapport • provide information to patients in plain language, avoiding jargon, acronyms, and complex medical terms • encourage questions, and answer them thoroughly • ask patients to share their thoughts or explain their management plan in their own words, to verify understanding • convey information considerately and sensitively to patients, seeking clarification if unsure of how best to proceed • treat children and young people respectfully, and listen to their views • recognise the role of family or carers, and, when appropriate, encourage patients to involve their family or carers in decisions about their care	• adapt communication style in response to patients' age, developmental level, and cognitive, physical, cultural, socioeconomic, and situational factors • collaborate with patient liaison officers as required
Quality and safety	• discuss with patients their condition and the available management options, including potential benefits and harms • provide information to patients in a way they can understand before asking for their consent • consider young people's capacity for decision making and consent • recognise and take precautions where patients may be vulnerable, such as issues of child protection, self-harm, or elder abuse • participate in processes to manage patient complaints	• inform patients of the material risks associated with proposed management plans • treat information about patients as confidential
Teaching and learning	• discuss the aetiology of diseases, and explain the purpose, nature, and extent of the assessments to be conducted • obtain informed consent or other valid authority before involving patients in teaching	• respond appropriately to information sourced by patients, and to patients' knowledge regarding their condition
Research	• provide information to patients that is based on guidelines issued by the National Health and Medical Research Council and/or Health Research Council of New Zealand • provide information to patients in a way they can understand before asking for their consent to participate in research	• refer to evidence-based clinical guidelines • demonstrate an understanding of the limitations of the evidence and the challenges of applying research in daily practice

	• obtain an informed consent or other valid authority before involving patients in research	
Cultural safety	• demonstrate effective and culturally safe communication with Aboriginal and Torres Strait Islander peoples and Māori, and effectively communicate with members of other cultural groups by meeting patients' specific language, cultural, and communication needs • use qualified language interpreters or cultural interpreters to help meet patients' communication needs • provide plain language and culturally appropriate written materials to patients when possible	• identify when to use interpreters • communicate effectively with members of other cultural groups by meeting patients' specific communication, cultural, and language needs
Ethics and professional behaviour	• encourage and support patients to be well informed about their health, and to use this information wisely when they make decisions • encourage and support patients in caring for themselves and managing their health • demonstrate respectful professional relationships with patients • prioritise honesty, patients' welfare, and community benefit above self-interest • develop a high standard of personal conduct, consistent with professional and community expectations • support patients' rights to seek second opinions • document communications with patients accurately and thoroughly	• respect the preferences of patients • communicate appropriately, consistent with the context, and respect patients' needs and preferences • maximise patient autonomy, and support their decision making • avoid sexual, intimate, and/or financial relationships with patients • demonstrate a caring attitude towards patients • respect patients, including protecting their rights to privacy and confidentiality • behave equitably towards all, irrespective of gender, age, culture, socioeconomic status, sexual preferences, beliefs, contribution to society, illness-related behaviours, or the illness itself • use social media ethically and according to legal obligations to protect patients' confidentiality and privacy
Leadership, management, and teamwork	• communicate effectively with team members involved in patients' care, and with patients • discuss medical assessments, treatment plans, and investigations with patients and primary care teams, working collaboratively with all • discuss patient care needs with healthcare team members to align them with the appropriate resources	• answer questions from team members • summarise, clarify, and communicate responsibilities of healthcare team members • keep healthcare team members focused on patient outcomes

	• facilitate an environment in which all team members feel they can contribute and their opinion is valued • communicate accurately and succinctly, and motivate others on the healthcare team	
Health policy, systems, and advocacy	• collaborate with other services, such as community health centres and consumer organisations, to help patients navigate the healthcare system	• communicate with and involve other health professionals as appropriate

EPA 8: Prescribing

Theme	Prescribing	AT-EPA-08
Title	**Prescribe therapies tailored to patients' needs and conditions**	
Description	This activity requires the ability to: • take and interpret medication histories • choose appropriate medicines based on an understanding of pharmacology, taking into consideration age, benefits, comorbidities, potential drug interactions, and risks • communicate with patients[11] about the benefits and risks of proposed therapies • provide instructions on medication administration effects and side effects • monitor medicines for efficacy and safety • review medicines and interactions, and cease where appropriate • collaborate with pharmacists.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• identify patients' disorders requiring pharmacotherapy • consider non-pharmacologic therapies • consider age, allergies, chronic disease status, lifestyle factors, patient preference, and potential drug interactions prior to prescribing new medications • plan for follow-up and monitoring	• be aware of potential side effects and practical prescription points, such as medication compatibility and monitoring in response to therapies • select medicines for common conditions accurately, appropriately, and safely • demonstrate understanding of the benefits, contraindications, dosage, drug interactions, rationale, risks, and side effects • identify and manage adverse events
Communication	• discuss and evaluate the risks, benefits, and rationale of treatment options, making decisions in partnership with patients • write clear and legible prescriptions in plain language, and include specific indications for the anticipated duration of therapy • identify patients' concerns and expectations, and explain how medicines might affect their everyday lives	• discuss and explain the rationale for treatment options with patients • explain the benefits and burdens of therapies, considering patients' individual circumstances • write clearly legible scripts or charts using generic names of the required medication in full, including mg / kg / dose information and all legally required information • seek further advice from experienced clinicians or pharmacists when appropriate

[11] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• educate patients about the intended use, expected outcomes, and potential side effects for each prescribed medication, addressing the common, rare, and serious effects at the time of prescribing to improve patients' adherence to pharmacotherapy • describe how the medication should and should not be administered, including any important relationships to food, time of day, and other medicines being taken • ensure patients' understanding by repeating back pertinent information, such as when to return for monitoring and whether therapy continues after this single prescription	
Quality and safety	• review medicines regularly to reduce non-adherence, and monitor treatment effectiveness, possible side effects, and drug interactions, ceasing unnecessary medicines • use electronic prescribing tools where available, and access electronic drug references to prevent errors caused by drug interactions and poor handwriting • prescribe new medicines only when they have been demonstrated to be safer or more effective at improving patient-oriented outcomes than existing medicines • participate in clinical audits to improve prescribing behaviour, including an approach to polypharmacy and prescribing cascade • report suspected adverse events to the Advisory Committee on Medicines, and record it in patients' medical records	• check the dose before prescribing • monitor side effects of medicines prescribed • identify medication errors and institute appropriate measures • use electronic prescribing systems safely • rationalise medicines to avoid polypharmacy
Teaching and learning	• use continuously updated software for computers and electronic prescribing programs • ensure patients understand management plans, including adherence issues • use appropriate guidelines and evidence-based medicine resources to maintain a working knowledge of current medicines, keeping up to date on new medicines	• undertake continuing professional development to maintain currency with prescribing guidelines • reflect on prescribing, and seek feedback from a supervisor

Research	• critically appraise research material to ensure any new medicine improves patient-oriented outcomes more than older medicines, and not just more than placebo • use sources of independent information about medicines that provide accurate summaries of the available evidence on new medicines	• make therapeutic decisions according to the best evidence • recognise where evidence is limited, compromised, or subject to bias or conflict of interest
Cultural safety	• explore patients' understanding of and preferences for non-pharmacological and pharmacological management • offer patients effective choices based on their expectations of treatment, health beliefs, and cost • interpret and explain information to patients at the appropriate level of their health literacy • anticipate queries to help enhance the likelihood of medicines being taken as advised • ensure appropriate information is available at all steps of the medicine management pathway	• recognise patients' cultural and religious backgrounds, attitudes, and beliefs, and how these might influence the acceptability of pharmacological and non-pharmacological management approaches
Ethics and professional behaviour	• provide information to patients about prescribed medicines and: » how to take the medicine » potential side effects and required monitoring » what the medicine does » what the medicine is for » when it should be stopped • make prescribing decisions based on good safety data when the benefits outweigh the risks involved • demonstrate understanding of the ethical implications of pharmaceutical industry-funded research and marketing	• consider the efficacy of medicines in treating illnesses, including the relative merits of different non-pharmacological and pharmacological approaches • follow regulatory and legal requirements and limitations regarding prescribing • follow organisational policies regarding pharmaceutical representative visits and drug marketing
Judgement and decision making	• use a systematic approach to select treatment options • use medicines safely and effectively to get the best possible results • choose suitable medicines only if medicines are considered necessary and will benefit patients • evaluate new medicines in relation to their possible efficacy and safety profile for individual patients	• consider the following factors for all medicines: » contraindications » cost to patients, families, and the community » funding and regulatory considerations » generic versus brand medicines » interactions » risk-benefit analysis

	• prescribe medicines appropriately to patients' clinical needs, in doses that meet their individual requirements, for a sufficient length of time, with the lowest cost to them	• recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• interact with medical, pharmacy, and nursing staff to ensure safe and effective medicine use	• work collaboratively with pharmacists • participate in medication safety and morbidity and mortality meetings
Health policy, systems, and advocacy	• choose medicines in relation to comparative efficacy, safety, and cost-effectiveness against medicines already on the market • prescribe for individual patients, considering allergies, current medicines, history, and preferences, ensuring that healthcare resources are used wisely for the benefit of patients	• prescribe in accordance with the organisational policy

EPA 9: Procedures

Theme	Procedures	AT-EPA-9
Title	**Plan, prepare for, perform, and provide aftercare for important practical procedures**	
Description	This activity requires the ability to: • select appropriate procedures in partnership with bedside nurses and patients[12] • obtain informed consent • set up the equipment, maintaining an aseptic field • perform procedures • manage unexpected events and complications during and after procedures • provide aftercare for patients • communicate aftercare protocols and instructions to patients and medical and nursing staff • interpret the results and outcomes of procedures, including imaging and reports • communicate the outcome of procedures and associated investigations to patients • perform this activity across multiple relevant settings.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• select procedures by assessing patient-specific factors, including alternatives, benefits, and risks • confidently and consistently perform a range of common procedures • ensure team members are aware of all allergies / adverse reactions identified, and take precautions to avoid allergies / adverse reactions during procedures • ensure patients prepared appropriately • confirm the correct position / site / side / level on patients for planned procedures • recognise and effectively manage complications arising during or after procedures	• assess patients and identify indications for procedures • check for allergies and adverse reactions • consider risks and complications of procedures • interpret results of common diagnostic procedures • organise and document post-procedure review of patients

[12] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• recognise and correctly interpret normal and abnormal findings of diagnostic procedures	
Communication	• document procedures accurately in clinical notes, including informed consent, procedures requested and performed, reasons for procedures, medicines given, aseptic technique, and aftercare • explain procedures clearly to patients, including reasons for procedures, potential alternatives, and possible risks, to facilitate informed choices • counsel patients sensitively and effectively, and support them to make informed choices • address parents' concerns relating to procedures, providing opportunities to ask questions • communicate effectively with team members during and after procedures • ensure team members are confident and competent in their assigned roles	• explain the process of procedures to patients without providing a broader context • help patients choose procedures • communicate with members of procedural teams so all team members understand who each member is • discuss postprocedural care with patients • complete relevant patients' documentation, and conduct appropriate clinical handovers
Quality and safety	• obtain informed consent or other valid authority before undertaking any procedure • set up all necessary equipment, and consistently use universal precautions and aseptic technique • confirm patients' identification, verify the procedure, and, where appropriate, the correct position / site / side / level for the procedure • ensure that information on patients' consent forms matches procedures to be performed • identify, document, and appropriately notify of any adverse events or equipment malfunction	• provide information in a manner so that patients are fully informed when consenting to any procedures • demonstrate an inconsistent application of aseptic technique • identify patients using approved patients' identifiers before any treatment or intervention is initiated • attempt to perform a procedure in an unsafe environment
Teaching and learning	• refer to and/or be familiar with relevant published procedural guidelines prior to undertaking procedures • organise or participate in in-service training on new technology • provide specific and constructive feedback and comments to junior colleagues • initiate and conduct skills training for junior staff	• participate in continued professional development • help junior colleagues develop new skills • seek feedback proactively on personal technique until competent

Cultural safety	• consider individual patients' cultural perception of health and illness, and adapt practice accordingly	• respect religious, cultural, linguistic, and family values and differences
Ethics and professional behaviour	• confidently perform common procedures • identify appropriate proxy decision makers when required • show respect for the knowledge and expertise of colleagues • maximise patient autonomy in decision making	• perform procedures when adequately supervised • follow procedures to ensure safe practice
Judgement and decision making	• identify roles and optimal timing for diagnostic procedures • critically appraise information from assessment and evaluation of risks and benefits to prioritise patients on a waiting list • make clinical judgements and decisions based on the available evidence • select the most appropriate and cost-effective diagnostic procedures • adapt procedures in response to assessments of risks to individual patients • select appropriate investigations on the samples obtained in diagnostic procedures	• prioritise which patients receive procedures first (if there is a waiting list) • assess personal skill levels, and seek help with procedures when appropriate • use tools and guidelines to support decision making • recommend suboptimal procedures for patients
Leadership, management, and teamwork	• explain critical steps, anticipated events, and equipment requirements to teams on planned procedures • provide staff with clear aftercare instructions, and explain how to recognise possible complications • identify relevant management options with colleagues, according to their level of training and experience, to reduce error, prevent complications, and support efficient teamwork • coordinate efforts, encourage others, and accept responsibility for work done	• ensure all relevant team members are aware that a procedure is occurring • discuss patients' management plans for recovery with colleagues
Health policy, systems, and advocacy	• discuss serious incidents at appropriate clinical review meetings • initiate local improvement strategies in response to serious incidents • use resources efficiently when performing procedures	• perform procedures in accordance with the organisational guidelines and policies

EPA 10: Investigations

Theme	Investigations	AT-EPA-10
Title	**Select, organise, and interpret investigations relevant to the care of the sick and healthy infant**	
Description	This activity requires the ability to: • select, plan, and use evidence-based clinically appropriate investigations • prioritise patients[13] receiving investigations (if there is a waiting list) • evaluate the anticipated value of investigations • work in partnership with patients to facilitate choices that are right for them • interpret the results and outcomes of investigations • communicate the outcome of investigations to patients • provide aftercare for patients (if needed).	
Behaviours		
Professional practice framework Domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• choose evidence-based investigations, and frame them as an adjunct to comprehensive clinical assessments • assess patients' concerns, and determine the need for specific tests that are likely to result in overall benefit • develop plans for investigations, identifying their roles and timing • recognise and correctly interpret abnormal findings, considering patients' specific circumstances, and act accordingly • account for multisystem interactions in health and disease	• provide rationale for investigations • understand the significance of abnormal test results, and act on these • consider patient factors and comorbidities • consider age-specific reference ranges
Communication	• explain to patients the potential benefits, burdens, costs, risks, and side effects of each option, including the option to have no investigations • use clear and simple language, and check that patients understand the terms used and agree to proceed with proposed investigations	• discuss the benefits, complications, indications, and risks of investigations with patients before ordering investigations • explain the results of investigations to patients • arrange investigations, providing accurate and informative referrals, and liaise with other services where appropriate

[13] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• identify patients' concerns and expectations, providing adequate explanations on the rationale for individual test ordering • confirm whether patients have understood the information they have been given and whether they need more information before deciding • use written or visual material or other aids that are accurate and up to date to support discussions with patients • explain findings or possible outcomes of investigations to patients • give information that patients may find distressing in a considerate way, and provide appropriate support	
Quality and safety	• identify adverse outcomes that may result from proposed investigations, focusing on patients' individual situations	• consider safety aspects of investigations when planning them • seek help with interpretation of test results for less common tests or indications or unexpected results
Teaching and learning	• use appropriate guidelines, evidence sources, and decision support tools • participate in clinical audits to improve test ordering strategies for diagnoses and screening	• undertake professional development to maintain currency with investigation guidelines
Research	• provide patients with relevant information if a proposed investigation is part of a research program • obtain written consent from patients if the investigation is part of a research program	• refer to evidence-based clinical guidelines • consult current research on investigations
Cultural safety	• understand patients' views and preferences about any proposed investigation and the adverse outcomes they are most concerned about	• consider patients' cultural and religious backgrounds, attitudes, and beliefs, and how these might influence the acceptability of proposed investigations
Ethics and professional behaviour	• remain within the scope of the authority given by patients and their families (with the exception of emergencies) • discuss with patients how decisions will be made once the investigation has started and the patient and their family is not able to participate in decision making • respect patients' decisions to refuse investigations, even if their decisions may not be appropriate or evidence based	• identify appropriate proxy decision makers when required • choose not to investigate in situations where it is not appropriate for ethical reasons • practise within current ethical and professional frameworks • involve patients in decision making regarding investigations, obtaining the appropriate informed consent, including financial consent, if necessary

	• advise patients there may be additional costs, which patients and their families may wish to clarify before proceeding • explain the expected benefits as well as the potential burdens and risks of any proposed investigation before obtaining informed consent or other valid authority • demonstrate awareness of complex issues related to genetic information obtained from investigations, and subsequent disclosure of such information	• practise within own limits, and seek help when needed
Judgement and decision making	• evaluate the benefits, costs, and potential risks of each investigation in a clinical situation • adjust the investigative path depending on test results received • consider whether patients' conditions may get worse or better if no tests are selected	• choose the most appropriate investigation for the clinical scenario in discussion with patients • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• consider the role other members of the healthcare team might play, and what other sources of information and support are available • ensure results are checked in a timely manner, taking responsibility for following up results	• demonstrate understanding of what parts of an investigation are provided by different doctors or health professionals
Health policy, systems, and advocacy	• select and justify investigations regarding the pathological basis of disease, appropriateness, cost effectiveness, safety, and utility • consider resource utilisation through peer review of testing behaviours	

EPA 11: Clinic management

Theme	Clinic management	AT-EPA-11
Title	**Manage and lead outpatient services for infants**	
Description	This activity requires the ability to: • manage clinic services, including multidisciplinary developmental and growth assessment clinics • oversee quality improvement activities • liaise with other health professionals and team members • demonstrate problem-solving skills • use public resources responsibly.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• identify and address current clinical concerns, as well as longer-term clinical objectives, as appropriate to patients' context • evaluate environmental and lifestyle health risks, and advocate for healthy lifestyle choices • create accurate and appropriately prioritised problem lists in clinical notes or as part of ambulatory care reviews • update documentation in a timeframe appropriate to the clinical situation of patients	• demonstrate understanding of the importance of prevention, early detection, health maintenance, and chronic condition management
Communication	• help patients[14] navigate the healthcare system to improve access to care by collaboration with other services, such as community health centres and consumer organisations • link patients to specific community-based health programs and group education programs	• wherever practical, meet patients' specific language and communication needs • facilitate appropriate use of interpreter services and translated materials
Quality and safety	• practice health care that maximises patient safety • adopt a systematic approach to the review and improvement of professional practice in the outpatient clinic setting	• take reasonable steps to address issues if patients' safety may be compromised • understand a systematic approach to improving the quality and safety of health care

[14] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• identify aspects of service provision that may be a risk to patients' safety • ensure that patients are informed about fees and charges as appropriate	• participate in organisational quality and safety activities, including clinical incident reviews
Teaching and learning	• evaluate their own professional practice • demonstrate learning behaviour and skills in educating junior colleagues • contribute to the generation of knowledge • maintain professional continuing education standards	• recognise the limits of personal expertise, and involve other professionals as needed to contribute to patients' care • use information technology appropriately as a resource for modern medical practice
Research	• obtain informed consent or other valid authorisations before involving patients in research • inform patients about their rights, the purpose of the research, the procedures to be undergone, and the potential risks and benefits of participation before obtaining consent	• allow patients to make informed and voluntary decisions to participate in research
Cultural safety	• apply knowledge to deliver culturally safe and appropriate services for the community served • mitigate the influence of their own culture and beliefs on interactions with patients and decision making • mitigate one's own conscious and unconscious bias in shared decision making • adapt practice to improve patient engagement and health outcomes	• acknowledge the social, economic, cultural, and behavioural factors influencing health, both at individual and population levels
Ethics and professional behaviour	• identify and respect the boundaries that define professional and therapeutic relationships • respect the roles and expertise of other health professionals • comply with the legal requirements of preparing and managing documentation • demonstrate awareness of financial and other conflicts of interest	• understand the responsibility to protect and advance the health and wellbeing of individuals and communities • maintain the confidentiality of documentation, and store clinical notes appropriately • ensure that the use of social media is consistent with organisational, ethical and legal obligations
Judgement and decision making	• integrate prevention, early detection, health maintenance, and chronic condition management, where relevant, into clinical practice	• understand the appropriate use of human resources, diagnostic interventions, therapeutic modalities, and health care facilities

	• work to achieve optimal and cost-effective patient care that allows maximum benefit from the available resources	
Leadership, management, and teamwork	• prepare for and conduct clinical encounters in a well-organised and time-efficient manner • work effectively as a member of multidisciplinary teams or other professional groups • ensure that all important discussions with colleagues, multidisciplinary team members, and patients' are appropriately documented • review discharge summaries, notes, and other communications written by junior colleagues • support colleagues who raise concerns about patients' safety	• attend relevant clinical meetings regularly
Health policy, systems, and advocacy	• engage in the surveillance and monitoring of the health status of populations in the outpatient setting • maintain good relationships with health agencies and services • apply the principles of efficient and equitable allocation of resources to meet individual, community, and national health needs	• understand common population health screening and prevention approaches

EPA 12: End-of-life care

Theme	End-of-life care	AT-EPA-12
Title	**Understand and manage the care of patients at the end of their lives**	
Description	This activity requires the ability to: • recognise the dying phase • support patients15 to plan for their advance care, and document their own wishes • consult with other health disciplines, including palliative care teams • manage end-of-life care plans.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	The trainee may:
Medical expertise	• accurately assess patients' physical and psychological symptoms • estimate prognosis and communicate this appropriately, if requested, including the uncertainties around such estimates • develop and clearly document individualised end-of-life care plans, including patients' preferences for treatment options, resuscitation plans, preferred place of care, and preferred place of death • provide holistic symptom management, focusing on psychological, spiritual, and physical distress, according to patients' wishes • avoid unnecessary investigations or treatments, ensuring physical and psychosocial support • review the goals of care and treatment plans with patients if significant changes in patients' conditions or circumstances occur • recognise and manage the terminal phase in a timely way • recognise the value of a multidisciplinary approach to the family of a dying neonate	• demonstrate an understanding of the principles of care for patients at the end of their lives • provide timely assessment, and document patients' care plans • manage physical symptoms in alignment with patients' wishes • take steps to alleviate patients' symptoms and distress • correctly identify patients approaching the end of life, and provide symptomatic treatment • adequately manage patients in their terminal phase

[15] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• discuss the process of autopsy and other post-mortem investigations, and seek informed consent	
Communication	• establish supportive relationships with patients based on confidentiality, empathy, trust, and understanding • explore patients' concerns across physical, spiritual, cultural, and psychological domains thoughtfully • identify opportunities to discuss end-of-life care, aligning it with patients' values and preferences • identify proxy decision makers who patients' wish to be involved in discussions about their end-of-life care • identify and document lists of close family members or carers, and develop support plans for them • provide bereaved families or carers with written information about access to bereavement support, and follow up with the family • communicate effectively and in a timely manner with other health professionals involved in patients' care, and debrief with the healthcare team	• discuss with patients, family, or carers the goals of care and treatment, and document this in patients' clinical records • ensure consistent messages are given to patients about treatment options, their likelihood of success, risks, and prognosis • provide an honest and clear clinical assessment summary of situations, using plain language and avoiding medical jargon • discuss with family or carers the availability of appropriate support and bereavement care
Quality and safety	• conduct medication chart safety audits and multidisciplinary mortality and morbidity meetings, and provide feedback to colleagues • develop monitoring and evaluation strategies to capture feedback about the quality of care from multidisciplinary team members and patients • review all deaths to determine the safety and quality of patients' end-of-life care and how it could be improved • review technological systems and processes that support safe and high-quality end-of-life care	• collect and review data on the safety and effectiveness of end-of-life care delivery • communicate the content of discussions about prognosis and advanced care planning to multidisciplinary teams • ensure that actual care is aligned with patients' documented wishes
Teaching and learning	• provide supervision, support, and teaching to develop the skills of junior colleagues on end-of-life care	• participate in education on disease-specific symptom assessment and evidence-based symptom management

	• reflect on personal practice, and use this process to guide continuing professional development • ensure all members of multidisciplinary teams receive education on their roles and responsibilities for managing end-of-life care • promote education covering: » competencies for providing culturally responsive end-of-life care to Aboriginal and Torres Strait Islander peoples and Māori, and to people from other cultural backgrounds » ethical and medicolegal issues » relevant legislation in the state, territory, or region	• participate in upskilling in best practice of end-of-life care management • encourage junior colleagues to participate in multidisciplinary case reviews, mortality and morbidity meetings, and adverse event reviews
Research	• ensure that quality end-of-life care management processes are evidence based and outcome focused • use systematic reviews or personal reviews and appraisal of literature as evidence for appropriate management • support clinical trials to build the end-of-life care evidence base	• recognise that the evidence may be insufficient to resolve uncertainty and make definitive decisions
Cultural safety	• practise culturally responsible medicine based on understanding the personal, historical, and cultural influences on patients • develop strategies for identifying culturally appropriate decision makers, and obtain their input in discussions of patients' end-of-life care • offer support to patients to include cultural or religious practices in their care	• understand, respect, and respond to individual preferences and needs of patients, regardless of their culture and religious beliefs • support patients with communication difficulties associated with cultural and linguistic diversity
Ethics and professional behaviour	• ensure all team members discuss end-of-life care with patients, and act on expressed patient preferences • enhance the quality of life for patients at the end of life to minimise pain and suffering caused by ineffective treatments • recognise the complexity of ethical issues related to human life and death when considering the allocation of scarce resources • recognise feelings of moral distress and burnout in themselves and colleagues	• ensure that information on advanced care plans, treatment plans, goals of care, and patients' treatment preferences is available to all involved in patients' care • ensure patients' dignity is preserved • respond appropriately to distress or concerns of colleagues and patients

Judgement and decision making	• maximise patients' autonomy and their best interests when making treatment decisions • liaise with other relevant services, providing referrals as necessary	• define and document patients' goals and agreed outcomes
Leadership, management, and teamwork	• ensure care plans are communicated to all teams involved in patients' care, including relevant community care providers • define the responsibilities and roles of team members involved in patients' care • achieve agreement between multidisciplinary teams about patients' treatment options • coordinate care and support to be provided in patients' preferred place of care • manage personal challenges of dealing with death and grief	• coordinate end-of-life care to minimise fragmentation of care • document multidisciplinary care plans, including the terminal phase
Health policy, systems, and advocacy	• participate in developing frameworks for organisational advanced care planning • allocate resources according to the organisational strategic plan to support systems for effective delivery of end-of-life care • advocate for the needs of individual patients, social groups, and cultures within the community who have specific palliative care needs or inequitable access to palliative care services	• allocate scarce healthcare resources effectively • support community-based service providers to build capacity for people to be cared for in their preferred place of death

Knowledge Guides

Knowledge guides (KGs) provide detailed guidance to trainees on the important topics and concepts trainees need to understand to become experts in their chosen specialty.

Trainees are not expected to be experts in all areas or have experience related to all items in these guides.

#	Title
1	Scientific foundations of neonatal and perinatal medicine
2	Infections and immune disorders
3	Respiratory conditions
4	Circulatory conditions
5	Neurological and neuromuscular conditions
6	Haematological and malignant conditions
7	Metabolic and endocrine conditions
8	Kidney and Urinary system conditions
9	Gastrointestinal and hepatobiliary conditions
10	Dermatological conditions
11	Ophthalmological abnormalities
12	Ear, nose, and throat abnormalities
13	Fetal and perinatal medicine

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have in-depth knowledge of the topics listed under each clinical sciences heading.

For the statistical and epidemiological concepts listed, trainees should be able to describe the underlying rationale, the indications for using one test or method over another, and the calculations required to generate descriptive statistics.

Anatomy

- Altered physiology states
- Common congenital abnormalities identifiable in the fetus
- Common maternal conditions that affect fetal growth and development
- Common minor variants affecting the healthy neonate, such as:
  - rashes
  - skin tags
  - tongue tie
- Common neonatal complications associated with birth
- Effects of maternal medications and substance misuse on fetuses, neonates, and growing children
- Fetomaternal conditions that may influence the mode of delivery and/or resuscitation
- Indications and outcome of common fetoplacental interventions
- Normal fetal growth and development
- Physiological changes involved in the transition to extrauterine life
- Survival and long-term neurodevelopmental outcome data of extremely preterm and sick neonates by week of gestation

Epidemiology and statistics

- Descriptive, qualitative, and quantitative statistics
- Research methods, such as:
  - audits
  - cohort studies
  - evidence synthesis
  - quality improvement
  - trial designs

Pharmacology

- Assessment and management of differing pain severities associated with procedures
- Dose monitoring
- Drug excretion in breast milk
- Drug interactions
- Feeding and nutrition
- Maternal medications and substance misuse on fetuses, neonates, and growing children
- Non-pharmacological pain management options
- Pharmacological pain management options
- Principles of pharmacology as applied to preterm and term neonates
- Side effects
- Support of parents in home administration of medications

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and

Clinical assessment tools

- Blood:
  - blood counts
  - interpretation of:
    - blood cultures
    - blood gasses
    - other blood tests, including inflammatory markers
  - kidney and liver function tests

physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients[16], families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

- Developmental assessment tools, such as:
  - Bayley Scales of Infant and Toddler Development
  - General movements assessment
  - Griffiths III
  - Hammersmith Infant Neurological Examination (HINE)
- Imaging and their interpretation:
  - CT
  - MRI
  - ultrasound
  - x-rays
- Interpretation of monitoring:
  - amplitude-integrated electroencephalography (aEEG)
  - EEG
  - oximetry
  - ultrasounds
- Other body fluids:
  - biochemistry
  - cultures
  - interpretation of microscopy
- Thermoregulatory principles in newborns, such as:
  - fluid and electrolyte monitoring in sick and preterm neonates
  - understanding of the thermoneutral environment

Drains and catheters and their insertion and removal

- Endotracheal intubation
- Intercostal drains
- Nasogastric tube
- Percutaneous central venous lines
- Percutaneous long lines
- Peripheral arterial catheters
- Peripheral intravenous cannulas
- Umbilical arterial and venous catheters
- Urinary bladder catheter

Procedures

- Airway suctioning
- Bag and mask ventilation
- Bladder taps
- Blood cultures under aseptic techniques
- Blood sampling from umbilical and peripheral arterial lines
- Capillary blood sampling
- Drainage of cerebrospinal fluid (CSF) reservoir
- Endotracheal intubation
- Exchange transfusions
- Lumbar punctures
- Paracentesis
- Pericardiocentesis
- Peripheral arterial punctures
- Surfactant administration
- Thoracocentesis

[16] References to patients in the remainder of this document may include their families, whānau, and/or carers.

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis, management and outcomes.

Care of parents and neonates after birth

- Anthropometry, including documentation
- Bonding
- Breastfeeding:
  - advantages
  - complications
  - physiology
  - practicalities
- Child protection issues
- Coordination of follow-up of high-risk infants and their families, including liaison with relevant community services
- Current immunisation program and recommendations
- Effects of maternal substance intoxication, misuse, and withdrawal, and treatment of these problems on fetuses and neonates
- Factors impacting on the healthy maternal-infant dyad
- Infant mental health, and recognition of the impact of hospitalisation on infants
- Issues relevant to postnatal depression
- Maternal postnatal care
- Routine care and assessment of a well infant through the first 12 months, including preventative advice
- Safe sleeping

Chronic conditions of neonates

- Chronic respiratory disease
- Hearing impairment
- Long-term mental health issues, neurodisability, and neurodiversity
- Severe retinopathy of prematurity (ROP) and visual impairment
- Short gut syndrome, malnutrition / poor growth, and chronic feeding issues

Ethical and legal considerations

- Ethical considerations for the care of sick neonates, families, and the clinical community
- Ethical issues, such as:
  - borderline viability – awareness of attitudes
  - congenital malformations
  - discontinuation of life support measures
  - non-initiation of resuscitation
- Ethics of providing support for sick neonates within the wider society, such as:
  - at the limits of gestational viability
  - for culturally and linguistically diverse families and communities
  - for infants anticipated to have poor outcomes
- Issues relating to end-of-life care, such as:
  - family (including sibling) emotional and behavioural issues
  - medicolegal issues
  - palliative care
  - role and importance of autopsy
  - role of cognitive, emotional, cultural, and spiritual factors in end-of-life decisions
- Legal responsibility for documentation
- Long-term outcome of infants of borderline viability and infants with major medical problems
- Medicolegal knowledge

Safe retrieval and transport of sick neonates

- Assessment of risks of fetal and neonatal transport
- Description of the physiological changes that occur during air transport
- Identification of neonatal transport equipment

- Indications and limitations of different transport modalities, such as:
  - fixed wing
  - road
  - rotor craft
- Management of neonates during transport
- Maternal conditions requiring in-utero transfer
- Neonatal conditions requiring transport
- Principles of management of neonates during transport
- Principles of stabilisation prior to transport
- Resuscitation, stabilisation, and management of critically ill neonates in a non-critical care environment
- Transfer of sick infants with special conditions, such as surgical conditions
- Use of the neonate equipment

Knowledge guide 2 – Infections and immune disorders

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Abnormal neonatal blood spot test for immune disorder
- Antenatal infections or colonisation
- Eye discharge
- Immunosuppression because of maternal medication
- Maternal illness in labour
- Non-specific symptoms, including:
  - lethargy
  - poor feeding
  - temperature instability
- Overwhelming sepsis in a neonate
- Rashes
- Respiratory distress

Conditions

- Bacterial, fungal, protozoal, and viral infections, such as:
  - COVID-19
  - cytomegalovirus (CMV)
  - fungal infections
  - group B streptococcus
  - hepatitis:
    - B
    - C
  - herpes simplex
  - human immunodeficiency virus (HIV)
  - meningitis:
    - bacterial
    - viral
  - neonatal varicella
  - nosocomial infection
  - other respiratory viruses, including respiratory syncytial virus (RSV)
  - septicaemia
  - syphilis
  - urinary tract infection
- Immune conditions, such as:
  - iatrogenic immunosuppression, such as secondary to steroid exposure
  - neutropaenia
  - severe combined immunodeficiency

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[17] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[17] References to patients in the remainder of this document may include their families, whānau, and/or carers.

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Conditions

- Sepsis secondary to antibiotic resistant organisms, such as:
  - extended spectrum beta-lactamase (ESBL)
  - methicillin-resistant staphylococcus aureus (MRSA)
- Severe combined immunodeficiency
- Tuberculosis
- Viruses, such as enteroviruses
- Zoonoses

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

- Pathophysiology of:
  - overwhelming sepsis in neonates
  - postnatal eye infection
- Principles of:
  - bacterial, fungal, protozoal, and viral infections, such as:
    - choice and use of antimicrobial therapy and management of drug toxicity
    - congenital infections
    - diagnostic tests, including interpretation of acute phase reactants and blood parameters
    - prevention and management of outbreaks within the neonatal intensive care unit (NICU)
    - risk factors
  - immunosuppression due to maternal biologic agents and modifications to standard immunisation schedule
  - prevention and treatment of nosocomial infection
  - the developing immune system, especially premature infants

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

Investigations

- Interpretation of acute phase reactants
- Management of outbreaks, such as:
  - cohorting
  - infection control
  - screening
- Newborn blood spot test as a screening tool for immune disorders
- Septic work up, such as:
  - blood culture
  - lumbar punctures
  - sterile urine collection

Procedures

- Abdominal paracentesis
- Aseptic techniques
- Blood cultures
- Lumbar punctures:
  - suprapubic aspirations
  - urinary catheter insertion
  - ventricular aspiration via reservoir device
- Screening swabs for management of outbreaks

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

- Impact of therapies in the newborn period, and the potential subsequent development of allergies

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Antenatal pleural effusions
- Antenatal presentation of space-occupying lesions in the thorax
- Deterioration of the ventilated newborn
- Hypoxia and hypoxemic respiratory failure
- Radiological appearances of the conditions that cause neonatal respiratory disease
- Respiratory distress

Conditions

- Air leaks
- Airway obstruction
- Apnoea of prematurity
- Chronic lung disease of prematurity / Bronchopulmonary dysplasia
- Congenital diaphragmatic hernia
- Meconium aspiration syndrome
- Pleural disorders, including:
  - chylothorax
  - pleural effusions
- Persistent pulmonary hypertension of the newborn (PPHN)
- Pulmonary hypoplasia
- Respiratory distress syndrome (RDS)
- Sepsis / Pneumonia
- Transient tachypnoea of the newborn

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[18] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[18] References to patients in the remainder of this document may include their families, whānau, and/or carers.

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Conditions

- Congenital lobar emphysema
- Congenital pulmonary lymphangiectasia
- Cystic adenomatoid malformation
- Cystic lung disease
- Mediastinal tumours

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

Embryology and physiology

- Fetal respiration and control of breathing
- Gas delivery, exchange, and oxygen transport
- Normal and abnormal morphological development of the lung
- Pulmonary function testing
- Pulmonary surfactant
- Respiratory mechanics:
  - airway resistance concepts in ventilation and perfusion
  - compliance
  - lung volumes and capacities
  - respiratory muscles
- Stages and mediators of normal and abnormal cellular and structural development of all components of the lung

Genetics

- Genetic conditions associated with respiratory pathologies

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

Investigations

- Imaging:
  - blood gases
  - CT
- Interpretation of:
  - MRI
  - non-invasive monitoring methods to manage ventilation and oxygenation, such as oximetry
  - sleep studies
  - ultrasound
  - ventilation requirements
  - x-ray

Procedures

- Extracorporeal membrane oxygenation (ECMO)
- Lung ultrasound
- Nitric oxide therapy
- Respiratory support:
  - invasive:
    - conventional ventilation
    - high frequency oscillatory ventilation
  - non-invasive:
    - high-flow nasal cannula therapy
    - nasal intermittent mandatory ventilation
    - positive airway pressure (CPAP)

	• Surfactant administration – multiple methods • Thoracocentesis and intercostal chest drain insertion
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	• Coordination of home-based care, including liaison medical officers and allied health care providers • Management of home oxygen therapy and other chronic respiratory problems

Knowledge guide 4 – Circulatory conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Abnormal blood pressure
- Abnormal heart rate:
  - » bradycardia
  - » tachycardia
- Abnormal heart rhythm / Arrhythmias
- Cardiac arrest
- Cardiac output (high- and low-output), including circulatory shock:
  - » hypertension
  - » hypotension
- Cyanosis
- Heart murmurs
- Weak or absent femoral pulses

Conditions

- Congenital heart disease
- Patent ductus arteriosus
- Persistent pulmonary hypertension of the neonate

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Conditions

- Cardiomyopathies
- Vascular rings

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- » recognise the clinical presentation
- » identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- » take a comprehensive clinical history
- » conduct an appropriate examination
- » establish a differential diagnosis
- » plan and arrange appropriate investigations
- » consider the impact of illness and disease on patients[19] and their quality of life when developing a management plan

Manage

- » provide evidence-based management
- » prescribe therapies tailored to patients' needs and conditions
- » recognise potential complications of disease and its management, and initiate preventative strategies
- » involve multidisciplinary teams

Consider other factors

- » identify individual and social factors and the impact of these on diagnosis and management

[19] References to patients in the remainder of this document may include their families, whānau, and/or carers.

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

- Congenital cardiovascular disease:
  - anatomy
  - embryology
  - physiology
- Normal physiology and development of circulation in neonates
- Pathophysiology of cardiac failure and circulatory shock
- Tissue oxygenation and gas transport

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

Investigations

- Chest radiograph
- Echocardiogram
- Electrocardiogram (ECG)

Procedures

- Extracorporeal membrane oxygenation (ECMO)
- Surgical options for the treatment of congenital heart disease, such as:
  - arterial switch surgery
  - balloon septostomy

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

- Cyanotic infants
- Emergency management and retrieval of postnatally suspected duct-dependent lesions in non-cardiac centres
- Hypertensive infants
- Hypotensive and shocked infants
- Persistent pulmonary hypertension of the newborn (PPHN):
  - management
  - pathogenesis
- Pharmacology:
  - mechanism
  - use of inotropes

Knowledge guide 5 – Neurological and neuromuscular conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Altered conscious state
- Antenatal detection of fetal:
  - brain abnormalities
  - neuromuscular conditions
- Hypotonia and hypertonia
- Pain and distress, including:
  - exposure to prenatal substances
  - postoperative
- Seizures
- Structural abnormalities, including:
  - head shape abnormalities
  - macrocephaly
  - microcephaly
  - spinal dysraphism

Conditions

- Cerebellar hypoplasia
- Developmental malformations of the brain and spinal cord, including neural tube defects
- Developmental malformations / deformation of the skeletal system
- Hydrocephalus
- Neonatal abstinence syndrome
- Neonatal encephalopathy, including hypoxic ischemic encephalopathy and other causes
- Neonatal stroke
- Preterm brain injury, including:
  - intraventricular haemorrhage
  - post-haemorrhagic ventricular dilatation
  - white matter injury, including periventricular leukomalacia
- Seizure disorders and epilepsy
- Structural neurological problems, such as:
  - absent corpus callosum
  - ventriculomegaly

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[20] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[20] References to patients in the remainder of this document may include their families, whānau, and/or carers.

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Presentations

- Anencephaly

Conditions

- Trisomy 18

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

- Impact of exposure to drugs on the developing brain, such as drugs of addiction and other commonly used drugs
- Impact on the developing brain in the preterm infant, and of postnatal conditions on the brain, such as hypoxia
- Malformations / Deformation of:
  - brain
  - skeletal system
  - spinal cord
- Normal physiology and fetal / embryological development of the nervous system
- Pathophysiology and prognosis of:
  - hypotonia and neuromuscular disorders
  - neonatal encephalopathy
  - neonatal neurological conditions
  - neonatal stroke
  - periventricular haemorrhage
  - prenatal exposure to substances of addiction and other maternal medications or environmental problems
  - seizure disorders
  - white matter injury
- Pharmacological principles of:
  - medications and treatment for pain
  - medications and treatments for newborn withdrawal
  - medications for seizures
  - treatment modalities for hypoxic ischemic encephalopathy (HIE)

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Clinical assessment tools

- Amplitude integrated electroencephalography (aEEG)
- Electrophysiological studies, such as:
  - EEG
  - electromyograms
- Evaluation for:
  - encephalopathy, such as:
    - Sarnat Score for Neonatal Encephalopathy
    - Thompson score for HIE
  - neonatal pain, such as premature infant pain profile (PIPP)
  - neonatal withdrawal, such as:
    - Eat, Sleep, and Console
    - Finnegans neonatal abstinence scoring system

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable	• Imaging modalities, such as:
	  » brain CT
	  » brain MRI
	  » functional MRI
	  » head ultrasound
	• Microarray and exome sequencing
	• Neurodevelopmental assessments, such as Bayley Scales of Infant and Toddler Development until 2 years of age
	
	Procedures
	• Lumbar punctures
	• Neuroprotective treatments, such as cooling
	• Point of care cerebral ultrasound examination
	• Ventricular drainage

IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	• Research interest in emerging evidence of therapies for HIE

Knowledge guide 6 – Haematological and malignant conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Abnormalities detected on antenatal blood tests or imaging
- Haematological disorders:
  - anaemia
  - bleeding
  - increased or decreased white cells
  - polycythaemia
  - thrombocytopenia
  - thrombocytosis
  - thrombosis
- Neonatal tumours and malignancies

Conditions

- Disorders of platelets and coagulations
- Disorders of white cells
- Hemolysis
- Hypoproduction
- Leukemias
- Malignancy
- Neonatal anaemia
- Neonatal polycythaemia
- Solid tumours

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Presentations

- Malignancies
- Polycythaemia

Conditions

- Genetic conditions associated with malignancy
- Neonatal tumours and malignancies
- Uncommon congenital causes of anaemia, such as congenital dyserythropoietic anaemia (CDA) and other genetic causes of anaemia

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[21] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[21] References to patients in the remainder of this document may include their families, whānau, and/or carers.

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Anaemia • Disorders of coagulation: » disseminated intravascular coagulation (DIC) » haemorrhagic disease of the newborn » neonatal stroke » thrombocytopaenia » vascular malformations • Hemolysis • Hypoproduction • Iron transfer in the fetus • Pathophysiology and management of immune and non-immune neonatal haemolytic diseases • Pathophysiology of anaemia of prematurity • Physiology of red cell production and mechanisms of anaemia • Platelet disorder • Polycythaemia • Transfusions and component therapy • White cell disorders
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Investigations** • B12 and folate • Blood group • Coagulation studies • Ferritin • Full blood counts and films • Interpretation of blood counts and other tests related to haematological disorders • Red cell and platelet antigen tests **Procedures** • Bone marrow biopsy and lumbar puncture as investigations of leukaemia • Exchange transfusion • Use of blood products and haematinic agents • Vitamin K prophylaxis
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	• Medicolegal and ethical considerations in the use of blood products • Prevention of iatrogenic contributors to anaemia

Knowledge guide 7 – Metabolic and endocrine conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Abnormal newborn blood spot test
- Acute life-threatening event
- Ambiguous genitalia
- Family history
- History of unexplained childhood death
- Hypertonia
- Hypotonia
- Lethargy
- Maternal thyroid dysfunction
- Parental consanguinity
- Physical abnormalities
- Pregnancy affected by diabetes
- Pregnancy complications as a presentation of a metabolic condition, such as:
  - acute fatty liver of pregnancy
  - hemolysis, elevated liver enzymes and low platelets (HELLP) syndrome
- Respiratory distress
- Seizures and encephalopathy
- Shock
- Weight loss / Poor feeding

Conditions

- Adrenal insufficiency
- Congenital adrenal hyperplasia
- Hyperglycaemia
- Hyperinsulinemia
- Hypoglycaemia
- Inherited metabolic disorders
- Panhypopituitarism
- Sex chromosome disorders
- Thyroid disorders

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Presentations

- Acute life-threatening event

Conditions

- Inherited metabolic conditions, such as:
  - fatty acid oxidation disorders
  - maple syrup urine disease
  - organic acidemias
  - urea cycle disorders
- Thyroid hormone consumption in massive haemangioma

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[22] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[22] References to patients in the remainder of this document may include their families, whānau, and/or carers.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.	

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

- Normal intrauterine development of the endocrine axes and postnatal adaptation, including the impact of preterm birth
- Pathophysiology of:
  - important endocrine and metabolic disorders of the newborn, such as:
    - adrenal insufficiency
    - ambiguous genitalia
    - sex chromosome disorders
    - thyroid disorders
  - inborn errors of metabolism
  - metabolic disturbances, including electrolyte abnormalities
- Pathophysiology and prevention of hyperglycaemia and hypoglycaemia

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

Investigations

- Acid-base balance, including lactate
- Blood glucose levels
- Hypothalamic pituitary gonadal axis tests
- Imaging tests, such as:
  - genetic testing, including:
    - exome sequencing
    - microarray
  - neuroimaging for hypothalamic / pituitary disorders
  - nuclear scans for thyroid disorders
- Liver function tests
- Metabolic tests, such as:
  - acylcarnitine
  - ammonia
  - ketones
  - newborn blood spot tests
  - plasma amino acids
  - urine metabolic screen
- Screening and investigation of hypoglycaemia, including:
  - cortisol
  - insulin
  - ketones
- Serum biochemistry
- Thyroid function tests and thyroid antibodies

Procedure

- Lumbar puncture
- Skin biopsy for fibroblast culture

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

No important specific issues identified.

Knowledge guide 8 – Kidney and urinary system conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Abdominal masses
- Abnormal urine output
- Ascites
- Biochemical abnormalities
- Haematuria
- Hypertension
- Lethargy
- Oedema
- Poor feeding
- Proteinuria
- Respiratory distress
- Sepsis
- Structural abnormalities, such as:
  - genital abnormalities
  - Potter syndrome
- Weight gain
- Weight loss

Conditions

- Congenital kidney disorders, such as:
  - anatomical abnormalities
  - hydronephrosis
- Other causes of poor urine output, such as:
  - kidney failure:
    - acute
  - shock
  - syndrome of inappropriate antidiuretic hormone ADH release (SiADH)

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[23] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[23] References to patients in the remainder of this document may include their families, whānau, and/or carers.

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions. Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Presentations

- Failure to thrive
- Respiratory failure

Conditions

- Kidney hypoplasia / aplasia
- Other congenital kidney disorders

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

- Complex fluid and electrolyte problems, including those in very preterm neonates and those with surgical problems
- Effects of kidney impairment on drug metabolism
- Indications for urological intervention
- Investigation of diagnosed kidney disorders antenatally and postnatally
- Kidney development and physiological changes after birth in preterm and term neonates
- Pathophysiology of congenital kidney disorders and kidney failure
- Recognition and institution of treatment for acute and chronic kidney failure, including indications for dialysis

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

Investigations

- Indications and interpretation of kidney vessel doppler studies
- Kidney function assessment, such as:
  - biochemical
  - blood
  - imaging, such as nuclide scans
  - urine biochemical
- Kidney tract imaging, such as:
  - CT
  - flow studies
  - MRI
  - ultrasound
- Urological investigations, such as:
  - bladder ultrasounds
  - micturating cystourethrograms

Procedures

- Bedside bladder ultrasound (desirable)
- Urethral catheterisation and suprapubic aspiration

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

- Fluid and electrolyte management in at-risk neonates

Knowledge guide 9 – Gastrointestinal and hepatobiliary conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Abdominal distension
- Anorectal malformations
- Bilious vomiting
- Delayed passage of meconium
- Faltering growth
- Feeding difficulties
- Jaundice:
  - conjugated
  - prolonged
  - unconjugated
- Sepsis
- Structural gastrointestinal abnormalities

Conditions

- Congenital gastrointestinal anomalies:
  - antenatal
  - postnatal
- Cow milk allergy
- Hepatobiliary and pancreatic disease, such as:
  - biliary atresia
  - cholestatic jaundice
  - cystic fibrosis
  - gestational alloimmune liver disease (GALD)
  - neonatal hepatitis – infectious and non-infectious causes
  - secondary disorders, such as total parenteral nutrition-associated liver failure
- Infectious conditions
- Malabsorption syndromes and nutritional deficiencies
- Metabolic bone disease of prematurity
- Necrotising enterocolitis
- Nutritional conditions
- Short gut syndrome
- Spontaneous intestinal perforation

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[24] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[24] References to patients in the remainder of this document may include their families, whānau, and/or carers.

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.
Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Presentations

- Congenital gastrointestinal disorders
- Jaundice
- Sepsis

Conditions

- Abdominal wall defects
- Atresia:
  - biliary
  - gastrointestinal tract, such as:
    - oesophageal
    - small intestinal
- Congenital duplications of the gastrointestinal tract
- Cysts – choledochal / biliary
- Hirschsprung disease
- Stenosis:
  - congenital
  - infantile hypertrophic pyloric
- Other syndromes, such as Alagille

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.

- Feeding of sick and preterm infants, including:
  - breastfeeding
  - expressed breast milk and donor breast milk / breast milk banking
  - fortifiers
  - haematinics
  - special formulas
  - supplements
  - vitamins
- Normal development and functional maturation of the gastrointestinal system, including:
  - gut hormones
  - infant feeding ability
  - motility
- Normal development of the hepatobiliary system:
  - bile acid metabolism
  - bilirubin
- Normal growth, nutritional requirements, and organ maturation of fetuses and neonates
- Normal lactation process and problems that can arise:
  - management strategies to support problematic lactation
- Pathophysiology of:
  - faltering growth
  - hepatobiliary and pancreatic disease
  - physiological and non-physiological jaundice
  - specific conditions, such as necrotising enterocolitis
- Principles of parenteral nutrition, such as:
  - indications for use, and recognition and treatment of complications secondary to parenteral nutrition
  - mineral and vitamin requirements
  - monitoring for complications of parenteral nutrition
  - nutritional components
  - trace elements

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Investigations

- Assessment and investigation of poor growth and nutrition
- Gut imaging modalities, such as:
  - bedside ultrasound
  - contrast studies
  - CT

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

- MRI
- nucleotide scans
- ultrasound
- x-rays

Procedures

- Insertion and positioning of percutaneous long lines
- Methods of delivering parenteral nutrition
- Phototherapy and methods of treating different types of jaundice

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

- Knowledge of different milks and nutritional supplements, including:
  - different types of formulas for specific indications, such as:
    - formulas for allergy:
      - amino acid formulas
      - cow milk-free, such as rice or soy
      - extensively hydrolysed
    - formulas for kidney failure
    - formulas for metabolic conditions
    - preterm formulas
  - donor human milk
  - milk fortifiers – indication and management, including human and bovine derived
  - parent's own milk
  - supplementation:
    - fat
    - glucose
    - protein
- Promotion of breastfeeding throughout the hospital, including the neonatal unit
- Psychological issues around those who are unable to breastfeed or choose not to
- Support for parents wishing to breastfeed sick and preterm babies

Knowledge guide 10 – Dermatological conditions

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Evolve postnatally
- Present at birth
- Rashes and other skin lesions
- Structural malformations

Conditions

- Common newborn conditions, such as:
  - cradle cap
  - eczema
  - erythema toxicum
  - giant congenital melanocytic nevus
  - milia
  - miliaria
  - nappy rash
  - pigmentation changes
- Dermatological considerations related to prematurity
- Disorders of the hair
- Disorders of the nails
- Iatrogenic conditions:
  - extravasation and surgical wound care
- Infectious causes of rashes:
  - cytomegalovirus (CMV)
  - syphilis
- Pressure injuries
- Skin manifestations of intrauterine infections
- Skin manifestations of maternal conditions, including systemic lupus erythematosus (SLE)
- Structural problems, such as:
  - cutis aplasia
  - incontinentia pigmenti
  - skin tags
- Vascular malformations, such as:
  - haemangiomas
  - naevus flammeus
  - naevus simplex
  - vascular malformations

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[25] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[25] References to patients in the remainder of this document may include their families, whānau, and/or carers.

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS Advanced Trainees will understand these presentations and conditions. Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.	**Presentations** • Cardiovascular compromise in high-flow vascular malformations • Congenital structural conditions **Conditions** • Life-threatening conditions, such as: » epidermolysis bullosa » X-linked ichthyosis • Syndromes with characteristic skin lesions, such as: » Klippel–Trenaunay syndrome » Noonan syndrome » port wine stains » tuberous sclerosis
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Characteristics and diagnosis of congenital and acquired infectious rashes and skin lesions • Pathophysiology and differences between benign and pathological rashes in a newborn • Pathophysiology and differences between haemangioma and other vascular malformations • Recognition of severe and life-threatening congenital skin conditions, such as: » epidermolysis bullosa » severe ichthyosis • Skin care of newborns, at all gestations • The role of healthy skin to prevent infections and allergies
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Investigations** • Genetic testing, including microarray where appropriate • Imaging of lesions and for investigation of associated conditions • Indications and interpretation of specific dermatological investigations, such as skin biopsy • Technique for swabbing of lesions for multiple chemical sensitivity (MCS) **Procedures** • Irrigation of an extravasation injury • Skin scraping • Wood's lamp • Wound care

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

- Counsel parents in regard to aetiology, management, and pathophysiology of skin lesions
- Minimise risk of disease transmission in the neonatal intensive care unit or secondary infection of rashes where relevant
- Treatment of infectious rashes in consultation with a dermatologist and infectious disease specialist where necessary

Knowledge guide 11 – Ophthalmological abnormalities

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Atypical eye:
  - appearance
  - eye discharge or erythema
  - family history
  - function
  - identified on screening
  - nystagmus
  - shape
  - size
  - visual disorders as part of genetic diagnoses

Conditions

- Congenital eye disorders and syndromes, such as:
  - anophthalmia
  - congenital cataracts
  - glaucoma
  - microphthalmia
- Blocked tear ducts
- Disorders affecting the eyelashes and eyelids
- Infection, such as:
  - blepharitis
  - conjunctivitis
- Retinopathy of prematurity
- Trauma

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Conditions

- Congenital eye disorders
- Disorders of the neurological optic pathways
- Severe neurological problems leading to cortical blindness
- Trauma
- Uncommon infections, such as gonorrhoea

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[26] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[26] References to patients in the remainder of this document may include their families, whānau, and/or carers.

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES
 	
Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.
	• Community support, including:
	  » access to therapies
	  » financial support
	  » visual aids
	• Indications and options for treatment of retinopathy of prematurity and related risks
	• Indications for multidisciplinary and ophthalmology teams for diagnosis and management of eye disorders
	• Indications for screening for retinopathy of prematurity
	• Long-term outcomes
	• Pathology of underlying eye conditions
	• Pathophysiology and development of the eye and visual pathways
	• Pharmacological and surgical methods of treatment

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS
 	
Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.
 	
Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.
	Investigations
	• Assessment for visual impairment
	• Genetic testing
	• Head imaging, including:
	  » CT
	  » MRI
	• Screening for eye disorders on newborn examination
	• Visual evoked potentials (VEP) to assess the electrical activity in the visual cortex in response to visual stimuli.
	• Visual examination with ophthalmoscope
	Procedures
	• Discuss the use of retinal cameras
	• Use of manual ophthalmoscope

IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	• Monitoring for retinopathy of prematurity in rural and regional centres

Knowledge guide 12 – Ear, nose, and throat abnormalities

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Cleft lip and/or palate
- Ear abnormalities:
  - » malformations
  - » skin tags
- Neck abnormalities:
  - » lumps
  - » malposition, such as wry neck
- Obstructive apnoea
- Stridor

Conditions

- Choanal atresia
- Congenital laryngeal abnormalities
- Cystic hygroma
- Genetic conditions involving ear, nose, and throat abnormalities
- Laryngomalacia
- Macroglossia, micrognathia, and retrognathia, including in the context of Pierre Robin sequence
- Sensorineural deafness
- Tracheoesophageal fistula
- Vocal cord palsy

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.

Presentations

- Congenital problems, including life-limiting conditions

Conditions

- Airway atresia

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- » recognise the clinical presentation
- » identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- » take a comprehensive clinical history
- » conduct an appropriate examination
- » establish a differential diagnosis
- » plan and arrange appropriate investigations
- » consider the impact of illness and disease on patients[27] and their quality of life when developing a management plan

Manage

- » provide evidence-based management
- » prescribe therapies tailored to patients' needs and conditions
- » recognise potential complications of disease and its management, and initiate preventative strategies
- » involve multidisciplinary teams

Consider other factors

- » identify individual and social factors and the impact of these on diagnosis and management

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

- Causes of congenital deafness syndromes
- Congenital malformations of the ear, and associated syndromes
- Embryology of cleft lip and palate, and associated syndromes

[27] References to patients in the remainder of this document may include their families, whānau, and/or carers.

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Investigations** • Airway and oesophageal assessment by endoscopy • Investigations for hearing impairment, including hearing screening programs **Procedures** • Video laryngoscopy
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	• Airway and feeding problems associated with cleft palate and Pierre Robin sequence • Delivery procedures, such as ex-utero intrapartum (EXIT), if the airway is thought to be significantly and critically compromised in utero by the congenital lesion • Involvement of multidisciplinary team members for diagnosis and short- and long-term management, such as » audiologist » ear, nose, and throat surgeon » plastic surgeon » speech pathologist

Knowledge guide 13 – Fetal and perinatal medicine

Neonatal and Perinatal Medicine, Paediatrics and Child Health

KEY PRESENTATIONS AND CONDITIONS

Advanced Trainees will have a comprehensive depth of knowledge of these presentations and conditions.

Presentations

- Amniotic fluid volume changes, including:
  - anhydramnios
  - oligohydramnios
  - polyhydramnios
- Anatomical structural anomalies
- Antepartum haemorrhage
- Diabetes in pregnancy
- Disorders of growth, such as:
  - fetal growth restriction
  - macrosomia
- Factors affecting breastfeeding and the production of breast milk
- Hydrops fetalis
- Hypertensive disorders in pregnancy
- Maternal mental health, including:
  - anxiety
  - attention deficit hyperactivity disorder (ADHD)
  - bipolar disorder
  - depression
  - post-traumatic stress disorder (PTSD)
- Maternal thyroid disease
- Multiple pregnancies
- Preterm labour
- Preterm prelabour rupture of membranes
- Significant maternal medical and surgical conditions
- Substance use

Conditions

- Anatomical structural malformations, including:
  - congenital cardiac lesions
  - congenital diaphragmatic hernia
  - congenital pulmonary airway malformation
  - developmental and acquired brain malformations
  - multicystic dysplastic kidneys
  - renal agenesis
  - renal pyelectasis

For each presentation and condition, Advanced Trainees will **know how to:**

Synthesise

- recognise the clinical presentation
- identify relevant epidemiology, prevalence, pathophysiology, and clinical science
- take a comprehensive clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[28] and their quality of life when developing a management plan

Manage

- provide evidence-based management
- prescribe therapies tailored to patients' needs and conditions
- recognise potential complications of disease and its management, and initiate preventative strategies
- involve multidisciplinary teams

Consider other factors

- identify individual and social factors and the impact of these on diagnosis and management

[28] References to patients in the remainder of this document may include their families, whānau, and/or carers.

	• Chromosomal and genetic abnormalities, including: » aneuploidies: ○ T13 ○ T18 ○ T21 ○ triploidy • Cleft palate • Congenital infection • Discordant growth • Hypoplastic lung • Shared placental physiology • Tracheoesophageal fistula or intestinal atresia • Twin anaemia polycythaemia sequence • Twin-to-twin transfusion syndrome	
LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS Advanced Trainees will understand these presentations and conditions. Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.	**Presentations** • Echogenic bowel • Fetal anaemia **Conditions** • Agenesis of the corpus callosum • Cerebellar hypolasia • Cystic hygroma • Fetomaternal alloimmune thrombocytopaenia • Neural tube defects, such as spina bifida • Neurological presentations, such as ventricomegaly	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Knowledge of the basic sciences relevant to maternal and fetal medicine **Embryology** • Absent and reverse diastolic flow significance in antenatal ultrasound scanning • Factors involved in initiation of labour • Fetal adaptions to stress • Fetal origins of disease and factors relevant to providing a healthy start, such as iodine and folate, and minimising risks, such as mental health, substance use, and supportive environments • Normal fetal and placental physiology and pathology • Pathophysiology of pregnancy complications related to high-risk / premature births • Role of magnesium sulphate for neuroprotection • Role of steroids in predicted premature birth • Understand fetal cardio, endocrine, and respiratory responses to birth • Umbilical cord pathology, including abnormal and normal variants • Umbilical gas significance: » arterial » venous • Understanding of the placenta and the role it plays in fetal wellbeing	

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.

Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

Investigations

- Amniocentesis
- Antenatal infection tests:
  - bacterial
  - viral
- Carrier screening
- Chorionic villus sampling (CVS)
- Fetal echocardiogram
- Fetal MRI
- Fetal ultrasound
- First trimester combined ultrasound and serum screening test
- Genetic testing, such as:
  - karyotype
  - microarray
- Maternal serum screening first trimester (MSS1)
- Non-invasive prenatal testing (NIPT)
- Routine pregnancy screening tests and monitoring

Procedures

- Cerebral doppler
- Intrauterine fetal surgery
- Laser ablation for twin-to-twin transfusion syndrome
- Umbilical doppler

IMPORTANT SPECIFIC ISSUES

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.

- Knowledge and application of antenatal counselling
- Management of periviable births
- Parental expectation and planning for birth
- Understanding of the role of maternal fetal medicine specialists