NEW CURRICULA

Advanced Training in Rehabilitation Medicine (adult)

Curriculum standards

RACP Specialists. Together

About this document

The new Advanced Training in Rehabilitation Medicine (adult) curriculum consists of curriculum standards and learning, teaching, and assessment (LTA) programs.

This document outlines the curriculum standards for Advanced Training in Rehabilitation Medicine (adult) for trainees and supervisors. The curriculum standards should be used in conjunction with the Advanced Training in Rehabilitation Medicine (adult) LTA programs.

Contents

Program overview

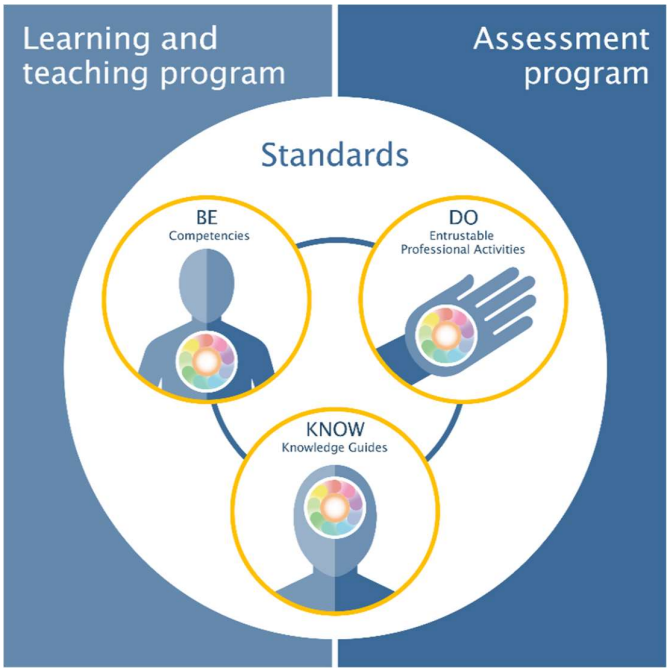
Purpose of Advanced Training

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.

RACP curriculum model



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 (LTA) structure defines the framework for delivery and trainee achievement of the curriculum standards in the Advanced Training program.

Advanced Training is structured in three phases. These phases establish clear checkpoints for trainee progression and completion.

1	**Specialty foundation**	• Orient trainees and confirm their readiness to progress in the Advanced Training program.
2	**Specialty consolidation**	• Continue trainees' professional development in the specialty and support progress towards the learning goals.
3	**Transition to Fellowship**	• Confirm trainees' achievement of the curriculum standards, completion of Advanced Training, and admission to Fellowship. • Support trainees' transition to unsupervised practice.

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 full-time equivalent experience, and progression and completion decisions are based on evidence of trainees' competence.

Rehabilitation Medicine (adult) specialty overview

The AFRM's focus on interdisciplinary training and teamwork makes the rehabilitation medicine physician the best qualified specialist to lead teams of allied health staff, nurses, and other medical practitioners (specialists or general practitioners) in providing coordinated, patient-focused, individualised programs of goal-directed rehabilitative care.

Rehabilitation medicine is a:

- Principal Medical Specialty in Australia and a Vocational Scope of Practice in New Zealand
- diverse specialty whose members are trained to facilitate the best possible recovery of function over the full range of common and uncommon medical and surgical conditions seen in contemporary practice
- practice that's collaborative and involves input from a diverse range of health professionals focused on optimising the health and wellbeing of those with short-term or long-term disability.

Rehabilitation medicine physicians:

- use knowledge and skills – developed through the AFRM training program, equivalent overseas or post-fellowship training – to manage all patient types with medical, musculoskeletal, neurological and neuromuscular disorders, with an emphasis on maximising functional ability and quality of life
- diagnose and treat patients from adolescence and young adulthood through to the older people
- can manage children in certain circumstances but generally do not provide a full range of rehabilitation services to children – see Paediatric Rehabilitation: Rehabilitation Scope of Practice
- treat patients affected by function limiting and/or painful conditions involving the central, peripheral and autonomic nervous systems, the cardiopulmonary and musculoskeletal systems, as well as those who experience disability due to illness or injury affecting other body systems
- hold a unique blend of education, training and experience, which makes the rehabilitation medicine physician an ideal treating or consulting physician for patients who have impaired function due to debility and deconditioning, including older patients and those with reduced function as a result of chronic diseases or other complex health conditions
- are experts in the assessment, treatment, and management of people with permanent disability as a result of injury or illness
- are well placed to manage patients with occupational or sports-related musculoskeletal or neuromuscular injuries
- use appropriate laboratory and imaging studies, but are also trained in the clinical interpretation of other diagnostic studies that evaluate musculoskeletal and neuromuscular systems such as CT, bone scan, MRI, and musculoskeletal ultrasound

- are specially trained in the use of therapeutic exercise, orthotics, prosthetics, and other rehabilitation equipment and modalities, and can prescribe these precisely to meet patients' specific needs
- may engage in the delivery of health services through new models of care and modalities, such as in-reach rehabilitation, early supported discharge, rehabilitation in the home and other community rehabilitation and integrated care models, reablement and restorative models of care, and ambulatory care services, as well as virtually via telerehabilitation
- possess a holistic approach, with experience in integrated care with primary care physicians, and training in leading interdisciplinary teams
- are skilled in secondary and tertiary prevention for ambulatory patients in the community, such as in ambulatory care services and interdisciplinary falls prevention services, as well as for patients who have stroke, neurological or musculoskeletal conditions, osteoporotic fractures or fragility, to prevent relapse or recurrence of injury or to improve function or quality of life.

Rehabilitation medicine physicians who have completed rehabilitation medicine specialty training have adequate training in the following areas:

1. inpatient and outpatient musculoskeletal and neurological assessment, diagnosis, and rehabilitation
2. acute and persistent pain management
3. injury prevention, conditioning, fitness, and wellness
4. non-surgical spine medicine and rehabilitation
5. rehabilitation management of sports and sports injuries
6. rehabilitation management of occupational injuries and vocational rehabilitation
7. therapeutic and diagnostic injection techniques, such as trigger point, soft tissue, and joint injections
8. assessments of function, disability, and impairment
9. prosthetic and orthotic prescription
10. mobility aid, wheelchair, and seating prescription
11. rehabilitation management of patients with (upper and lower) limb amputations or limb deficiency
12. rehabilitation management of patients with acquired brain injury
13. rehabilitation management of patients with spinal cord impairment through injury or disease
14. management of spasticity, dystonia, and hypertonia
15. rehabilitation management of rheumatological and other joint diseases and arthroplasty (pre- and post-surgery), and post-fracture rehabilitative care
16. tissue disorders such as burns, ulcers, lymphoedema, and wound care
17. rehabilitation management of older people, including the management of frailty and geriatric syndromes
18. rehabilitation management of pulmonary and cardiac conditions
19. rehabilitation management of oncological conditions (pre- and post-treatment, and recovery)
20. rehabilitation of patients who are debilitated or deconditioned as a result of multi-system disease, prolonged immobilisation, or prolonged hospitalisation
21. rehabilitation and coordination of care and management of individuals with developmental and intellectual disorders such as cerebral palsy, spina bifida, and other congenital disorders

22. long-term management of the person with disability, in liaison with the individual, their family, their general practitioner and other health care providers
23. chronic diseases management, particularly in secondary and tertiary prevention, to prevent relapse or recurrence of conditions, and to improve function and quality of patients, such as falls prevention and osteoporotic re-fracture prevention
24. leadership and clinical and administrative management of rehabilitation medicine services and other related clinical services.

In addition, some rehabilitation physicians can demonstrate qualifications and expertise that qualifies them to practice in other areas:

1. interventional diagnostic and therapeutic spinal and peripheral pain management procedures using x-ray and ultrasound guidance
2. interventional techniques for spasticity management
3. electrodiagnostic medicine
4. manual medicine techniques
5. assessment of capacity and of permanent impairment, preparation of medical and medicolegal reports, and provision of expert medical opinion in rehabilitation medicine.

Rehabilitation Medicine (adult) learning goals

The curriculum standards are summarised as 23 learning goals. The learning goals articulate what trainees need to be, do and know, and are assessed throughout training.

BE Competencies	1. Professional behaviours
DO EPAs	2. Team leadership 3. Supervision and teaching 4. Quality improvement 5. Clinical assessment and management of function 6. Handover of care 7. Longitudinal care 8. Communication with patients 9. Procedures 10. Clinic management
KNOW Knowledge guides	11. Traumatic brain injury 12. Stroke management 13. Neurological conditions 14. Spinal cord dysfunction 15. Amputation of limb and prosthetics 16. Musculoskeletal conditions 17. Cardiac and respiratory conditions 18. Adults with disabilities arising in childhood 19. Rehabilitation of older people 20. Rehabilitation of other specific conditions 21. Pain 22. Orthotics and footwear 23. Spasticity and its management

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 all or most training programs.

Learning goal 1: Professional behaviours

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, or carers[1], and in collaboration with the health care team.

[1] References to patients in the remainder of this document may include their families 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: Uses a range of effective and appropriate verbal, non-verbal, and written 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[2].

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 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].

Critical reflection. Engage in iterative and critical self-reflection and demonstrate cultural safety in the context of their own cultural identity, power, biases, prejudices and practising behaviours.

Allyship. Recognise the patient and population's rights to culturally-safe care, including being an ally for patient, family, whānau and/or community autonomy and agency over their decision-making.

Inclusive communication. Apply culturally-safe communication, acknowledging the sharing of power, and cultural and human rights to enable patients, families and whānau to engage in appropriate patient care decisions.

Culturally-safe environment. Contributes to a culturally-safe learning and practice environment for patients and team members. Respect patients may feel unsafe in the healthcare environment.

---

*The RACP has adopted the Medical Council of New Zealand's definition of cultural safety. 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.

[3] 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, their families, communities, and populations in a caring and respectful manner. Physicians demonstrate their commitment and accountability to the health and well-being 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 patients' 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 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 healthcare 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 limitations 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 health care 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.

Entrustable Professional Activities

Entrustable Professional Activities (EPAs) outline the essential work tasks trainees need to be able to perform in the workplace without supervision by the end of training.

Each Advanced Training program contains a mix of common EPAs that have been tailored to the specialty context, and specialty-specific EPAs.

The EPAs listed below have been developed for the Advanced Training in Rehabilitation Medicine program.

#	Theme	Title
2	Team leadership	Lead a team of health professionals
3	Supervision and teaching	Supervise and teach professional colleagues
4	Quality improvement	Identify and address failures in health care delivery
5	Clinical assessment and management of function	Clinically assess and manage the ongoing care of patients
6	Handover of care	Manage the transition of patient care between health professionals, providers, and contexts
7	Longitudinal care	Manage and coordinate the longitudinal care of patients with chronic illness, disability and/or long-term health issues
8	Communication with patients	Discuss diagnoses and management plans with patients
9	Procedures	Plan, prepare for, perform, and provide aftercare for important practical procedures
10	Clinic management	Manage an outpatients clinic

Learning goal 2: Team leadership

Theme	Team leadership	
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	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	The trainee may:
Medical expertise	• synthesise information from other disciplines to develop an optimal, goal-centred plan 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 health care 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 • demonstrate rapport with people at all levels by tailoring messages to different stakeholders • 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

[4] References to patients in the remainder of this document may include their families or carers.

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 multidisciplinary collaboration to provide effective health services and operational change • use information resources and electronic medical record technology where available
Teaching and learning	• regularly self-evaluate personal professional practice, and implement changes based on the results • actively seek feedback from supervisors and colleagues on their own performance • identify personal gaps in knowledge and skills, 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
Research	• ensure that any protocol for human research is approved by a human research ethics committee, in accordance with the national statement on ethical conduct in human research	• understand 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
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 discussions of ethical and clinical concerns • respect differences of multidisciplinary team members • understand the ethics of resource allocation by aligning optimal patients and organisational care	• 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

	• effectively consult with stakeholders, achieving a balance of alternative views • acknowledge personal conflicts of interest and unconscious bias • act collaboratively to resolve behavioural incidents and conflicts such as harassment and bullying	• promote team values of honesty, discipline, and commitment to continuous improvement • demonstrate understanding of the negative impact of workplace conflict
Judgement and decision making	• evaluate health services and clarify expectations to support systematic and 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 health care 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 health care 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

Learning goal 3: Supervision and teaching

Theme	Supervision and teaching	
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	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	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 the learner to consider the rationale and appropriateness of investigation and management options	• teach learners using basic knowledge and skills
Communication	• listen and convey information clearly and considerately • establish rapport and demonstrate respect for junior colleagues, medical students, and other health professionals • communicate effectively when teaching, assessing and appraising learners • actively encourage a collaborative and safe learning environment with learners and other health professionals • encourage learners to tailor communication as appropriate for different patients[5] (e.g. younger or older people, different populations)	• observe learners to reduce risks and improve health outcomes

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

	• support learners to deliver clear, concise, and relevant information in both verbal and written communication	
Quality and safety	• support learners to deliver quality care while maintaining their own wellbeing • apply lessons learnt 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 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 • not tailor learning, assessments, and feedback to individual learners • not match teaching and learning objectives clearly to outcomes • not encourage learners to be self-directed
Research	• clarify junior colleagues' research project goals and requirements, providing feedback regarding the merits or challenges of proposed research • monitor the progress of learners' research projects regularly, and may review research projects prior to submission	• guide learners with respect to the choice of research projects • ensure planned research projects are feasible and of suitable standards

	• 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 competence • encourage learners to consider culturally appropriate care of Aboriginal and Torres Strait Islander and Māori peoples 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 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, continuing professional development • maintain professional, clinical, research and/or administrative responsibilities while teaching • create an inclusive environment whereby the learner feels part of the team • help shape organisational culture to prioritise quality and work safety through openness, honesty, shared learning, and continued improvement	• demonstrate the principles and practice of professionalism and leadership in health care • participate in mentor programs, career advice, and general counselling

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	• may not integrate public health principals into teaching and practice

Learning goal 4: Quality improvement

Theme	Quality improvement	
Title	**Identify and address failures in health care delivery**	
Description	This activity requires the ability to: • identify and report actual and potential (near miss) errors • conduct system improvement activities • adhere to best practice guidelines • audit clinical guidelines and outcomes • contribute to the development of policies and protocols designed to protect patients[6] and enhance health care • monitor one's 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	• regularly review patients' or population health outcomes to identify opportunities for improvement in delivering appropriate care • evaluate environmental and lifestyle health risks, and advocate for healthy lifestyle choices • use standardised protocols to adhere to best practice and prevent the occurrence of wrong-site, wrong-patient procedures • regularly monitor personal professional performance	• contribute to processes on identified opportunities for improvement • recognise the importance of prevention and early detection in clinical practice • use local guidelines to assist patient care decision making
Communication	• support patients to have access to and use easily understood, high-quality information about health care appropriate to their identity, including gender, culture, and religion • support patients to share decision making about their own health care, to the extent they choose • assist patients' access to their health information, as well as complaint and feedback systems • discuss with patients any safety and quality concerns they have relating to their care • implement the organisation's open disclosure policy	• demonstrate awareness of the evidence for consumer engagement and its contribution to quality improvement in health care • 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 or carers.

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 and clinical incident reviews • 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 quality and registries of data on patients' experiences and outcomes, learning from incidents and complaints to improve health 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 that any protocol for human research is approved by a human research ethics committee, in accordance with the national statement on ethical conduct in human research	• understand 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
Cultural safety	• undertake professional development opportunities that address the impact of cultural bias 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 patients' safety and quality	• 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 health care	• access information and advice from other health care 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	• partner with clinicians and managers to ensure patients receive appropriate care and information on their care

	• actively involve clinical pharmacists in the medication-use process • support multidisciplinary team activities to lower patient risk of harm, and promote multidisciplinary programs of education	• demonstrate attitudes of respect and cooperation among members of different professional teams
Health policy, systems, and advocacy	• advocate for patients with disabilities and the provision of disability support services • 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 • take part in the design and implementation of the organisational systems for: » defining the scope of clinical practice » performance monitoring and management » clinical, and safety and quality education and training • demonstrate awareness of funding programs, outcome and benchmarking services, and state-specific rehabilitation services/guidelines	• maintain a dialogue with service managers about issues that affect patient care • contribute to relevant organisational policies and procedures • help shape an organisational culture that prioritises safety and quality through openness, honesty, learning, and quality improvement • demonstrate an understanding of clinical governance, healthcare standards, or current guidelines

Learning goal 5: Clinical assessment and management of function

Theme	Clinical assessment and management of function	
Title	**Clinically assess and manage the ongoing care of patients**	
Description	This activity requires the ability to: • identify and access relevant information about patients, including obtaining patient collateral histories • examine patients, including their medical, physical, functional, and psychosocial health • evaluate psychosocial, personal, and environmental factors that influence independence • select, plan, and use evidence-based clinically appropriate investigations • develop and implement management plans and goals of care • discuss findings with patients[7], their families and/or carers • work in partnership with patients, their families and/or carers to facilitate choices that are right for them • collaborate and communicate with 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	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	The trainee may:
Medical expertise	• perform a full physical examination to establish the nature and extent of problems • assess a range of factors, including: » medical history » patients' mental state and cognitive function » personal and contextual factors influencing severity and nature of patients' disabilities » psychological history » social, environmental, and attitudinal factors that contribute to disability • assess the contextual aspects of patients' lifestyle to maximise function • recognise and manage issues of function, including changes to function over time, or patient goals • outline the natural history of common diseases and conditions, and the prognosis of these conditions	• take patient-centred histories considering psychosocial factors • perform accurate physical examinations • recognise and correctly interpret abnormal findings • synthesise pertinent information to direct the clinical encounter and diagnostic categories • develop appropriate management plans • not be able to articulate potential risks of day-to-day clinical decisions, such as prescription errors or falls risks • assess patients using a biomedical approach, rather than a holistic rehabilitation approach • 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

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

	• describe the relationship between disease and functioning using the International Classification of Diseases (ICD) and the International Classification of Functioning, Disability and Health (ICF) • use objective outcome measures in patients' assessments • choose appropriate diagnostic tools to assess function • assess the severity of problems, preventative strategies, and the likelihood of complications and clinical outcomes • develop management plans based on relevant guidelines, and consider the balance of benefit and harm by taking patients' personal sets of circumstances into account • recognise different models of care • work with the patients' limitations and participation restrictions • identify short- and long-term consequences of disability • identify areas where patients and families may require further support and advocacy • choose and interpret evidence-based investigations, and frame them as an adjunct to comprehensive clinical assessments • identify the patients' disorder requiring pharmacotherapy, therapies and/or prescriptions • recognise the risk of opioid dependence for chronic pain management, and provide intervention for de-escalation of use • consider age, chronic disease status, lifestyle factors, allergies, potential drug interactions, and patients' preferences 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 • prescribe inappropriate drugs to patients without considering patient context or demographic
Communication	• communicate openly, listen, and take patients' concerns seriously, giving them adequate opportunity to question • use sensitive language when introducing tests and/or the assessment process to patients and their families or carers • support patients with cognitive impairment in decision making, including using an interpreter or	• anticipate, read, and respond to verbal and nonspeaking cues • demonstrate active listening skills • communicate patients' situations to colleagues, including senior clinicians • take control of patients' decisions and tasks of daily living to save time, leading to further functional decline

	speaking in simpler language, using pictures or photos, and putting explanations in writing • communicate clearly, effectively, respectfully, and promptly with other health professionals involved in patients' care • use clear and simple language, checking that patients understand the terms used and that they agree to proceed with proposed investigations • discuss and evaluate the risks and benefits of treatment options, making decisions in partnership with patients	• explain the results of investigations to patients • arrange investigations, providing accurate and informative referrals, and liaising with other services where appropriate • discuss and explain the rationale for treatment options with patients, their families or carers • explain the benefits and burdens of therapies, considering patients' individual circumstances
Quality and safety	• demonstrate safety skills, including infection control, adverse event reporting, and effective clinical handover • recognise and effectively deal with aggressive and violent patient behaviours through appropriate training • obtain informed consent before undertaking any investigation or providing treatment (except in an emergency) • ensure patients are informed of the material risks associated with any part of proposed management plans • identify and document risk prevention strategies • identify high-risk patients, such as those with cognitive impairment or at risk of falls, and those with reduced insight into their conditions • outline risk prevention strategies, including home environment and medications • review medicines regularly to reduce non-adherence, monitoring treatment effectiveness, possible side effects, and drug interactions, and ceasing unnecessary medicines	• perform hand hygiene and take infection control precautions at appropriate moments • take precaution against assaults from confused or agitated patients, ensuring appropriate care of patients • document history and physical examination findings, and synthesise with clarity and completeness • demonstrate uncertainty as to when a risk assessment is required • monitor side effects of medicines prescribed • identify medication errors and institute appropriate measures
Teaching and learning	• use the ICF/ICD framework as a tool to guide teaching sessions • set defined objectives for clinical teaching encounters, and solicit feedback on mutually agreed goals • regularly reflect and self-evaluate professional development • obtain informed consent before involving patients in teaching activities	• set unclear goals and objectives for self-learning • self-reflect infrequently • deliver teaching considering learners' level of training • display limited engagement in teaching other team members, or fail to include functional issues in teaching sessions

	• turn clinical activities into an opportunity to teach, appropriate to the setting • use appropriate guidelines, evidence sources, and decision support tools • use appropriate guidelines and evidence-based medicine resources to maintain a working knowledge of current medicines and other non-pharmacological treatment options, and keep up to date on new treatments and therapies	• undertake professional development to maintain currency with investigation guidelines • reflect on prescribing, and seek feedback from supervisors
Research	• search for, find, compile, analyse, interpret, and evaluate information relevant to the research subject • obtain written consent from patients if the investigation is part of a research program • use sources of independent information about medicines that provide accurate summaries of the available evidence on new medicines or therapies • select suitable research and quality assurance projects available at the training location, such as Australasian Rehabilitation Outcomes Centre (AROC) data and Functional Independence Measure (FIM) assessments	• 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 daily practice • consult current research on investigations, and make therapeutic decisions according to the best evidence • insufficiently engage with available research opportunities regarding assessment of function
Cultural safety	• acknowledge patients' beliefs and values, and how these might impact on health • demonstrate effective and culturally competent communication and care for Aboriginal and Torres Strait Islander and Māori peoples, and members of other cultural groups • use professional interpreters, health advocates or family or community members to assist in communication with patients • use plain language education materials while demonstrating cultural and linguistic sensitivity to patients	• display respect for patients' cultures, and attentiveness to social determinants of health • display an understanding of at least the most prevalent cultures in society, and an appreciation of their sensitivities • appropriately access interpretive or culturally focused services
Ethics and professional behaviour	• document patient assessments using a legal format, where required • apply laws governing practice on consent, capacity, and elder abuse and neglect • demonstrate professional values including compassion, empathy, respect for diversity, integrity,	• 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

	honesty, and partnership to all patients • 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 • balance the rights of patients with the wishes and expectations of families or carers • discuss with patients how decisions will be made once the investigation has started and the patient is not able to participate in decision making • advise patients there may be additional costs, which patients may wish to clarify before proceeding • make prescribing decisions based on good safety data when benefits outweigh the risks involved	the expense of patient or social welfare • assume there is always functional impairment in certain patient groups, such as older patients or patients with amputations • display a lack of awareness for the management of an impairment to ensure function • identify appropriate proxy decision makers when required • involve patients in decision making regarding investigations and obtaining the appropriate informed consent, including financial consent if necessary • consider the efficacy of medicines in treating illnesses, including the relative merits of different pharmacological and non-pharmacological options • follow regulatory and legal requirements and limitations regarding prescribing
Judgement and decision making	• select the most appropriate care setting for rehabilitation, such as inpatient, day hospital, outpatient, home based, or outreach • 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, uncertainty, and risk • use the best available evidence for the most effective therapies and interventions to ensure quality care • identify social determinants of health that may impact on patients' care • implement tailored approaches to promote functional independence through shared decision making using the ICF framework • assess the urgency, complexity, and related risks of situations • conduct a capacity assessment when an appropriate trigger is identified, such as health, financial, legal, or lifestyle • use a systematic approach to select treatment options • use medicines safely and effectively to get the best possible results	• demonstrate clinical reasoning by gathering focused information relevant to patients' care • recognise personal limitations, seeking help when required in an appropriate way • lack awareness of facilities, therapies, and environmental changes that can be made to improve function in health conditions and impairments • lack awareness of how to promote independence and quality of life • 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

Leadership, management, and teamwork	• produce clear plans, including discharge plans and equipment required • collaborate with patients' health care teams to perform comprehensive capacity assessments, as needed • provide information to clinicians and other staff on the need for patient mobilisation and involvement in activities of daily living, including how to assess risks to patients • provide clinicians with expertise and advice to recognise the needs of carers and mechanisms for taking action • work effectively as a member of multidisciplinary teams to achieve the best health outcomes for patients • demonstrate awareness of colleagues in difficulty, and work within the appropriate structural systems to support them while maintaining patients' safety	• share relevant information with members of the health care team • show limited awareness of rehabilitation team structures and processes used to improve function and environmental access
Health policy, systems, and advocacy	• work with patients and families to identify opportunities for disease prevention, health promotion, and health protection • participate in health promotion and protection, disease prevention, control, and screening, and reporting notifiable diseases • aim to achieve optimal cost-effective patients' care to allow maximum benefit from the available resources • facilitate timely access to resources, including the public guardian and/or trustee, legal advice, appeal mechanisms, and family education and support • provide information on services such as support groups, respite services, and other carer support services	• identify and navigate components of the healthcare system relevant to patients' care • identify and access relevant community resources to support patients' care • show limited knowledge of local and national health policy systems and need for advocacy on function and community access

Learning goal 6: Handover of care (including acute care)

Theme	Handover of care	
Title	**Manage the handover of patient care between health professionals, providers, and contexts**	
Description	This activity requires the ability to: • manage patient handover to ensure the optimal continuation of care between providers • identify the appropriate health care providers and other stakeholders with whom to share patient information • exchange pertinent, contextually appropriate, and relevant patient[8] information • work flexibly between settings, including emergency departments, acute, subacute, outpatient, and community/home visits • recognise clinical deterioration and respond by following the local process for escalation of care.	
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	• use a goal-based, patient-centred approach to facilitate patients' optimal level of functioning and participation in society • follow-up patients once discharged, where required • facilitate optimal handovers for patients • identify and manage key risks for patients during handovers • anticipate possible changes in patients' conditions, and provide recommendations on how to manage them • provide rehabilitation care during all stages of care, including ICU, acute, community, and ambulatory care • manage overlaps in care, including paediatric transition to adult medicine • recognise immediate life-threatening conditions, deteriorating and critically unwell patients, and respond appropriately • conduct risk assessments at admission, determining acute complications that may arise	• understand 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

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

	• recognise patients' instability/level of stability and manage according to resources available, seeking help where required • conduct accurate risk assessments in a collaborative manner, and recognise the early need for transition of care to higher dependency settings • adapt care as the complexity, uncertainty, and ambiguity of patients' clinical situations evolve	
Communication	• write relevant and detailed medical record entries, including clinical assessment 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 care professionals when required • communicate with patients, families and/or carers about handover, and engage and support these parties in decision making • explain acute situations to patients in a sensitive and supportive manner, avoiding jargon and confirming their understanding	• 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
Quality and safety	• identify patients at risk of deterioration, and mitigate this risk • maintain up-to-date certification in advanced life support • 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 an understanding of the medicolegal context of written communications	• ensure handovers are complete, or work to mitigate risks if the handover was 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
Teaching and learning	• integrate clinical education in handover sessions • tailor clinical education to the level of the professional parties involved • seek guidance and feedback from health care teams to reflect on encounters and improve future patient care	• take opportunities to teach junior colleagues during handover as necessary • provide constructive feedback to junior colleagues to contribute to improvements in individuals' skills
Research	• evaluate the value of treatments in terms of relative and absolute	• refer to evidence-based clinical guidelines and protocols on acutely unwell patients

	benefits, cost, potential patient harm, and feasibility	• use information from credible sources to aid decision making
Cultural safety	• communicate with careful consideration of health literacy, language barriers, and culture about patient preferences and whether they are realistic and possible, respecting patient choices • recognise the timing, location, privacy, and appropriateness of information sharing with patients and their families or carers	• include relevant information regarding patients' cultural or ethnic background in handovers, and whether an interpreter is required
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 or 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 • advise colleagues of patients' wishes to refuse medical therapy, including life-sustaining treatment • facilitate interactions within multidisciplinary teams, respecting values, encouraging involvement, and engaging all participants in decision making	• maintain respect for patients, families and carers, and other health professionals, including respecting privacy and confidentiality • communicate patients' wishes and preferences about care
Judgement and decision making	• ensure patients' care is in the most appropriate facility, setting or provider • recognise the need for escalation of care, escalating to appropriate staff or service • demonstrate an understanding of the pathophysiological sequelae of the conditions of patients undergoing rehabilitation	• use a structured approach to think about patients' issues, prioritising these • recognise personal limitations, seeking help in an appropriate way when required
Leadership, management, and teamwork	• demonstrate multidisciplinary teamwork, with the patient at the centre • share the workload of transitions of care appropriately, including delegation	• recognise factors that impact on handovers, and help subsequent health professionals understand the issues to continue care

	• 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	• work to overcome the potential barriers to continuity of care, appreciating the role of handovers in overcoming these barriers
Health policy, systems, and advocacy	• contribute to processes for managing risks, and identify strategies for improvement in handovers • engage in organisational processes to improve handovers, such as formal surveys or follow-up phone calls after hospital discharge	• factor transport issues and costs to patients into arrangements for transferring patients to other settings • advocate for escalation of care for deteriorating patients when needed

Learning goal 7: Longitudinal care (including end of life care)

Theme	Longitudinal care	
Title	**Manage and coordinate the longitudinal care of patients with chronic illness, disability and/or long-term health issues**	
Description	This activity requires the ability to: • develop individualised goals and management plans in consultation with patients[9], their families and/or carers • manage chronic conditions, complications, disabilities, and comorbidities • collaborate with other health care providers • ensure continuity of care • facilitate patients', families' or carers' self-management and self-monitoring • engage with the broader health policy context • support patients to plan for their advance care and document their own wishes.	
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	• evaluate medical, social, emotional, work, and recreational aspects of function • use the International Classification of Functioning (ICF) to develop a functioning profile beyond the diagnosis of patients' health conditions • recognise patients' specific needs based on their personal circumstances and level of participation • regularly assess and review care goals and plans for patients with chronic conditions and disabilities based on short- and long-term clinical and quality-of-life goals • assist patients to maximise functional independence • adapt care as the complexity, uncertainty, and ambiguity of patients' clinical situations evolve • provide documentation on patients' presentations, management, and progress, including key points of diagnosis and decision making to inform coordination of care • ensure patients contribute to their needs assessment and care planning	• assess patients' knowledge, beliefs, concerns, and daily behaviours related to their chronic condition or disability and its management • contribute to medical record entries on the history, examination, and management plan in a way that is accurate and sufficient as a member of multidisciplinary teams • not be able to use assessment scales to quantify domains of impairment and disability (in order to establish quantifiable improvements following interventions)

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

	• monitor treatment outcomes, effectiveness, and adverse events • identify the needs of patients who require modified independence (home modification or equipment) in collaboration with medical teams/health providers • explain the longer-term impacts of disability to patients, including the economic, environmental, and cultural barriers likely to be encountered • outline strategies to support patients and their families or carers through different life stages and locations, including uncertainty of prognosis, alternatives, or complications in the timeline • monitor the impact of interventions on functioning using the ICF framework • recognise transition points, from restorative to compensatory and palliative management • provide safe, effective, and goal-directed access to exercise, equipment, and therapy to optimise end-of-life care	
Communication	• encourage health promotion by providing healthy lifestyle advice and information to patients on the importance of self-management • encourage patients' access to self-monitoring devices and assistive technologies • communicate with multidisciplinary team members, and involve patients in that dialogue • discuss patients' progress towards shared goals • manage expectations of patients and their families or carers as patients' conditions change • thoughtfully explore patients' concerns across physical, psychological, and cultural domains • identify opportunities to discuss end-of-life care, aligning it with patients' values and preferences	• provide healthy lifestyle advice and information to patients on the importance of self-management • work in partnership with patients, and motivate them to comply with agreed care plans • ensure consistent messages are given to patients, families or carers about treatment options, the likelihood of success, risks, and prognosis • discuss with family or carers appropriate support and bereavement care
Quality and safety	• maintain up-to-date certification • use innovative models of chronic disease care, including telehealth and digitally integrated support services • review medicine use, and ensure patients understand safe	• participate in continuous quality improvement processes and clinical audits on chronic disease management • identify activities that may improve patients' quality of life

	medication administration to prevent errors • support patients' self-management by balancing between minimising risk and helping patients to become more independent • participate in quality improvement processes impacting on patients' abilities to undertake normal activities of daily living • review all deaths to determine the safety and quality of patients' end-of-life care and how it could be improved	• communicate the content of discussions about advance care planning to multidisciplinary teams • ensure that actual care is aligned with documented patient wishes
Teaching and learning	• 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 • provide supervision, support, and teaching to develop the skills of junior colleagues on end-of-life care • recognise feelings of moral distress and burnout in themselves and colleagues	• use clinical practice guidelines for chronic diseases management • 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	• 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	• encourage patients from culturally and linguistically diverse backgrounds to join local networks to receive the support needed for long-term self-management	• provide culturally safe chronic disease management
Ethics and professional behaviour	• share information about patients' health care, consistent with privacy law and professional confidentiality guidelines • use consent processes for the release and exchange of health information • assess patients' decision-making capabilities, and appropriately identify and use alternative decision makers when needed • enhance the quality of life for patients before death to minimise pain and suffering caused by ineffective treatments	• share information between relevant service providers • acknowledge and respect the contribution of health professionals involved in patients' care • ensure that information on advance care plans, treatment plans, goals of care, and patients' treatment preferences is available to all involved in patients' care • ensure patients' dignity is preserved
Judgement and decision making	• implement stepped care pathways in the management of chronic diseases and disabilities	• recognise personal limitations, and seek help in an appropriate way when required

	• recognise patients' needs in terms of both internal resources and external support on a long-term health care journey • maximise patients' autonomy and their best interests when making treatment decisions	
Leadership, management, and teamwork	• use a multidisciplinary approach across services to manage patients with chronic diseases and disabilities • develop collaborative relationships with patients, families or carers and a range of health professionals • coordinate whole-person care through involvement in all stages of patients' care journeys • define the roles and responsibilities of team members involved in patients' care • achieve agreement between multidisciplinary teams about patients' treatment options	• participate in multidisciplinary care for patients with chronic diseases and disabilities, including organisational and community care on a continuing basis appropriate to patient context • document multidisciplinary care plans, including the terminal phase
Health policy, systems, and advocacy	• use health screening for early intervention and chronic diseases management • assess alternative models of health care delivery to patients with chronic diseases and disabilities • participate in government initiatives for chronic diseases management to reduce hospital admissions and improve patients' quality of life • help patients access initiatives and services for patients with chronic diseases and disabilities • use available resources within the setting to manage the needs of patients and their families or carers	• demonstrate awareness of government initiatives and services available for patients with chronic diseases and disabilities, and display knowledge of how to access them • support community-based service providers to build capacity for people to be cared for in their preferred place of death

Learning goal 8: Communication with patients

Theme	Communication with patients	
Title	**Discuss diagnoses and management plans with patients**	
Description	This activity requires the ability to: • select a suitable context, and include family and/or carers and other team members • adopt a patient-centred perspective, including adjusting for cognition and disabilities • select and use appropriate modalities and communication strategies • structure conversations intentionally • negotiate a mutually agreed management plan • verify patient[10], family or carer understanding of the information conveyed • develop and implement a plan for ensuring actions occur • ensure the conversation is documented, using communication aides as 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	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	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 assessment and investigations, giving 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 understanding of the clinical problems being discussed • formulate management plans in partnership with patients
Communication	• use an appropriate communication strategy and modalities for communication, such as face-to-face, digital health, email, or phone calls • provide information to patients in plain language, avoiding jargon, acronyms, and complex medical terms	• select appropriate modes of communication • engage patients in discussions, avoiding the use of jargon • check patients' understanding of information • adapt communication style in response to patients' age, developmental level, and

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

	• elicit patients' views, concerns, and preferences, promoting rapport • encourage questions, and answer them thoroughly • ask patients to share their thoughts or explain the 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 young people respectfully, and listen to their views • use active listening skills to determine the understanding of patients and their family or carers • recognise the role of family or carers and, when appropriate, encourage patients to involve their family or carers in decisions about their care • evaluate, adjust, and tailor the mode and content of communication to patients' circumstances and levels of understanding • use easy-to-read resources to support comprehension	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 risks • 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 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	• demonstrate an understanding of the limitations of the evidence and the challenges of applying research in daily practice • refer to evidence-based clinical guidelines

	• provide information to patients in a way they can understand before asking for their consent to participate in research • obtain informed consent or other valid authority before involving patients in research	
Cultural safety	• demonstrate effective and culturally competent communication with Aboriginal and Torres Strait Islander and Māori peoples • 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 when necessary • provide plain language and culturally appropriate written materials to patients when possible	• identify when to use interpreters • allow enough time for communication across linguistic and cultural barriers
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 and, when relevant, their families or carers, 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	• 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, social and economic 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	• summarise case complexities into clear plans and goals for patients, their family or carers, and health care teams • discuss medical assessments, treatment plans, and investigations with patients and primary care	• answer questions from health care team members • summarise, clarify, and communicate responsibilities of health care team members • keep health care team members focused on patient outcomes

	teams, working collaboratively with them • communicate effectively with health care team members involved in patients' care, and with patients, families or carers • discuss patients' care needs with health care team members to align patients with appropriate resources • facilitate an environment in which all team members feel they can contribute and their opinions are valued • communicate accurately and succinctly, and motivate other health care team members	
Health policy, systems, and advocacy	• help patients navigate the healthcare system by working in collaboration with other services, such as community health centres and consumer organisations • advocate on behalf of patients for appropriate resources and equipment to achieve relevant goals and a sustainable discharge plan • advocate for patient resources relevant to specific needs, such as facilitating resources and funding applications	• communicate with and involve other health professionals as appropriate

Learning goal 9: Procedures

Theme	Procedures	
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 patients[11] and their families or carers • obtain informed consent • set up equipment, maintaining an aseptic field • perform procedures • manage unexpected events/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 • communicate the outcomes 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	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	The trainee may:
Medical expertise	• select procedures by assessing patient-specific factors, risks, benefits, and alternatives • confidently and consistently perform intramuscular and intra-articular injections to improve functional outcomes • ensure team members are aware of all allergies/adverse reactions identified, taking precautions to avoid allergies/adverse reactions during procedures • ensure patients have complied with pre-procedure preparation • confirm the correct position/site/side and level on patients for planned procedures • recognise and effectively manage complications arising during or after procedures • recognise and correctly interpret normal and abnormal findings of diagnostic 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 patients' post-procedure reviews • perform botulinum toxin A injections

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

Communication	• accurately document procedures in the clinical notes, including informed consent, procedures requested and performed, reasons for procedures, medicines given, aseptic technique, and aftercare • explain procedures clearly to patients and family or carers, including reasons for procedures, potential alternatives, and possible risks, to facilitate informed choices • counsel patients sensitively and effectively, supporting them to make informed choices • address patients' and family or carers' concerns relating to procedures, providing opportunities to ask questions • tailor language according to patients' age and capacity to understand • communicate effectively with team members, patients, and family or carers prior to, 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 and family or carers to choose the procedure • communicate with members of procedural teams so all team members understand who each member is • discuss post-procedural care with patients, family or carers • complete relevant patients' documentation, and conduct an appropriate clinical handover
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 site/side/level for procedures • ensure information on patients' consent forms match procedures to be performed • identify, document, and appropriately notify of any adverse event or equipment malfunction	• provide information in a manner so that patients and families or carers are fully informed when consenting to any procedure • demonstrate an inconsistent application of aseptic technique • identify patients using approved patient 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 • actively seek feedback on personal techniques until competent

Research	• understand individual patients' cultural perceptions of health and illness, adapting practice accordingly	• respect religious, cultural, linguistic, and family values and differences
Cultural safety	• confidently perform common procedures • identify appropriate proxy decision makers when required • show respect for knowledge and expertise of colleagues • maximise patients' autonomy in decision making	• perform procedures when adequately supervised • follow procedures to ensure safe practice
Ethics and professional behaviour	• identify roles and optimal timings for diagnostic procedures • critically appraise information from assessment and evaluation of risks and benefits to prioritise patients on waiting lists • 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 level, seeking help with procedures when appropriate • use tools and guidelines to support decision making • recommend suboptimal procedures for patients • refer to external service providers for procedures or assessments that could be performed safely and competently by the rehabilitation medicine trainee
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

Learning goal 10: Clinic management

Theme	Clinic management	
Title	**Manage an outpatients clinic**	
Description	This activity requires the ability to: • manage medical procedures and treatments • manage clinic services • oversee quality improvement activities • communicate with patients[12] • liaise with other health professionals and team members • demonstrate problem-solving skills • responsibly use public resources.	
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	• effectively identify and address current clinical concerns, as well as longer-term clinical objectives, as appropriate to patient context • evaluate environmental and lifestyle health risks, and advocate for healthy lifestyle choices • create an accurate and appropriately prioritised problem list in the clinical notes or as part of an ambulatory care review • update documentation in a time frame 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 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 • use telehealth and digitally integrated support services to enable patients' access to care	• 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 patients' safety • adopt a systematic approach to the review and improvement of professional practice in outpatient clinic settings	• 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

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

	• identify aspects of service provision that may be a risk to patients' safety • ensure that patients are informed about fees and charges	• 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 to contribute to patients' care as needed • use information technology appropriately as a resource for modern medical practice
Research	• obtain informed consent or other valid authority 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	• refer to evidence-based clinical guidelines • consult current research on investigations
Cultural safety	• apply knowledge of the cultural needs of the community and how to shape service to those people • mitigate the influence of own culture and beliefs on interactions with patients and decision making • adapt practice to improve patients' engagement and health care 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 the use of social media is consistent with ethical and legal obligations
Judgement and decision making	• identify local services available to support clinic patients • integrate prevention, early detection, health maintenance, and chronic condition management into clinical practice, where relevant • work to achieve optimal and cost-effective patient care that allows maximum benefit from available resources	• understand the appropriate use of human resources, diagnostic interventions, therapeutic modalities, and health care facilities

Leadership, management, and teamwork	• prepare for and conduct clinical encounters in a well-organised and time-efficient manner • identify and manage patients who have special requirements, including sedation, mobility/transport, or consent from next of kin/person responsible • 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	• demonstrate capacity to engage in the surveillance and monitoring of the health status of populations in outpatient settings • 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

Knowledge guides

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

Knowledge guides are specialty specific.

The knowledge guides listed below have been developed for the Advanced Training in Rehabilitation medicine program.

#	Title
11	Traumatic brain injury
12	Stroke management
13	Neurological conditions
14	Spinal cord dysfunction
15	Amputation of limb and prosthetics
16	Musculoskeletal conditions
17	Cardiac and respiratory conditions
18	Adults with disabilities arising in childhood
19	Rehabilitation of older people
20	Rehabilitation of other specific conditions
21	Pain
22	Orthotics and footwear
23	Spasticity and its management

KEY PRESENTATIONS AND CONDITIONS

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

Rehabilitation services are aimed at maximising recovery following trauma, and effectively managing the distinctly different challenges that often confront people with traumatic brain injury (TBI) and their families or carers during the stages of recovery, rehabilitation, and social integration.

An essential component of contextualised intervention is the direct and purposeful consideration of the broader context in which the person with TBI functions.

A critical aspect in the evolution of specialised TBI rehabilitation has been the expansion of the physical rehabilitation focus to include cognitive, behaviour, and community elements into models of care.

Causes
Traumatic

- Assaults
- Falls
- Gunshot wounds
- Motor vehicle accidents
- Sport injuries

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

- Disorders of consciousness
- Persistent post-concussive symptoms

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 relevant clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[13] and their quality of life

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

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Definition of acquired brain injury (ABI) • Determine the severity of the TBI • Different types of acquired/non-traumatic brain injuries and their pathophysiology • Epidemiology of TBI in Australia and Aotearoa New Zealand, including: » aetiology, e.g. assault, falls and motor vehicle accident (MVA) » definition of TBI • Factors that might affect the trajectory of disability and recovery after TBI • Pathophysiology of TBI, including: » diffuse axonal injury » focal injury » primary brain damage » secondary brain damage • Penetrating and closed TBI • Post-traumatic amnesia, including: » clinical management » methods of measurement » significance regarding rehabilitation management and outcome • Spectrum of brain injury populations based on age, severity and aetiology • Understand the outcomes of ABI versus TBI **The mechanisms of functional recovery** • Theories and physiological changes related to neuroplasticity • Understanding the underlying physiology and mechanisms of recovery after a TBI: » resolution of acute factors: ▪ cerebral oedema ▪ focal haematoma ▪ hypoxia ▪ raised intracranial pressure
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for and how to interpret the results of these investigations, procedures, and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	**Investigations** • Measures of cognitive, behavioural, and affective disturbance, including: » bedside measures » comprehensive neuropsychological measures » research measures • Measures of impairment, disability, and activity limitation or participation restriction following TBI • Neurological assessment and monitoring tools: » Glasgow Coma Scale score » Ranchos Los Amigos scale • Neuropsychological evaluation, including Choice Reaction Time, Simple and Wechsler Scales • Physical examination • Specific post-traumatic amnesia tools, e.g. Westmead Post-Traumatic Amnesia Scale (WPTAS) **Examinations** • CT scan • EEG • MRI • PET scan • Single photon emission computed tomography (SPECT)
IMPORTANT SPECIFIC ISSUES	**Acute management** • Common surgical interventions, including decompressive craniectomy (DECRA)

Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management.	• Methods of acute monitoring in emergency, intensive care, and acute neurosurgical care • Post-traumatic amnesia • Role of diagnostic investigations in management and prognosis • Role of pharmacotherapy, including prophylactic anticonvulsant medication • Role of rehabilitation physician in intensive care unit/acute neurosurgical unit **Chronic/Long term management** • Autonomic nervous system dysfunction (dysautonomia) • Chronic behaviour confusion • Hormone dysfunction • Vestibular dysfunction • Vision problems **Community re-integration** • Cognitive retraining exercises • Driving • Education on adjustment for patients and families or carers • Environmental adaptation • Hobbies or other leisure activities • Memory compensation techniques • Re-learning social skills • Return to work options • Training and assisting in the development of compensatory techniques for instrumental activities of daily living **Complications of brain injuries – diagnosis and management** • Aspiration pneumonia • Associated neuroendocrine disorders • Autonomic dysfunction syndrome, including paroxysmal sympathetic hyperactivity • Behavioural disturbance • Contractures • Fatigue and sleep disorders – altered sleep • Headache • Heterotopic ossification • Hypertonicity and movement disorders • Pain syndrome – neuropathic pain and central pain syndromes • Post-traumatic hydrocephalus and ventriculoperitoneal (VP) shunting • Pressure areas • Psychiatric disorders, e.g. alcohol and drug issues, mood disorder and post-traumatic stress disorder, psychosis, suicidality • Seizures and epilepsy • Syndrome of inappropriate antidiuretic hormone hypersecretion (SIADH)/diabetes insipidus/pituitary dysfunction • Venous thromboembolism • Visual disturbances **Disorders of consciousness** • Clinical presentations • Common issues: » bowel and bladder function » maintenance of skin, muscle length, and joint range » swallowing and nutrition » tracheostomy care

- Ethical and legal issues pertaining to medical care and life support
- Strategies to manage common issues

Documentation requirements

- Medicolegal reporting

Dysfunction – diagnosis and management

- Activity limitations and participation:
  - community reintegration
  - domestic/community ADLs
  - driving
  - dysregulation
  - effects on family system
  - mobility
  - practical issues pertaining to:
    - accommodation
    - attendant care
    - community support services
    - compensation schemes and their impact on patient rehabilitation
    - guardianship and financial management
    - role of transitional services
  - prescription of orthotics and walking aids
  - recreational and avocational activities
  - self-care
  - social and relationship changes, and sexuality
  - vocational or study
- Behaviour:
  - disinhibition, impulsivity
  - egocentricity/self-centredness
  - impaired frustration tolerance, anger, agitation, and aggression
  - pharmacological and non-pharmacological management strategies
- Cognitive and communication:
  - arousal
  - assessment of capacity and associated legal requirements
  - attention
  - executive function
  - indications of and how to interpret a neuropsychology report
  - language and communication
  - learning
  - memory
  - perception, praxis
- Physical:
  - acquired movement disorders
  - balance and gait, vestibular dysfunction
  - bowel and bladder function
  - contracture prevention and management strategies
  - cranial nerve lesions, including sensory deficits
  - pressure area prevention and management strategies
  - sensory impairment, including anosmia and hearing changes
  - sleep management
  - spasticity
  - swallowing and nutrition
  - weakness, incoordination, spasticity, contractures

Psychosocial aspects

- Communication disorders
- Family functioning and adjustment

- Psychiatric and psychological disorders, including mood changes, emotional disturbances, and other associated psychiatric disorders
- Substance and alcohol misuse

Rehabilitation potential

- Injury factors – location and severity of injury, other significant injuries
- Post-injury factors – duration of coma and post-traumatic amnesia, hypotension, hypoxia, raised intracranial pressure
- Pre-injury factors – age, drug and alcohol use, intellectual function, psychosocial status

KEY PRESENTATIONS AND CONDITIONS

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

Conditions

- Aneurysm/vascular malformation
- Stroke (ischaemic and haemorrhagic)
- Subarachnoid haemorrhage

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 relevant clinical history
» conduct an appropriate examination
» establish a differential diagnosis
» plan and arrange appropriate investigations
» consider the impact of illness and disease on patients[14] and their quality of life

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

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will describe the principles of the foundational sciences.

- Aetiology and risk factors for neurological diseases
- Anatomy and pathophysiology of neurological conditions
- Clinical patterns of illness
- Common stroke mimics
- Epidemiology, incidence and prevalence, mortality and morbidity of stroke and other neurological conditions in Australia and Aotearoa New Zealand
- Factors associated with good and poorer prognoses
- Natural history
- Nature and consequences of neurological disorders that result in major disability and activity limitation or participation restriction
- Neuroanatomical correlation with specific deficits
- Patterns of dysfunction with neurological disease
- Signs and symptoms
- Stroke rehabilitation outcomes, including recent studies of the effectiveness of inpatient, outpatient, and community rehabilitation

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the indications for and how to interpret the results of these investigations, procedures, and clinical assessments tools.

Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.

Examinations

- Functional and cognitive assessment
- Neurological examination
- Other relevant systems examination, e.g. cardiovascular, respiratory, skin

Investigations

- Blood tests associated with diagnosis and prevention of neurological conditions
- Carotid ultrasonography and contrast carotid angiography
- Cerebrospinal fluid (CSF)
- CT scan
- MRI
- Neurophysiological studies and electroencephalography
- Radiological and endoscopic assessment of swallowing
- Tools for measurement of neurological disability, e.g. Modified Rankin Scale (MRS), National Institute of Health Stroke Scale (NIHSS)
- Transthoracic and transoesophageal echocardiography
- X-ray and ultrasound

IMPORTANT SPECIFIC ISSUES

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

Activities of daily living (ADL)

- Arm activity
- Home assessment
- Sexual intimacy and sexual dysfunction post-stroke
- Sitting, standing, and walking

Acute management

- Deep venous thrombosis or pulmonary embolism
- Early mobilisation
- Falls risk assessment
- Hydration
- Neuroprotection
- Palliative care
- Pharmacotherapy
- Pressure injuries
- Secondary prevention
- Surgical interventions

Chronic/long term management issues

- Adherence to pharmacotherapy
- Carer training
- Lifestyle medication
- Prevention of stroke re-occurrence

Common complications – types of dysfunctions

- Bladder and bowel:
  - functional incontinence
  - urinary retention
- Cognition and perception:
  - attention and concentration
  - executive function
  - fatigue
  - limb apraxia
  - memory
  - neglect
  - visual field deficit, e.g. hemianopia, and eye movement disorders such as strabismus and motility deficit
- Communication:
  - aphasia, speech, and language
  - dysarthria
- Mood and behaviour:
  - anxiety, depression, emotionalism
  - behavioural changes
- Nutrition and swallowing:
  - dysphagia
  - indirect motor therapy
  - oral hygiene
  - risk of malnutrition and dehydration
  - skill and strength training in direct therapy (with food/fluids)
- Physical deficits:
  - cardiovascular fitness
  - contracture
  - exercise interventions
  - fatigue
  - loss of sensation
  - pain
  - spasticity
  - subluxation
  - swelling
  - weakness

Community reintegration

- Community mobility
- Driving
- Leisure therapies
- Ongoing support – peer and carer
- Return to work options
- Self-management programs

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

Rehabilitation after a neurological condition focuses on maximising activity and participation of the person and promoting community reintegration. Rehabilitation physicians work with patients to set short- and long-term goals, and recognise that presentations and complications will vary based on the stage of the condition.

To maximise functional outcomes, tailored interventions focus on impairment, activity, and participation, while optimising physical environments and personal factors that impact on the person. Prevention, early recognition, and management of complications are important parts of the process.

Rehabilitation as a process can occur in a variety of settings, including in hospital on acute or specialised rehabilitation wards, in the home, or in community outpatient settings. It is important to recognise that different aspects of care are best suited to specific settings, while others occur across the continuum and alter in importance according to patient factors and the neurological condition.

Conditions

- Aneurysm/vascular malformations
- Anoxic brain injury
- Disorders of muscle
- Functional neurological disorders
- Hereditary spastic paraplegia
- Infections/Inflammatory:
  - encephalitis
  - multiple sclerosis (MS)
  - post-polio syndrome
  - vasculidities
- Infectious/Inflammatory encephalopathies
- Meningitis
- Movement disorders:
  - Parkinson disease
  - Parkinsonism
- Neoplasm/tumour
- Neurodegenerative:
  - motor neurone disease (MND)

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 relevant clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[15] and their quality of life

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

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

	• Other upper motor neurone lesions • Peripheral nervous system disorders: » brachial plexus disorders » chronic inflammatory demyelinating polyneuropathy (CIDP) » common neuropathies » Guillain–Barré syndrome » ICU neuropathy/myopathy • Subarachnoid haemorrhage (non-focal) • Subdural hematoma • Toxic/Metabolic conditions • Tumours/Malignancies	
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** • Motor neurone disease • Muscular dystrophy • Myasthenia gravis/Lambert Eaton myasthenic syndrome • Post-polio syndrome	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Aetiology and risk factors for neurological diseases • Anatomy and pathophysiology of neurological conditions • Clinical patterns of illness • Diagnostic criteria • Epidemiology, incidence and prevalence, mortality and morbidity of stroke and other neurological conditions in Australia and Aotearoa New Zealand • Factors associated with good and poorer prognoses • Natural history • Nature and consequences of neurological disorders that result in major disability and activity limitation or participation restriction • Neuroanatomical correlation with specific deficits • Patterns of dysfunction with neurological disease • Signs and symptoms	
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for and how to interpret the results of these investigations, procedures,	**Examinations** • Functional and cognitive assessment • Neurological examination • Other relevant systems examination, e.g. cardiovascular, respiratory, skin	

and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	**Investigations** • Blood tests associated with diagnosis and prevention of neurological conditions • Carotid ultrasonography and contrast carotid angiography • Cerebrospinal fluid (CSF) • CT, MRI, and PET scans • Neurophysiological studies and electroencephalography • Radiological and endoscopic assessment of swallowing • Single photon emission computed tomography (SPECT) • Tools for measurement of neurological disability, e.g. Kurtzke Expanded Disability Status Scale (EDSS), Modified Rankin Scale (MRS), National Institute of Health Stroke Scale (NIHSS) • Transoesophageal and transthoracic echocardiography • X-ray and ultrasound
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management.	**Activities of daily living** • Assessment of level of assistance required for activities of daily living and mobility • Counselling and patient education • Equipment and aids – indications/benefits • Home modifications: » funding sources and costs » options and indications » short term and permanent options • Pregnancy and family planning • Resumption of family and social roles • Self-care and domestic activities skills retraining • Techniques of energy conservation and task simplification **Acute management** • Deep venous thrombosis or pulmonary embolism • Early mobilisation • Falls risk assessment • Hydration • Neuroprotection • Palliative care • Pharmacotherapy • Pressure injuries • Secondary prevention • Surgical interventions **Chronic/Long-term management issues** • Advanced care planning • Disuse complications, e.g. osteoporosis • Emerging therapies • Health maintenance and exercise principles • Immunisation recommendations • Palliative care techniques in late-stage neurological diseases • Secondary stroke prevention • Relevant pharmacological therapies • Role of non-traditional therapies **Common complications – types of dysfunctions** • Bladder and bowel: » assessment of bladder dysfunction » assessment of bowel dysfunction » behavioural management strategies » incidence and types of bladder dysfunction

- indications for and complications associated with catheter use
- long-term management strategies
- management of bowel dysfunction, including:
  - dietary management, including fluid and fibre medication, including stool softeners and suppositories
  - education
- pelvic floor exercises
- pharmacological management
- surgical and interventional management
- types of bowel dysfunction
- types of catheterisation

- Cognition and perception:
  - assessment tools, including bedside assessments, clinical tools, and comprehensive neuropsychological evaluation
  - cognitive fatigue and its management
  - evidence based strategies for management of cognitive and perceptual dysfunction
  - prevalence and impact of functional outcomes
  - techniques for management and retraining
  - types of impairment, e.g. apraxia, agnosia, perceptual, and visual
  - visual disturbances:
    - compensatory strategies
    - other management techniques
    - patterns of visual disturbance
- Communication:
  - assessment tools
  - augmentative and alternative communication options
  - common presentations
  - evidence based strategies for management of communication difficulties
  - speech and language therapy for swallowing and communication difficulties, e.g. remedial exercises
  - types of impairment – aphasia, apraxia, cognitive communication changes, dysarthria, dysphonia
- Mood and behaviour:
  - assessment and management of behavioural changes
  - other non-pharmacological therapies
  - pharmacological management
  - psychiatric issues, e.g. anxiety, adjustment, depression
  - psychological therapies – components of therapy, indications
- Nutrition and swallowing:
  - control of saliva
  - dysphagia/swallowing disorders
  - management of nutrition problems, including:
    - indications for percutaneous endoscopic gastrostomy (PEG) feeding
    - medical monitoring
    - postural and dietary modification
  - rehabilitation strategies for swallowing disorders
- Physical deficits:
  - ataxia and coordination changes
  - dizziness/vertigo
  - fatigue:
    - common symptoms
    - environmental, pharmacologic, symptomatic approaches to management

- impact of sensory changes on physical function
- joint contractures
- pressure area care and the management of pressure sores
- prevention and management strategies
- sensory disturbance and pain (refer to KG11)
- spasticity
- upper and lower limb deficits

Common neurological complications and their management

- Cardiac complications and autonomic dysfunction
- Falls
- Gastrointestinal complications
- Heterotopic ossification
- Pain
- Respiratory dysfunction/Sleep-disordered breathing
- Secondary infections
- Seizures and epilepsy
- Sleep disturbances
- Spasticity
- Venous thromboembolism (VTE)

Community reintegration

- Disability income support options
- Fitness for driving
- Peer and family support groups/resources
- Return to work principles
- Sport and leisure activities
- Vocational resettlement and assessment of work capacity

Functional neurological disorders

- Patient and family education
- Principles of assessment and diagnosis
- Rehabilitation techniques
- Triggers and perpetuating factors
- Types of presentations

Rehabilitation settings

- Components of inpatient, outpatient, and community rehabilitation

Respiratory and cardiovascular

- Chest physiotherapy techniques
- Indications for airways suction
- Indications for and types of respiratory support systems
- Monitoring of respiratory function

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

The goal of rehabilitating spinal cord injuries (SCI) is to maintain as much mobility and activity as possible, and to prevent further injuries. Patients and caregivers need to be educated about safe ways to move and do exercises that will improve strength, balance, and endurance.

SCI rehabilitation is a long process that requires patience and motivation from the patient and caregivers. Early rehabilitation is important to prevent joint contractures and the loss of muscle strength, conservation of bone density, and to ensure normal functioning of the respiratory system, bladder, and bowel. The rehabilitation physician's role is to maximise function and activity participation using an interdisciplinary approach.

Causes

Congenital and acquired traumatic

Non-traumatic

- Autoimmune/Inflammatory, e.g. systemic lupus erythematosus (SLE), transverse myelitis
- Iatrogenic, e.g. drugs
- Infectious:
  - abscess/phlegmon
  - discitis
  - infectious disease, virus, bacteria, fungi, and parasites
  - osteomyelitis
- Neoplastic (defined by structure affected):
  - benign
  - malignant:
    - primary
    - secondary/metastatic
- Neurodegenerative, e.g. multiple sclerosis (MS)
- Obstructive sleep apnoea (OSA)
- Vascular:
  - haemorrhage

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 relevant clinical history
- conduct an appropriate examination
- establish a differential diagnosis
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[16] and their quality of life

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

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

	» ischaemia **Traumatic** • Accidental or iatrogenic	
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** • Adult spina bifida	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Anatomy of the spinal column and spinal cord, including blood supply and topography of neural motor, sensory pathways, and autonomic pathways within the spinal cord • Autonomic dysreflexia: » pathophysiology: ▪ cause ▪ symptoms and signs • Common comorbid medical conditions and impact on SCI: » obesity » psychiatric and mental health issues » TBI • Epidemiology of traumatic and non-traumatic SCI in Australia and Aotearoa New Zealand, including: » aetiology » costs » incidence and prevalence » long-term outcomes » mechanisms of traumatic SCI and fracture-dislocation types/classifications » mortality and morbidity • Factors influencing outcomes after SCI • Level of injury, functional ability and expected level of independence • Pathophysiology of SCI: » associated injuries » concussion, contusion, and laceration » incomplete spinal cord syndromes » new developments in the physiology of spinal cord regeneration » secondary injuries » spinal shock » stem cell research • Physiology of respiratory and cardiac systems: » normal respiratory and cardiac function • Physiology of the spinal cord, including: » autonomic nervous system » bowel function » erection, seminal emission, and ejaculation » micturition	

- motor and sensory function including levels
- Prevention strategies
- Skin integrity and pressure injuries:
  - assessment and diagnosis
  - risk factors
  - staging

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the indications for and how to interpret the results of these investigations, procedures, and clinical assessments tools.

Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.

Examinations

- Assessment of pre-injury personality, lifestyle, social support, and economic circumstances
- International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI)
- Neurogenic bladder:
  - infrasacral, suprasacral, and mixed types of impairment
- Neurologic exam
- Physical examination, e.g. cardiac, respiratory, skin

Investigations

- CT myelogram
- CT scan
- MRI
- Neurophysiology studies
- Radiological and electrodiagnostic tests
- Urodynamic studies
- X-ray

Clinical assessment tools in SCI

- Activities, e.g. 10-metre walk test, spinal cord independence measure
- Impairments, e.g. International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI), hand-held myometer
- Participation, e.g. Craig Handicap Assessment and Reporting Technique (CHART), short form health survey

IMPORTANT SPECIFIC ISSUES

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

Activities of daily living (ADL)

- Fertility, reproduction, and pregnancy
- Health promotion and physical activity recommendations
- Immunisation and health screening recommendations
- Sexual function and sexuality

Acute management

- Acute pressure care
- Deep vein thrombosis (DVT)/Pulmonary embolism (PE) prophylaxis
- Differentiation of shock/types of shock, e.g. cardiogenic versus spinal
- First aid and retrieval principles of traumatic SCI patient
- Gastrointestinal dysfunction
- Hypotension
- Neuroprotection strategies
- Palliative care techniques
- Respiratory insufficiency, including indications for mechanical ventilation, and basic principles of non-invasive positive pressure ventilation and respiratory function in tetraplegia
- Surgical interventions and management
- Temperature control

Chronic/Long-term management issues – common complications

- Autonomic dysfunction, e.g. autonomic dysreflexia, orthostatic hypotension, temperature control
- Falls
- Heterotopic ossification
- Pain
- Respiratory insufficiency
- Skin integrity and pressure issues
- Sleep-disordered breathing
- Spasticity and contractures
- VTE

Common complications – types of dysfunctions

- Bladder and bowel:
  - neurogenic bladder (upper or lower motor neurone)
  - patient and carer education
  - reflex voiding and bladder training
  - suprapubic catheter/indwelling urethral catheter
  - surgical interventions, e.g. colostomy
  - the neurogenic bowel:
    - bowel management programs
    - dietary management
    - pharmacological management
    - physical interventions, electrical, e.g. nerve stimulators
  - therapeutic interventions, such as:
    - clean intermittent self-catheterisation
    - pharmacological
    - surgical interventions, e.g. external sphincterotomy, stenting
  - types of bladder dysfunction
- Cognition and perception:
  - impact of cognitive and perceptual changes
- Communication
- Mood and behaviour:
  - impact on families and carers
  - management strategies to promote independence
  - other non-pharmacological therapies
  - pharmacological management of issues
  - psychiatric issues, including post-traumatic stress symptoms/disorder (PTSD)
  - psychological reactions to disablement
  - psychological therapies – components of therapy, indications
  - theories of adjustment to disability
- Nutrition and swallowing:
  - diet and exercise recommendations
  - dysphagia
  - energy imbalance and nutritional interventions
  - parental feeding indications
- Physical deficits:
  - aids and equipment
  - dressings and wound care
  - patient and carer education
  - pharmacological and nutritional interventions
  - physical interventions
  - prevention strategies:
    - extrinsic factors, including aids and equipment
    - intrinsic
  - respiratory
  - return to sitting after a skin breakdown

- skin integrity and pressure injuries
- surgical management
- treatment strategies

Community reintegration

- Adaptive techniques and assistive devices for ADLs
- Carer training
- Community support services
- Computer support for recreation, vocation, and environmental control
- Disability income support options
- Driving assessment, modifications, and retraining
- Financial impacts of disablement
- Funding options for community reintegration
- Housing, home modifications, environmental controls, and equipment
- Leisure and sports activities
- Peer support organisations
- Principles of community care
- Seating and wheelchair prescription in community setting
- Vocational rehabilitation

Documentation

- Advanced care planning
- Medicolegal reporting

Rehabilitation interventions

- Assistive devices
- Cough and secretion removal
- Emerging experimental approaches
- Evidence-based rehabilitation strategies
- Hydrotherapy
- Inspiratory muscle training
- Pharmacological management
- Physical therapy techniques
- Role of functional electrical stimulation
- Surgical interventions to improve functional performance, including indications, complications, and outcomes:
  - e.g. tendon and nerve transfers
  - tenodesis and arthrodesis
- Technology-based interventions, e.g. functional electrical stimulation and neuromuscular electrical stimulation, neuroprosthesis, robotics
- Tracheostomy placement and decannulation
- Upper and lower limb resting splints, orthoses, and gait aids
- Upper limb adaptive and compensatory techniques
- Upper limb functional retraining and education
- Ventilation
- Wheelchair prescription, skills training, and education

Spina bifida and SCI

- Assessment and management of non-SCI issues
- Clinical manifestations
- Complications and chronic issues
- Principles of SCI management of chronic issues
- Principles of transition to adult services

KEY PRESENTATIONS AND CONDITIONS

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

Rehabilitation presentations

- Community living
- Inpatient, outpatient, and community rehabilitation options
- Postoperative care
- Pre-operative assessment

Conditions

- Congenital limb deficiency versus acquired
- Upper limb versus lower limb amputation

Acquired amputation

- Traumatic versus non-traumatic
- Non-traumatic:
  - » diabetes mellitus
  - » infections:
    - necrotising fasciitis
    - severe sepsis
  - » peripheral vascular disease
  - » tumours:
    - Ewing sarcoma
    - osteosarcoma

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

Examples could include (please note this is not an exhaustive list)

- Amputations – traumatic digit and digit ischemia
- Burns
- Malignancy and tumours
- Multiple amputations
- Pain

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 relevant 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

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 and/or carers.

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will describe the principles of the foundational sciences.

- Biomechanics of normal gait
- Causes of amputation
- Epidemiology, aetiology, incidence and prevalence, mortality and morbidity of acquired major limb loss in Australia and Aotearoa New Zealand
- Haptics
- Osseointegration
- Sensory feedback
- Targeted muscle reinnervation (TMR):
  - » TMR at time of amputation (or as a revision) and integrated with multiple site sensors for myoelectric componentry
- Types of amputation
- Types of prosthetic designs
- VR training

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the indications for and how to interpret the results of these investigations, procedures, and clinical assessments tools.

Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.

Investigations

- Amputee mobility predictor with prosthesis (AMPRO) and amputee mobility predictor without prosthesis (AMPnoPRO)
- Angiography
- Ankle brachial index
- Arterial doppler ultrasound
- Functional classification (K level)
- MRI
- Ultrasound to assess for neuroma
- X-rays

IMPORTANT SPECIFIC ISSUES

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

Examples could include (please note this is not an exhaustive list):

Community services and reintegration

- Aids/Modifications in home environment
- Artificial limb funding schemes and services
- Community organisations
- Discharge planning
- Family and social reintegration
- Transport and driving
- Work and sports activities, including vocational retraining

Complications of amputation

- Common problems and faults in prosthetic ambulation
- Distortion of body image
- Heterotopic ossification
- Increased risk of falls
- Neuroma formation
- Skin infections and breakdowns
- Stump pain, phantom pain, and phantom sensation
- Swelling

Components and characteristics of prostheses for specific functions

- Showering
- Sport and recreation
- Swimming
- Work

Goals of prosthetic training

- Cosmetic
- Functional
- Recreational
- Social
- Vocational

Postoperative patient management

- Care of the surgical wound
- Control stump oedema – bandaging and rigid dressings
- Coping with loss, altered body image, and change in life roles
- Early resumption of assisted ambulation and self-care activity
- Level of amputation and healing of wound
- Maintenance of strength and ROM of residual limb
- Management of wound infection
- Pharmacological and non-pharmacological pain management
- Potential for prosthetic training
- Prevention of limb contractures and weakness
- Promotion of wound healing
- Psychological support
- Treatment of associated injuries
- Use of desensitisation techniques

Potential for prosthetic training

- Amputee mobility predictor with prosthesis (AMPRO) and amputee mobility predictor without prosthesis (AMPnoPRO)
- Functional classification (K level)
- General physical and psychological health
- Level of amputation
- Previous prosthetic use
- Surgical wound, limb contractures, and general condition of stump and residual limb

Pre-prosthetic patient management

- Age-related or other impairments of cardiopulmonary function, cognitive state, sensory deficits and neuromusculoskeletal function that might impact on prosthetic management
- Assess psychological adjustment to upcoming surgery
- Carers, social set up, home care environment assessment
- Condition of affected and unaffected limbs, and limb dominance
- Education and counselling regarding the phases of amputee rehabilitation
- Premorbid domestic, leisure, psychosocial, and vocational function
- Premorbid ambulation and mobility
- Range of motion, strength, and function of affected and unaffected limbs

Prosthetic management

- Adaptation or replacement of prosthesis with maturation of stump
- Application of prosthesis and liners
- Early fitting and training with an interim prosthesis
- Monitoring of wound and residual limb

- Prescription of appropriate prosthetic components
- Prosthetic alignment and adjustment
- Repairs and changes to the prosthesis as required over time
- Techniques of casting and fabrication of prosthetic socket
- Timing of definitive prosthesis

Prosthetic training

- Activity limitations and participation limitations
- Application of prosthesis and suspension
- Care and maintenance of prosthesis
- Haptics
- Muscle strength and conditioning exercise
- New techniques to improve prothesis control, including targeted muscle reinnervation (TMR) and myoelectrics
- Patient expectations of prosthetic use
- Self-care and domestic activities
- Special needs of the bilateral amputee
- Training in prosthesis operation
- Virtual reality training

Sports amputation

- Implications for the athlete
- Unique prosthetic needs and mobility goals

KEY PRESENTATIONS AND CONDITIONS

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

Regional musculoskeletal (MSK) presentations

- Cervical:
  - cervical fracture/immobilisation
  - cervical radicular pain
  - cervical radiculopathy
  - cervical segmental pain patterns
  - cervical spondylosis myelopathy
  - disc conditions
  - torticollis
  - whiplash
  - zygapophysial joint pain
- Dentofacial:
  - malocclusion
  - maxillary and jaw asymmetry
  - temporomandibular joint dysfunction, arthralgia, articular disc disorder
  - traumatic dentofacial anomaly (LeFort fracture)
- Lower limb:
  - acquired deformity
  - foot and ankle
  - knee
  - limb deficiency
  - pelvis, hip, and thigh
- Thoracic and lumbar spine:
  - anklyosing hyperostosis/ DISH/ Forestier disease
  - Baastrup's disease (kissing spine)
  - buttock pain – gluteal, hip, piriformis, sacroiliac joint (SIJ)
  - chest wall pain syndrome
  - coccygeal disorders – dislocation, fracture, pain
  - costochondral junction syndrome (Tietze) costochondritis
  - costovertebral joints
  - degenerative disc changes
  - disc diseases – internal disc disruption, discitis
  - kyphoscoliosis
  - myelopathy
  - pelvic sacral insufficiency and pelvic fractures, tumours, osteitis pubis

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 relevant 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

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 and/or carers.

- post-surgical pain syndrome (post-laminectomy pain and FBSS)
- radiculopathy and radicular pain
- somatic referred pain (sclerotomal,myotomal, dermatomal pain)
- sacroiliac joints
- spinal and foraminal stenosis
- spinal muscles – erector spinae, multifidus
- thoracic outlet syndrome
- 'trigger point' syndromes
- vertebral body – fractures, tumours, infections, endplate diseases
- zygapophysial joints

- Upper limb:
  - acquired deformity
  - elbow
  - neuropathies – diseases, entrapment
  - osteoarthritis
  - shoulder conditions
  - soft tissue and synovium
  - wrist and hand

General MSK presentations

- Bursopathy:
  - bursitis
  - calcium deposit in bursa
  - infection of bursa
- Cartilage disorders:
  - chondrolysis
  - chondromalacia
  - relapsing polychondritis
  - osteoarthritis
- Disorders of bone density and structure:
  - bone cysts
  - fibrous dysplasia
  - fractures – atraumatic, pathological, stress
  - hypertrophic osteoarthropathy
  - osteitis condensans ilii
  - osteolysis
  - osteomalacia
  - osteomyelitis
  - osteonecrosis
  - osteopathy secondary to neurological conditions, such as poliomyelitis and paralysis
  - osteoporosis
  - Paget's disease of bone
  - skeletal fluorosis
- Disorders of synovium, ligament, and tendon:
  - enthesopathies
  - ganglion

	» spontaneous rupture of synovium and tendon » synovial hypertrophy » synovitis and tenosynovitis » transient synovitis • Fibrous tissue disorders: » Garrod's pad (knuckle pad) » necrotising fasciitis » palmar-fascial fibromatosis (dupuytren contracture) » plantar fasciitis » plantar-fascial fibromatosis » pseudosarcomatous fibromatosis (nodular fasciitis) • Muscle disorders: » calcification and ossification of muscle tissue » contraction, atrophy, sarcopenia » degeneration of muscle tissue » drug-induced myopathy, including alcoholic myopathy » injury to muscle tissue » muscle cramp, spasm, and myalgia » muscle 'trigger points' » myositis » sarcomere separation, rupture, infarction, haematoma, rhabdomyolysis » stiff person 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.	**Systemic disease with MSK manifestations** • Developmental and genetic: » achondroplasia » alkaptonuria, ochronosis, and ochronotic arthropathy/ tendinopathy » disorders of the physeal plate, bone development, and growth » Duchenne muscular dystrophy » Ehlers–Danlos syndrome (EDS); hypermobility syndromes » Marfan syndrome » osteogenesis imperfecta • Gastrointestinal: » enteropathic arthropathies • Infectious diseases: » direct infections of joint in infectious bacterial, viral, and parasitic disease » pyogenic arthritis » spinal infection – vertebral osteomyelitis, vertebrodiscitis, epidural abscess	

- MSK medicine in specific populations:
  - functional MSK disorders and medically unexplained symptoms
  - metabolic disorders and extremes of weight
  - occupational medicine and MSK injury
  - operative and postoperative MSK presentations
  - sports medicine – athlete populations
- Oncology and haematology:
  - arthropathy in neoplastic disease/secondary to underlying neoplasm (leukemia, malignant histiocytosis, multiple myeloma)
  - chemotherapy complications
  - dermatomyositis secondary to malignant or neoplastic disease
  - haematological disorder with arthropathy
  - primary malignancy of musculoskeletal tissue
  - radiotherapy complications
- Rheumatological, inflammatory and autoimmune:
  - autoinflammatory syndromes – Blau syndrome, DIRA, Majeed syndrome, PAPA, PFAPA
  - cryopyrin associated periodic syndromes (CAPS)
  - gout and other crystal arthropathies
  - inflammatory polyarthropathies
  - inflammatory spondyloarthropathies
  - juvenile arthritis and related disorders
  - osteoarthritis – primary, secondary
  - other arthritis and arthropathies
  - periodic fever syndromes – familial Mediterranean fever, hyperimmunoglobin D syndrome, mevaolonate kinase deficiency, TNF receptor associated periodic syndrome (TRAPS)
  - seronegative rheumatoid arthritis
- Skin and connective tissue disease:
  - mixed connective tissue disorders
  - polymyositis and dermatomyositis (Types I-V)
  - psoriatic arthropathy
  - Sjögren syndrome
  - SLE

	» systemic sclerosis/scleroderma/ CREST » vasculitides	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	**Anatomy and physiology** • Biomechanics and gait: » biomechanics of wheelchair mobility and prescription » normal gait parameters relative to demographics » rationale of gait aids and assistive devices • Bones, bursae, capsules, epiphyses, and joints • Developmental/ontogeny considerations: » age, maturity, and senescence » cellular and molecular development and progression **Pathophysiology** • Central and peripheral neurological development, structure, and function • Common cellular, molecular, and structural pathology • Healing, regeneration, and plasticity • Hereditary neuromuscular conditions • Neuromuscular junction and motor points • Normal developmental milestones • Orthosis prescription • Physiological responses to disease, injury, and activity: » response and adaptation to exercise » response and adaptation to injury » tissue injury cycle – acute, recovery, and maintenance phases of rehabilitation, Woolf's Law • Regional motor and sensory innervation: » voluntary/somatic muscle innervation and muscle function (muscle origin, insertion, action, innervation, range of motion) • Tendons and ligaments • Understanding NNT, nocebo, placebo, statistical significance, and success rates, with respect to clinical assessment and treatment • Understanding negative predictive value (NPV), positive predictive value (PPV), reliability, sensitivity, specificity, and validity, with respect to examination and investigation	
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for, and how to interpret the results of, these investigations, procedures, and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	• Age-related variations of structure and function • Examination and clinical assessment • Interpretation of diagnostic tests: » CT scan » diagnostic interventions – epidural injections, joint injections, medial branch nerve blocks, peripheral nerve blocks » diagnostic ultrasound » dual-energy x-ray absorptiometry (DEXA) and bone mineral density (BMD) scans » electromyography (EMG)/nerve conduction study (NCS) » joint aspiration (pathology) » MRI » provocative discography » x-rays • Provocative tests – NPV, PPV, sensitivity, specificity • Relevant diagnostic and therapeutic procedures and their interpretation: » electrodiagnostic evaluation » epidural steroid injection » facet (zygoapophyseal) joint injections	

- joint aspiration and injection
- medial branch nerve block, selective spinal nerve root block, sacroiliac joint block
- radiofrequency ablation/neurotomy
- sympathetic block
- trigger point injection

Assessment and outcome measures

- Disease-specific patient-related outcome measures
- Joint-specific patient-related outcome measures
- Oswestry Disability Index, Roland–Morris Questionnaire

IMPORTANT SPECIFIC ISSUES

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

Activity modification

- Disease modifying anti-rheumatic drugs (DMARDs)
- Evaluation of how sport, work, or domestic activity can contribute to/ perpetuate injury or MSK dysfunction
- Growth factors
- Heterotopic ossification management
- Injury prevention principles
- Muscle relaxants
- Negative effects of cast-immobilisation
- Negative effects of prolonged body rest and disuse
- Osteoporosis management
- Pharmacotherapy, including opioids
- Principles and practice of pain management (refer to KG11)
- Principles for orthosis use (refer to KG12) and assistive technology
- Principles of self-management
- Role of relative rest in acute and chronic injury
- Steroids – corticosteroids, glucocorticoids
- Task modification principles

Diet

- Caloric management for optimal MSK rehabilitation in setting of deconditioning and frailty
- Causes of malnutrition and metabolic risk
- Metabolic impact of refeeding syndrome
- Nutritional risk screening and assessment
- Obesity and impact on MSK function
- Role of a structured weight loss program in alleviating MSK dysfunction

Exercise

- Exercise capacity testing
- Principles of exercise prescription
- Risk factor assessment

Injection/Interventional/Procedural

- Corticosteroids/Anaesthetic
- Dextrose prolotherapy
- Diagnostic versus therapeutic
- Disc-related procedures (coblation nucleoplasty, transdiscal biacuplasty, basivertebral nerve ablation)
- Epidural adhesiolysis
- Fluid (hydrodilatation)
- Minimally invasive interventions versus surgical options

- Perineural, intra-articular
- Platelet rich plasma
- Stem cells
- Thermal and pulsed neurotomies
- Viscosupplementation (hyaluronan)

Psychosocial adjustment to disability

- Behavioural responses
- Family and intimacy
- Hobbies and enjoyment
- Resource availability, affordability, and accessibility
- Social roles and participation
- Societal responses
- Task mastery and self-fulfilment

Surgical intervention

- Complications of implanted orthopaedic prosthetic devices, implants, and grafts
- Implantable pain therapies – intrathecal medication delivery, spinal cord stimulator
- Percutaneous disc decompression
- Periprosthetic fracture
- Post-fracture syndrome
- Post-laminectomy syndrome
- Reduction of dislocation or fracture
- Vertebral augmentation – kyphoplasty, vertebroplasty

Therapies

- Acupuncture
- Application of local heating and cooling
- Hydrotherapy
- Interferential therapy
- Joint mobilisation
- Low level laser therapy
- Pulsed EM field therapy (PEMF)
- Shortwave diathermy
- Soft-tissue therapies
- TENS
- Traction
- Ultrasound

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Acute, chronic pain
- Change in function
- Dyspnoea

Conditions

- Acquired:
  - » cardiac failure
  - » ischaemic:
    - acute myocardial infarction
    - pulmonary embolism infective (COVID-19)
  - » viral cardiomyopathy
- Associated heart and lung surgery:
  - » CABG
  - » post-transplantation
  - » revascularisation procedures
- Common arrhythmias
- Congenital heart and lung
- Infective respiratory conditions and sequelae
- Obstructive respiratory conditions:
  - » asthma
  - » chronic obstructive pulmonary disease (COPD)
  - » emphysema
- Restrictive respiratory conditions:
  - » fibrosis, including environmental conditions

Environmental exposure

- Dust-borne diseases
- Occupational aspect – animals, farming, mining
- Smoking

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 relevant 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

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

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

No less common or more complex presentations and conditions listed

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

help manage patients with these presentations and conditions.	

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Aetiology • Anatomy and physiology of the heart and coronary arteries • Anatomy and physiology of the lungs and respiratory system • Community cost • Epidemiology of cardiac and respiratory disease in Australia and Aotearoa New Zealand • Exercise physiology of the heart and peripheral circulation • Incidence and prevalence • Mortality and morbidity • Pathophysiology of ischaemic heart disease: » acute myocardial infarction
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for, and how to interpret the results of, these investigations, procedures, and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	**Examinations** • Examination and history • Lung function and cardiac function **Investigations** • Chest x-ray • Coronary angiography • CT pulmonary angiogram (CTPA) • Echocardiogram (ECG) • Lung function • MRI • Radionuclide imaging • Spirometry • Stress echo • Ventilation-perfusion (VQ) scans
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management.	**Cardiac – acute/subacute hospital care (phase I)** • Aetiology and degree of impairment of cardiac disease: » current drug therapy » major complications, e.g. ventricular failure, ventricular tachycardia and fibrillation » presence of minor complications, e.g. bundle branch block, first degree heart block • Dietary and nutrition: » associated medical disorders, e.g. hypertension, diabetes » body weight and fat » lipid profile » medication » usual dietary patterns • Early supervised reintroduction of progressive activity involvement in personal care tasks • Exercise testing – commonly used protocols including recognition of significant abnormalities, e.g. angina, arrhythmia, S-T segment depression • Individual and group education: » benefits of exercise and lifestyle change » specific disability

- the importance of risk factor management
- Patient's personality and response to cardiac disease and disability:
  - anxiety and depression following acute cardiac illness
  - current life stresses, including financial and marital issues
  - high risk personality profiles
  - response of family to patient's illness and disability
- Safe activity and exercise levels following hospital care:
  - energy costs of activity – metabolic equivalent of tasks (METs)
  - New York Heart Association Functional Classification System
- Vocational assessment:
  - clearly stated goals for early return to work
  - evaluation of the physical and psychological demands of work
  - patient's present work fitness

Cardiac post discharge care (phase II)

- Benefits of exercise therapy regarding activity tolerances, coronary artery disease progression, mortality, risk factor modification, and psychological wellbeing, including:
  - prescription of duration, frequency, and intensity of continuous aerobic activity and light resistance exercises by reference to target heart rate range
  - regular medical monitoring of clinical status and exercise responses
- Progressive exercise conditioning
- Progressive resumption of personal and recreational activities:
  - activity tolerances as predicted by exercise testing
  - energy costs of usual daily activities
  - monitoring of symptoms and responses to activities
  - techniques of energy conservation and work simplification
- Significant psychosocial factors:
  - at-risk personality profiles and behaviour patterns
  - family or carer counselling
  - stress management
  - treatment of anxiety and depression
- Support continuing education:
  - lifestyle modification
  - physiological benefits of exercise training, including appropriate techniques of warm-up and warm-down, cooling, fluid intake, and stretching
  - support continuing dietary monitoring and counselling
- Vocational rehabilitation when appropriate by:
  - adverse prognostic indicators for vocational resettlement
  - full assessment of work demands related to degree of cardiac disability
  - return to work planning and employer liaison
  - specific work conditioning
  - work monitoring and upgrading

Cardiac: maintenance care in the community (phase III)

- Exercise and lifestyle activities
- Community facilities for maintenance
- Patient's ability to adhere to recommendations
- Personality traits and cardiovascular disease
- Progression of cardiac disease and disability monitoring
- Psychological support

Components of respiratory rehabilitation

- Breathing and relaxation techniques
- Education, including on proper use of prescribed drugs
- Energy conservation techniques
- Exercise training and reconditioning
- Expiratory muscle training
- Inspiratory muscle training
- Maximising energy level
- Neuromuscular electrical stimulation
- Nutrition
- Oxygen therapy
- Psychosocial counselling
- Smoking cessation

Management of cardiac disease

- Cardioactive drugs, including:
  - angiotensin-converting enzyme (ACE) inhibitors
  - angiotensin-receptor blocker
  - antiarrhythmics
  - anticoagulants
  - antiplatelets
  - ß-blockers
  - calcium channel blockers
  - digoxin
  - diuretics
  - glyceryl trinitrate
  - lipid lowering drugs
- Surgical management:
  - coronary artery bypass surgery
  - coronary revascularisation procedures
  - transluminal coronary angioplasty

Management of respiratory disease

- Drug therapies:
  - anti-IgE monoclonal antibody therapy
  - inhaled corticosteroids (ICS)
  - long-acting and short-acting bronchodilator
  - oral corticosteroids (OCS)
- Surgical management:
  - lung resection
  - lung transplantation
  - lung volume reduction

Rehabilitation elements of patient care

- Clinical assessments and scales such as rating of perceived exertion, e.g. Borg rating of perceived exertion, calculating VO2 max, and maximal exercise, and using these results to prescribe exercise in cardiac and respiratory conditions, and other relevant tests of endurance, e.g. six-minute walk test
- Education of patient and family regarding exercise, lifestyle change, medical management, and risk factor modification
- Exercise conditioning, education, functional restoration, psychosocial support, and vocational settlement
- Multidisciplinary approach
- Return to avocational activities
- Return to work, with emphasis in most cases on return to usual pre-morbid employment
- Risk factors, cardiac and respiratory status, and functional disability
- Self-management (chronic disease)

- Psychosocial dysfunction

Respiratory management and insufficiency

- Airways suction
- Chest physiotherapy
- Respiratory function
- Respiratory function in tetraplegia
- Sepsis
- Types of respiratory support system surgical management
  - » respiratory impairment; types and indications for respiratory support systems

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

People with disabilities evident in the developmental period (before 16 years, or before the end of school-age) may be referred to adult rehabilitation physicians for leadership in the management of persisting neurological, muscular, and skeletal disabilities.

Some may be referred because they have cognitive and behavioural disabilities (intellectual developmental disorders) which limit their vocational options.

Referrals of teenagers with complex or multiple disabilities may come from paediatric rehabilitation physicians who plan special transition processes with multi-medical and multidisciplinary practitioners.

Adults with intellectual developmental disorders may present having a need for collaboration and communication with neurologists, general physicians, and psychiatrists. The rehabilitation physician may be best placed as the lead clinician in special clinics held for this purpose.

Adults with complex developmental disorders may be referred when they have been admitted to hospital for acute illness management. The rehabilitation physician role is then one of support for prevention of deconditioning and other secondary complications, for coordination of care as they stabilise in the hospital setting, and for discharge planning and follow-up disability management as required.

A key feature of presentations is the presence of family members or case workers who will advocate for and with persons with intellectual disabilities.

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 relevant 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

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 or carers.

Conditions associated with brain development; person may/may not have intellectual developmental disorders

Perinatal

- Head trauma at birth
- Infections at birth
- Intra-cranial haemorrhage

Postnatal

- Behavioural diagnoses:
  - autism spectrum disorder
  - ADHD
- Demyelinating and degenerative:
  - acute disseminating
  - encephalomyelitis
- Head injuries during childhood
- Infections:
  - herpes simplex
  - measles
  - rubella
- Seizure disorders:
  - early infantile
  - late infantile
  - Lennox–Gestault syndrome
  - post-trauma

Prenatal

- Brain formation:
  - cerebral palsy
  - Dandy–Walker syndrome
  - spina bifida
- Chromosomal disorders manifesting as recognisable syndromes:
  - Angelman syndrome
  - Down syndrome
  - Fragile X syndrome
  - Klinefelter syndrome
  - muscular dystrophies:
    - Becker
    - Duchenne
  - Prader–Willi syndrome
  - Rett syndrome
  - Turner syndrome
- Inborn errors of metabolism:
  - glycogen-storage disease
  - phenylketonuria
  - Wilson disease
- Maternal environmental influences:
  - AIDS
  - alcoholism
  - diabetes
  - drug abuse
  - malnutrition
  - varicella infection
- Unknown causes

	Conditions associated with skeletal development • Congenital hip disorders • Congenitally acquired limb deficiencies • Scoliosis • Skeletal dysplasias resulting in bone deformity and length discrepancy **Physiological conditions co-occurring in chromosomal syndromes** • Blood dyscrasias • Congenital cardiovascular abnormalities • Hypothyroidism, hypogonadism • Neuro intestinal – swallowing and elimination dysfunction • Nutritional disorders	
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.	No less common or more complex presentations and conditions listed	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Descriptions of physical and intellectual development and subsequent manifestations of limitation, delay, or loss • DSM and service provider descriptions of levels of cognitive and behavioural disabilities and relevant support needs: » assessment tools used to determine 'IQ' and behavioural associations as the person ages biologically » intellectual developmental disorders: ▪ arose in childhood (below 16 years) ▪ behavioural impacts on lifestyle ▪ 'IQ' below 70 » mild, moderate, severe, profound • Familiarity with implications of use of neuroleptic medications for epilepsy, behavioural disturbances, and gastrointestinal disorders • Life expectancy of most persons with developmental disabilities, and how it changes with the severity of the condition and multiplicity of conditions. Prevalence of adults with intellectual developmental disorders is rising • Prevalence of common developmental disorders in adult populations • Sociology of disability in terms of deinstitutionalisation, and National Disability Insurance Scheme	

- Supported accommodation policy regarding health of people with intellectual developmental disorders:
  - facilitating access to appropriate practitioners
  - identification of clinical risk early
  - regular review of progress
  - safe and health-promoting environments
- The greater rates of co-occurring conditions such cancers, diabetes, GIT disorders, and hypothyroidism

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the indications for, and how to interpret the results of, these investigations, procedures, and clinical assessments tools.

Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.

Investigations
- Awareness of special situations such as atlanto-axial dislocation when considering anaesthesia for surgery for people with Down syndrome
- Consideration of possible need for sedation for radiological and electrodiagnostic tests – organising special times, family or carer presence

Examinations
- Comprehensive behavioural assessment
- Physical, functional, and cognitive assessments

IMPORTANT SPECIFIC ISSUES

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

Behaviour management planning
- Impacts of psychotropic medications
- Medication and behavioural management of challenging behaviour
- Technical and psychological behavioural assessment

Bioethical decision making
- Genetic counselling for families
- Support issues in relation to death and dying in people with intellectual disability

Communication
- People with developmental disabilities may or may not be able to explain their health issues. They will be accompanied by family members, carers or case workers who know them well
- Rehabilitation physicians will commonly be collaborating with paediatricians and general practitioners when patients are transitioning to the adult health system for care
- The appointments should be made with these concerns in mind in terms of allowing adequate time for centre-based or home assessments
- There will be a special call for collaboration with neurologists and other physicians, and psychiatrists, in patients' adult medical teams

Family and community support
- Developing competence in communicating with people with disabilities
- Genetic counselling
- Local consent and guardianship laws
- National Disability Insurance Scheme

- Role of parents and family in rehabilitation management
- Social implications of chronic illness and disability in children
- Understanding of the role of family members and case workers in advocating for patients

Key transitions

- From children's health care to adult health care
- From children's services to adult services
- From living at home to living in adult supported accommodation settings
- From living in disability supported accommodation to living in aged care settings

Medication management of acquired illness

- Medications for gastrointestinal disorders
- Neuroleptics for epilepsy
- Psychotropics for behaviour management and mental illness

Medicolegal issues

- Consent
- Guardianship
- Potential for abuse and victimisation
- Research

Psychological aspects of disability

- Psychological adjustment of child and family to disability in transitioning years
- Training of support workers in supported accommodation
- Underlying factors in challenging behaviour, particularly self-injuring behaviours

Supporting patient health and wellbeing

- Impact of ageing on physical disabilities
- International guidelines with respect to health and health care for people with intellectual disabilities
- Issues of transitioning and adulthood in people with lifelong disability:
  - avocational/vocational preparation
  - bowel and bladder care
  - exposure to health risks, e.g. alcohol, drugs, and smoking
  - independent living skills
  - menstruation management
  - onset of chronic conditions and chronic diseases
  - parenting
  - potential concerns with driving
  - reproduction
  - sexuality
  - sport for people with disabilities
  - support needs with the development of dementia, e.g. early onset in people with Down syndrome
- Nonspeaking indicators of pathology, particularly pain

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Deconditioning after acute illness (even relatively minor illness)
- Decreased exercise tolerance
- Dyspnoea
- Falls and balance disorders
- Functional decline
- Post-chemotherapy vulnerabilities particular to older patients
- Postoperative
- Post-stroke
- Rehabilitation prior to surgery or chemotherapy (prehabilitation)
- Speech, language, and swallowing disorders
- Trauma

Conditions

- Amputation
- Arthritis
- Chronic airflow limitation
- Coronary artery disease and congestive cardiac failure
- Deconditioning
- Delirium
- Dementia
- Depression
- Diabetes
- Falls
- Fractures, especially ankle, forearm, hip, pelvis, and vertebrae
- Frailty
- Inappropriate medication use
- Leg ulcers
- Loss of functional capacity
- Osteoporosis
- Pain
- Parkinson disease
- Restriction of vision and hearing
- Stroke/Cerebrovascular disease (CVD)
- Urinary incontinence

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these

Conditions

- Guillain–Barré syndrome – differences in presentation in older people
- Post-organ/marrow transplantation – special considerations in older people

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 relevant 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

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 or carers.

presentations and conditions. Advanced Trainees will understand the resources that should be used to help manage patients with these presentations and conditions.	• Spinal cord injury, particularly long-term sequelae of chronic spinal cord injury • Traumatic/Acquired brain injury	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Changes to physiology with ageing: » autonomic nervous system » cardiovascular and respiratory systems » central nervous system » endocrine system » gastrointestinal tract/nutrition » kidney and urogenital systems » musculoskeletal system » peripheral nervous system » sexual function » special senses – vision, hearing, balance • Epidemiology of disability in older people • Normal ageing process	
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for, and how to interpret the results of these investigations, procedures, and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	**Examinations** • Formal assessment of functional status over time • Hearing and vision tests • Mental state examination and screening for depression, noting that symptoms may differ when compared to younger patients • Physical examination, with special attention to changes associated with ageing • Rehabilitation outcome measurement tools: » functional assessment tools, e.g. Barthel Index, functional independence measure (FIM), Katz ADL, Lawton-Brody ADL » mobility assessment tools, e.g. timed up and go, six-minute walk test, short physical performance battery **Investigations** • Targeted investigations based on patient presentation, such as echocardiogram and respiratory function tests in patients with breathlessness	
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management.	**Common comorbidities that may impact on rehabilitation management** • Complications arising from hospitalisation • Coronary artery disease, congestive cardiac failure, and chronic airflow limitation • Delirium and dementia • Depression • Inappropriate medication use and adverse drug reactions • Incontinence • Nutritional deficiency • Osteoporosis • Sepsis, especially respiratory and urinary tract • Vision and hearing loss • Wound and skin breakdown	

Community, government assistance and residential care

- Community care and community support services
- Government benefits, such as (AU only):
- Program Of Appliances for Disabled People (PADP)
- Repatriation Appliances Program (RAP)
- support for coordinating healthcare for older people, including the Enhanced Primary Care (EPC) items
- Services for older people, such as geriatric medicine, aged care psychiatry, and palliative care
- Types of community programs, and other programs, including (AU only):
- Community Aged Care Packages (CACP)
- Extended Aged Care at Home (EACH)
- transitional aged care
- Types of residential care

Enteral feeding

- Considerations specific to ageing
- Feeding equipment and types of feeds
- Nasogastric tubes
- Percutaneous endoscopic gastrostomy

Psychology and sociology of ageing

- Changes in family dynamics
- Cognitive abilities
- Personality and adjustment

Psychosocial aspects

- Fitness for driving
- Income maintenance issues
- Mental competency and guardianship legislation

Rehabilitation technologies for older people

- Alarm systems:
  - bathroom aids and modifications
  - beds and pressure relieving mattresses
  - home oxygen therapy, its indications, and equipment
  - modern technology aides in phones/watches
  - seating requirements
- Home aids and modifications
- Mobility aids
- Walking frames and wheelchairs

Types of rehabilitation programs for older people

- Community
- Inpatient
- Day hospital or equivalent
- Day therapy centre or equivalent
- Residential aged care facility

KEY PRESENTATIONS AND CONDITIONS

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

Conditions

- Burns
- Cancer:
  - » cancer-related pain
  - » chemotherapy-induced peripheral neuropathy
  - » chemotherapy-related fatigue
  - » cognitive dysfunction
  - » decreased exercise tolerance
  - » functional decline
  - » global and specific deficits due to primary or secondary brain tumours and treatment
  - » physical effects of other solid tumours and haematological malignancies and their treatment
  - » psychological distress
  - » sarcopenia
- Lymphoedema:
  - » benign
  - » malignant
- Steroid myopathy

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

- Graft versus host disease
- Radiation fibrosis

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 relevant 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

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 or carers.

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will describe the principles of the foundational sciences.

Burns

- Burn depth
- The rule of nines to assess total body surface area
- Types and complications of burns

Lymphoedema

- Anatomy and physiology of the lymphatic system
- Degree of impairment of lymphatic system and presence of complications, e.g. cellulitis, obesity, dependency
- Epidemiology of lymphoedema in Australia and Aotearoa New Zealand:
  - aetiology
  - community cost
  - incidence and prevalence
  - mortality and morbidity
- Pathophysiology of primary, secondary, and infective lymphoedema and associated disorders such as lipoedema, phlebolymphoedema, and dependent lymphoedema
- Stages of lymphoedema; lymphoedema grading

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the indications for, and how to interpret the results of, these investigations, procedures, and clinical assessments tools.

Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.

Investigations

- Burn Specific Health Scale (BSHS)
- Cognitive assessment
- Formal assessment of the patient's premorbid functional status
- Full physical examination
- Functional assessment tools, e.g. Barthel Index (BI), functional independence measure (FIM), Eastern Cooperative Oncology Group (ECOG) Performance Status, Karnofsky Performance Status (KPS)
- Physical examination

Examinations

- Imaging
- Lymphoscintogram
- Vascular investigations

IMPORTANT SPECIFIC ISSUES

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

Important specific issues related to burns

Scar management and burn therapy

- Activities of daily living (ADLs) participation
- Ambulation
- Compression garments – bandaging, pressure garments
- Deconditioning and impaired physical condition
- Exercise
- Factors affecting outcome after burns
- Heterotopic ossification
- Joint care and protection
- Massage
- Oedema management
- Orofacial contracture management
- Pain management:
  - acute and sub-acute pain
  - long-term pain management:

        - bone pain
        - malignant pain
        - neurogenic pain
        - palliative care
    - postoperative
    - tumour resection
    - wide local excision (WLE) after acute burns, during dressing changes
- Psychosocial component of patient care, and the importance of counselling and relaxation methods
- Range of movement to end of range
- Silicone and scar softening products
- Skin care
- Splinting and positioning
- Swallowing and communication impacts
- Sexuality and fertility, including pregnancy management post-burns, risk to foetus from medications

Important specific issues related to cancer

- Preventative rehabilitation (prehabilitation)
- Restorative rehabilitation
- Supportive rehabilitation
- Palliative rehabilitation

Treatment of cancer pain

- Other therapies and physical modalities
- Treatment choices
- Types of medication

Important specific issues related to lymphoedema

Dietary and nutritional advice based on assessment

- Associated medical disorders
- Body weight and fat
- Medication

Elements of patient care for lymphoedema

- Compliance with previous recommendations
- Patient care coordination
- Progression of lymphoedema and disability
- Suitable facilities for care

Individual and group education

- Benefits of exercise and lifestyle changes
- Importance of risk factor management
- Lymphoedema
- Patient's specific disability

Medical and surgical management of lymphatic diseases

- Contraindications
- Indications
- Phase I and phase II lymphoedema management following the diagnosis of primary or secondary lymphoedema
- Patient's participation in self-management, including:
    - compliance in compression garment use
    - self and carer massage exercise
- Prescription of exercise

- Rehabilitation evaluation that identifies aetiology, degree of impairment of lymphatic system and presence of complications, e.g. cellulitis, obesity, dependency
- Side effects of drugs

Organise therapy program

- Education
- Elevation
- Exercise
- Exercise in compression
- Management of concomitant medication condition, including pain and discomfort
- Manual lymphatic drainage (decongestive lymphatic therapy)
- Multilayer bandaging
- Prescription of compression hosiery or garments
- Psychosocial support
- Skin care

Patient support

- Compliance with previous recommendations
- Progression of lymphoedema and disability
- Psychological support

Psychosocial issues

- Anxiety and depression following post-cancer lymphoedema
- Current life stresses, including financial and marital issues
- Response of family to patient's illness and disability
- Vocational assessment as required, including evaluation of physical and psychosocial demands of work

Rehabilitation emphasises four elements of patient care

- Detection and management of significant psychosocial dysfunction contributing to or arising from lymphoedema or primary cause of secondary lymphoedema, such as breast cancer or melanoma
- Education of patient and family with regards to management, risk factor modification, lifestyle change, and exercise
- Medical assessment and monitoring of risk factors, especially cellulitis
- Self-management in maintenance phase

Risk factors for lymphoedema

- Cellulitis
- Obesity

KEY PRESENTATIONS AND CONDITIONS

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

Rehabilitation presentations

The speciality of rehabilitation medicine is involved in the management of multiple pain presentations.

Referrals are made to rehabilitation medicine physicians for diagnostic and therapeutic advice and as part of a multidisciplinary team, spanning inpatient, outpatient, and community care.

A biopsychosocial approach is central to the management of pain conditions by rehabilitation medicine physicians.

Conditions

- Cancer-related pain
- Central pain due to brain damage, multiple sclerosis, Parkinson disease, spinal cord
- Central sensitisation
- Chronic inflammatory and non-inflammatory arthritides
- Chronic pain syndrome
- Complex regional pain syndrome (CRPS)
- Degenerative changes and mechanical pain of the spine
- Headache
- Myofascial pain
- Nerve root and peripheral nerve syndromes, including nerve entrapments, small fibre neuropathy
- Persistent post-surgical pain syndromes – abdominal, chest, joints, pelvic, spine
- Postoperative pain
- Somatic referred pain
- Spinal pain including zygapophysial and sacroiliac joints, disc, stenoses, muscle origin
- Stump and phantom pain

Associated conditions

- Addiction
- Dependence
- Tolerance

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 relevant 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

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

[23] References to patients in the remainder of this document may include their families 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** • Deafferentation pain • Trigeminal neuralgia	of these on diagnosis and management
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Biopsychosocial model of chronic pain and illness • Define the following terms and describe their neurobiological basis: » allodynia » central sensitisation » hyperalgesia » hyperpathia • Epidemiology of chronic pain: » common causes » incidence » morbidity and mortality » natural history » prevalence • Number needed to treat (NNT) success rates, statistical significance, placebo, and nocebo, with respect to clinical assessment and treatment • Placebo, nocebo, and expectancy **Major dichotomies** • Acute pain versus chronic pain • Chronic non-cancer pain versus chronic cancer-associated pain **Somatic descriptors of pain** • Neuropathic, including central pain due to spinal cord and brain damage, nerve root and peripheral nerve syndromes, including nerve entrapment, phantom pain, post-stroke pain, and some cases of post-operative pain • Nociceptive, such as arthritis, fractures, ischaemia, soft tissue injuries, and some cases of post-operative pain • Nociplastic, such as “fibromyalgia”, and conditions characterised by visceral hyperalgesia, such as chronic pancreatitis or irritable bowel syndrome **Special understanding** • Incident pain versus “breakthrough” pain versus background pain: • end-of-life pain	

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

Advanced Trainees will know the indications for, and how to interpret the results of these investigations, procedures, and clinical assessments tools.

Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.

Investigations

- Radiological and electrodiagnostic investigation
  - CT scan
  - MRI
  - nerve conduction studies
  - precision image-guided diagnostic and therapeutic procedures
  - single photon emission computerized tomography (SPECT)
  - X-Ray

Clinical assessment tools

- Functional capacity, including but not limited to:
  - Oswestry Disability Index
  - Rowland–Morris Pain Questionnaire
- Pain-related factors, including:
  - Depression, Anxiety, Stress Scale
  - Fear Avoidance Behaviour Questionnaire
  - McGill Pain Questionnaire
  - Pain Catastrophising Scale
  - Pain perception – personal beliefs and perceptions inventory
  - Visual Analogue Scale, Numerical Rating Scale
- Psychological consequences, including:
  - Beck Depression Scale
  - Coping Strategies Questionnaire
  - Illness Behaviour Questionnaire
  - Minnesota Multiphasic Personality Inventory (MMPI)
- Quality of life, including:
  - short form health survey
  - Sickness Illness Profile

IMPORTANT SPECIFIC ISSUES

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

Assessing function

- Establish treatment goals and expectations of patients and their families or carers
- The impact of chronic pain on functioning, e.g. activities of daily living, depression, sleep, social functioning, social isolation, reduced mobility

Awareness of risks, benefits and expectations of procedures in pain medicine, including but not limited to:

- Epidural anaesthetics, steroids
- Intrathecal pump
- Ketamine infusion
- Local anaesthetic and regional blockade, including fluoroscopic and ultrasound-guided procedures
- Medial branch block
- Multifidus muscle stimulation
- Nerve root injection
- Percutaneous electrical nerve stimulation (PENS)
- Provocation discography
- Radiofrequency neurotomy
- Spinal cord stimulator
- Sympathetic blocks including ganglion impar, lumbar sympathetic, and stellate ganglion

Awareness of techniques of surgical management (past and present), including:

- Cordotomy, neurectomy, and stereotactic procedures

- Describe a multidisciplinary pain management program
- Implanted spinal pumps
- Spinal and multifidus stimulation and implanted nerve stimulators

Drug interventions for chronic benign pain

- Corticosteroids
- Drug rationalisation and detoxification
- Non-narcotic analgesics
- Opioid analgesics
- Placebo response

Functional restoration activities

- ADL retraining
- Energy conservation
- General activity and fitness training
- Leisure, sport, and domestic activities
- Work hardening and vocational resettlement

General principles

- Aggravating and relieving factors
- Cognitive impairment and the impact on patient's ability to report pain
- Components of, and expectations of, multidisciplinary pain programs
- Current pain severity
- Dignity and pain
- Factors associated with engagement and adherence to treatment
- Nature and efficacy of present treatment
- Nature of, and effectiveness of, rehabilitation interventions
- Nonorganic signs
- Signs of deconditioning
- Pain descriptors
- Patient expectations of future treatment
- Patient perception of the nature of pain
- Psychosocial aspects of pain in assessment and management
- Role of a multidisciplinary team approach for management of persistent pain
- Type and effectiveness of past treatment

Physical modalities and therapies

- Acupuncture
- Exercise therapy
- Interferential therapy
- Microwave
- Short wave diathermy
- Therapeutic heat and cold
- Transcutaneous electrical nerve stimulation (TENS)
- Low level laser therapy

Psychotropic drugs

- Antidepressants
- Antineuritics

Psychological intervention

- Cognitive and behavioural strategies, behaviour modification

	Social contexts of chronic pain • Assessment of anxiety, depression, PTSD • Assessment of pain behaviour and lifestyle • Behavioural responses to pain • Lived environment, including financial impacts • Neuroscience pain education • Psychology and pain management • Relaxation training and hypnosis • Resource accessibility, affordability, and availability • Societal attitudes and beliefs • Stress management • Workplace factors

Learning goal 22 – Orthotics and footwear

Advanced Training in Rehabilitation Medicine

Associated knowledge guides

- KG3 – Neurological conditions
- KG4 – Spinal cord dysfunction
- KG6 – Musculoskeletal conditions
- KG8 – Adults with disabilities arising in childhood
- KG10 – Rehabilitation of other specific conditions

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Foot orthoses
- Footwear
- Neurologincal lower limb orthoses
- Orthoses for burns care
- Orthoses for knee dysfunction
- Orthoses for spinal dysfunction
- Orthoses in the management of hand dysfunction

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

- Charcot neuroarthropathy
- High risk feet

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

Synthesise

» recognise the conditions/problems requiring orthotic or footwear prescription
» identify relevant pathophysiology and biomechanical clinical science
» take a relevant clinical history
» conduct an appropriate examination
» establish the indications and contraindications
» plan and arrange any appropriate investigations
» consider the impact of illness and disease on patients[24] and their quality of life

Manage

» provide evidence-based management
» prescribe orthotics and footwear tailored to patients' needs and conditions
» recognise disease progression and potential complications of disease that will have an impact on long-term orthotic prescription

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

	» discuss with the orthotist and any other relevant multidisciplinary team member **Consider other factors** » identify individual and carer physical and psychosocial factors that may have an impact on prescription subsequent management including donning and doffing or orthoses/footwear
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Biomechanical principles of joint motion control • Biomechanics and phases of the gait cycle (to assist in differentiating normal from pathological patterns) • Components of appropriate footwear • Functional anatomy • Identification of musculoskeletal and neuromuscular pathology, including contracture, joint deformity, joint instability, muscle weakness, and spasticity • Normal limb and vertebral anatomy and neurophysiology • Three rockers in stance phase • Vertebral fracture classifications and relevant orthotic range of motion restriction requirements
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for and how to interpret the results of these investigations, procedures, and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	**Joint assessment** • Use of goniometer for lower and upper limb joint assessments **Lower limb** • Clinical gait assessment • Footwear examination • Role of gait laboratory assessments referral • Targeted physical examination including: » lower limb vascular examination » musculoskeletal joint examinations » neurological limb examination • Understanding of gait analysis reports for the management of patients • Wound (pressure area) assessment **Upper limb** • Musculoskeletal joint examinations • Neurological limb examination
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these	**General principles** • Awareness of causes for poor compliance • Awareness of footwear modification options to accommodate foot deformity/problems • Awareness of orthotic use complications • Indications and contraindications • Multidisciplinary approach, especially working with occupational therapists, orthotists, podiatrists, and physiotherapists

on diagnosis and management.	• Orthoses for individuals with burns, musculoskeletal dysfunction, neurological impairments, and vertebral fractures • Prescription of prefabricated versus custom-made orthoses • Prescription of static versus dynamic orthoses • Role of micro-processing orthoses, e.g. C-brace • Role of robotic exoskeletal orthoses • Utilisation of prefabricated, modified, or custom-made footwear • Utilisation of various materials and components – semi-rigid, e.g. carbon fibre, ethylene vinyl acetates (EVA), joints, metal uprights, thermoplastic • Wound healing, off-loading (including total contact casting), orthotic and footwear management in the high-risk foot **Biomechanical and functional advantages** **Lower limb** • Ankle-foot orthosis (AFO): » alteration of knee biomechanics, e.g. GRAFO » correct/prevent deformity » improve efficiency of gait » redistribution of weight bearing forces, e.g. PTB-AFO » reduce need for compensation of ipsilateral and contralateral limbs and secondary pain » stance phase stability » swing phase clearance » terminal swing foot prepositioning for stance • Foot orthosis: » anatomical support to prevent or correct deformity and reduce pain during weight bearing » off-loading pressure relief • Knee-ankle-foot orthosis (KAFO): » facilitate swing phase clearance » stability in stance **Spine** • Protect the spinal cord • Stabilise spinal fractures reducing range of motion to facilitate healing **Types of orthotics** • Lower limb » ankle-foot orthosis (AFO) » foot orthosis » hip-knee-ankle-foot-orthosis (HKAFO) » knee-ankle-foot orthosis (KAFO) • Prefabricated orthotics: » single joint prefabricated orthoses (e.g. knee, ankle, wrist) for musculoskeletal conditions • Spinal » cervical orthosis » cervicothoracic orthosis (CTO) » lumbar orthosis » thoracolumbar orthosis (TLO) » thoracolumbosacral orthosis (TLSOs) • Upper limb » dynamic orthoses, including Lycra style, e.g. Second Skin » elbow orthosis, e.g. dynamic for burns contractures » finger/thumb orthoses » shoulder orthosis, including for brachial plexus injuries » spinal cord injury (SCI) orthoses (appropriate to level of injury)

- universal cuffs with functional attachments
- wrist-hand orthosis, e.g. resting orthoses and dynamic orthoses

Upper limbs

- Dynamic versus passive orthoses
- In the tetraplegic hand, consider positioning and functional orthoses at each cervical level of injury
- Maximising function in reach and grasp tasks
- Off-load an injured limb to allow healing
- Pain reduction
- Prevent or correct deformity
- Reduce need for compensation of ipsilateral and contralateral limbs and secondary pain
- Substitution of weak or absent muscle function

Associated knowledge guides

- KG3 – Neurological conditions
- KG4 – Spinal cord dysfunction
- KG8 – Adults with disabilities arising in childhood

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Active dysfunction
- Cosmetic appearance
- Pain
- Passive dysfunction

Conditions/aetiology

- Acquired brain injury
- Cerebral palsy
- Familial dystonias
- Hereditary spastic paraplegia
- Leucodystrophies
- Multiple sclerosis (MS)
- Other upper motor neurone lesions
- Spinal cord injury
- Stroke

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

Synthesise

» recognise the conditions associated with spasticity
» identify relevant pathophysiology, biomechanical and clinical science
» take a relevant clinical history
» conduct an appropriate examination
» establish the cause and severity of spasticity
» plan and arrange any appropriate investigations
» consider the impact of spasticity on patients[25] and their quality of life

Manage

» provide evidence-based management
» prescribe therapies tailored to patients' needs and conditions
» recognise disease progression and potential complications of disease that will have an impact on management
» involve multidisciplinary

Consider other factors

» identify individual and carer physical and psychosocial factors that may have an impact on management

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will describe the principles of the foundational sciences.	• Biomechanical principles of joint motion control • Biomechanics and phases of the gait cycle (to assist in differentiating normal from pathological patterns) • Identification of neuromuscular pathology, including positive and negative features of upper motor neurone (UMN) syndrome, contracture, dystonia, muscle weakness, and spasticity • Neurophysiology of spasticity including inhibitory/excitatory pathways and relevant neurotransmitters • Normal limb, brain and vertebral anatomy, and neuromuscular physiology
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the indications for, and how to interpret the results of, these investigations, procedures, and clinical assessments tools. Advanced Trainees will know how to explain the investigation, procedure, or clinical assessment tool to patients, families, and carers.	• Clinical gait assessment • Functional assessment • Outcome measures • Relevant cognitive and psychosocial assessment • Role of gait laboratory assessment referral • Specific spasticity scale measures: » Modified Ashworth Scale » Tardieu Scale • Targeted physical examination, including: » musculoskeletal joint examinations » neurological limb examination • Use of goniometer for joint assessments **Activity** • 10-metre walk test • Arm activity measure (ARM A) • Six-minute walk test • Timed up and go • Upper limb scales of the motor assessment scale (UL-MAS) **Impairment** • Muscle strength antidepressants • Pain scales • Range of movement (ROM) **Participation** • Assessment of quality of life (AQOL) • Career burden scale • Goal attainment scale/goal attainment scaling (GAS light) • Short form health survey
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management.	**Pharmacological** • α2 adrenergic agonists • Alcohol • Baclofen • Benzodiazepines – clonoazepam, diazepam • Botulinum toxin A • Cannabinoids • Chemical denervation • Clonidine • Dantrolene sodium • Gabapentin/Pregabalin • Gamma aminobutyric acid (GABA) • Intrathecal • Muscle calcium release inhibitor • Oral

- Phenol
- Tizanidine

Physical interventions

- Botulinum toxin injection guidance options – electromyography (EMG), muscle electrical stimulation, skin landmarks and ranging, and ultrasound
- Electrical stimulation – functional electrical stimulation (FES), TENS
- Muscle strengthening
- Positioning – wheelchair supports, orthoses
- Temperature/heat cryotherapy

Reduction/prevention of noxious stimuli (including but not limited to)

- Bladder – infections
- Bowel – constipation, fissure, haemorrhoids
- Fatigue
- Fractures
- Pain
- Skin problems – infections, pressure wounds
- Temperature extremes

Surgical

- Arthrodesis
- Highly selective neurotomies
- Neurostimulation
- Neurosurgical
- Orthopaedic
- Selective dorsal root rizotomy
- Tendon lengthening
- Tendon transfer
- Tenotomy