NEW CURRICULA

Advanced Training in Paediatric Rehabilitation Medicine

Curriculum standards

RACP Specialists. Together

About this document

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

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

Contents

Program overview

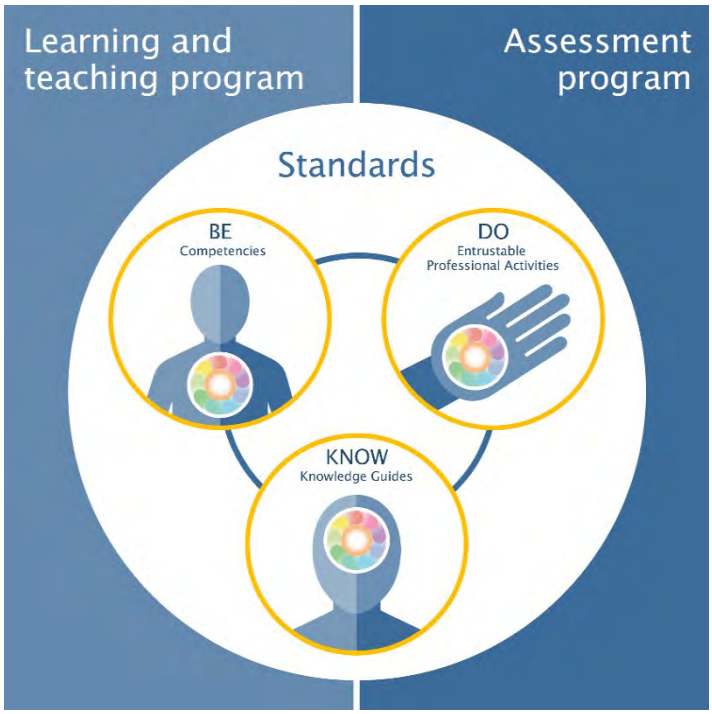
Purpose of Advanced Training

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 domains of practice for all physicians.

Learning, teaching, and assessment (LTA) structure

The learning, teaching and assessment 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 will 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

Figure 1: Advanced Training learning, teaching, and assessment structure

- An **entry decision** is made before entry into the program.
- A **progress decision**, based on competence, is made at the end of each phase 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.

Paediatric Rehabilitation Medicine specialty overview

Paediatric rehabilitation medicine physicians are involved in the provision of comprehensive rehabilitation care to children (tamariki) and young people with disability due to injury or disease. The aim is to enable the child to achieve the highest level of function, activity, and participation, with an emphasis on maximising functional independence.

Paediatric rehabilitation medicine physicians provide multidisciplinary care and assessment of children (tamariki) with acquired and congenital disabilities, including:

- acquired brain injury
- cerebral palsy and other movement disorders
- limb difference
- neuromuscular, musculoskeletal, and other complex conditions requiring or benefitting from rehabilitation
- spinal cord injury or disease.

The nature of care includes:

- **ambulatory, community, and inpatient settings.** Services are provided as inpatients, non-inpatients (outpatient / ambulatory) and in the community.
- **rehabilitation assessment and management of congenital and acquired conditions.** Patients treated are children (tamariki) with conditions resulting in functional impairments for which rehabilitation is assessed to be beneficial in reducing the effects of disability and improving function.
- **assessment and management of disability across the domains of the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) framework.** Paediatric rehabilitation medicine physicians assess and manage impairments, activity limitations, and participation restrictions, and evaluate the potential for rehabilitation.
- **early identification, prevention, and management.** Paediatric rehabilitation medicine physicians work in early identification, prevention, and management of conditions that may result in worsening / progressive disability.

Paediatric rehabilitation medicine physicians provide leadership and patient-centred care with a focus on communication, respect, and advocacy. They use these personal and professional attributes to:

- **advocate for patients.** Paediatric rehabilitation medicine physicians recognise their own abilities and limits in the context of the rehabilitation team, and provide advocacy for their patients and their families.
- **lead and manage teams.** Paediatric rehabilitation medicine physicians coordinate and manage multidisciplinary teams in the context of patient- and family-centred care and goal-directed rehabilitation programs.
- **communicate effectively.** Communication with other professionals, including health practitioners in the formulation and execution of multidisciplinary rehabilitation plans, is a core competency of paediatric rehabilitation medicine physicians.

Paediatric Rehabilitation Medicine learning goals

The curriculum standards are summarised as 20 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 6. Management of transitions in care 7. Longitudinal care 8. Communication with patients 9. Prescribing 10. Procedures 11. Investigations 12. Clinic management
KNOW Knowledge guides	13. Foundations of paediatric rehabilitation medicine 14. Acquired brain injury 15. Cerebral palsy 16. Spinal cord injury and disease 17. Congenital spinal conditions 18. Limb differences and prosthetics 19. Hypertonicity and movement disorders 20. Musculoskeletal, neuromuscular and other specific conditions requiring rehabilitation

Curriculum standards

Competencies

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

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

Competencies will be common across training programs.

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, whānau, 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, whānau, and/or carers.

Communication

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

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

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

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

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

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

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

Quality and safety

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

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

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

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

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

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

Teaching and learning

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

Physicians foster the learning of others in their profession through a commitment to mentoring, supervising, and teaching.[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 healthcare delivery. It also allows for an adaptive practice where power is shared between patients, family, whānau and/or community and the physician, to improve health outcomes.

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

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

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.

[3] The RACP has adopted the Medical Council of New Zealand's definition of cultural safety (below):
Cultural safety can be defined as[1].

- 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 healthcare professionals and healthcare 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.

1. 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 wellbeing of individual patients, communities, populations, and society through ethical practice.

Physicians demonstrate high standards of personal behaviour.

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

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

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

Accountability: Be personally and socially accountable.

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

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

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

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

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

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

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

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

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

Judgement and decision making

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

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

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

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

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

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

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

Leadership, management, and teamwork

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

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

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

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

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

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

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

Health policy, systems, and advocacy

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

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

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

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

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

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

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

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

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

Entrustable Professional Activities

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

#	Theme	Title
2	**Team leadership**	Lead a team of health professionals
3	**Supervision and teaching**	Supervise and teach professional colleagues
4	**Quality improvement**	Identify and address challenges in health care delivery
5	**Clinical assessment and management**	Clinically assess and manage the ongoing care of patients
6	**Management of transitions in care**	Manage the transition of a patients 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	**Prescribing**	Prescribe medications tailored to patients' needs and conditions
10	**Procedures**	Plan, prepare for, perform, and provide aftercare for important practical procedures
11	**Investigations**	Select, organise, and interpret investigations
12	**Clinic management**	Manage an outpatient 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 The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• synthesise information with other disciplines to develop optimal, goal-centred plans for patients[4] • use evidence-based care to meet the needs of patients or populations • assess and effectively manage clinical risk in various scenarios • demonstrate clinical competence and skills by effectively supporting team members	• demonstrate adequate knowledge of healthcare issues by interpreting complex information • assess the spectrum of problems to be addressed • apply medical knowledge to assess the impact and clinical outcomes of management decisions • provide coordinated and quality health care for populations or patients as a member of a multidisciplinary team
Communication	• provide support and motivate patients or populations and health professionals by effective communication • demonstrate a transparent, consultative style by engaging patients, families, carers, relevant professionals and/or the public in shared decision making • work with patients, families, carers, and other health professionals to resolve conflict that may arise when planning and aligning goals	• communicate adequately with colleagues • communicate adequately with patients, families, carers, and/or the public • respect the roles of team members

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

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

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

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

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

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

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

Learning goal 4: Quality improvement

Theme	Quality improvement	
Title	**Identify and address challenges in health care delivery**	
Description	This activity requires the ability to: • identify and report actual and potential ('near miss') errors • conduct and evaluate 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	• use population health outcomes to identify opportunities for improvement in delivering appropriate care • review patients' or population health outcomes regularly to identify health care delivery improvement opportunities • evaluate health, environmental, and lifestyle risks • 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 in decision making
Communication	• support patients' access and use of clear, high-quality information about health care • support shared decision making with patients about their own health care • assist patients to access their health information, as well as complaint and feedback systems	• demonstrate awareness of the evidence for consumer engagement and its contribution to quality improvement in 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, whānau, and/or carers.

	• discuss any safety and quality concerns patients have relating to their care • implement the organisation's open disclosure policy	
Quality and safety	• demonstrate safety skills, such as: » adverse event reporting » effective clinical handover » infection control • participate in organisational quality and safety activities, including morbidity and mortality reviews, clinical incident reviews, root cause analyses, and corrective action preventative action plans • participate in systems for surveillance and monitoring of adverse events and 'near misses', including reporting such events • raise identified opportunities for improvement, and report appropriately • use clinical audits and registries of data on patients' experiences and outcomes, learnings from incidents, and complaints to improve health care	• use a systematic approach to improve 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	• use only protocols for human research approved by a human research ethics committee, in accordance with the national statement on ethical conduct in human research	• recognise that patient participation in research is voluntary and based on an appropriate understanding about the purpose, methods, demands, risks, and potential benefits of the research
Cultural safety	• undertake professional development opportunities that address the impact of cultural bias on health outcomes	• communicate effectively, demonstrating cultural awareness
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	• 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 practitioners to identify, evaluate, and improve patients' care management
Leadership, management, and teamwork	• formulate and implement quality improvement strategies as a collaborative effort involving all key health professionals • support multidisciplinary team activities to lower patients' risk of harm, and promote multidisciplinary programs of education • actively involve clinical pharmacists in the medication-use process	• demonstrate attitudes of respect and cooperation among members of different professional teams • partner with clinicians and managers to ensure patients receive appropriate care and information on their care
Health policy, systems, and advocacy	• participate in all aspects of the development, implementation, evaluation, and monitoring of governance processes • participate regularly in multidisciplinary meetings where quality and safety issues are standing agenda items, and where innovative ideas and projects for improving care are actively encouraged • measure, analyse, and report a set of specialty-specific process of care and outcome clinical indicators, and a set of generic safety indicators • take part in the design and implementation of the organisational systems for: » clinical education and training » defining the scope of clinical practice » performance monitoring and management » safety and quality education and training	• maintain a dialogue with service managers about issues that affect patients' 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

Learning goal 5: Clinical assessment and management

Theme	**Clinical assessment and management**	**=**
Title	**Clinically assess and manage the ongoing care of patients**	
Description	This activity requires the ability to: • identify and access sources of relevant information about patients[7] • obtain patients' histories • examine patients • perform appropriate standardised assessments, such as: » American Spinal Injury Association (ASIA) Impairment scale (AIS) » Functional Independence Measure for Children (WeeFIM) » manual muscle testing » musculoskeletal assessment, including goniometer joint ranges » post-traumatic amnesia testing » standardised hypertonicity scales » Westmead post-traumatic amnesia (PTA) testing • synthesise findings to develop diagnoses and identify impairments, activity limitations, and participation restrictions • discuss findings and goals with patients, families, and/or carers • generate multidisciplinary management plans • discuss findings and plan with other professionals, such as allied health clinicians, general practitioners, and school staff.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• elicit accurate, organised, and problem-focused medical and developmental histories, considering physical, psychosocial, and risk factors • perform full physical examinations to establish the nature and extent of problems • synthesise and interpret findings from histories and examinations to devise the most likely provisional diagnoses, impairments, activity limitations, and participation restrictions • assess the severity of problems, the likelihood of complications, and impact on function and clinical outcomes	• take patient-centred histories, considering psychosocial factors • perform accurate physical examinations • recognise and correctly interpret abnormal findings • synthesise pertinent information to direct clinical encounters and diagnostic categories • develop appropriate goal-directed multidisciplinary management plans

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

	• develop goal-directed multidisciplinary management plans based on relevant guidelines, considering the harm / benefit balance by taking patients' personal circumstances into account	
Communication	• communicate openly, listen, and take patients' concerns seriously, giving them adequate opportunity to ask questions • provide information to patients, families, whānau, and/or carers to enable them to make fully informed decisions from various diagnostic, therapeutic, and management options • communicate clearly, effectively, respectfully, and promptly with other professionals involved in patients' care	• anticipate, read, and respond to verbal and nonverbal cues • demonstrate active listening skills • communicate patients' situations to colleagues, including senior clinicians
Quality and safety	• demonstrate safety skills, including infection control, adverse event reporting, and effective clinical handover • recognise and effectively deal with challenging behaviours • obtain informed consent before undertaking any investigation or providing treatment (except in an emergency) • inform patients of the risks associated with any part of the proposed management plans	• perform hand hygiene, and take infection control precautions at appropriate moments • take precaution against patients displaying challenging behaviours, ensuring appropriate care of patients and safety of staff • document histories and physical examination findings, and synthesise with clarity and completeness
Teaching and learning	• set defined objectives for clinical teaching encounters, and solicit feedback on mutually agreed goals • regularly reflect upon and self-evaluate professional development • obtain informed consent before involving patients in teaching activities • turn clinical activities into an opportunity to teach, appropriate to the setting	• set goals and objectives for self-learning • self-reflect frequently • deliver teaching considering learners' level of training
Research	• search for, find, compile, analyse, interpret, and evaluate information relevant to the research subject	• refer to guidelines and medical literature to assist in clinical assessments and management when required • recognise the limitations of evidence and the challenges of applying research in daily practice

Cultural safety	• use plain-language education materials, and demonstrate cultural and linguistical sensitivity • demonstrate effective and culturally safe communication and care for all groups, including Aboriginal and Torres Strait Islander peoples and Māori • use a professional interpreter, health advocate, or community member to assist in communication with families • understand patients' beliefs and values, and how these might impact on health and function	• 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	• demonstrate professional values, including compassion, empathy, respect for diversity, integrity, 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 and consent to procedures	• demonstrate professional conduct, honesty, and integrity • consider patients' decision-making capacity • identify patients' preferences regarding management and the role of families in decision making • prioritise patients and/or social welfare above personal interest or professional agendas
Judgement and decision making	• apply knowledge and experience to identify patients' problems, making logical, rational decisions, and acting to achieve positive outcomes for patients • use a holistic approach to health and disability, considering comorbidity, uncertainty, and risk • use the best available evidence for the most effective therapies and interventions to ensure quality care	• demonstrate clinical reasoning by gathering focused information relevant to patients' care • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• work effectively as a member of multidisciplinary teams to achieve the best health outcomes for patients • 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 multidisciplinary care team
Health policy, systems, and advocacy	• participate in health promotion, disease prevention and control, screening, and reporting notifiable diseases • provide optimal cost-effective care to allow maximum benefit from the available resources	• identify and navigate components of the healthcare system relevant to patients' care • identify and access relevant community resources to support patients' care

Learning goal 6: Management of transitions in care

Theme	Management of transitions in care	
Title	**Manage the transition of patient care between health professionals, providers, and contexts**	
Description	This activity requires the ability to: • transfer care at any transition point, including: » acute to sub-acute care » inpatient / outpatient rehabilitation care to community care » paediatric to adult care » sub-acute to acute care • manage the transition of patients' care to ensure the optimal continuation of care between providers • identify the appropriate health care providers and other stakeholders with whom to share patients' information • exchange pertinent, contextually appropriate, and relevant patient information • perform this activity in multiple settings (appropriate to the speciality), including ambulatory, critical care, and inpatient settings, and in the community.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• identify and manage key risks for patients during transition • anticipate possible changes in patients' conditions, and provide recommendations on how to manage them • manage adolescent patients, including transition to adult services	• recognise 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
Communication	• write relevant and detailed medical record entries, including clinical assessments and management plans • write comprehensive and accurate summaries of care, including discharge summaries, clinic letters, and transfer documentation • communicate with patients[8], families, whānau and/or carers about transitions of care, and engage and support these parties in decision making	• 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 an effective transition between settings, and continuity and quality of care

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

	• initiate and maintain verbal communication with other health professionals, when required	
Quality and safety	• identify patients at risk of poor transitions of care, and mitigate this risk • use electronic tools (where available) to securely store and transfer patients' information • use consent processes, including written consent, if required, for the release and exchange of information • demonstrate understanding the medicolegal context of written communications	• check that handover is complete, or work to mitigate risks if incomplete • request follow-up of outstanding results or procedures 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 and other transition of care meetings • tailor clinical education to the level of the professional parties involved	
Cultural safety	• communicate respectfully with patients about their choices and preferences, discussing whether they are realistic and achievable, with careful consideration of health literacy, language barriers, and culture • recognise the timing, location, privacy, and appropriateness of sharing information with patients, families, whānau, and/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 • recognise the clinical, ethical, and legal rationale for information disclosure • share information about patients' care in a manner consistent with privacy law and professional guidelines on confidentiality • recognise the additional complexity related to some types of information, such as genetic information and blood-borne virus status, and seek appropriate advice about disclosure of such information	• maintain respect for patients, families, carers, and other health professionals, including respecting privacy and confidentiality
Judgement and decision making	• organise patients' care delivery in the most appropriate setting, with the most appropriate provider	• use a structured approach to consider and prioritise patients' issues • recognise personal limitations and seek help in an appropriate way when required

Leadership, management, and teamwork	• share the workload of transitions of care appropriately, including delegation • demonstrate understanding of the medical governance of patients' 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 • provide the opportunity for patients' engagement and participation across multidisciplinary teams	• work to overcome the potential barriers to continuity of care, appreciating the role of handover in overcoming these barriers
Health policy, systems, and advocacy	• contribute to processes for managing risks, and identify strategies for improvement in transitions of care • engage in organisational processes to improve transitions of care • support processes for adolescents transitioning to adult health services	• factor transport issues and costs to patients into arrangements for transferring patients to other settings

Learning goal 7: Longitudinal 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 management plans and goals in consultation with patients[9], their families, whānau, and/or carers • manage chronic and advanced conditions, comorbidities, complications, and disabilities • collaborate with other health care providers • provide continuity of care, including managing transitions • facilitate patients' and/or families' and/or carers' self-management and self-monitoring • engage with the broader health policy context.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• regularly assess and review care plans for patients with chronic conditions and disabilities based on short- and long-term clinical and quality-of-life goals • provide documentation on patients' presentation, management, and progress, including key points of diagnosis and decision making to inform coordination of care • facilitate patients' contributions to their needs assessments and care planning • monitor treatment outcomes, effectiveness, and adverse events	• assess patients' knowledge, beliefs, concerns, and daily behaviours related to their chronic condition and/or disability and its management • contribute to medical record entries on histories, examinations, and management plans in a way that is accurate and sufficient as a member of multidisciplinary teams
Communication	• encourage patients' self-management through education to take greater responsibility for their care, and support problem solving • encourage patients' access to self-monitoring devices and assistive technologies • communicate with multidisciplinary team members, and involve patients in that dialogue	• formulate management goals and strategies collaboratively with patients, their families, and/or carers • work in partnership with patients, and motivate them to comply with agreed care plans, exploring and acknowledging the impact of any barriers to engagement with care plans

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

		• provide healthy lifestyle advice and information to patients on the importance of self-management
Quality and safety	• use innovative models of chronic disease care, using telehealth and digitally integrated support services • review medicine use, and ensure patients understand safe medication administration to prevent errors • support patients' self-management by balancing between minimising risk and helping them become more independent • participate in quality improvement processes impacting on patients' abilities to undertake normal activities of daily living	• participate in continuous quality improvement processes and clinical audits on chronic disease management • identify activities that may improve patients' quality of life
Teaching and learning	• contribute to the development of clinical pathways for chronic diseases management based on current clinical guidelines • educate patients in self-management, including recognising and monitoring their symptoms, undertaking self-management strategies, and seeking health advice appropriately	• use clinical practice guidelines for chronic diseases management
Research	• prepare reviews of literature on patients' encounters to present at journal club meetings • search for and critically appraise evidence to resolve clinical areas of uncertainty	• recognise appropriate use of review articles
Cultural safety	• encourage patients to access culturally safe 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 in a manner consistent with privacy laws and professional guidelines on confidentiality • use consent processes for the release and exchange of health information • assess patients' decision-making capacity, and appropriately identify and use proxy decision makers	• share information between relevant service providers • acknowledge and respect the contribution of health professionals involved in patients' care
Judgement and decision making	• recognise patients' needs in terms of both internal resources and external support on long-term health care journeys	• recognise personal limitations and seek help in an appropriate way when required

	• implement stepped care pathways in the management of chronic diseases and disabilities	
Leadership, management, and teamwork	• coordinate whole-person care through involvement in all stages of patients' care journeys • use a multidisciplinary approach across services to manage patients with chronic diseases and disabilities • develop collaborative relationships with patients, families, carers, and a range of health professionals	• participate in multidisciplinary care for patients with chronic diseases and disabilities, including organisational and community care on a continuing basis (appropriate to patients' context)
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	• demonstrate awareness of government initiatives and services available for patients with chronic diseases and disabilities, and display knowledge of how to access them

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 suitable contexts, and include patients[10], their families, whānau, and/or carers, and other team members • adopt a patient-centred perspective, including adjusting for developmental stage and disabilities • select and use appropriate modalities and communication strategies • structure conversations intentionally • facilitate and guide discussion, encouraging participation from patients and families • integrate information from the multidisciplinary team to outline care considerations and identify shared goals • negotiate mutually agreed management plans • manage conflict as it arises • verify patients', their families', whānau, and/or carers' understanding of information conveyed • develop and implement plans to ensure actions occur • document conversations.	
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 correct any misunderstandings patients may have about their conditions and/or risk factors • inform patients of all aspects of their clinical management, including assessments and investigations, giving adequate opportunity to question or refuse interventions and treatments • seek to understand the concerns and goals of patients, and plan management in partnership with them • provide information to patients to enable them to make informed decisions about diagnostic, therapeutic, and management options	• apply knowledge of the scientific basis of health and disease to the management of patients • demonstrate an understanding of clinical problems being discussed • formulate management plans in partnership with patients

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

	• factor in diverse views from patients, families, carers, and medical teams into goals and planning • explore and facilitate realistic goals, wishes, and ways of successfully managing patients' functional activities on a day-to-day basis	
Communication	• use an appropriate communication strategy and modalities for communication, such face-to-face, videoconferencing, phone calls, and email • elicit patients' views, concerns, and preferences, promoting rapport • provide information to patients in plain language, avoiding jargon, acronyms, and complex medical terms • encourage questions, and answer them thoroughly • ask patients to share their thoughts or explain their management plans in their own words, to verify understanding • convey information considerately and sensitively to patients, seeking clarification if unsure of how best to proceed • respond to patients', families', whānau, and/or carers' emotions regarding discussions • treat children (tamariki) and young people respectfully, and listen to their views • use communication aids, such as interpreters, to enable patients to partake in discussions • communicate the outcomes of family meetings to wider team members who were absent from meetings • debrief after difficult and/or emotionally charged meetings	• select appropriate modes of communication • engage patients in discussions, without jargon • check patients' understanding of information • adapt communication style in response to patients' age, developmental level, and cognitive, physical, cultural, socioeconomic, and situational factors • collaborate with patient liaison officers and/or advocacy team members as required
Quality and safety	• create a safe and supportive environment to enable patients to explore and discuss plans or goals during family meetings • discuss with patients their condition and available management options, including potential benefits and harms • consider young people's capacity for decision making and consent	• inform patients of the risks associated with proposed management plans • treat information about patients as confidential

	• provide patients with clear information, checking their understanding before asking for their consent • recognise and take precautions where patients may be vulnerable, such as issues of child protection or self-harm • participate in processes to manage adverse events and patient complaints	
Teaching and learning	• discuss the aetiology of diseases, and explain the purpose, nature, and extent of the assessments and management 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 evidence-based 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	• refer to evidence-based clinical guidelines • recognise the limitations of the evidence and the challenges of applying research in daily practice
Cultural safety	• demonstrate effective and culturally safe communication with all groups, including Aboriginal and Torres Strait Islander peoples and Māori • effectively communicate by meeting patients' specific language, cultural, and communication needs • provide plain language and culturally safe 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	• promote health literacy for patients and their families and carers • encourage and support patients, their families, whānau, and/or carers in caring for themselves and managing their health • demonstrate respectful professional relationships with patients • prioritise patients' welfare and community benefit above self-interest • develop a high standard of personal conduct, consistent with professional and community expectations	• 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 • demonstrate a caring attitude towards patients • respect patients, including protecting their rights to privacy and confidentiality • use social media ethically and according to legal obligations to protect patients' confidentiality and privacy

	• support patients' rights to seek second opinions • recognise that the values, biases, or perspectives of patients, physicians, and other health professionals may have an impact on patient care, and modifying the approach to patients accordingly	• behave equitably towards all, irrespective of gender, age, culture, socioeconomic status, sexual preferences, beliefs, contribution to society, illness-related behaviours, or the illness itself
Leadership, management, and teamwork	• communicate effectively with team members involved in patients' care, and with patients, families, whānau, and/or carers • discuss medical assessments, treatment plans, and investigations with patients and primary care teams, working collaboratively with all • discuss patients' care needs with healthcare team members to align them with the appropriate resources • facilitate an environment in which all team members feel they can contribute, and their opinion is valued • lead conflict resolution within the multidisciplinary team • communicate accurately and succinctly, and motivate others on the healthcare team	• address questions from team members, and participate in conflict resolution within the team • summarise, clarify, and communicate responsibilities of healthcare team members • keep healthcare team members focused on patient goals and outcomes
Health policy, systems, and advocacy	• collaborate with other services to help patients navigate the health, education, and disability systems	• communicate with and involve other professionals and agencies as appropriate

Learning goal 9: Prescribing

Theme	Prescribing	
Title	**Prescribe medications tailored to patients' needs and conditions**	
Description	This activity requires the ability to: • take and interpret medication histories • choose appropriate medicines based on an understanding of pharmacology, taking into consideration age, benefits, comorbidities, potential drug interactions, and risks • communicate with patients[11] , their families, whānau, and/or carers about the benefits and risks of proposed medications • provide plans for commencement, up-titration, and weaning of medications • provide instructions on medication administration effects and side effects • monitor medicines for efficacy and safety • review medicines and interactions, and cease where appropriate • collaborate with pharmacists and other clinicians.	
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	• identify the patients' medical issues requiring pharmacotherapy • consider non-pharmacologic therapies • consider age, allergies, chronic disease status, comorbidities, lifestyle factors, patient preference, and potential drug interactions prior to prescribing new medications • plan for follow-up and monitoring • administer medication appropriately, taking into consideration any important relationships to food, time of day, and other medicines being taken • provide written plans for medication commencement, up-titration, or weaning plans as appropriate	• be aware of potential side effects and practical prescription points, such as medication compatibility and monitoring in response to therapies • select medicines for common conditions accurately, appropriately, and safely • demonstrate understanding of the benefits, contraindications, dosage, drug interactions, mechanism of action, rationale, risks, and side effects • identify and manage adverse events
Communication	• discuss and evaluate the risks, benefits, and rationale of treatment options, making decisions in partnership with patients	• discuss and explain the rationale for treatment options with patients, families, whānau, and/or carers

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

	• write clear and legible prescriptions in plain language, and include specific indications for the anticipated duration of therapy • educate patients about the intended use, expected outcomes, and potential side effects for each prescribed medication, addressing the common, rare, and serious effects at the time of prescribing to improve patients' adherence to pharmacotherapy • check patients' understanding by repeating back pertinent information, such as when to return for monitoring and whether therapy continues after a single prescription • identify patients' concerns and expectations, and explain how medicines might affect their everyday lives • communicate and collaborate with other clinicians involved in patients' care • interpret and explain information to patients at the appropriate level of their health literacy	• explain the benefits and burdens of therapies, considering patients' individual circumstances • write clearly legible scripts or charts using generic names of the required medication in full, including mg / kg / dose information and all legally required information • seek further advice from experienced clinicians or pharmacists when appropriate
Quality and safety	• review medicines regularly to reduce non-adherence, and monitor treatment effectiveness, possible side effects, and drug interactions, ceasing unnecessary medicines • use electronic prescribing tools where available, and access electronic drug references to prevent errors caused by drug interactions and poor handwriting • prescribe new medicines only when they have been demonstrated to be safer or more effective at improving patient-oriented outcomes than existing medicines • participate in clinical audits to improve prescribing behaviour, including an approach to polypharmacy and prescribing cascade • report suspected adverse events to the relevant governing advisory body on drugs or medications in the jurisdiction, and record it in patients' medical records	• check the dose before prescribing • monitor side effects of medicines prescribed • identify medication errors and institute appropriate measures • use electronic prescribing systems safely • rationalise medicines to avoid polypharmacy

	• use appropriate guidelines and evidence-based medicine resources to maintain a working knowledge of current medicines, keeping up to date on new medicines • make prescribing decisions based on good safety data when the benefits outweigh the risks involved	
Teaching and learning	• use continuously updated software for computers and electronic prescribing programs • check patients understand management plans, including adherence issues	• undertake continuing professional development to maintain currency with prescribing guidelines • reflect on prescribing, and seek feedback from a supervisor
Research	• critically appraise research material to ensure any new medicine improves patient-oriented outcomes more than older medicines, and not just more than placebo • use independent information sources about medicines that provide accurate summaries of the available evidence on new medicines	• make therapeutic decisions according to the best evidence • recognise where evidence is limited, compromised, or subject to bias or conflict of interest
Cultural safety	• explore patients' understanding of and preferences for non-pharmacological and pharmacological management • offer patients effective choices based on their expectations of treatment, health beliefs, and cost • anticipate queries to help enhance the likelihood of medicines being taken as advised • share appropriate information at all steps of the medicine management pathway	• appreciate patients' cultural and religious backgrounds, attitudes, and beliefs, and how these might influence the acceptability of non-pharmacological and pharmacological management approaches
Ethics and professional behaviour	• demonstrate understanding of the ethical implications of pharmaceutical industry-funded research and marketing	• consider the efficacy of medicines in treating illnesses, including the relative merits of different non-pharmacological and pharmacological approaches • follow regulatory and legal requirements and limitations regarding prescribing • follow organisational policies regarding pharmaceutical representative visits and drug marketing • acknowledge and discuss benefits and risks of alternative and complementary therapies that patients may wish to explore

Judgement and decision making	• use a systematic approach to select treatment options • use medicines safely and effectively to get the best possible results • choose suitable medicines only if medicines are considered necessary and will benefit patients • prescribe medicines appropriately to patients' clinical needs, in doses that meet their individual requirements, for a sufficient length of time, with the lowest cost to them • evaluate new medicines in relation to their possible efficacy and safety profile for individual patients	• recognise personal limitations and seek help in an appropriate way when required • 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	• interact with medical, pharmacy, and nursing staff to ensure safe and effective medicine use	• work collaboratively with pharmacists • participate in medication safety and morbidity and mortality meetings
Health policy, systems, and advocacy	• choose medicines in relation to comparative efficacy, safety, and cost-effectiveness against medicines already on the market • prescribe for individual patients, considering history, current medicines, allergies, and preferences, ensuring that resources are used wisely for the benefit of patients	• prescribe in accordance with the organisational policy

Learning goal 10: Procedures

Theme	Procedures	
Title	**Plan, prepare for, perform, and provide aftercare for important practical procedures**	
Description	This activity requires the ability to: • select patient appropriate procedures in partnership with patients[12], their families, whānau, and/or carers • obtain informed consent • set up the equipment, maintaining an aseptic field where appropriate • perform procedures, including appropriate analgesia and sedation • manage unexpected events and complications during and after procedures • provide aftercare for patients • communicate aftercare protocols and instructions to patients and medical and nursing staff • interpret the results and outcomes of procedures, including imaging and reports • communicate the outcome of procedures and associated investigations to patients.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• select procedures by assessing patient-specific factors, including risks, benefits, and alternatives • confidently and consistently perform a range of common procedures • communicate all identified allergies / adverse reactions to team members, and take precautions to avoid reactions during procedures • select appropriate patients, including muscle selection for botulinum toxin A dosing • select and use appropriate modalities for muscle localisation, including, but not limited to, musculoskeletal ultrasound • select appropriate analgesia and/or sedation for procedures in children (tamariki)	• 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 postprocedural review of patients

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

	• check that patients have complied with preprocedural preparation • confirm the correct position / site / side / 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 • test dosing of intrathecal baclofen, including dosage and administration of lumbar punctures • perform routine management of intrathecal baclofen pumps, including management of dosage adjustment and pump refilling • investigate and manage intrathecal baclofen adverse events, including pump programming and side port catheter access	
Communication	• document procedures in the clinical notes accurately, including informed consent, procedures requested and performed, reasons for procedures, medicines given, aseptic technique, and aftercare • explain procedures clearly to patients, families, whānau, and/or carers, including reasons for procedures, potential alternatives, and possible risks, to facilitate informed choices • counsel patients sensitively and effectively, and support them to make informed choices • address patients', families', whānau, and/or carers' concerns relating to procedures, providing opportunities to ask questions • tailor language according to individual patients' age and capacity to understand • communicate effectively with team members, patients, families, whānau, and carers prior to, during, and after procedures • confirm team members are confident and competent in their assigned roles	• explain the process of procedures to patients without providing a broader context • help patients, families, whānau, and/or carers choose procedures • communicate with members of procedural teams so all team members understand who each member is • discuss postprocedural care with patients, families, whānau, and/or carers • complete relevant patients' documentation, and conduct appropriate clinical handovers
Quality and safety	• confirm patients' identification, verify the procedure, and, where appropriate, the correct position / site / side / level for the procedure	• provide information in a manner so that patients, families, whānau, and/or carers are fully informed when consenting to any procedures

	• obtain informed consent or other valid authority before undertaking any procedure • set up all necessary equipment, and consistently use universal precautions and aseptic technique • check that information on patients' consent forms matches procedures to be performed • identify, document, and appropriately notify of any adverse events or equipment malfunction	• demonstrate an inconsistent application of aseptic technique • identify patients using approved patients' identifiers before any treatment or intervention is initiated • attempt to perform a procedure in an unsafe environment
Teaching and learning	• refer to and 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 technique until competent
Cultural safety	• consider individual patients' cultural perception of health and illness, and adapt practice accordingly	• respect religious, cultural, linguistic, and family values and differences
Ethics and professional behaviour	• confidently perform common procedures • identify appropriate proxy decision makers when required • show respect for knowledge and expertise of colleagues • maximise patient autonomy in decision making	• perform procedures when adequately supervised • follow procedures to ensure safe practice
Judgement and decision making	• identify roles and optimal timing for diagnostic procedures • critically appraise information from assessment and evaluation of risks and benefits to prioritise patients on a waiting list • make clinical judgements and decisions based on available evidence • select the most appropriate and cost-effective diagnostic procedures • adapt procedures in response to assessments of risks to individual patients • select appropriate investigations on the samples obtained in diagnostic procedures	• prioritise which patients receive procedures first (if there is a waiting list) • assess personal skill levels, and seek help with procedures when appropriate • use tools and guidelines to support decision making • recommend suboptimal procedures for patients

Leadership, management, and teamwork	• explain critical steps, anticipated events, and equipment requirements to teams on planned procedures • provide staff with clear aftercare instructions, and explain how to recognise possible complications • identify relevant management options with colleagues, according to their level of training and experience, to reduce error, prevent complications, and support efficient teamwork • coordinate efforts, encourage others, and accept responsibility for work done	• ensure all relevant team members are aware that a procedure is occurring • discuss patients' management plans for recovery with colleagues
Health policy, systems, and advocacy	• discuss serious incidents at appropriate clinical review meetings • initiate local improvement strategies in response to serious incidents • use resources efficiently when performing procedures	• perform procedures in accordance with the organisational guidelines and policies

Procedure / Investigation	Select patient appropriate procedures in partnership with patients[13], their families, whānau, or carers	Obtain informed consent	Set up the equipment, maintaining an aseptic field where appropriate	Perform procedures, including appropriate analgesia and sedation	Manage unexpected events and complications during and after procedures	Provide aftercare for patients	Communicate aftercare protocols and instructions to patients and medical and nursing staff	Interpret the results and outcomes of procedures, including imaging and reports	Communicate the outcome of procedures and associated investigations to patients
Botulinum toxin A	✓	✓	✓	✓	✓	✓	✓	✓	✓
Intrathecal baclofen pump: • adverse events management, such as: o side port access • programming for new insertion • routine management, such as: o refill • test dose	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Learning goal 11: Investigations

Theme	Investigations	
Title	**Select, organise, and interpret investigations**	
Description	This activity requires the ability to: • select, plan, and use evidence-based clinically appropriate investigations • prioritise patients receiving investigations (if there is a waiting list) • evaluate the anticipated value of investigations • work in partnership with patients[14], their families, whānau, and/or carers to facilitate choices that are right for them • provide aftercare for patients (if needed) • interpret the results and outcomes of investigations • communicate the outcome of investigations to patients.	
Behaviours		
Professional practice framework Domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• choose evidence-based investigations, and frame them as an adjunct to comprehensive clinical assessments • assess patients' concerns, and determine the need for specific tests that are likely to result in overall benefit • develop plans for investigations, identifying their roles and timing • recognise and correctly interpret abnormal findings, considering patients' specific circumstances, and act accordingly	• provide rationale for investigations • recognise the significance of abnormal test results, and act on them • consider patient factors and comorbidities • consider age-specific reference ranges
Communication	• explain to patients the potential benefits, burdens, costs, risks, and side effects of each option, including the option to have no investigations • use clear and simple language, and check that patients understand the terms used and agree to proceed with proposed investigations	• discuss the benefits, complications, indications, and risks of investigations with patients before ordering investigations • explain the results of investigations to patients • arrange investigations, providing accurate and informative referrals, and liaise with other services where appropriate

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

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

	• respect patients' decisions to refuse investigations, even if their decisions may not be appropriate or evidence based • advise patients there may be additional costs, which patients may wish to clarify before proceeding • demonstrate awareness of complex issues related to genetic information obtained from investigations, and subsequent disclosure of such information	• practise within own limits, and seek help when needed
Judgement and decision making	• evaluate the benefits, costs, and potential risks of each investigation in clinical situations • adjust the investigative path depending on test results received • consider whether patients' conditions may get worse or better if no tests are selected	• choose the most appropriate investigations for clinical scenarios in discussion with patients • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• consider the role other members of the healthcare team might play, and what other sources of information and support are available • check results in a timely manner, taking responsibility for following up on results	• recognise what parts of an investigation are provided by different doctors or health professionals
Health policy, systems, and advocacy	• select and justify investigations regarding the pathological basis of disease, appropriateness, cost effectiveness, safety, and utility • consider resource use through peer review of testing behaviours	

Learning goal 12: Clinic management

Theme	Clinic management	
Title	**Manage an outpatient clinic**	
Description	This activity requires the ability to: • direct medical consultations, procedures, and treatments • lead a multidisciplinary team • oversee quality improvement activities • communicate with patients[15], families, whānau, and/or carers • liaise with other health professionals and team members • demonstrate problem-solving skills • use public resources responsibly.	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• identify and effectively address current clinical concerns, as well as longer-term clinical objectives, as appropriate to patients' context • evaluate environmental and lifestyle health risks, and advocate for healthy lifestyle choices • create accurate and appropriately prioritised problem lists in clinical notes or as part of an ambulatory care review • update documentation in a time frame appropriate to the clinical situation of patients	• recognise the importance of prevention, early detection, and health maintenance
Communication	• help patients navigate the healthcare and disability system to improve access to care by collaboration with other services, such as community healthcare and therapy providers • link patients to specific community-based programs	• meet patients' specific language and communication needs • facilitate appropriate use of interpreter services and translated materials
Quality and safety	• practice health care that maximises patient safety • adopt a systematic approach to the review and improvement of professional practice in the outpatient clinic setting	• take reasonable steps to address issues if patients' safety may be compromised • recognise a systematic approach to improving the quality and safety of health care

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

	• identify aspects of service provision that may be a risk to patients' safety • inform patients about billing 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 • maintain professional continuing education standards	• recognise the limits of personal expertise, and involve other professionals as needed to contribute to patients' care • use information technology appropriately as a resource for modern medical practice
Research	• obtain informed consent or other valid 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	• allow patients to make informed and voluntary decisions to participate in research
Cultural safety	• acknowledge the cultural needs of patients, families, and the community • mitigate the influence of one's own culture and beliefs on interactions with patients and decision making • adapt practice to improve patient engagement, health, and rehabilitation 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	• recognise the responsibility to protect and advance the health and wellbeing of individuals and communities • maintain the confidentiality of documentation, and store clinical notes appropriately • use social media consistently with ethical and legal obligations
Judgement and decision making	• integrate prevention, early detection, health maintenance, and chronic condition management into clinical practice • work to achieve optimal and cost-effective patient care that allows maximum benefit from the available resources	• recognise the appropriate use of diagnostic interventions, therapeutic modalities, and specialised clinical services
Leadership, management, and teamwork	• prepare for and conduct clinical encounters in a well-organised and time-efficient manner	• attend relevant clinical meetings regularly

	• work effectively as a member of multidisciplinary teams or other professional groups • document all important discussions with colleagues, multidisciplinary team members, and patients appropriately • review discharge summaries, notes, and other communications written by junior colleagues • support colleagues who raise concerns about patients or team management	
Health policy, systems, and advocacy	• demonstrate capacity to engage in the surveillance and monitoring of the health status of populations in the outpatient setting • maintain good relationships with health and disability agencies and services • apply the principles of efficient and equitable allocation of resources to meet individual, community, and national health needs	• recognise common population health screening and prevention approaches

Knowledge Guides

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

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

#	Title
13	Foundations of paediatric rehabilitation medicine
14	Acquired brain injury
15	Cerebral palsy
16	Spinal cord injury and disease
17	Congenital spinal conditions
18	Limb differences and prosthetics
19	Hypertonicity and movement disorders
20	Musculoskeletal, neuromuscular, and other specific conditions requiring rehabilitation

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

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

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

Clinical sciences

- Biomechanics of human movement, to assist in differentiating normal from pathological patterns, such as:
  - functional electrical stimulation and its uses in paediatric rehabilitation
  - phases of the gait cycle
  - principles of balance and mobility
  - principles of upper and lower limb orthotics to assist with function, prevention, care, and comfort, including resting and functional upper limb splints, supports, and gait orthoses
- Bladder and bowel health, including:
  - management of bladder and bowel dysfunction, including its medical and surgical options and how this varies depending on the patient's developmental level and function
  - methods of assessment of bladder and bowel health and function, such as urodynamics
  - neurogenic dysfunction
  - non-neurogenic dysfunction, such as:
    - constipation
    - enuresis
  - physiology and pathophysiology of bladder and bowel function and dysfunction as related to conditions encountered in paediatric rehabilitation
- Bone and musculoskeletal health, including:
  - factors that lead to low bone mineral density and osteoporosis in the paediatric rehabilitation patient population
  - management strategies for prevention and treatment, such as:
    - orthotic prescription
    - pharmacological
    - surgical
    - therapy
  - monitoring guidelines and assessment tools for musculoskeletal complications
  - pathophysiology of musculoskeletal complications commonly encountered in the paediatric rehabilitation population
- Cardiovascular and respiratory health, including:
  - exercise, fitness, and long-term cardiovascular health in people with a disability
  - knowledge of the principles of assessment and management of respiratory health in children (tamariki) with disability
- Child growth and development:
  - assessment tools:
    - behavioural
    - cognitive
    - developmental
    - growth
  - education, health, and support needs and implications for home, school, and community for children (tamariki) with disability and developmental differences
  - impact of:
    - current level of development on the rehabilitation process
    - early intervention on disability trajectory and development
    - illness and injury on a child's physical and cognitive development, and how the developmental stage of the child affects resulting disability

- » intellectual disabilities associated with paediatric rehabilitation conditions
- » management of puberty, reproductive health, and sexuality in young people with disability
- » typical stages and ranges of development and growth across childhood and adolescence

- Feeding and nutrition:
  - » assessment and management of drooling
  - » assessment and methods for feeding, including supplemental feeding for children (tamariki) with disability
  - » assessment of:
    - o nutritional status
    - o swallow safety
  - » impact of nutrition and growth on disability
  - » nutritional requirements for children (tamariki) with illness, injury, and disability
- Pain management:
  - » anatomy, pathophysiology, and physiology of pain perception and pathways
  - » assessment tools for pain
  - » management options:
    - o environmental
    - o pharmacological
    - o physical
    - o psychological
  - » multidisciplinary approach to pain management
- Skin health and wound management:
  - » factors that lead to pressure injuries and skin breakdown, and prevention strategies
  - » knowledge of principles of assessment of pressure injury, including appropriate assessment tools
  - » principles of:
    - o management of pressure injuries, including:
      - ▪ care of the wound
      - ▪ pressure relieving equipment
    - o skin surveillance and skin breakdown
- Vision and hearing:
  - » principles of assessment and management of vision and hearing impairments

Epidemiology

- Concepts of primary, secondary, and tertiary prevention in the context of paediatric rehabilitation medicine
- Epidemiology and natural history of diseases and injuries in childhood and adolescence that may result in disability
- Major preventive health programs at state and national levels, with relevance to paediatric rehabilitation medicine
- Preventative strategies regarding illness and injuries that may cause significant disability

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

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

Clinical assessment

- Clinical surveillance tools for medical management
- Functional measures in rehabilitation planning, management, and outcomes
- Goal setting tools, such as:
  - » Canadian Occupational Performance Measure (COPM)
  - » Goal Attainment Scaling (GAS)
- Patient measures:
  - » patient reported:
    - o experience measures
    - o outcome measures

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

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

- Tools for assessment of activity, impairment, participation, and quality of life

Investigations

- Appropriate investigations required to diagnose and treat common rehabilitation conditions, as well as prevention and management of complications
- Application of knowledge of appropriate investigations to less common conditions
- Investigations may include, but are not limited to:
  - » medical imaging, such as:
    - o CT
    - o MRI
    - o nuclear medicine
    - o ultrasound
  - » other investigations, such as:
    - o genetic testing
    - o neurophysiological testing
  - » pathology tests, such as:
    - o blood
    - o urine

Procedures

- Administration of botulinum toxin A for hypertonicity and sialorrhea
- Procedures as required for the assessment of and ongoing management of patients with intrathecal baclofen pumps, including:
  - » pump refill
  - » test dosing
  - » troubleshooting

IMPORTANT SPECIFIC ISSUES

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

Child safety

- Emotional or behavioural presentation as a consequence of current or previous maltreatment, and the impact of neglect over time
- Health needs of children (tamariki) and young people in the care and protection systems, including:
  - » in-home care
  - » out-of-home care
  - » under care of the justice system
- Patterns of inflicted and accidental injury

Community disability supports

- Funding systems to support people with disability
- Post-discharge and community care, including:
  - » community support services
  - » equipment and modifications to allow maximal independence at home and in the community
  - » formal and informal personal care and participation supports
  - » leisure and sports activities
  - » patient support organisations
  - » vocational rehabilitation

Educational support

- Alternative schooling pathways
- Assessment and verification of disability, including intellectual disability and learning disorders
- Modification of curriculum and assessment to allow access
- Special educational settings
- Supports available for children (tamariki) to access curriculum

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

Family

- Alternative and complimentary therapies commonly encountered in rehabilitation care
- Caregivers' health, both psychological and physical, and support services
- Impact of disablement on the child or adolescent's family, including:
  - changes to family function
  - influence of family dynamics on rehabilitation outcomes
  - need for support of the family during rehabilitation

Medicolegal

- Knowledge of the process of guardianship in the setting of children (tamariki) and young people with a disability
- Principles of report writing for medicolegal processes

Orthoses and equipment

- Adaptive devices and mobility aids, and their indications and precautions for use, including, but not limited to:
  - scooters
  - standing frames
  - walking frames
  - walking sticks
  - wheelchairs
- Australasian and Aotearoa New Zealand standards for home modifications to accommodate disabilities and access to a built environment
- Constraints, indications, and training required for use of adaptations and devices that improve function in the home, including, but not limited to:
  - adaptive seating
  - bathing
  - hoists
  - sleeping equipment
- Electrical stimulation
- Prosthetics, orthotics, and adaptive equipment in the management of impairment and disability

Psychosocial health

- Assessment tools used to identify mood, behaviour, and adjustment conditions in the setting of disability
- Development of independence across childhood and adolescence in the setting of disability, including factors that may influence independence and promotion strategies
- Management options for behaviour and mood disorders, including how to access these and their indications:
  - non-pharmacological
  - pharmacological
  - psychological therapies
- Psychological and psychiatric issues:
  - associated with familial adjustment, grief, and loss, and living with disability
  - in the setting of disability, including:
    - adjustment disorders
    - anxiety
    - cognitive / behavioural disorders
    - depression
    - grief and loss
    - post-traumatic stress symptoms / disorder (PTSD)
    - typical psychological reactions to disablement

Rehabilitation assessment – disability and function

- Concepts of impairment, disability, activity, and participation in reference to the International Classification of Functioning, Disability, and Health (ICF)
- Early and effective rehabilitation / treatment to limit the disabling consequences of illness and injury
- Early identification and treatment of disability, including secondary physical and psychological disabilities
- Environmental factors that contribute to illness and injury, including psychological factors, and ethnic and cultural issues
- Influence of cultural, educational, ethnic, gender, medical, physical, psychological, sexuality, and social issues on the determination of disability, and their possible effects on the outcome of rehabilitation

Rehabilitation implementation

- Appropriate orthoses and assistive equipment for commonly encountered impairments in patients, and the limitations and training required to implement these
- Core principles of the implementation and review of a realistic and appropriate rehabilitation program that specifies appropriate modalities of treatment
- Impact of transitions of care in a patient's journey, and the implications for rehabilitation management and strategies to optimise these transitions
- Principles of organisation and management of multidisciplinary rehabilitation, including the use of care plans and critical pathways
- Role the family context plays in supporting the patient, and the influence of family dynamics on the rehabilitation plan

Rehabilitation planning

- Roles and skills of rehabilitation team members
- Roles of:
  - » government agencies, private organisations, and volunteer groups in community care and advocacy of people with disability
  - » hospital rehabilitation units, both inpatient and outpatient, and community systems
- Standardised outcome measurement tools for the purpose of improving patient and service outcomes

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Sequelae of acquired brain injury (ABI), such as:
  - » behavioural
  - » cognitive
  - » medical
  - » physical
  - » psychosocial
  - » sensory

Conditions

- Non-traumatic brain injury, such as:
  - » arteriovenous malformation
  - » hemispherectomy
  - » hypoxic brain injury
  - » immune conditions
  - » infections
  - » metabolic disorders
  - » stroke
  - » tumour
- Traumatic brain injury (TBI), such as:
  - » concussion
  - » mild
  - » moderate
  - » severe

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

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

Presentations

- Sequelae of acquired brain injury, such as prolonged disorders of consciousness

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

Synthesise

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

Manage

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

Consider other factors

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

- Definitions of ABI and TBI, including measures of severity
- Epidemiology and pathophysiology of ABI and TBI
- Factors that affect the trajectory of recovery and disability after brain injury
- Outcomes of ABI versus TBI

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

Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Post-traumatic amnesia, such as: » clinical management » methods of measurement » significance regarding rehabilitation management and outcome
INVESTIGATIONS, PROCEDURES AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Clinical assessment tools** • Assessment of post-traumatic amnesia, such as Westmead post-traumatic amnesia (PTA) scale • Clinical psychology assessments • Common neuropsychological tests of domains, such as: » adaptive function » attention and concentration » executive function » intellectual function • Glasgow Coma Scale • Rancho Los Amigos Scale • Speech and language assessments • Vestibular tests • Vision / Visual perception / Visuomotor integration tests **Investigations** • Cerebral imaging, such as: » angiogram » CT » magnetic resonance angiography (MRA) » MRI • Medical imaging to assess sequelae of brain injury, such as video fluoroscopic swallow assessment **Procedures** • Common neurosurgical procedures, such as: » craniectomy » external ventricular drain » intracranial pressure monitoring » ventriculoperitoneal (VP) shunt • Spasticity and movement disorder management
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	**Acute management** • Acute monitoring in acute neurosurgical care, emergency, and intensive care • Pharmacotherapy, including prophylactic anticonvulsant medication • PTA • Role of diagnostic investigations in management and prognosis • Role of paediatric rehabilitation medicine physician in acute neurosurgical and intensive care units **Complications of brain injuries – diagnosis and management** • Aspiration pneumonia • Associated neuroendocrine disorders / pituitary dysfunction • 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: » central » neuropathic

- Post-traumatic hydrocephalus and VP shunting
- Pressure areas
- Psychiatric disorders, such as:
  - alcohol and substance issues
  - mood disorders
  - post-traumatic stress disorder (PTSD)
  - psychosis
  - suicidality
- Repeat brain injury during recovery phase
- Seizures and epilepsy
- Venous thromboembolism
- Visual disturbances, such as:
  - changes in visual acuity and fields
  - cortical visual impairment (CVI)

Concussion

- Acute management
- Management of persistent symptoms, such as:
  - behavioural and emotional challenges
  - headaches
  - sleep and fatigue
  - vestibular and visual disturbance
- Return to school and sport

Longer term management

- Activities of daily living
- Adjustment and grief
- Assessment and management of symptoms, such as:
  - attention
  - concentration
  - executive function
  - intellectual disability
  - memory
- Behaviour
- Cognitive disorders
- Communication disorders
- Community reintegration
- Driving
- Fatigue and sleep
- Growth and nutrition, such as obesity
- Pharmacotherapy
- Physical function and impact of:
  - balance
  - contracture
  - movement disorders
  - spasticity
  - vestibular
  - weakness
- Play and leisure
- School reintegration and long-term educational support
- Sexuality and relationships
- Social skills
- Vocational guidance

Prevention of brain injuries

- Pool fencing
- Road laws, including those relating to car seats and bicycle helmets
- Sporting guidelines

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Disorders of movement and posture identified in early life

Conditions

- Cerebral palsy

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Advanced Trainees will understand these presentations and conditions.

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

Presentations

- Other conditions presenting like cerebral palsy

Conditions

- Genetic conditions, such as hereditary spastic paraparesis
- Structural brain abnormalities

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

Synthesise

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

Manage

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

Consider other factors

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the

- Aetiology, pathogenesis and pathophysiology of cerebral palsy
- Antenatal and postnatal strategies to prevent cerebral palsy
- Common comorbidities seen in children (tamariki) with cerebral palsy
- Epidemiology of cerebral palsy, including:
  - » incidence
  - » morbidity
  - » mortality
  - » prevalence

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

principles of the foundational sciences.	» probability: o infant o perinatal • Motor types and distribution of motor impairments in children (tamariki) with cerebral palsy • Natural history and musculoskeletal complications of cerebral palsy
INVESTIGATIONS, PROCEDURES AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable	**Clinical assessment tools** • Assessments of upper limb function, such as assisting hand assessment • Classification systems used to describe function in children (tamariki) with cerebral palsy, such as: » Communication Function Classification System (CFCS) » Eating and Drinking Ability Classification System (EDACS) » Gross Motor Function Classification System (GMFCS) » Manual Abilities Classification System (MACS) • Clinical gait assessment: » 2D » 3D • Musculoskeletal assessment, such as: » range of motion » selective motor control » strength » tone assessment » tools, such as: o Assessment in SpondyloArthritis international Society (ASAS) o Modified Ashworth Scale (MAS) o Modified Tardieu Scale (MTS) • Scales describing motor function, such as: » Functional Mobility Scale (FMS) » Gross Motor Function Measure (GMFM) • Tools for identifying infants (pēpi) with a likelihood of cerebral palsy, such as: » General Movements Assessment (GMA) » Hammersmith Infant Neurological Examination (HINE) **Investigations** • Diagnostic tests for other aetiologies of motor delay, such as: » chemical pathology » genetic tests » metabolic tests • Interpretation of medical imaging used in diagnosis of cerebral palsy • Interpretation of x-rays for musculoskeletal complications, such as: » hip subluxation » scoliosis **Procedures** • Botulinum toxin A • Deep brain stimulation • Intrathecal baclofen pumps • Orthopaedic surgery • Phenol injections • Selective dorsal rhizotomy (SDR)
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues	• Early diagnosis and early intervention • Treatments and therapeutic interventions for cerebral palsy and evidence for their use, including: » assessment, prescribing, and procedures for hypertonicity and movement disorders » awareness of experimental and emerging treatments

and the impact of these on diagnosis and management and integrate these into care.	» postoperative rehabilitation following orthopaedic surgery » surveillance and management of common comorbidities, such as drooling and bone health » surveillance for musculoskeletal complications, particularly hip subluxation and scoliosis: o knowledge of common orthopaedic procedures used to address musculoskeletal complications of cerebral palsy o knowledge of when to refer for orthopaedic intervention

Learning goal 16 – Spinal cord injury and disease

Paediatric Rehabilitation Medicine, Advanced Training

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Acquired spinal cord dysfunction

Conditions

- Non-traumatic acquired spinal cord dysfunction with causes, such as:
  - autoimmune
  - infectious
  - inflammatory
  - neoplastic
  - vascular
- Traumatic spinal cord injury (SCI)

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

Synthesise

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

Manage

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

Consider other factors

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

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

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** • Ventilator-dependent tetraplegia
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Anatomy of the spinal cord and column, including: » blood supply and topography of motor » motor and sensory levels, with corresponding myotomes and dermatomes » sensory and autonomic pathways within the spinal cord • Autonomic dysfunction, including autonomic dysreflexia: » management » pathophysiology » symptoms and signs • Factors influencing outcomes after SCI • Level and severity of injury: » expected functional independence » International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI) classification • Pathophysiology of SCI, including: » incomplete spinal cord injury syndromes » mechanisms of SCI, including spinal cord injury without radiological signs (SCIWORA) » spinal shock • Physiology of the spinal cord, including effects on: » bladder function » bowel function » cardiac function » respiratory function » sexual function • Skin integrity and pressure injuries
INVESTIGATIONS PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure.	**Clinical assessment tools** • ISNCSCI • Musculoskeletal assessment • Neurologic exam **Investigations** • Diagnostic medical imaging, such as: » CT » MRI • Investigation for sequelae, such as: » bone densitometry » polysomnography » urodynamics • Investigation for surveillance following spinal cord injury, such as kidney ultrasound

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

Procedures

- Bladder management strategies, such as:
  - » clean intermittent catheters
  - » indwelling catheter
  - » Mitrofanoff procedure
  - » suprapubic catheter
  - » vesicostomy
- Bowel management strategies, such as:
  - » aperients
  - » enemas
- Spasticity management
- Surgical management for stabilisation after spinal cord injury

IMPORTANT SPECIFIC ISSUES

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

- Prevention strategies for traumatic spinal cord injury

Acute management

- Acute pressure care
- Bladder management
- Deep vein thrombosis (DVT) / Pulmonary embolism (PE) prophylaxis
- Gastrointestinal dysfunction
- Haemodynamics, including blood pressure
- Neuroprotection strategies
- Respiratory insufficiency, including:
  - » indications for mechanical ventilation and basic principles of non-invasive positive pressure ventilation and respiratory function in tetraplegia
  - » indications for mechanical ventilation
- Spinal shock
- Thermoregulation

Bladder and bowel management

- Neurogenic bladder:
  - » assessment of bladder function
  - » monitoring for kidney complications of bladder dysfunction
  - » types of bladder dysfunction
- Neurogenic bladder interventions, such as:
  - » bladder emptying, including clean intermittent catheterisation
  - » pharmacological management of neurogenic bladder
  - » surgical interventions, such as:
    - o electrical nerve stimulators
    - o external sphincterotomy
    - o suprapubic catheter
    - o vesicostomy
- Neurogenic bowel:
  - » bowel management programs
  - » dietary management
  - » pharmacological management

Community reintegration

- Adaptive techniques and assistive devices for activities for daily living (ADLs)
- Available funding supports
- Carer training
- Community support services
- Disability support options
- Driving:
  - » assessment
  - » modification
  - » training

- Housing, including:
  - environmental controls
  - equipment
  - home modifications
- Leisure and sports activities
- Mobility
- Peer support organisations
- Return to education
- Technology for:
  - environmental control
  - recreation
  - vocation
- Vocational rehabilitation

Long-term monitoring

- ADLs and equipment
- Bladder management and kidney surveillance
- Bone health and fracture prevention
- Growth and nutrition
- Musculoskeletal surveillance of contracture, hips, and spine
- Psychosocial support
- Puberty and menarche management
- Recreation and leisure
- Respiratory and sleep health
- School and vocation
- Sexuality and reproductive health
- Skin integrity

Management of common complications

- Autonomic dysfunction, such as:
  - autonomic dysreflexia
  - impaired temperature control
  - orthostatic hypotension
- Heterotopic ossification
- Pain
- Respiratory insufficiency
- Skin integrity and pressure issues
- Spasticity and contractures
- Spinal deformity
- Syrinx
- Venous thromboembolism

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Congenital defects of spinal cord development

Conditions

- Associated central nervous system pathology, such as:
  - » Chiari malformation type II
  - » obstructive hydrocephalus
- Congenital spinal dysraphism conditions, such as:
  - » closed spinal bifida, including:
    - o lipomyelomeningocoele
    - o myelocoele
    - o spinal lipoma
  - » open spina bifida myelomeningocoele
  - » sacral agenesis
  - » spinal dysraphism associated with VACTERL sequence and other syndromic diagnoses
  - » tethered cord

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

- Anencephaly
- Encephalocoele

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the

- Embryologic principles of spinal cord development
- Public health interventions, such as folate
- Risk factors for congenital spinal dysraphism

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

Synthesise

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

Manage

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

Consider other factors

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

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

principles of the foundational sciences.

INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS

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

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

Clinical assessment tools

- Cognitive assessment
- Gait analysis:
  - 2D
  - 3D
- Manual muscle testing (MMT)
- Vision assessment

Investigations

- Biochemistry:
  - kidney function
- Genetic investigations
- Medical imaging, such as:
  - antenatal:
    - MRI
    - ultrasound
  - kidney ultrasound
  - micturating cystourethrogram (MCUG)
  - MRI
  - urodynamics
- Microbiology, such as urine microscopy and culture
- Respiratory function testing
- Sleep studies

Procedures

- Antenatal surgery
- Post natal surgery to close lesions and treat hydrocephalus
- Surgery for lower limbs and spine
- Surgical bladder and bowel management

IMPORTANT SPECIFIC ISSUES

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

Antenatal management

- Antenatal counselling
- Methods of prevention of neural tube defects, and antenatal care
- Understanding grief and loss

Management of the infant

- Bladder and kidney investigations and management:
  - bladder catheterisation / alternative emptying
  - imaging, including:
    - MCUG
    - ultrasound
  - urodynamics
- Bowel management
- Handling and equipment
- Hydrocephalus detection and management:
  - cranial ultrasound / MRI
  - head circumference measurement
  - referral for treatment
  - symptom identification
- Long-term clinical considerations:
  - complications of neurogenic bladder
    - management strategies to reduce risk
    - routine investigations
  - growth and nutrition monitoring and support
  - hydrocephalus:
    - cognitive assessment and support
    - monitoring for progression or signs of shunt malfunction
  - mood and behaviour assessment and support

- musculoskeletal complications:
  - contracture prevention and management
  - prevention and management of foot deformity
  - spasticity management
  - spinal deformity monitoring, prevention, and management
- progressive spinal cord pathology – cord tethering and syrinx:
  - clinical monitoring
  - referral for investigation and management
- skin care:
  - assessment and guidance regarding sensory deficits
  - pressure injury:
    - management
    - prevention

- Orthopaedic management:
  - hip ultrasound, and management of dysplasia
  - management of congenital foot deformity

Supporting activity and participation

- Community support:
  - home modifications and equipment
  - mobility
  - recreation and leisure
  - relationships
  - reproduction
  - sexuality
  - support for personal cares and transport
  - therapy
- Educational support:
  - personal care assistance
  - physical access
  - role and timing of neuropsychological assessments
  - support and equipment to access the curriculum
- Family and whānau supports
- Funding supports
- Peer supports
- Vocational support

Learning goal 18 – Limb differences and prosthetics

Paediatric Rehabilitation Medicine, Advanced Training

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Short or absent limbs or digits
- Traumatic limb loss

Conditions

- Congenital upper and lower limb differences
- Non-traumatic amputations, such as:
  - » infection
  - » ischemia
  - » tumour
- Traumatic amputations

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

- Multiple amputations, such as those occurring from meningococcal disease
- Multiple comorbidities, such as traumatic brain injury (TBI)

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

Synthesise

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

Manage

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

Consider other factors

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the

Acquired amputation

- Aetiology and pathologies leading to amputation
- Incidence and prevalence, and mortality and morbidity, of limb injuries and amputation
- Prevention of traumatic limb injury and amputation

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

principles of the foundational sciences.	**Congenital limb difference** • Aetiology, nomenclature, and pathogenesis of congenital limb differences • Antenatal diagnosis • Genetic and syndromic associations with limb differences • Incidence of congenital limb differences
INVESTIGATIONS, PROCEDURES AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Clinical assessment tools** • Functional classification (K level) **Investigations** • Postnatal investigations, including: » genetic tests » medical imaging **Procedures** • Stump revision • Surgical treatment options for congenital limb differences • Types of surgical amputation
IMPORTANT SPECIFIC ISSUES Advanced Trainees will identify important specialty-specific issues and the impact of these on diagnosis and management and integrate these into care.	**Complications of amputation** • Skin infections and breakdown • Stump pain, such as: » bony overgrowth and neuroma » phantom pain and phantom sensation » psychological impact, such as body image issues **Congenital upper and lower limb differences** • Antenatal and early family counselling • Appropriate prosthetic management for: » comorbidities » the stage of development » the underlying condition • Liaison with orthopaedic team for surgical considerations **Education, sport, and recreation** • Liaison with school regarding activities in school curriculum • Recreational prostheses • Unique prosthetic needs and mobility goals for athletes **Post-amputation care** • Dressings and wound management • Liaison with school and community providers • Pain management • Pre-prosthetic rehabilitation, such as prevention of contracture, and strengthening

Pre-amputation management

- Developmental considerations
- Pre-amputation pain, and prevention of postoperative pain
- Psychosocial assessment and support

Prosthetic management

- Early fitting and training with interim prostheses
- Longitudinal care, and transition to adult service
- Monitoring of wound and residual limb
- Prescription of appropriate prosthesis and prosthetic components, considering child's developmental stage and psychosocial considerations
- Problems commonly seen in prosthetic ambulation
- Prosthetic alignment and adjustment
- Replacement of prosthetic components with growth and development

Prosthetic training

- Application of prosthesis and suspension
- Care and maintenance of prostheses
- Muscle strength and conditioning exercise
- Newer techniques to improve prothesis control, such as osseointegration
- Patient expectations of prosthetic use
- Special needs of the bilateral amputee
- Training in prosthesis operational use, such as myoelectric hands

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Ataxia
- Dyskinesia, such as:
  - » athetosis
  - » chorea
  - » dystonia
- Movement or posture disorders
- Spasticity

Conditions

- Acquired brain injuries
- Cerebral palsy
- Hereditary spastic paraplegia
- Spinal cord injury

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

- Genetic conditions, such as:
  - » Aicardi–Goutières syndrome
- Genetic dystonias
- Leucodystrophies
- Metabolic conditions
- Multiple sclerosis (MS)

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

Synthesise

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

Manage

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

Consider other factors

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

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

Advanced Trainees will have a comprehensive depth of knowledge of the

- Epidemiology of conditions leading to hypertonicity and movement disorders in children (tamariki) and young people, such as:
  - » incidence
  - » morbidity
  - » mortality
  - » prevalence

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

principles of the foundational sciences.	• Neuromuscular impairments, such as: » contracture » dystonia » muscle weakness » spasticity » tremor • Neurophysiology of hypertonicity and movement disorders • Pharmacological treatments for dystonia, movement disorders, and spasticity, such as: » alpha-2 (α2) adrenergic agonists, such as clonidine » baclofen » benzodiazepines, such as diazepam » botulinum toxin A » gabapentin / pregabalin » tetrabenazine » trihexyphenidyl HCL (Artane)
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Clinical assessment tools** • Goal setting and outcome measurement tools • Hypertonicity and dystonia assessment tools • Muscle strength • Musculoskeletal examination • Specific assessment for activity, impairment, participation, and quality of life • Specific spasticity scale measures, such as: » Australian Spasticity Assessment Scale (ASAS) » Modified Ashworth Scale (MAS) » Tardieu Scale **Investigations** • Biochemical tests, such as neurotransmitters in cerebrospinal fluid (CSF) • Genetic tests • Hip surveillance • Medical imaging, such as: » CT » MRI • Scoliosis monitoring **Procedures** • Botulinum toxin type A, including: » dosing » evidence for use » mechanism of action » risks • Deep brain stimulation, intrathecal baclofen, and selective dorsal rhizotomy, and their: » benefits » evidence for use » mechanisms of action » risks • Muscle anatomy and function, and injection guidance techniques, including: » muscle stimulation » surface anatomy » use of ultrasound • Neurosurgical procedures used in movement disorder management, such as: » neurectomy » pallidotomy

- Orthopaedic procedures for musculoskeletal complications of hypertonicity and movement disorders, such as:
  - » bone surgery
  - » spine surgery
  - » tendon surgery

IMPORTANT SPECIFIC ISSUES

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

Physical therapy modalities

- Electrical stimulation, such as functional electrical stimulation (FES)
- Muscle strengthening
- Stretch and positioning, such as:
  - » casting
  - » orthoses
  - » seating
  - » splints
  - » standing
- Task-specific training

Prevention / Reduction of noxious stimuli

- Bladder infections
- Bowel constipation
- Fatigue
- Fractures
- GORD
- Hip dislocation / subluxation
- Oral health
- Pain
- Scoliosis
- Skin problems, such as:
  - » infections
  - » pressure wounds

Learning goal 20 – Musculoskeletal, neuromuscular, and other specific conditions requiring rehabilitation

Paediatric Rehabilitation Medicine, Advanced Training

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Autonomic dysfunction
- Functional sequelae:
  - » associated with common acquired neuromuscular conditions
  - » of weakness associated with congenital neuromuscular conditions
- Impairment associated with congenital musculoskeletal disorders such as short stature
- Pain

Conditions

- Acquired neuromuscular conditions such as Guillain Barre syndrome
- Congenital musculoskeletal disorders such as skeletal dysplasia
- Congenital neuromuscular conditions such as muscular dystrophy

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

Synthesise

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

Manage

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

Consider other factors

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

LESS COMMON OR MORE COMPLEX PRESENTATIONS AND CONDITIONS

Presentations

- Functional decline unrelated to neurological injury or disease (deconditioning)

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

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.	• Physical impairment associated with acquired musculoskeletal disorders **Conditions** • Acquired medical and surgical conditions impacting on function and independence, such as: » burns » chronic fatigue syndrome » functional neurological disorders » persistent pain syndromes • Acquired musculoskeletal disorders such as slipped upper femoral epiphysis • Complex congenital behavioural, developmental, or other medical disorders and comorbidities that may impact participation and outcomes of rehabilitation programs such as complex congenital heart disease	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	**Clinical sciences** • Impact of conditions on: » activity » development » function » growth **Epidemiology** • Prevalence and probability of common musculoskeletal and neuromuscular conditions **Pathophysiology** • Cellular, molecular, and structural pathology for common musculoskeletal and neuromuscular conditions • Genetics of hereditary musculoskeletal conditions • Musculoskeletal anatomy • Principles of healing, plasticity, and regeneration	
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the	**Clinical assessment tools** • Common assessments used for surveillance and outcome measurement across International Classification of Functioning, Disability, and Health (ICF) domains for common conditions **Investigations** • Interpretation of investigations to assess sequelae of neuromuscular disease, such as: » bone densitometry » polysomnography » videoflouroscopic swallow study (VFSS) • Investigations for antenatal and/or early diagnosis of congenital musculoskeletal conditions, such as:	

reported results of each investigation or procedure.

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

- » antenatal ultrasound
- » genetic testing
- » MRI

- Investigations for screening and diagnosis of congenital neuromuscular conditions, such as:
  - » creatine kinase (CK)
  - » genetic testing
  - » muscle biopsy
- Investigations required for:
  - » diagnosis of common acquired musculoskeletal conditions, such as:
    - o bone scan
    - o hip x-ray
  - » surveillance for specific congenital musculoskeletal conditions, such as, craniocervical MRI for skeletal dysplasia

Procedures

- Common orthopaedic procedures for musculoskeletal conditions, such as, slipped upper femoral epiphysis
- Common procedures required for management of sequelae of above conditions, such as, home ventilation
- Common surgical procedures for neuromuscular conditions, such as, nerve grafting for brachial plexus injury

IMPORTANT SPECIFIC ISSUES

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

- Surveillance, identification, and management of common sequelae of childhood disabilities, including:
  - » accounting for the effects of developmental age and stage on resulting disability
  - » the impact of the illness or injury on the child's physical and cognitive development
- Treatments used for disease modification or symptomatic management of:
  - » common congenital:
    - o musculoskeletal conditions
    - o neuromuscular disorders
  - » Duchenne muscular dystrophy
  - » short stature in achondroplasia
  - » spinal muscular atrophy

Management of congenital musculoskeletal disorders

- Specific handling and surveillance protocols, such as achondroplasia management guidelines