NEW CURRICULA

Advanced Training in Medical Oncology (Paediatrics & Child Health)

Curriculum standards

RACP
Specialists. Together

About this document

The new Advanced Training in Medical Oncology (Paediatrics & Child Health) curriculum consists of curriculum standards and learning, teaching, and assessment (LTA) programs.

This document outlines the curriculum standards for Advanced Training in Medical Oncology (Paediatrics & Child Health) for trainees and supervisors. The curriculum standards should be used in conjunction with the Advanced Training in Medical Oncology (Paediatrics & Child Health) LTA programs.

Contents

Program overview **3**

Purpose of Advanced Training 3

RACP curriculum model 4

Professional Practice Framework 5

Learning, teaching, and assessment (LTA) structure 6

Medical Oncology (Paediatrics & Child Health) specialty overview **7**

Medical Oncology (Paediatrics & Child Health) learning goals **9**

Curriculum standards **10**

Competencies 10

Entrustable Professional Activities 17

Knowledge guides 60

Program overview

Purpose of Advanced Training

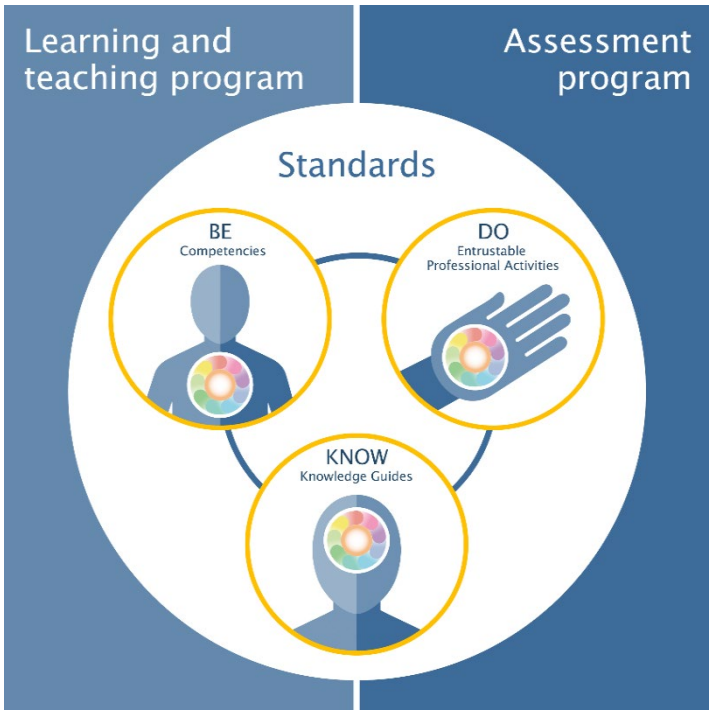
The RACP offers Advanced Training in 33 diverse medical specialties as part of Division, Chapter, or Faculty training programs.

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

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



RACP curriculum model



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

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

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

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



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



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



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

Professional Practice Framework

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



Learning, teaching, and assessment (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.

Medical Oncology (Paediatrics & Child Health) specialty overview

Paediatric medical oncologists specialise in the investigation, study, diagnosis, management, and treatment of infants, children, and adolescents with a predisposition to, suspected, or confirmed benign and malignant growths, tumours, cancers, and diseases, including blood disorders. They also provide consultation to and care for patients requiring haematopoietic stem cell transplantation or cellular therapies.

Paediatric medical oncologists exhibit these key attributes and skills to diagnose, treat, and support patients with cancer and other conditions:

- **Expert diagnostic skills.** Paediatric medical oncologists must be able to effectively determine which type of cancer / benign neoplasm their patients have, and stage them appropriately. A correct diagnosis is essential to ensure correct treatment is delivered.
- **Broad clinical experience and skills.** Paediatric medical oncology is a multidisciplinary specialty that requires proficiency in medical sciences, clinical medicine, diagnostic medicine, and pharmacology. Paediatric medical oncology requires a breadth of clinical experience and skills in caring for acute medical problems and chronic illness, patients' and families' emotional needs, symptom control, and end-of-life care.
- **Evidence-based treatment and therapy.** Paediatric medical oncologists use a broad range of preventative, potentially curative, and palliative medicines, such as chemotherapy, immunotherapy, molecular targeted agents, cellular therapy, analgesics, and other supportive care medication. A key role of a paediatric medical oncologist is to assess and manage patients' additional symptoms related to cancer, as well as complications that may arise through treatment, such as pain and infections using effective evidence-based techniques.
- **Research.** Paediatric medical oncologists contribute to cancer research (therapeutics, biology, epidemiology, and clinical outcomes research). This includes health education and clinical teaching and ethics. Cancer research is constantly evolving, so paediatric medical oncologists must remain abreast of current research to continue to provide optimal patient care. To do this, they may attend medical conferences, read industry journals and reports, and attend training workshops to stay informed of the current best evidenced cancer treatments, methods, and emerging therapeutics. Providing patient access to and managing or coordinating clinical trials is an integral part of paediatric medical oncology.
- **Lead and work in a multidisciplinary team.** Paediatric medical oncologists lead and participate in multidisciplinary teams, coordinating the contributions of different health care professionals to provide patients with holistic care. This requires the ability to work in a team, as well as excellent communication skills with other team members.

- **Interpersonal and communication skills.** Cancer patients and their family and/or carers may often experience profound emotional vulnerability after a cancer diagnosis. Paediatric medical oncologists must use compassion, empathy, and clear and responsive communication techniques, and care for and support their patients and their families, whānau and/or carers throughout the trajectory of their illness and survivorship until transition to adult survivorship programs or death.
- **Teaching.** The roles of paediatric medical oncologists include teaching responsibilities, educating patients and their families, whānau, and/or carers about their conditions, and training junior doctors, medical students and allied health care professionals.

Medical Oncology (Paediatrics & Child Health) learning goals

The curriculum standards are summarised as 15 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. Acute paediatric oncology care 7. Longitudinal care 8. Communication with patients 9. Prescribing 10. Investigations and procedures 11. Critical appraisal of evidence
KNOW Knowledge guides	12. Foundations of paediatric oncology 13. Acute and emergency paediatric oncology care 14. Oncological conditions 15. Principles of management, including anticancer therapies and supportive care

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. Contribute 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 health care 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 failures in health care delivery
5	Clinical assessment and management	Clinically assess and manage the ongoing care of patients
6	Acute paediatric oncology care	Manage the early care of acutely unwell patients
7	Longitudinal care	Manage and coordinate the longitudinal care of patients, including transitions, long-term follow-up, and palliative care
8	Communication with patients	Discuss diagnoses and management plans with patients
9	Prescribing	Prescribe therapies tailored to patients' needs and conditions
10	Investigations and procedures	Select, organise, and interpret investigations, and plan, prepare for, perform, and provide aftercare for important practical procedures
11	Critical appraisal of evidence	Critical appraisal of evidence to provide the best cancer care, ensuring patient safety, wise allocation of resources, and advancement of research through evidence-based practice

Learning goal 2: Team leadership

Theme	Team leadership	
Title	**Lead a team of health professionals**	
Description	This activity requires the ability to: • prioritise workload • organise multiple concurrent tasks • articulate individual responsibilities, expertise, and accountability of team members • identify the range of team members' skills, expertise, and roles • ascertain and apply leadership techniques in daily practice • collaborate with and motivate team members • promote and adopt insights from team members • act as a role model, including demonstrating followership when appropriate	
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 risks in various scenarios • demonstrate clinical competence and skills by effectively supporting team members	• demonstrate adequate knowledge of health care issues by interpreting complex information • assess the spectrum of problems to be addressed • apply medical knowledge to assess the impact and clinical outcomes of management decisions • provide coordinated and quality health care for populations or patients as a member of a multidisciplinary team
Communication	• provide support and motivate patients or populations and health professionals by effective communication • demonstrate a transparent, consultative style by engaging patients, relevant professionals, and/or the public in shared decision making • work with patients and other health professionals to resolve conflict that may arise when planning and aligning goals	• communicate adequately with colleagues, patients, and 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 by tailoring messages to different stakeholders • lead multidisciplinary discussions about patients' cases and management	
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
Teaching and learning	• regularly self-evaluate personal professional practice, and implement changes based on the results • actively seek feedback from supervisors and colleagues on 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 • participate in local, national, and international organisations, meetings, and/or craft groups	• 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 • attend local, national, and international meetings and craft groups
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, ethnicity, 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	• 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 differences of multidisciplinary team members • effectively consult with stakeholders, achieving a balance of alternative views • acknowledge personal conflicts of interest and unconscious bias • act collaboratively to resolve behavioural incidents and conflicts such as harassment and bullying	• 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 • 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 health care interventions and resources • interpret appropriate data and evidence for decision making
Leadership, management, and teamwork	• combine team members' skills and expertise in delivering patient care and/or population advice • develop and lead effective multidisciplinary teams by developing and implementing strategies to motivate others • build effective relationships with multidisciplinary team members to achieve optimal outcomes • ensure all members of the team are accountable for their individual practice • take responsibility for own actions	• acknowledge the range of personal and other team members' skills, expertise, and roles • acknowledge and respect the contribution of all health professionals involved in patients' care • participate effectively and appropriately in multidisciplinary teams • seek out and respect the perspectives of multidisciplinary team members when making decisions
Health policy, systems, and advocacy	• engage in appropriate consultation with stakeholders on the delivery of health care • advocate for the resources and support for health care teams to achieve organisational priorities • influence the development of organisational policies and procedures to optimise health outcomes • identify the determinants of health of the population, and mitigate barriers to access to care • remove self-interest from solutions to health advocacy issues	• communicate with stakeholders within the organisation about health care delivery • understand methods used to allocate resources to provide high-quality care • promote the development and use of organisational policies and procedures

Learning goal 3: Supervision and teaching

Theme	Supervision and teaching	
Title	**Supervise and teach professional colleagues**	
Description	This activity requires the ability to: • facilitate 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 • promote learners to be self-directed and identify learning experiences • facilitate 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 • act as a role model demonstrating a flexible, holistic, reflective, evidence-based approach to practice • demonstrate the required knowledge, skills, and attitudes to provide appropriate teaching, learning opportunities, supervision, assessment, and mentorship	• 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	• demonstrate accessible, supportive, and compassionate behaviour

	• encourage learners to tailor communication as appropriate for different patients[5], such as younger or older people and different populations • 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 of 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	• demonstrate basic skills in the supervision of learners • apply a standardised approach to teaching, assessment, and feedback, considering individual learner needs • implement teaching and learning activities that are aligned to learning goals • adopt a teaching style that encourages learner self-directedness

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

	• recognise the limits of personal expertise, and involve others appropriately	
Research	• clarify junior colleagues' research project goals and requirements, and provide feedback regarding the merits or challenges of proposed research • monitor the progress of learners' research projects regularly, and 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	• guide learners with respect to the choice of research projects • ensure that the research projects planned are feasible and of suitable standards
Cultural safety	• role model a culturally appropriate approach to teaching • encourage learners to seek out opportunities to develop and improve their own cultural competence • encourage learners to consider culturally appropriate care of Māori and Aboriginal and Torres Strait Islander peoples into patients' management • consider cultural, ethical, and religious values and beliefs in teaching and learning	• function effectively and respectfully when working with and teaching with people from different cultural backgrounds
Ethics and professional behaviour	• apply principles of ethical practice to teaching scenarios • act as a role model to promote professional responsibility and ethics among learners • respond appropriately to learners seeking professional guidance	• demonstrate professional values, including commitment to high-quality clinical standards, compassion, empathy, and respect • provide learners with feedback to improve their experiences
Judgement and decision making	• prioritise workloads and manage learners with different levels of professional knowledge or experience • link theory and practice when explaining professional decisions • promote joint problem solving • support a learning environment that allows for independent decision making • use sound and evidence-based judgement during assessments and 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 professional, clinical, research, and/or administrative responsibilities while teaching • create an inclusive environment whereby the learner feels part of the team • help shape organisational culture to prioritise quality and work safety through openness, honesty, shared learning, and continued improvement • lead in multidisciplinary teams by promoting an open culture of learning and accountability by challenging and inspiring colleagues, and supporting the development of leadership qualities and critical decision-making skills	• demonstrate the principles and practice of professionalism and leadership in health care • participate in mentor programs, career advice, and general counselling
Health policy, systems, and advocacy	• advocate for suitable resources to provide quality supervision and maintain training standards • explain the value of health data in the care of patients or populations • support innovation in teaching and training • know about and work with local, national, and international advocacy and policy organisations	• start to integrate public health principals into teaching and practice

Learning goal 4: Quality improvement

Theme	Quality improvement	
Title	**Identify and address failures in health care delivery**	
Description	This activity requires the ability to: • identify and report actual and potential (near miss) errors • perform and evaluate system improvement activities • comply with best practice guidelines • inspect clinical guidelines and outcomes • contribute to the development of policies and protocols designed to protect patients[6] and enhance health care • monitor own practice, and develop individual improvement plans	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision The trainee will:	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• regularly review patients' or population health outcomes to identify opportunities for improvement in delivering appropriate care • perform audits to identify areas of improvement in health care, and ideally perform re-audits to see the impact of amelioration strategies • evaluate environmental and lifestyle health risks, and advocate for healthy lifestyle choices • use standardised protocols to adhere to best practice and prevent the occurrence of wrong-site, wrong-patient procedures • enrol patients on appropriate clinical trials and adhere to them as per Good Clinical Practice • regularly monitor personal professional performance	• contribute to processes on identified opportunities for improvement • recognise the importance of prevention and early detection in clinical practice • use local guidelines to assist patient care decision making • be aware of appropriate clinical trials
Communication	• support patients to have access to and use easy-to-understand, high-quality information about health care • support patients to share decision making about their own health care, to the extent they choose	• demonstrate awareness of the evidence for consumer engagement and its contribution to quality improvement in health care • apply knowledge of how health literacy might affect the way patients or populations gain access to, understand, and use health information

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

	• assist patients' access to their health information, as well as complaint and feedback systems • discuss with patients any safety and quality concerns they have relating to their care • manage complaints appropriately, according to local policies • implement the organisation's open disclosure policy • gain consent from families via an informed consent process for appropriate procedures, clinical trials, and other processes	• understand informed consent processes for procedures and clinical trials
Quality and safety	• demonstrate safety skills, including infection control, adverse event reporting, and effective clinical handover • participate in organisational quality and safety activities, including morbidity and mortality reviews, clinical incident reviews, root cause analyses, and corrective or preventative action plans • participate in systems for surveillance and monitoring of adverse events and near misses, including reporting such events • ensure that identified opportunities for improvement are raised and reported appropriately • use clinical audits and registries of data on patients' experiences and outcomes, learnings from incidents, and complaints to improve health care • participate in local, national, and international clinical trials for the best outcome for the patient and ongoing improved practice for all	• demonstrate understanding of a systematic approach to improving the quality and safety of health care • demonstrate an understanding of the importance of standards of practice and clinical trials
Teaching and learning	• translate quality improvement approaches and methods into practice • participate in professional training in quality and safety to ensure a contemporary approach to safety system strategies • supervise and manage the performance of junior colleagues in the delivery of high-quality, safe care	• work within organisational quality and safety systems for the delivery of clinical care • use opportunities to learn about safety and quality theory and systems
Research	• ensure that any protocol for human research is approved by a human research ethics committee, in accordance with the national statement on ethical conduct in human research • take informed consent for research	• understand that patient participation in research is voluntary and based on an appropriate understanding about the purpose, methods, demands, risks, and potential benefits of the research

Cultural safety	• undertake professional development opportunities that address the impact of cultural bias on health outcomes	• communicate effectively with patients from culturally and linguistically diverse backgrounds
Ethics and professional behaviour	• align improvement goals with the priorities of the organisation • contribute to developing an organisational culture that enables and prioritises patients' safety and quality	• comply with professional regulatory requirements and codes of conduct
Judgement and decision making	• use decision-making support tools, such as guidelines, protocols, pathways, and reminders • analyse and evaluate current care processes to improve health care	• access information and advice from other health 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 • take responsibility for investigating, reporting, resolving, and evaluating risk / hazard incidents	• 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 organisational systems for: » defining the scope of clinical practice » performance monitoring and management » clinical, and safety and quality education and training	• maintain a dialogue with service managers about issues that affect patient care • contribute to relevant organisational policies and procedures • help shape an organisational culture that prioritises safety and quality through openness, honesty, learning, and quality improvement

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] • retrieve patient histories • examine patients • synthesise findings to develop provisional and differential diagnoses • discuss findings with patients • generate management plans • present findings to other health professionals	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	The trainee may:
Medical expertise	• practice independently in a safe manner • elicit accurate, organised, and problem-focused medical 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 via reasonable differential diagnoses • recognise, assess, and manage acute general oncological issues, including: » serious presenting complaints as described in acute care » symptom management » toxicity from treatment • work within multidisciplinary teams, including other medical specialities and allied health professionals • apply knowledge of the clinical and biomedical sciences relevant to oncological and haematological conditions	• 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 management plans • recognise serious medical issues, including treatment toxicity, and escalate appropriately

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

	• develop management plans based on relevant guidelines and current literature, considering the balance of benefit and harm 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 to enable them to make fully informed decisions from various diagnostic, therapeutic, and management options • communicate clearly, effectively, respectfully, and promptly with other health professionals involved in patients' care • plan and manage patients' transitions appropriately, considering the disease type / stage and treatment required • explain diagnoses to patients with compassion and awareness that this may be distressing	• anticipate, read, and respond to verbal and nonverbal cues • demonstrate active listening skills • communicate patients' situations promptly 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 aggressive and violent patient behaviours • obtain informed consent before undertaking any investigation or providing treatment (except in emergencies) • ensure patients are informed of the material risks associated with any part of proposed management plans • participate in local, national, and international clinical trials for the best outcome for the patient and ongoing improved practice for all • present patients at multidisciplinary meetings, and follow meeting consensus	• perform hand hygiene and take infection control precautions at appropriate moments • document history and physical examination findings, and synthesise with clarity and completeness • provide care in accordance with current guidelines
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	• set clear goals and objectives for self-learning • self-reflect frequently • deliver teaching considering learners' level of training

	• turn clinical activities into an opportunity to teach, appropriate to the setting • incorporate teaching into daily clinical activities	
Research	• search for, find, compile, analyse, interpret, and evaluate information relevant to research subject • enrol via informed consent process onto appropriate clinical trials	• refer to guidelines and medical literature to assist in clinical assessments when required • consider available evidence, guidelines, and clinical trials • demonstrate an understanding of the limitations of evidence and the challenges of applying research in daily practice
Cultural safety	• use plain-language patient education materials, and demonstrate cultural and linguistical sensitivity • demonstrate effective and culturally competent communication and care for Māori and Aboriginal and Torres Strait Islander peoples and members of other cultural groups • use professional interpreters, health advocates, or family or community members to assist in communication with patients, and understand the potential limitations of each • acknowledge patients' beliefs and values and how these might impact on health	• 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, involving a proxy decision maker appropriately	• demonstrate professional conduct, honesty, and integrity • consider patients' decision-making capacity • identify patients' preferences regarding management and the role of families in decision making • not advance personal interest or professional agendas at the expense of patient or social welfare
Judgement and decision making	• apply knowledge and experience to identify patients' problems, making logical, rational decisions, and acting to achieve positive outcomes for patients • use a holistic approach to health, considering comorbidity, 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 outcome for patients • demonstrate awareness of colleagues in difficulty, and work within the appropriate structural systems to support them while maintaining patient safety	• share relevant information with members of the health care team
Health policy, systems, and advocacy	• participate in health promotion, disease prevention and control, screening, and reporting notifiable diseases • aim to achieve the optimal cost-effective patient care to allow maximum benefit from the available resources	• identify and navigate components of the healthcare system relevant to patients' care • identify and access relevant community resources to support patient care

Learning goal 6: Acute paediatric oncology care

Theme	Acute care	
Title	**Manage the early care of acutely unwell patients**	
Description	This activity requires the ability to: • assess seriously unwell patients[8] and initiate management • recognise clinical deterioration and respond by following the local processes for escalation of care • recognise and manage acutely unwell patients who require resuscitation • coordinate the resuscitation team initially, and involve other necessary services • communicate with transport services and medical teams • perform this activity in inpatient or outpatient settings, including day units	
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	• recognise life-threatening conditions and deteriorating and critically unwell patients, and respond appropriately • perform advanced life support, according to resuscitation council guidelines, to a high level of advanced resuscitation skills • demonstrate knowledge of potential risks and complications of resuscitation • effectively assess, diagnose, and manage acute undifferentiated clinical presentations • effectively assess, diagnose, and manage specific oncological and haematological new diagnoses and emergencies • select investigations that ensure maximum patient safety through excluding or diagnosing critical patient issues • systematically identify causes of acute deterioration in health status and levels of physical and cognitive functioning • provide clear and effective discharge summaries with recommendations for ongoing care	• recognise seriously unwell patients requiring immediate care • escalate care expediently to senior staff for any acute or concerning issues • apply advanced life support as indicated • recognise general medical principles of caring for patients with undifferentiated and undiagnosed conditions • identify potential causes of current deterioration, and comply with escalation protocols • facilitate initial tests to assist in diagnosis and develop management plans for immediate treatment • document information to outline the rationale for clinical decisions and action plans • assess perioperative and periprocedural patients

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

	• manage de-escalations, escalations, or transitions of care in a proactive and timely manner • develop plans of multidisciplinary treatment, rehabilitation, and secondary prevention following acute events • optimise medical management before, during, and after operations • optimise supportive care, including for pain, other cancer- or therapy-related symptoms, and in the palliative setting	
Communication	• communicate clearly with other team members, and coordinate efforts of multidisciplinary team members, including working closely with other medical specialists • use closed-loop and clear communication with other team members during resuscitation • facilitate early communication with patients, families, carers, and team members to allow shared decision making • negotiate and review realistic treatment goals, and determine and explain the expected prognoses and outcomes • employ developmentally appropriate communication strategies appropriate for children, adolescents, and young adults and those with cognitive difficulties • maintain respect for parents' / families' wishes in regard to communications with their child, adolescent, or young adult • communicate with patients in a sensitive and supportive manner, avoiding jargon and confirming their understanding • determine individual patients' level of health literacy and understanding of agreed care decisions	• demonstrate communication skills to sufficiently support the function of multidisciplinary teams • determine patients' understanding of their diseases and what they perceive as the most desirable goals of care • communicate appropriately to the age and developmental stage of patients, and to parents or carers • recognise adolescents and young adults as a specific group with specific communication needs • use interpreters
Quality and safety	• maintain up-to-date certification in advanced life support • maintain up-to-date knowledge of acute oncological and haematological conditions, including specific toxicities from new therapies, such as immune mediated toxicities	• evaluate quality of processes through well-designed audits • recognise the risks and benefits of operative interventions • evaluate quality and safety processes implemented within the workplace, and identify gaps in their structure

	• use clinical information technology systems for conducting prospective and retrospective clinical audits • evaluate and explain the benefits and risks of clinical interventions based on individual patients' circumstances • analyse adverse incidents and sentinel events to identify system failures and contributing factors • document treatment given without consent in an emergency according to local guidelines • identify evidence-based practice gaps using clinical indicators, and implement changes to improve patients' outcomes • coordinate and encourage innovation, and objectively evaluate improvement initiatives for outcomes and sustainability	• raise appropriate issues for review at morbidity and mortality meetings
Teaching and learning	• demonstrate effective supervision skills and teaching methods adapted to the context of the training • encourage questioning among junior colleagues and students in response to unanswered clinical questions • seek guidance and feedback from health care teams to reflect on encounters and improve future patients' care • seek opportunities to debrief after serious acute events	• mentor and train others to enhance team effectiveness • provide constructive feedback to junior colleagues to contribute to improvements in individuals' skills • coordinate and supervise junior colleagues from the emergency department and wards
Research	• select studies based on optimal trial design, freedom from bias, and precision of measurement • evaluate the value of treatments in terms of relative and absolute benefits, cost, potential patient harm, and feasibility • evaluate the applicability of the results of clinical studies to the circumstances of individual patients, especially those with multiple comorbidities • specify research evidence to the needs of individual patients	• demonstrate efficient searching of literature databases to retrieve evidence • use information from credible sources to aid in decision making • refer to evidence-based clinical guidelines and protocols on acutely unwell patients • demonstrate an understanding of the limitations of the evidence and the challenges of applying research in daily practice
Cultural safety	• negotiate health care decisions in a culturally appropriate way by considering variation in family structures, cultures, religion, or belief systems	• practise cultural competency appropriate for the community serviced • proactively identify barriers to access to health care

	• integrate culturally appropriate care of Māori and Aboriginal and Torres Strait Islander peoples into patients' management • consider cultural, ethical, and religious values and beliefs in leading multidisciplinary teams	
Ethics and professional behaviour	• develop management plans that are based on medical assessments of the clinical conditions and multidisciplinary assessments of functional capacity • advise patients of their rights to refuse medical therapy, including life-sustaining treatment • consider the consequences of delivering treatment that is deemed futile, directing to other care • facilitate interactions within multidisciplinary teams, respecting values, encouraging involvement, and engaging all participants in decision making • demonstrate critical reflection on personal beliefs and attitudes, including how these may affect patient care and health care policy	• communicate medical management plans as part of multidisciplinary plans • establish, where possible, patients' wishes and preferences about care • contribute to building a productive culture within teams
Judgement and decision making	• recognise the need for escalation or de-escalation of care, and refer to appropriate staff or services • integrate evidence related to questions of diagnosis, therapy, prognosis, risks, and cause into clinical decision making • reconcile conflicting advice from other specialties, applying judgement in making clinical decisions in the presence of uncertainty • use care pathways effectively, including identifying reasons for variations in care	• involve additional staff to assist in a timely manner when required • recognise personal limitations and seek help in an appropriate way when required
Leadership, management, and teamwork	• work collaboratively with staff in the emergency department, intensive care, and other subspecialty inpatient units • manage the transition of acute medical patients through their hospital journey • lead a team by providing engagement while maintaining a focus on outcomes	• collaborate with and engage other team members, based on their roles and skills • ensure appropriate multidisciplinary assessment and management • encourage an environment of openness and respect to lead effective teams
Health policy, systems, and advocacy	• use a considered and rational approach to the responsible use	• understand the role of clinician leadership and advocacy in appraising and redesigning systems

	of resources, balancing costs against outcomes • prioritise patients' care based on need, and consider available health care resources • collaborate with emergency medicine staff and other colleagues to develop policies and protocols for the investigation and management of common acute medical problems	of care that lead to better patient outcomes • understand the systems for the escalation of care for deteriorating patients

Learning goal 7: Longitudinal care

Theme	Longitudinal care	
Title	**Manage and coordinate the longitudinal care of patients, including transitions, long-term follow-up, and palliative care**	
Description	This activity requires the ability to: • develop management plans and goals in consultation with patients[9] • manage chronic and advanced conditions, complications, disabilities, and comorbidities, including advanced symptom care and palliative care • collaborate with other health care providers • demonstrate continuity of care • develop management plans and goals in consultation with patients, including goals of transitions in care • facilitate patients' self-management and self-monitoring • assess the timing and risks in transition from paediatric to adult care, and patients' readiness for transition to adult care • schedule appropriately, and/or involve other specialists and allied health professionals, such as GPs, surgeons, radiation oncologists, subspeciality oncologists, clinical haematologists, and radiology and pathology specialists • communicate pertinent, contextually appropriate, and relevant patient information to appropriate health care providers and other stakeholders, such as GPs and local clinicians for rural patients • summarise and document patients' clinical cases for handover to other specialists, including adult oncologists / haematologists / survivorship teams, and/or palliative care • collaborate within the broader health policy context • perform this activity in multiple settings appropriate to the specialty, including inpatient, ambulatory, and critical care settings	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision	**Requires some supervision** Possible behaviours of a trainee who needs some supervision to perform this activity
	The trainee will:	The trainee may:
Medical expertise	• monitor treatment outcomes and effectiveness, and adverse events • provide documentation on patients' presentation, management, and progress, including key points of diagnosis and decision making to inform coordination of care • ensure patients contribute to their needs assessments and care planning • assess adherence to treatment and monitoring plans • identify and manage key risks for patients during transition	• assess patients' knowledge, beliefs, concerns, and daily behaviours related to their chronic condition and/or disability and its management • recognise the importance of prevention and early detection in clinical practice • assess psychosocial issues that may affect health and/or access to services • establish plans for ongoing care that include monitoring health status and managing adherence

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

	• regularly assess and review care plans for patients with serious and chronic conditions, including pain, and disabilities based on short- and long-term clinical and quality of life goals • facilitate optimal transitions of care for patients, including adapting transitions to meet individual patients' needs (e.g. if a patient has an intellectual disability) • assess patients' health literacy and developmental readiness for the demands of the adult care setting • outline the key components of a transitional care program and the differences between the cultures of paediatric and adult care services, including the role of the adult physician • evaluate environmental and lifestyle health risks, and advocate for healthy lifestyle choices • anticipate, prevent, and manage changes in health status at the time of transition • provide symptom care and palliative care support to patients and families with and without formal palliative care involvement	• identify the ways in which disease may impact on patients' lifestyles, such as contraception, pregnancies, employment, sport / leisure activities, and smoking • work with patients to increase opportunities to adopt healthy behaviours, such as good nutrition, good sleep hygiene, not smoking, and no excess alcohol intake
Communication	• encourage patients' self-management through education to take greater responsibility for their care, and support problem solving • build robust relationships with patients that will be sustainable for both parties throughout the cancer journey • encourage patients' access to self-monitoring devices and assistive technologies • communicate with multidisciplinary team members, and involve patients in that dialogue • 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 • initiate and maintain verbal communication with other health professionals, when required	• provide healthy lifestyle advice and information to patients on the importance of self-management • work in partnership with patients, and motivate them to comply with agreed care plans • 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 • assess patients' understanding of their illness and health care needs, and work with them to increase their understanding • use communication skills and strategies that help patients make informed decisions

	• communicate with patients about transition of care, and engage and support these parties in decision making • explain the impact of oncological / haematological disease, acute or ongoing, on adolescents' and young adults' leisure and work activities	• recognise and explore the worries and concerns of adolescent and adult patients with cancer and haematological disorders • identify the need to shift responsibility for decision making from parents to patients, and work with patients on planning this • communicate sensitively with adolescents and young adults • recognise when it is appropriate to communicate with patients individually versus when it is appropriate to communicate with patients and their family members and/or carers • discuss with patients the differences between paediatric and adult care, such as the involvement of the parent or carer in decisions for adult patients versus paediatric patients
Quality and safety	• use innovative models of chronic care using telehealth and digitally integrated support services • review medicine use and ensure patients understand safe medication administration to prevent errors • support patients' self-management by balancing between minimising risk and helping patients to become more independent • participate in quality improvement processes impacting on patients' abilities to undertake normal activities of daily living • identify patients at risk of a poor transition of care, and mitigate this risk • use electronic tools (where available) to securely store and transfer patient information • use consent processes, including written consent if required, for the release and exchange of information • demonstrate understanding of the medicolegal context of written communications • ensure patients are informed of the risks associated with any part of proposed management plans	• participate in continuous quality improvement processes and clinical audits on chronic disease management • identify activities that may improve patients' quality of life • ensure that handover is complete, or work to mitigate risks if the handover was incomplete • ensure all outstanding results or procedures are followed up by receiving units and clinicians • keep patients' information secure, adhering to relevant legislation regarding personal information and privacy • document patients' histories with clarity and completeness
Teaching and learning	• educate patients to recognise and monitor their symptoms, and undertake strategies to assist their recovery	• explain how patient education can empower adolescents and young adults to take responsibility for their health

	• contribute to the development of clinical pathways for cancer treatment and toxicities, and chronic diseases management based on current clinical guidelines • integrate clinical education in handover sessions and other transition of care meetings • tailor clinical education to the level of the professional parties involved • educate adolescents and young adults about their conditions and their impacts on their lives (e.g. sexuality and contraception) • provide appropriate written / online information and resources relevant to the transition stage	• take opportunities to teach junior colleagues during handover, as necessary • use clinical practice guidelines for chronic diseases management
Research	• search for and critically appraise evidence to resolve clinical areas of uncertainty	• search literature using problem / intervention / comparison / outcome (PICO) • recognise appropriate use of review articles
Cultural safety	• encourage patients from culturally and linguistically diverse backgrounds to join local networks to receive the support needed for long-term self-management • communicate with careful consideration to health literacy, language barriers, and culture and religion about patient preferences, including whether they are realistic and possible, respecting patients' choices • recognise the timing, location, privacy, and appropriateness of sharing information with patients	• provide culturally safe chronic disease management • include relevant information regarding patients' cultural, religious, and ethnic background in handovers, including whether an interpreter is required
Ethics and professional behaviour	• share information about patients' health care, consistent with privacy laws and confidentiality and professional guidelines • use consent processes for the release and exchange of health information • assess patients' decision-making capacity, and appropriately identify and use alternative decision makers • disclose and share only contextually appropriate medical and personal information • share information about patients' health care in a manner consistent with privacy law and professional guidelines on confidentiality	• share information between relevant service providers • acknowledge and respect the contribution of health professionals involved in patients' care • maintain respect for patients and other health professionals, including respecting privacy and confidentiality

	• demonstrate understanding of the clinical, ethical, and legal rationale for information disclosure • demonstrate understanding of the additional complexity related to some types of information, such as genetic information and blood borne virus status, and seek appropriate advice about disclosure of such information • interact in a collegiate and collaborative way with professional colleagues during transitions of care • explain the role of GPs in patients' care, including relevant guidelines and how they apply	
Judgement and decision making	• implement stepped care pathways in the management of chronic diseases and disabilities • recognise patients' needs in terms of both internal resources and external support on a long-term health care journey • ensure patients' care is in the most appropriate facility, setting, or provider, including involving adolescent and young adult (AYA) services when necessary • identify the right time to start facilitating transition by considering the needs of individual patients • select appropriate specialists to transition patients to (e.g. GP, specialist in paediatric or adult sector, survivorship care, or palliative care)	• recognise personal limitations and seek help in an appropriate way when required • use a structured approach to consider and prioritise patients' issues
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 serious and chronic diseases and disabilities • develop collaborative relationships with patients and a range of health professionals • demonstrate understanding of the medical governance of patient care, and the differing roles of team members • show respect for the roles and expertise of other health professionals, and work effectively as a member of professional teams	• participate in multidisciplinary care for patients with serious and chronic diseases and disabilities, including organisational and community care on a continuing basis, appropriate to patients' context • recognise factors that impact on the transfer of care, and help subsequent health professionals understand the issues to continue care • work to overcome the potential barriers to continuity of care, appreciating the role of handovers in overcoming these barriers • recognise the importance of the multidisciplinary team in the management of adolescents and young adults

	• ensure that multidisciplinary teams provide the opportunity for patients' engagement and participation when appropriate • recognise and work collaboratively with other health care providers, (e.g. allied health workers, psychologists, and AYA services) • ensure sufficient handover, including robust notes to convey complex history and/or rationale for past decisions • share the workload of transitions of care appropriately, including delegation	
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 hospital / government initiatives for serious and chronic diseases management to reduce hospital admissions and improve patients' quality of life, using 'hospital in the home' programs and shared care with providers closer to home • help patients access initiatives and services for patients with serious and chronic diseases and disabilities • contribute to processes for managing risks, and identify strategies for improvement in transition of care • engage in organisational processes to improve transitions of care, such as formal surveys or follow-up phone calls after hospital discharge • connect patients with local or online peer support groups • contribute to the development of a written transition policy, which is a document that sets out principles, standards, and practices of how transitions are managed at the centre • advocate for resources to support efficient and more effective transitions	• demonstrate awareness of government initiatives and volunteer / philanthropic services available for patients with serious and chronic diseases and disabilities, and display knowledge of how to access them • factor transport issues and costs to patients into arrangements for transferring patients to other settings • apply local and international guidelines around transitions

Learning goal 8: Communication with patients

Theme	**Communication with patients**
Title	**Discuss diagnoses and management plans with patients**
Description	This activity requires the ability to: • select a suitable context to discuss diagnosis and management plans, and include patients[10], their families, whanau and/or carers, and other team members, as appropriate • devise a patient-centred perspective, including adjusting for age, developmental stage, cognition, and disabilities • select and use appropriate communication strategies and modalities • structure conversations intentionally • negotiate mutually agreed management plans • verify patients' understanding of information conveyed • develop and implement plans for ensuring 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 The trainee will:	Requires some supervision Possible behaviours of a trainee who needs some supervision to perform this activity The trainee may:
Medical expertise	• inform patients of all aspects of their clinical management, including assessments and investigations • provide information to patients to enable them to make informed decisions about diagnostic, therapeutic, and management options • provide patients with 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 • anticipate and be able to correct any misunderstandings patients may have about their conditions and/or risk factors	• 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 • attend family meetings
Communication	• convey information considerately and sensitively to patients, seeking clarification if unsure of how best to proceed	• select appropriate modes of communication • engage patients in discussions, avoiding the use of jargon

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

	• use appropriate communication strategies and modalities for communication, including: » emails » face-to-face » telehealth » phone calls • convey information considerately and sensitively to patients, seeking clarification if unsure of how best to proceed • elicit patients' views, concerns, and preferences, promoting rapport • provide information to patients in plain language, avoiding jargon, acronyms, and complex medical terms • encourage questions, and answer them thoroughly • ask patients to share their thoughts or explain their management plan in their own words, to verify understanding • treat children, adolescents, and young people respectfully, and listen to their views • recognise the role of family and/or carers and, when appropriate, encourage patients to involve their family and/or carers in decisions about their care • inform patients / their families of multidisciplinary meeting and other professional meeting discussion outcomes	• 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 • use interpreters
Quality and safety	• discuss with patients their condition and the available management options, including potential benefits and harms • provide information to patients in a way they can understand before asking for their consent • consider young people's capacity for decision making and consent • recognise and take precautions where patients may be vulnerable, such as issues of child protection or self-harm • participate in processes to manage patient complaints	• inform patients of the material risks associated with proposed management plans • treat information about patients as confidential
Teaching and learning	• encourage junior colleagues to participate in difficult or important family conversations, and provide an opportunity to debrief / reflect afterwards	• respond appropriately to information sourced by patients, and to patients' knowledge regarding their condition

	• discuss the aetiology of diseases and explain the purpose, nature, and extent of the assessments to be conducted • obtain informed consent or other valid authority before involving patients in teaching • encourage and support junior colleagues in their communication with families, providing feedback	
Research	• provide information to patients in a way they can understand before asking for their consent to participate in research • obtain an informed consent or other valid authority before involving patients in research	• refer to evidence-based clinical guidelines • demonstrate an understanding of the limitations of the evidence and the challenges of applying research in daily practice
Cultural safety	• demonstrate effective and culturally competent communication with Māori and Aboriginal and Torres Strait Islander peoples • effectively communicate with members of other cultural groups by meeting patients' specific language, cultural, and communication needs • use qualified language interpreters or cultural interpreters to help meet patients' communication needs • provide plain language and culturally appropriate written materials to patients	• identify when to use interpreters • allow enough time for communication across linguistic and cultural barriers
Ethics and professional behaviour	• encourage and support patients to be well informed about their health, and to use this information wisely when they make decisions • encourage and support patients and, when relevant, their families and/or carers, in caring for themselves and managing their health • demonstrate respectful professional relationships with patients • prioritise honesty, patients' welfare, and community benefit above self-interest • develop a high standard of personal conduct, consistent with professional and community expectations • support patients' rights to seek second opinions	• respect the preferences of patients • communicate appropriately, consistent with the context, and respect patients' needs and preferences • maximise patients' autonomy, and support their decision making • avoid sexual, intimate, and financial relationships with parents and carers • demonstrate a caring attitude towards patients • respect patients, including protecting their rights to privacy and confidentiality • behave equitably towards all, irrespective of gender, age, culture, socioeconomic status, sexual preferences, beliefs, contribution to society, illness-related behaviours or the illness itself

	• recognise own limitations and engage someone else in the team or a senior colleague for specific discussions if needed	
Leadership, management, and teamwork	• communicate effectively with team members involved in patients' care, and with patients • discuss medical assessments, treatment plans, and investigations with patients and primary care teams, working collaboratively with all • discuss patient care needs with team members to align them with the appropriate resources • facilitate an environment where all team members feel they can contribute and their opinion is valued • communicate accurately and succinctly, and motivate others on the health care team	• answer questions from team members • summarise, clarify, and communicate responsibilities of team members • keep team members focused on patient outcomes
Health policy, systems, and advocacy	• collaborate with other services, such as community health centres and consumer organisations, to help patients navigate the healthcare system	• communicate with and involve other health professionals

Learning goal 9: Prescribing

Theme	Prescribing	
Title	**Prescribe therapies tailored to patients' needs and conditions**	
Description	This activity requires the ability to: • collect and interpret medication histories • choose appropriate medicines based on an understanding of pharmacology, taking into consideration age, comorbidities, potential drug interactions, risks, and benefits • prescribe safely, as per treatment schedules of known protocols and clinical trials • communicate with patients[11] about the benefits and risks of proposed therapies • explain instructions on medication administration effects, and side effects • monitor medicines for efficacy and safety, including with drug levels, toxicity screening, and pharmacogenomics • review medicines and interactions, and cease where appropriate • collaborate with pharmacists	
Behaviours		
Professional practice framework domain	**Ready to perform without supervision** Expected behaviours of a trainee who can routinely perform this activity without needing supervision	**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 patients' disorders requiring pharmacotherapy • consider and prescribe non-pharmacologic therapies • consider age, chronic diseases, lifestyle factors, allergies, potential drug interactions, and patient preference prior to prescribing new medications • plan for follow-up and monitoring • maintain up-to-date knowledge of medications and therapies, including their interactions with other therapeutic modalities • apply commonly used treatment protocols	• 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 appropriately, safely, and accurately • demonstrate understanding of the rationale, risks, benefits, side effects, contraindications, dosage, and drug interactions • identify and manage adverse events • calculate body surface area for chemotherapy prescribing
Communication	• describe how the medication should and should not be administered, including any important relationships to food, time of day, and other medicines being taken	• discuss and explain the rationale for treatment options with patients • explain the benefits and burdens of therapies, considering patients' individual circumstances

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

	• discuss and evaluate the risks, benefits, and rationale of treatment options, making decisions in partnership with patients • write clear and legible prescriptions in plain language, and include specific indications for the anticipated duration of therapy • educate patients about the intended use, expected outcomes, and potential side effects for each prescribed medication, addressing the common, rare, and serious effects at the time of prescribing to improve patients' adherence to pharmacotherapy • describe how the medication should and should not be administered, including any important relationships to food, time of day, and other medicines being taken • ensure patients' understanding by repeating back pertinent information, such as when to return for monitoring and whether therapy continues after this single prescription • identify patients' concerns and expectations, and explain how medicines might affect their everyday lives	• 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 as appropriate • provide written / online information when available
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 • identify patients at increased risk from medications in the home (e.g. risk of misuse or diversion), and initiate risk mitigation practices (e.g. locked box for injectable medications) • report suspected adverse events to the Advisory Committee on	• check the dose before prescribing • monitor side effects of prescribed medicines • identify medication errors, and institute appropriate measures • use electronic prescribing systems safely • rationalise medicines to avoid polypharmacy

	Medicines, and record it in patients' medical records • participate in clinical audits to improve prescribing behaviour, including an approach to polypharmacy and prescribing cascade	
Teaching and learning	• use continuously updated software for computers and electronic prescribing programs • ensure patients understand management plans, including adherence issues • use appropriate guidelines and evidence-based medicine resources to maintain a working knowledge of current medicines, keeping up to date on new medicines	• undertake continuing professional development to maintain currency with prescribing guidelines • reflect on prescribing, and seek feedback from a supervisor
Research	• critically appraise research material to ensure any new medicine improves patient-oriented outcomes more than older medicines, and not just more a placebo • use sources of independent information that provide accurate summaries of the available evidence on new medicines • enrol patients in treatments and supportive care clinical trials, understanding the rationales and medications involved	• make therapeutic decisions according to the best evidence • recognise where evidence is limited, compromised, or subject to bias or conflict of interest • consider available evidence, guidelines, and clinical trials
Cultural safety	• explore patients' understanding of and preferences for non-pharmacological and pharmacological management • offer patients effective choices based on their expectations of treatment, health beliefs, and cost • interpret and explain information to patients at the appropriate level of their health literacy • anticipate queries to help enhance the likelihood of medicines being taken as advised • ensure appropriate information is available at all steps of the medicine management pathway	• 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	• make prescribing decisions based on good safety data when the benefits outweigh the risks involved	• 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

	• provide information to patients about: » how to take the medicine » potential side effects » what the medicine does » what the medicine is for » when the medicine should be stopped • make prescribing decisions based on good safety data when the benefits outweigh the risks involved • demonstrate understanding of the ethical implications of pharmaceutical industry-funded research and marketing	• follow organisational policies regarding pharmaceutical representative visits and drug marketing • explain the use of orphan medications in children
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 • 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 their history, current medicines, allergies, and preferences, ensuring that health care resources are used wisely for the benefit of patients	• prescribe in accordance with the organisational policy

Learning goal 10: Investigations and procedures

Theme	**Investigations and procedures**
Title	**Select, organise, and interpret investigations, and plan, prepare for, perform, and provide aftercare for important practical procedures**
Description	This activity requires the ability to: • select, plan, and use evidence-based clinically appropriate investigations and procedures • prioritise patients receiving investigations and procedures • evaluate the anticipated value of investigations and procedures • gain informed consent • collaborate with patients[12] to facilitate choices that are right for them • organise set up of equipment, maintaining an aseptic field • communicate aftercare protocols and instructions to patients and medical and nursing staff • perform investigations and procedures under appropriate sedation or anaesthetic • resolve unexpected events and complications during and after procedures • arrange procedural aftercare for patients • interpret results and outcomes of investigations and procedures, including imaging and reports • communicate the outcome of procedures and investigations to patients • perform this activity across relevant settings, including outpatients, theatre, and day clinics

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	• choose evidence-based investigations and procedures, and frame them as an adjunct to comprehensive clinical assessments • know local and international guidelines for investigations and procedures • assess patients' concerns, and determine the need for specific tests that are likely to result in overall benefits • recognise and correctly interpret abnormal findings, considering patients' specific circumstances, and act accordingly	• provide rationale for investigations and procedures • understand the significance of abnormal test results, and act on these • consider patients' factors and comorbidities • consider age-specific reference ranges • assess patients, and identify indications for investigations and procedures • perform a range of common procedures

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

	• develop plans for investigations and procedures, identifying their roles and timing • recognise and correctly interpret abnormal findings, considering patients' specific circumstances, and act accordingly • select procedures by assessing patient-specific factors, risks, benefits, and alternatives • confidently and consistently perform a range of common procedures • ensure team members are aware of all identified allergies and adverse reactions, and take precautions to avoid allergies and adverse reactions during procedures • ensure patients have complied with pre-procedure preparations • recognise and effectively manage complications arising during or after procedures • recognise and correctly interpret normal and abnormal findings of investigations and procedures • demonstrate knowledge of how stem cell collection and stem cell transplants are performed	• check for allergies and adverse reactions • consider risks and complications of procedures • interpret results of common diagnostic investigations and procedures • organise and document post-procedure review of patients
Communication	• explain procedures to patients clearly and sensitively, including reasons for investigations and procedures, potential alternatives, and possible risks, to facilitate informed choices and obtain consent • use clear and simple language, and check that patients understand the terms used and agree to proceed with proposed investigations and procedures • 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 the need for more information before deciding • address patients' concerns relating to procedures, providing opportunities to ask questions • tailor language according to patients' age and capacity to understand	• discuss the indications, risks, benefits, and complications of investigations with patients before ordering investigations • arrange investigations, providing accurate and informative referrals, and liaise with other services where appropriate • explain the process of procedures to patients without providing broader context • help patients to choose aspects of the procedures that can be modified, such as timing • communicate with members of procedural teams so all team members understand who each member is • discuss post-procedural care with patients • complete relevant patients' documentation, and conduct appropriate clinical handovers • explain the results of investigations to patients

	• use written or visual material or other aids that are accurate and up to date to support discussions with patients • explain findings or outcomes of investigations and procedures to patients in a considerate way • document procedures accurately and in detail in clinical notes, including: » aftercare » aseptic technique » informed consent » medicines given » procedures requested and performed » reasons for procedures • communicate effectively with all persons involved prior to, during, and after procedures, including team members and patients • identify appropriate proxy decision makers when required	
Quality and safety	• identify adverse outcomes that may result from proposed investigations and procedures, focusing on patients' individual situations • obtain informed consent or other valid authority before undertaking any investigation or procedure • set up all necessary equipment, and consistently use universal precautions and aseptic technique • confirm patients' identification and verify the investigation or procedure, and, where appropriate, the correct site / side / level for the procedure • ensure that information on patients' consent forms match investigations and procedures to be performed • identify, document, and appropriately notify of any adverse event or equipment malfunction • demonstrate principles of physician safety: » chemotherapy » radiation safety • discuss serious incidents at appropriate clinical review meetings	• consider safety aspects of investigations and procedures when planning them • seek help with interpretation of test results for less common tests or indications or unexpected results • provide information in a manner so patients are fully informed when consenting to any procedure • demonstrate a consistent application of aseptic technique • identify patients using approved patients' identifiers before any treatment or intervention is initiated • perform investigations and procedures in a safe environment

Teaching and learning	• use appropriate guidelines, evidence sources, and decision-support tools • participate in clinical audits to improve test ordering strategies for diagnoses and screening • refer to and/or be familiar with relevant published procedural guidelines prior to undertaking procedures • organise or participate in in-service training on new technology • provide specific and constructive feedback and comments to junior colleagues • initiate and conduct skills training for junior staff	• participate in continued professional development • help junior colleagues develop new skills • actively seek feedback on personal technique until competent
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 • be aware of relevant open clinical trials, and offer them to the patient • obtain consent for biobank samples and other biological samples as required for patient care or by clinical trials	• refer to evidence-based clinical guidelines • consult current research on investigations • consider samples required for biobanking or clinical trials
Cultural safety	• understand patients' views and preferences about any proposed investigations and procedures, and the adverse outcomes they are most concerned about • consider individual patients' cultural perceptions of health and illness, and adapt practice accordingly	• respect religious, cultural, linguistic, and family values and differences
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 or procedure has started and the patient is not able to participate in decision making • understand and perform procedures in accordance with institution or department protocols, ethical practices, and guidelines around performing procedures	• identify appropriate proxy decision makers • choose not to investigate in situations where it is not appropriate for ethical reasons • practise within current ethical and professional frameworks • practise within own limits, and seek help when needed • explain the expected benefits, burdens and risks of any proposed investigation or procedure before obtaining informed consent or other valid authority

	• demonstrate awareness of complex issues related to genetic information obtained from investigations, and subsequent disclosure of such information • show respect for knowledge and expertise of colleagues • maximise patient autonomy in decision making • advise patients there may be additional costs, which patients may wish to clarify	• perform procedures when adequately supervised • follow procedures to ensure safe practice
Judgement and decision making	• evaluate the costs, benefits, and potential risks of each investigation and procedure in a clinical situation • adjust the investigative path depending on test results received and in response to risks to individual patients • consider whether patients' conditions may get worse or better if no tests are selected • identify roles and optimal timings for diagnostic procedures • critically appraise information from assessments and evaluations of risks and benefits to prioritise patients on waiting lists • make clinical judgements and decisions based on available evidence • select the most appropriate and cost-effective diagnostic procedures • select appropriate investigations on the samples obtained in diagnostic procedures	• choose the most appropriate investigation for the clinical scenario in discussion with patients • recognise personal limitations and seek help in an appropriate way when required • prioritise which patients receive procedures first, if there is a waiting list • use tools and guidelines to support decision making • recognise optimal procedures for patients • consider whether a paediatric, adolescent and young adult (AYA), or adult setting may be more appropriate to conduct investigations or procedures
Leadership, management, and teamwork	• consider the role other members of the health care team might play, and what other sources of information and support are available • ensure team members are confident and competent in their assigned roles • coordinate efforts, encourage others, and accept responsibility for work done • ensure results are checked in a timely manner, taking responsibility for following up results	• demonstrate understanding of what parts of an investigation are provided by different doctors or health professionals • ensure all relevant team members are aware that a procedure is occurring • discuss patients' management plans for recovery with colleagues

	• provide staff with clear aftercare instructions, and explain how to recognise possible complications	
Health policy, systems, and advocacy	• select and justify investigations regarding the pathological basis of disease, appropriateness, utility, safety, and cost effectiveness • initiate local improvement strategies in response to serious incidents • use resources efficiently when performing procedures and ordering investigations • know relevant local and international guidelines for investigations and procedures	• perform investigations and procedures in accordance with organisational guidelines and policies

Learning goal 11: Critical appraisal of evidence

Theme	Critical appraisal of evidence	
Title	**Critical appraisal of evidence to provide the best cancer care, ensuring patient safety, wise allocation of resources, and advancement of research through evidence-based practice**	
Description	This activity requires the ability to: • examine research evidence to judge its value and relevance in a clinical context • prepare informed decisions about cancer treatments' efficacy and toxicities of treatment using the best available evidence • identify biases and limitations in research findings to prevent adoption of ineffective, clinically insignificant, or potentially harmful treatments • prioritise interventions with proven efficacy to optimise resource allocations and reduce health care costs • facilitate shared decision making between patients[13] and clinicians using the best available evidence • identify gaps in existing knowledge to improve future research • participate in developing institutional policy and guidelines to ensure they are evidence-based and up to date	
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	• demonstrate proficiency in evidence-based medicine • use research critically to provide considered expert opinions in all aspects of clinical care, including at multidisciplinary team meetings • be able to have evidence-based discussions with colleagues within and out of the specialty where a difference in opinion is observed	• interpret and discuss key findings from trials related to cancer management • keep up to date with the publication and presentation of practice-changing evidence with reference to clinical cases
Communication	• facilitate shared decision making with patients and their families on treatment options based on the best evidence, with the ability to have detailed discussions of the available evidence if required and appropriate • communicate evidence in a way that is understandable for patients and their families or carers	• be able to refer to the available evidence when making shared decisions with patients and their families

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

	• communicate effectively with multidisciplinary team members, such as allied health staff, scientists, and statisticians, regarding best practice updates	
Quality and safety	• document the rationale behind decisions, including factors considered, evidence and research findings, and patients' input as reference for future care	• demonstrate awareness of updated consensus treatment guidelines and standards of care, with an ability to compare research findings with established best practices
Teaching and learning	• contribute to teaching sessions to ensure critical appraisal skills are transferred successfully to other members of the health care team	• proactively seek to improve own ability for critical appraisal
Research	• demonstrate proficiency in the principles of evidence-based medicine, such as hierarchy of evidence, systematic reviews, and critical appraisal tools, to evaluate research quality • identify gaps and evidence that will lead to future research • prepare reviews of literature on patients' encounters to present at journal club meetings	• demonstrate understanding of research methodology, such as study design, statistical analysis, and data interpretation, to identify biases, flaws, and limitations in research studies
Cultural safety	• communicate with careful consideration to health literacy, language barriers, and culture, respecting patients' choices • consider gaps in evidence surrounding cultural groups, and consider ways to improve equity in clinical trial opportunities	• recognise the timing, location, privacy, and appropriateness of sharing information with patients • recognise barriers to inclusion in clinical trials and the limitations of evidence due to under-representation of cultural groups
Ethics and professional behaviour	• reflect on the ethical implications of applying evidence or research findings, especially in cases where evidence may be limited, experimental, or controversial • continue self-learning and sharing updates on critical appraisal techniques, new evidence, and best practices to ensure own knowledge remains current	• understand the ethical aspects of oncology research to ensure research integrity, such as patient consent, research ethic boards, and conflicts of interest
Judgement and decision making	• determine the applicability of research findings to patients' cohorts, considering factors such as age, comorbidities, and patient treatment preferences • consider the potential benefits and risks of implementing treatments based on research findings or evidence in clinical practice, considering the impact on patient outcome, quality of life, and potential adverse effects	• assess the quality of research, including study design, methodology, and data analysis to determine reliability and validity of presented evidence

Leadership, management, and teamwork	• communicate with multidisciplinary members effectively to facilitate the exchange of ideas and perspectives on new evidence • identify areas of improvement, and implement evidence-based changes in the practice or institution	• promote best practice treatment based on evidence-based findings
Health policy, systems, and advocacy	• provide recommendations for local and institutional guidelines, based on best available evidence • make effective decisions on resource allocation for treatment options with best efficacy, considering adverse effects and impact on quality of life • advocate for improved access to new diagnostics, treatments, and research funding	• promote shared decision making and patient-centred care based on best clinical evidence

Knowledge guides



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

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

#	Title
12	**Foundations of paediatric oncology**
13	**Acute and emergency paediatric oncology care**
14	**Oncological conditions**
15	**Principles of management, including anticancer therapies and supportive care**

EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES

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

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

Anatomy

- Knowledge of anatomy, with an emphasis on tumour sites and common anatomical routes of metastases
- Relevant anatomy related to type of cancer and potential for metastases

Epidemiology

- Context within childhood illness
- Incidence of childhood cancers:
  - » adolescent and young adult
  - » childhood
  - » ethnic and geographic variability
  - » infant
- Risk factors
- Survival and outcomes

Pathophysiology of childhood cancer (including but not limited to)

- Cellular factors:
  - » cell cycle control:
    - cell cycle control in cancer
    - process of cell division and apoptosis
  - » gene expression and signal transduction pathways
  - » tumour microenvironment, such as:
    - angiogenesis
    - components of the microenvironment
    - immune system and tumour immunology
    - mechanisms of tumour cell invasion and metastasis
- Genetic and molecular factors:
  - » germline / somatic:
    - chromosomal abnormalities
    - epigenetic changes
    - gene deletions / duplications / fusions / rearrangements / translocations
- Growth, developmental, and environmental factors

Pharmacology

- Nutrition and fluid management:
  - » alternative types of nutrition and administration techniques:
    - gastrostomy / nasogastric / nasojejunal tubes
    - parenteral nutrition
  - » fluid and caloric requirements by age and weight
  - » fluid requirements for treatment of various presentations and chemotherapies
- Pharmacodynamics, pharmacogenomics, and pharmacokinetics, such as:
  - » compassionate access to therapeutic agents through direct interaction with sponsors and pharmaceutical companies
  - » differences between countries with respect to new drug development and approval mechanisms, equity, and availability of clinical trials

- drug approval and marketing processes in Australia / Aotearoa New Zealand, including off-label use of chemotherapy medications for paediatric patients
- indications, pharmacodynamics, pharmacogenomics, pharmacokinetics, potential interactions, and side effects of:
  - chemotherapy agents
  - chemotherapy combinations, interactions, and contra-indications
  - emerging novel therapies, including biologics and immune therapy
  - supportive care medications
- issues surrounding cancer drug approval, prescribing, and availability
- local policies for intrathecal cytotoxic therapy
- protective agents against toxicity, such as dexrazone with anthracyclines
- relevant regulatory requirements, such as opioid prescribing
- specificities of paediatric dosing, such as:
  - age
  - body surface area
  - size
  - weight

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[14], families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.

General

- Informed consent / assent process
- Interpretation of results
- Local and international guidelines for investigations and procedures
- Quality of life and patient-reported symptom measures
- Safety guidelines for patients, families, whānau, and staff in relation to body fluids and radiation
- Techniques, benefits, and potential complications of investigations and procedures

Imaging

- Anatomical
- Functional imaging, such as PET scans and other radionucleotide imaging
- Image guided procedures

Pathology

- Biopsy approaches, such as:
  - excisional
  - fine needle
  - image guided
  - open
  - under general / local anaesthetic
- Genetic and molecular testing
- Samples required for accurate and complete diagnostics

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

Procedures

- Access and collection of blood from central lines
- Anaesthetic, analgesia, and sedation as per local and international guidelines
- Bone marrow:
  - aspiration and trephines
  - harvests
- Capillary blood sampling
- ECG
- Lumbar puncture and intrathecal chemotherapy administration
- Nasogastric tube insertion
- Non-invasive blood pressure measurement
- Pleural aspiration
- Skin biopsies
- Urinary collection and testing
- Venesection

IMPORTANT SPECIFIC ISSUES

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

Clinical trials and research

- Analysis, interpretation, and application of results
- Design, conduct, analysis, and reporting
- Enrolment on and removal from a trial
- Ethical issues
- Role of collaborative study groups, such as:
  - Australian and Aotearoa New Zealand Children's Haematology and Oncology Group (ANZCHOG)
  - Children's Oncology Group (COG)
  - International Society for Paediatric Oncology (SIOP)
- Role of registries

General management considerations

- Adherence to treatments
- Advance care planning and referral to palliative care for patients with advanced stage disease, recurrent / relapsed disease, and known poorer outcomes
- Communication appropriate to patients' developmental stage and psychosocial circumstances
- Complicating premorbid conditions or conditions related to treatment, such as:
  - cognitive impairment
  - fatigue
  - mood changes
  - neurological impairments
  - vision and hearing loss
- Consideration of patient demographics when managing and following up patients (travel from rural to metropolitan areas), such as geographic location, socioeconomic status, ethnicity, and cultural background
- Consideration of stresses related to body changes and subsequent altered social and peer interactions due to cancer and treatment, such as amputation, hair loss, and weight changes
- Educational and vocational considerations, such as supporting continued education through treatment, and assisting with facilitating special requirements
- Family-centred and multidisciplinary models of care

- Fertility preservation considerations
- Genetic testing and implications
- Goals of therapy
- Individual patient clinical indications to determine patients' needs and the most appropriate approaches to investigations and care
- Late effects of cancer and therapies, and the importance of long-term follow-up
- Monitoring and managing side effects during treatment
- Principles of multi-modal therapy
- Shared care with local practitioners for patients not living close to main treatment centres
- Supportive care during cancer diagnosis and treatment (medical as well as psychosocial)
- Unique and critical needs of children and young people with cancer

Policy and provision of cancer care

- Advocacy for patients
- Contribution to implementation of national and local health policies, health service targets, and development of service
- Duty of professionals working with children with respect to safety and child protection concerns
- Government:
  - policies on cancer notification
  - programs and policies that affect the health of cancer patients
- Legal and ethical guidelines relating to:
  - competence
  - confidentiality
  - informed consent for treatment
  - parents or carers as surrogate decision makers
  - privacy
  - the right to refuse treatment
- Legal and practical issues related to:
  - assisted dying legislation
  - initiation of therapy
  - postmortem and coroner referrals
  - withdrawal of care
- Local and major international agencies and organisations with a role in cancer control, research, and/or treatment
- Role of government and legal aspects in the provision of health care

Learning goal 13 – Acute and emergency paediatric oncology care

Medical Oncology, Paediatrics & Child Health

KEY PRESENTATIONS AND CONDITIONS

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

Presentations (including but not limited to)

- Cardiovascular:
  - hypertension
  - tachycardia
- Gastrointestinal and nutrition:
  - abdominal distension or pain
  - abdominal mass
  - altered bowel habit
  - anorexia and reduced intake
  - hepatosplenomegaly
  - mouth ulceration
  - nausea and vomiting
- Genitourinary:
  - haematuria
- Haematological:
  - anaemia
  - bleeding, bruising, and petechiae
  - lymphocytosis, lymphopenia, and neutropenia
  - pallor
  - thrombocytopenia and thrombocytosis
- Lymphatic system:
  - lymphadenopathy
- Musculoskeletal:
  - bony mass
  - pain
  - soft tissue mass
- Neurological:
  - headache
  - impaired conscious state
  - seizures
  - visual loss
- Ophthalmologic:
  - loss of red reflex
  - proptosis
- Respiratory:
  - chest pain
  - cough
  - dyspnoea
- Skin:
  - rash

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 diagnoses
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[15] 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

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

- Systemic / General:
  - acutely unwell
  - allergy symptoms and anaphylaxis
  - fever
  - pain
  - weakness and fatigue

Conditions (including but not limited to)

- Cardiovascular:
  - cardiac tamponade
  - cardiotoxicity from anthracyclines
  - superior vena cava syndrome
- Gastrointestinal and nutrition:
  - constipation
  - malnutrition
  - mucositis
- Genitourinary:
  - haemorrhagic cystitis
- Haematological:
  - anaemia
  - bleeding due to thrombocytopaenia
  - coagulopathy
  - hyperleucocytosis
- Immunologic:
  - cytokine release syndrome
  - immune-related complications of cellular / immunotherapy, and grading of these
- Infectious:
  - febrile neutropenia
  - sepsis
  - pneumonia:
    - atypical
    - bacterial
    - fungal
    - pneumocystis jirovecii
    - viral
- Metabolic:
  - adrenal insufficiency
  - tumour lysis syndrome
- Neurological:
  - posterior reversible encephalopathy syndrome (PRES)
  - raised intracranial pressure from intracranial lesion or drug toxicity
  - spinal cord compression
- Respiratory:
  - anterior mediastinal mass / airway compression from upper airway mass

	• Systemic / General: » anaphylaxis » dehydration	
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** • Adrenal insufficiency and acute adrenal crisis • Coagulopathy related to acute promyelocytic leukaemia • Disseminated intravascular coagulation • Horner syndrome • Immune effector cell-associated neurotoxicity syndrome (ICANS) • Opsoclonus myoclonus ataxia syndrome • Paraneoplastic syndromes	
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Acute toxicities and complications of treatment on different organs and systems • Anatomical compression from masses on: » airway » bowel, such as Burkitt lymphoma » spinal cord » vascular systems • Haematological complications • Immunosuppression and infectious complications • New oncology diagnoses presentations	
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.	**Assessment** • Full examination and history, such as height and weight • Grading of toxicities, such as by Common Terminology Criteria for Adverse Events (CTCAE) • Mucositis score • Pain score **Investigations** • As indicated by presentation and suspected diagnosis • Basic observations • Blood cultures (as per local guidelines) and other microbiological investigations as indicated • Blood work as indicated: » biochemistry » coagulation studies » full blood examination (FBE) • Imaging: » chest x-ray » CT scan » others as clinically indicated • Immediate IV access, with aim of central venous access • Inflammatory markers as appropriate • Referral to other specialist teams as appropriate	

Procedures

- Cardiorespiratory resuscitation
- Central line / IV access
- Conscious sedation
- Indwelling urinary catheter
- Insertion of intraosseous needle
- Intradermal, intramuscular, intravenous, and subcutaneous injections
- Nasogastric tube insertion
- Needle thoracocentesis for pleural effusion

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.

General management considerations

- Consider goals of therapy
- Consider patients' demographics, including geographic location, socioeconomic status, ethnicity, and cultural background when managing and following up patients, such as travel from rural to metropolitan areas
- Consider timing of decisions and risks for individual patients:
  - advance care planning and referral to palliative care for patients with advanced stage disease, recurrent / relapsed disease and known poorer outcomes
  - compliance with treatments
  - complicating premorbid conditions or those related to treatment, such as:
    - cognitive impairment
    - fatigue
    - mood changes
    - neurological impairments
    - vision and hearing loss
  - consideration of stresses related to body changes and subsequent altered social and peer interactions due to cancer and treatment, such as amputation, hair loss, and weight changes
- Impact of comorbidities on diagnosis and management
- Multidisciplinary care in management and treatment
- Tailor communication according to patients' age, developmental stage, and psychosocial circumstances
- Unique requirements of adolescents and young adults (appropriate language and setting)

Specific management considerations

- Emergencies require prompt assessment and management, including escalation of care as required
- Goals of care
- Monitoring and managing side effects during treatment

KEY PRESENTATIONS AND CONDITIONS

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

Presentations

- Abdominal mass
- Abnormal movement issues, such as:
  - limp
- Asymptomatic finding on surveillance investigations
- Bowel / Bladder dysfunction
- Cytopaenias, such as:
  - anaemia
  - pancytopenia
  - thrombocytopenia
- Hyperleukocytosis
- Lymphadenopathy
- Pain, such as:
  - bone
  - joint
- Raised intracranial pressure
- Significant family history
- Skin lesions, such as:
  - atypical rashes
  - nodules
  - petechiae
- Spinal cord compression
- Systemic symptoms:
  - anorexia
  - fever
  - weight loss
- Thoracic mass, such as:
  - mediastinal
- Tumour lysis syndrome

Conditions

- Central nervous system tumours:
  - atypical teratoid rhabdoid tumour
  - choroid plexus carcinoma
  - craniopharyngioma
  - embryonal tumours of the central nervous system
  - ependymoma
  - high-grade glioma, including diffuse midline glioma
  - intracranial germ cell tumour
  - low grade glioma
  - medulloblastoma

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 diagnoses
- plan and arrange appropriate investigations
- consider the impact of illness and disease on patients[16] 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

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

- Leukaemia:
  - acute lymphoblastic leukaemia
  - acute myeloid leukemia and subtypes
  - juvenile myelomonocytic leukaemia
  - other rare leukaemia, such as:
    - acute undifferentiated leukaemia
    - chronic myeloid leukaemia
- Lymphoma:
  - Hodgkin
  - non-Hodgkin
- Non-central nervous system solid tumours:
  - endocrine tumours:
    - adrenocortical
    - phaeochromocytoma
    - thyroid cancers
  - germ cell tumours
  - hepatoblastoma
  - hepatocellular carcinoma
  - histiocytic disorders, such as Langerhans cell histiocytosis
  - metastasis
  - nephroblastoma
  - neuroblastoma and other peripheral nerve cell tumours
  - neuroendocrine tumours of childhood
  - renal cell carcinoma
  - retinoblastoma
  - sarcomas:
    - Ewing sarcoma / primitive neuroectodermal tumours
    - osteosarcoma
    - rhabdomyosarcoma
    - soft tissue sarcoma
    - undifferentiated sarcoma
- Non-malignant haematological conditions:
  - anaemia and polycythaemia
  - bone marrow failure / dysfunction, such as aplastic anaemia
  - haematologic and thrombotic emergency conditions
  - haemolytic disorders, such as:
    - haemolytic uremic syndrome
    - thrombotic thrombocytopenic purpura
  - haemophilia

	» histiocytic disorders, such as hemophagocytic lymphohistiocytosis » lymphopenia and lymphocyte subsets » myelodysplasia and myeloproliferation » neutropoenia and neutrophilia » other common bleeding disorders, such as von Willebrand disease • Stem cell transplant and cellular therapies: » complications, such as: ○ graft-versus-host disease (GvHD) ○ sinusoidal obstruction syndrome (SOS) ○ veno-occlusive disease (VOD) » conditioning regimens » donor lymphocyte infusion » donor selection » GvHD prophylaxis » indications • Thrombocytopaenia and thrombocytosis	
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** • Adult cancers presenting in childhood, such as: » gastrointestinal tumours » nasopharyngeal carcinomas • All paediatric cancers can present with non-specific and undifferentiated symptoms, and in atypical locations • Lymphoproliferative diseases and malignancies related to immunodeficiency and infection, such as post-transplant lymphoproliferative disorders • Non-malignant conditions that are treated by oncologists as may benefit from similar pathways, such as neurofibromatosis lesions • Other leukaemia, such as: » chronic subtypes, such as chronic myeloid leukaemia » other variants • Other rare solid tumours, such as rhabdoid • Premalignant haematological conditions, such as: » myelodysplasia » myeloproliferative disorders	

	• Skin cancers, such as: » Kaposi sarcoma » melanoma **Conditions** • Horner syndrome • Malignant bone fractures • Paraneoplastic syndromes, such as opsoclonus-myoclonus-ataxia syndrome • Pruritis • Skin nodules • Undifferentiated symptoms
EPIDEMIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL SCIENCES Advanced Trainees will have a comprehensive depth of knowledge of the principles of the foundational sciences.	• Anatomical biochemistry, cellular and molecular biology, genomics, immunology, pathology, and pharmacology of cancer, such as cancer immunology, including biologics and immunotherapy • Epidemiology, including (but not limited to) age, geographic, and sex distribution, incidence, and prevalence of cancers, along with predisposing factors, if known • Genetic disorders, genetics of malignancy, malignancy associations, and underlying syndromes • Pathophysiology of premalignant and malignant diseases, and non-malignant haematological diseases, including genetics and neoplasia development, and role of chronic inflammation and tumour microenvironment
INVESTIGATIONS, PROCEDURES, AND CLINICAL ASSESSMENT TOOLS Advanced Trainees will know the scientific foundation of each investigation and procedure, including relevant anatomy and physiology. They will be able to interpret the reported results of each investigation or procedure. Advanced Trainees will know how to explain the investigation or procedure to patients, families, and carers, and be able to explain procedural risk and obtain informed consent where applicable.	**Investigations** • Appropriate aspirates, biopsies, and tissue samples: » fine needle versus trucut versus excisional biopsies (image guided or open) » importance of biobanking » research or clinical trials samples » role of second opinions and central review » samples for anatomic pathology / morphology » tissue samples (fresh / frozen) and their role in diagnosis / prognosis: ○ cytospin ○ fluorescence in situ hybridization / polymerase chain reaction ○ immunohistochemistry ○ molecular pathology and cytogenetics: ▪ karyotyping and gene panel analysis ▪ next-generation sequencing or whole exome sequencing ▪ precision medicine programs • Cancer staging and risk stratification by tumour type in paediatrics • Complete history and examination • Establishing the diagnosis • Imaging and its relevance depending on cancer type: » anatomical: ○ CT scan ○ MRI ○ plain film ○ ultrasound

- functional / nuclear medicine scans:
  - bone scans
  - metaiodobenzylguanidine
  - PET
- Intent to cure and principles of management according to tumour risk, stage, and type, such as:
  - local control measures, which may include surgery
  - radiation
  - systemic therapy
- Other investigations:
  - audiology assessment
  - ECG
  - electrocardiographic
  - endoscopy
  - fertility assessment and preservation
  - formal renal function, such as:
    - diethylenetriaminepentaacetic acid
    - glomerular filtration rate
  - lung function
- Presentation of case at appropriate specialised multidisciplinary meetings
- Relevant blood investigations
- Special tests:
  - alpha-fetoprotein
  - beta human chorionic gonadotropin
  - chromogranin A
  - inflammatory markers, such as:
    - C-reactive protein (CRP)
    - erythrocyte sedimentation rate
  - plasma metanephrines
  - tumour burden markers, such as lactate dehydrogenase
  - urine catecholamines

Procedures

- Baseline height, nutritional assessment, physical activity level, and weight
- Bone marrow aspiration and biopsy
- Central line access
- Fertility preservation
- Lumber puncture and intrathecal chemotherapy administration
- Omaya access

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.

General management considerations

- Advance care planning, such as referral to palliative care for patients with advanced stage disease, recurrent / relapsed disease, and known poorer outcomes
- Consideration of stresses related to body changes and subsequent altered social and peer interactions due to cancer and treatment, such as amputation, hair loss, and weight changes
- Goals of therapy
- Multidisciplinary care in management and treatment
- Shared care with local practitioners for patients not living close to main treatment centres

- Special considerations and communication related to patients' age, developmental stage, and psychosocial circumstances
- Other considerations, such as:
  - drug levels and toxicity monitoring
  - drug sensitivity testing, such as thiopurine methyltransferase genotype for thiopurine
  - enrolment in appropriate clinical trials if appropriate, such as precision medicine programs
  - genetic testing, including for predisposition syndromes as appropriate
  - multidisciplinary team discussions of all new diagnoses
  - pharmacogenomics testing
  - precision medicine assessment techniques, and multidisciplinary curation of results
  - prophylactic treatment as indicated, such as immunoglobulin
  - quality of life and patient-reported symptom measures
  - rehabilitation
  - tumour surveillance post-treatment and in at-risk populations, such as:
    - genetic susceptibility
    - immunodeficiency
    - post-infectious
    - syndromes
- Unique requirements of adolescent and young adult population

CLINICAL SCIENCES

Advanced Trainees will describe the principles of the foundational sciences.

Effects of cancer on growth and development

- Cancer effects on young patients[17] and their families, whānau, and/or carers regarding development, education, and functioning
- Developmental assessments during and after treatment
- Educational, employment, financial, and vocational impacts of cancer diagnosis and treatment
- Effects of cancer, recurrence, and chronic illness on growth and emotional, physical, psychosocial, and sexual development
- Impact of diagnosis and treatment on later development, such as brain radiation to learning
- Impact on fertility, and the evidence, role and timing for fertility preservation
- Importance of advocacy for patients and families
- Physiological changes in growth and development as they relate to cancer and non-malignant haematological disorders, such as:
  - » maturation of organs and tissues
  - » normal laboratory values
- Psychosocial impacts of cancer and possible interventions, such as:
  - » coping mechanisms of patients and their families / whānau within the context of the cancer diagnosis
  - » impacts on siblings of children with cancer

Indications for and basic principles of the major therapies used in cancer

- Chemotherapy:
  - » chemotherapy concepts, interactions, and protocols
  - » classes of chemotherapy
  - » dosing and delivery
  - » monitoring compliance and side effects
  - » pharmacogenomics, side effects, and toxicity
  - » principles of chemotherapy
- Immunotherapy:
  - » classes of immunotherapy
  - » other cellular therapies, such as:
    - cytotoxic T cells
    - donor lymphocyte infusions
  - » principles of immunotherapy
  - » side effects and monitoring of immune effects
- Principles of transplants:
  - » allogeneic donor selection and source
  - » autologous transplant
  - » complications
  - » complications post-transplant
  - » conditioning, principles and toxicity

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

- indications and principles of stem cell transplant, autologous and allogeneic, across malignant and non-malignant conditions, such as:
  - benign haematology
  - inborn errors of immunity and metabolism
- principles of autologous transplant

- Radiation:
  - basic scientific principles
  - benefits, indications, and risks
  - role of chemotherapy as radiosensitiser
  - timing and dosing of radiation
  - types, including:
    - brachy
    - photon
    - proton
    - radionuclide
- Surgery:
  - impact of surgery on growth and development
  - principles of surgical control
  - timing
- Targeted therapies:
  - targeted therapy classes

Overriding principles of treatment

- Biological, genetic, and molecular factors in diagnostics, prognosis, and treatment
- Features and clinical presentations of childhood malignancy, and how to stage different cancers
- How to manage patients from diagnosis to long-term follow-up or palliative care, taking into account age, cultural, environmental, and family circumstances, and pre-existing situation
- Principles of biopsy, definitive surgery, and optimal handling of tissue for bio-banking, biological studies, and diagnosis
- Principles of curative intent for most diagnoses with systemic treatment and local control, with aim of long-term survival and use of least toxic therapy for cure or best amelioration of symptoms
- Role of multidisciplinary care required in oncology management, including oncologists, radiation oncologists, surgeons, and other subspecialty teams

Prevention and early detection

- Application of cancer screening
- Early detection principles and methods
- Education of primary health care and the general population about recognition of potential cancer diagnoses
- Immunisations and prevention of cancer, such as:
  - human papillomavirus vaccination
  - sun protection for skin
- Promotion of healthy lifestyle in transition to adulthood
- Risk of potential second malignancies in childhood cancer survivors
- Role of genetics and cancer predisposition syndromes, and applicable screening surveillance

Principles and conduct of oncology clinical trials and research

- Appropriate diagnosis, such as subtypes and risk / staging assignment to guide treatment
- Biomarker development
- Case reports
- Community / Policy prevention measures
- Concept of study types, and ability to explain these to patients and parents
- Considerations / Difficulties around informed consent / assent, such as gaining consent for a randomised clinical treatment trial with a family who have recently been given a potentially life-threatening diagnosis
- Ethical principles guiding research
- Evolution of current clinical trials and treatment outcomes
- Good Clinical Practice in line with international directives for all aspects of the conduct of clinical trials
- Issues around collaborative working, both nationally and internationally, in the development of clinical trials for childhood malignancy, such as knowledge of large study bodies
- Levels of evidence and classes of recommendations
- National clinical guidelines and how they guide practice
- Population risk determination of disease:
  - randomised control trials
  - registry analyses
- Principles of cancer drug development and the rapidly evolving landscape of clinical trials in cancer
- Role and importance of clinical trials in patient care and outcomes
- Systematic reviews and meta-analysis

Principles of supportive care

- Antiemetics for nausea and vomiting
- Appropriate referral and involvement of other specialities
- Cardiac protection
- Fertility preservation considerations prior to commencement of therapy
- Haematological, such as:
  - anaemia
  - coagulation issues
  - neutropenia
  - thrombocytopaenia
- Infection:
  - febrile neutropenia
  - fungal and viral infections
  - immunisation
  - immunity and infection
  - prophylaxis
- Management of side effects, such as the use of aperients and anxiolytics
- Managing, monitoring, and recording toxicities
- Nutrition:
  - assessment of nutritional requirements
  - cachexia and malnutrition
  - fluid management
  - management of nutrition

	• Pain and symptom control • Principles of survivorship and late effects, such as: » assessment of chronic / late drug toxicities » management of the fear of cancer recurrence • Psychosocial and allied health care
ELIGIBILITY CONSIDERATIONS Advanced Trainees will assess patients' current conditions and plan the next steps.	• Diagnosis, stage of cancer, and goals of care • Impacts of cultural, ethnic, geographical, psychological, and socioeconomic factors in the accessibility, compliance, and suitability of specific treatments for patients • Indications for specific anticancer therapies (pharmacological and non-pharmacological) in the adjuvant, concomitant, definitive, neoadjuvant, and palliative settings • Off-label use of treatments, such as increasing trials in younger age groups of new agents • Potential effect of patients' comorbid medical conditions on the toxicity and efficacy of treatments • Special conditions that influence treatment, including age and developmental stage
LESS COMMON OR MORE COMPLEX PATIENT CONSIDERATIONS Advanced Trainees will understand the resources that should be used to help manage patients.	• Conflicts in care decisions • Delayed diagnoses • Early palliative care involvement for high-risk cancers with poor prognosis, and role in symptom management for patients • Impact of underlying conditions on treatment, such as genetic disorders and immunodeficiencies • Indications and role of repeating biopsies, monitoring and predictive testing, such as repeating immunohistochemistry or molecular testing after progression to guide future therapy • Interplay between medical and psychological comorbidities, socioeconomic and cultural factors in patient presentations, and therapy choices and care wishes • Management of complex presentations • Oncological emergencies • Surgical techniques, such as limb sparing, and impacts on morbidity
UNDERTAKING THERAPY Advanced Trainees will monitor the progress of patients during the therapy.	• Adjustment to drug dosing: » as per body surface area of patient, drug / therapy interactions, pharmacogenomics (if known), radiosensitisation, and toxicity » for pre-existing conditions: ○ obesity ○ pharmacogenomics • Awareness of protocols and clinical guidelines for conditions • Close monitoring of patients during treatment for acute or other side effects, and appropriate documentation • How to measure quality of life and patient-reported outcomes • How to recognise and manage oncological emergencies • Informed consent for treatments • Multidisciplinary team approach to treatment and management, such as: » infectious diseases » radiation oncologists » surgeons

	» other speciality teams as required, and re-present patients in multidisciplinary medical / psychosocial meetings to ensure optimal care • Tailoring management to specific ages
POST THERAPY Advanced Trainees will know how to monitor and manage patients post therapy.	• Monitor for and manage any side effects post therapy, from diagnosis, different treatments used, and psychosocial impacts • Post-transplant care, and management of complications • Surveillance in cancer predisposition syndromes, and awareness of risk factors for second malignancies • Transition to adult care, palliative care, and other specialists in a timely manner **Late effects of treatment / survivorship care** • Fertility and sexual health issues • Genetic counselling • Impacts on education, lifestyle, socialisation, and vocation • Impacts on normal growth and development • Mental health and neuropsychological effects • Potential: » long-term complications of cancer, chemotherapy, surgery, radiation, surgery, and other systemic treatments in childhood » second malignancies • Specific organ issues, such as: » cardiac » lung dysfunction » neurological » vascular
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.	• Childhood cancer in context of family and environment, such as the need for appropriate and sensitive communication around diagnosis and treatment initiation • Ethical issues within paediatric oncology • Importance of quality of life during treatment, and the associated need for supportive care and allied health support • Need to review and modify management plans, as required • Need to tailor management to specific age and developmental stage • Specific requirements and unique issues of adolescent and young adult patients • Timing of referral to palliative and end-of-life care services