



TRAINING ROADMAP FOR

GENETIC COUNSELLING ASSOCIATE



MINISTRY OF HEALTH
SINGAPORE

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FOREWORD

It is my pleasure to present the guidelines on Critical Work Functions (CWF), Key Tasks (KT), Technical Skills and Competencies (TSC) and the training roadmap (TR) for Genetic Counselling Associates. The guidelines represent the Ministry of Health's efforts to address the increasing demand for genetic counselling services and meet the healthcare needs of our population in the genomic era. While individual genetic conditions are rare, collectively these conditions can affect up to 10% of our population. These guidelines are intended to provide signposts to healthcare professionals who provide genetics information and education to their patients with rare diseases as part of routine care.

Defining the CWF, KT, TSC and TR for practitioners dealing with routine situations and relatively common genetic conditions will guide practitioners in providing the service. We hope that this will allow greater access to services, where Genetic Counselling Associates can meet the core needs of patients in routine situations, while ensuring that patients with more complex needs continue to receive the appropriate care with the full suite of genetics services.

The document will serve as a useful tool to guide practitioners' assessment of their current skills and the acquisition of skills

and knowledge that are relevant. Training providers and healthcare institutions may also use this as a framework to shape the curriculum to equip practitioners and the models of care being provided.

On behalf of the Ministry of Health, I would like to express my appreciation to the Panel for Genetic Counselling for their contributions over the past 2 years. Our thanks also goes out to service teams of our panel members who have provided their insights, expertise and experience in the formulation of these guidelines. We also look forward to the feedback of practitioners on how the document can be improved as these Guidelines are incorporated into your practice.

Thank you.

MS BREANA CHAM

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FOREWORD

The SkillsFuture Movement was launched in 2015, and has been gaining momentum since then. As the national skills authority, SkillsFuture Singapore has developed 34 Skills Frameworks together with sector agencies, enterprises, professional bodies and associations, tripartite partners, and training providers. These are important resources that have helped to set a common skills language and raised the skills literacy of our citizens, workforce, and employers. Workers and companies have also heeded the call to continually upskill themselves, to seize opportunities in a rapidly changing business environment.

This effort by the Ministry of Health and members on the Panel for Genetic Counselling to develop the training roadmap for Genetic Counselling Associates is a commendable one, as it is an important and critical step towards uplifting the professionalism of our healthcare workforce. It also facilitates the activation of skills supply through training programmes that can provide upskilling and reskilling opportunities. At a national level, it enables acquisition of skills by individuals to support skills deepening and career mobility, and complements our national jobs-skills intelligence to monitor

the skills utilisation of our Singapore workforce.

As SkillsFuture Singapore embarks on the next phase to build a skill-competitive workforce, we are thankful for the continued partnership with the Ministry of Health and the respective clinical professional panels to identify, disseminate and facilitate the acquisition of skills that matter to our economy.

Finally, I would like to congratulate the Ministry of Health and the clinical professional panels for working together to support the skills resilience and career health of our healthcare workforce. We look forward to continuing the partnership to build the next generation of skilled healthcare workforce for Singapore.

Thank you.

MS CHELVIN LOH

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**GENETIC
COUNSELLING
ASSOCIATE
TRAINING ROADMAP**





JOB ROLE DESCRIPTION AND PRE-REQUISITES

Job Role Description

A genetic counselling associate helps individuals, couples and families understand and adapt to the medical, psychological, familial and reproductive implications of the genetic contribution to specific health conditions. He/She should communicate effectively to obtain genetic and medical information, facilitates the genetic testing process, provides supervised genetic counselling and supports clinical administration in a clinical genetics service.

Genetic counselling associates may work in tertiary care centres, as part of the healthcare team comprising geneticists, genetic counsellors, nurses and laboratory staff to provide timely and routine genetic counselling services. They should be collaborative, patient-oriented and adaptable.

Job Role Pre-requisites

Qualifications	Diploma in Nursing or Degree in nursing/ biomedical sciences/ science/ medical-related field.
Type of work experience	Preferably with experience in patient care especially the following medical specialities: Paediatrics, Obstetrics & Gynaecology, Neurology, Oncology (with Haematology), Ophthalmology, Cardiology, Dermatology, Internal Medicine, Endocrinology.



CRITICAL WORK FUNCTIONS AND KEY TASKS

Critical Work Functions	Key Tasks
1 Conduct history taking and risk assessment	<ol style="list-style-type: none">1. Review patients' medical records and extract relevant family and social histories2. Identify the needs and expectations of the patient3. Construct at least a 3-generation pedigree using standard nomenclature4. Evaluate indication for referral and triage urgent or complex cases as necessary
2 Provide supervised genetic counselling	<ol style="list-style-type: none">1. Convey clinical and genetic information to patients appropriate to their individual needs2. Explain genetic test options available to patients3. Obtain patients' informed consent for genetic testing4. Document the genetic counselling session and communications with patients into medical record5. Communicate genetic results to patients6. Facilitate patient's adaptation to medical, psychological, ethical, legal, and familial implications of the genetic condition
3 Support clinical administration	<ol style="list-style-type: none">1. Document patients' medical and family history information and test results (database, registry, electronic medical system)2. Maintain inventories of all equipment and resource materials required for genetic counselling and testing3. Respond to queries about genetic testing from staff and patients4. Perform routine clinical administration and operations5. Document genetic counselling process and patient-related communications



CRITICAL WORK FUNCTIONS AND KEY TASKS

Critical Work Functions	Key Tasks
4 Manage cases	<ol style="list-style-type: none">1. Communicate with patients regarding follow-up appointments, genetic testing, and/or relevant referrals2. Discuss cascade testing options3. Liaise with relevant laboratories regarding genetic testing
5 Manage risk and quality	<ol style="list-style-type: none">1. Participate in quality improvement projects2. Identify safety risks and issues3. Assist in responding to incidents in compliance with organisation's incident management guidelines4. Suggest preventive and corrective measures for incidents5. Adhere to workplace health and safety standards
6 Provide education and training	<ol style="list-style-type: none">1. Assist Genetic Counsellors with the planning and organisation of education and training2. Participate regularly in Continuing Professional Development3. Participate in the development of patient education materials4. Promote service awareness to public and other healthcare professionals



SKILLS AND COMPETENCIES

Technical Skills & Competencies (“TSCs”)

Client Assessment for Genetic Counselling	Level 3
Clinical Records Documentation and Management	Level 3
Clinical Services Development	Level 3
Clinical Support Duties and Procedures	Level 3
Continuous Improvement Management	Level 2
Effective Patient Counselling	Level 3
Genetic Knowledge Analysis	Level 3
Health Promotion	Level 2
Intervention Planning in Genetic Counselling	Level 3
Inventory Control and Equipment Maintenance	Level 2
Patient Education in Genetics	Level 2
Professional, Legal and Ethical Healthcare Practice	Level 3
Service Quality Management	Level 1
Workplace Safety and Health	Level 1
Workplace Violence	Level 2

Critical Core Skills (“CCSs”)

Adaptability	Basic
Collaboration	Basic
Communication	Basic
Customer Orientation	Basic
Learning Agility	Basic

Refer to SSG's [website](#) for the CCS Reference Document.



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care	TSC: Client Assessment for Genetic Counselling
TSC Description	Select, apply and interpret assessment methods and tools appropriate to stakeholders
TSC Proficiency Level	Level 3
TSC Proficiency Description	Conduct assessment of routine cases and refer complex cases where necessary.
Knowledge	<ul style="list-style-type: none"> • Principles of effective interviewing • Relevant elements in patients' and family members' medical histories • Pedigree nomenclature • Range of presentation and issues of specific genetic conditions and routine cases • Range of evidence-based assessment methods and indications for escalation to senior staff • Multi-disciplinary assessment methods • Limitations of assessments and the relevant measures to rectify these issues
Abilities	<ul style="list-style-type: none"> • Identify information required to conduct assessment • Take appropriate steps to address the identified gaps in information • Evaluate appropriate medical and family history to obtain an accurate genetic risk assessment • Prepare for assessment • Verify the patient's identity and condition • Identify purpose of interviews and structure the interviews to achieve required outcomes • Interview patients and analyse patients' responses using clinical reasoning to identify relationships between assessment findings • Integrate information from case notes and other stakeholders



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Quality and Patient Safety

TSC: Clinical Records Documentation and Management

TSC Description	Appropriate documenting and managing of patient information to support clinical services
TSC Proficiency Level	Level 3
TSC Proficiency Description	Adhere to legal, ethical and professional policies and procedures in documenting patient information.
Knowledge	<ul style="list-style-type: none"> • Guidelines and standards pertaining to the creation, use, retention and destruction of clinical records • Various identifiers used for accurate patient identification including name, NRIC number and date of birth • Components required to be documented relevant to patient care • Data protection and privacy regulation • Importance of good record-keeping aligned to the organisation's guidelines • Professional terminologies and formats of clinical record documentation • Storage options and requirements for clinical records • Appropriate methods of case documentation
Abilities	<ul style="list-style-type: none"> • Identify and record patient's clinical information on organisation's templates in accordance with professional and organisational guidelines • Comply to legal requirements to safeguard patients' data according to Personal Data Protection Act (PDPA) • Store and archive clinical records in accordance with professional and organisational guidelines • Assist with the extraction of clinical data for analysis



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Quality and Patient Safety

TSC: Clinical Services Development

TSC Description	Drive and maintain clinical excellence through development of services
TSC Proficiency Level	Level 3
TSC Proficiency Description	Identify areas of clinical services that are lacking or require improvements and make suggestions on how to improve them
Knowledge	<ul style="list-style-type: none">• Current and new clinical services available within the organisation• Methods to collect patient or patient feedback on clinical services• Principles of evidence-based practices
Abilities	<ul style="list-style-type: none">• Provide feedback on areas of improvement for current clinical services offered• Collect staff and patient feedback on clinical services• Support quality improvement projects related to clinical services



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Patient Care		TSC: Clinical Support Duties and Procedures
TSC Description	Provide assistance with clinical duties and simple clinical procedures	
TSC Proficiency Level	Level 3	
TSC Proficiency Description	Support the execution of clinical duties and procedures	
Knowledge	<ul style="list-style-type: none"> • Basic medical terminologies • Types of clinical laboratory services • Organisational procedures relating to collection of specimens for laboratory testing • Types of equipment needed for clinical tests and procedures • Purpose, maintenance and storage of various equipment • Procedures to access patient information and patient records • Data protection and privacy regulation 	
Abilities	<ul style="list-style-type: none"> • Check that laboratory forms and specimen containers are labelled correctly • Assist with collection of patient's specimen • Communicate with patients on the procedural requirements • Address pre-procedure and post-procedure queries from patients and staff within scope of work • Escalate complex queries that require assistance according to organisation's protocol • Prepare medical letters and/or reports for dissemination to relevant parties after approval by supervising practitioners • Assist in genetic testing process • Comply to legal requirements to safeguard patients' data according to Personal Data Protection Act (PDPA) • Obtain consent from patients regarding the procedures • Perform necessary documentation for procedures administered 	



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Quality and Patient Safety

TSC: Continuous Improvement Management

TSC Description	Apply continuous improvement processes to optimise operating cost, task efficiency and effectiveness in production, services and processes
TSC Proficiency Level	Level 2
TSC Proficiency Description	Apply continuous process improvement to workplace activities as well as follow-through the improvement activities
Knowledge	<ul style="list-style-type: none"> • Principles of effective workplace organisation • Purpose and benefits of continuous improvement concepts • Application of continuous improvement techniques • Types of performance indicators
Abilities	<ul style="list-style-type: none"> • Identify areas for continuous improvement within own work area • Apply continuous improvement techniques • Assist in collecting, collating and compiling data to measure the outcomes of the improvements



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care	TSC: Effective Patient Counselling
TSC Description	Establish and maintain a relationship with patient through effective communication.
TSC Proficiency Level	Level 3
TSC Proficiency Description	Utilise basic counselling skills to communicate medical aspects of the genetic condition, as well as the psychological, ethical, legal and familial implications to patients and/or caregivers.
Knowledge	<ul style="list-style-type: none"> • Basic understanding of genetic counselling models, theories and approaches • Basic counselling skills • Self-awareness and reflective skills • Critical thinking and analysis skills • Principles and techniques for effective interpersonal communication • Social and cultural considerations in patient communication • Ethical and legal considerations in the handling and communication of sensitive or confidential information • Organisation guidelines and procedures on patient communication
Abilities	<ul style="list-style-type: none"> • Identify and address patient's concerns and expectations. • Engage in effective verbal communication and listening skills • Establish a mutually agreed-upon genetic counselling agenda with the patient • Build trust and rapport with patients and/or caregivers • Communicate with patients and/or caregivers to deliver case and facilitate patient's adjustment and decision-making • Explain patient's results and/or follow-up plans in a clear and concise manner cognizant of patient's health literacy • Discuss and negotiate goals and follow-up plans with patients and/or caregivers • Use appropriate techniques to communicate with people of diverse ages, backgrounds, beliefs, values and cultures. • Recognises own limitations in knowledge and capabilities, and seeks supervision when necessary.



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care	TSC: Genetic Knowledge Analysis
TSC Description	Demonstrate, utilise and integrate genetic and genomic knowledge in practice
TSC Proficiency Level	Level 3
TSC Proficiency Description	Summarise medical and genetic information and synthesise genetic counselling plan.
Knowledge	<ul style="list-style-type: none"> • Genetics of conditions encountered within scope of practice • Knowledge of routine case scenarios • Types of screening and diagnostic tests available and the expected outcomes • Indications, benefits and limitations of routine genetic test options • Educational and support resources
Abilities	<ul style="list-style-type: none"> • Prepare genetic counselling plan for assigned cases for review with supervisor • Verify pertinent medical and relevant genetic information for use in genetic counselling. • Utilise appropriate and relevant education materials • Communicate the nature of the genetic condition or genetic variant/change to be tested, including its relevant symptoms, penetrance, natural history and inheritance pattern to patient and/or caregiver and other clinical professionals • Explain the risk, benefits, limitations and possible outcomes/implications of the offered genetic test to patient and/or caregiver and other clinical professionals • Explain the purpose and procedure of the offered genetic testing to patient and/or caregiver and other clinical professionals • Analyse and interpret results for routine cases • Obtain patient consent as required for genetic testing • Document communication with patients on organisation's templates in accordance with professional and organisational guidelines



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Patient and/or Client Education and Health Promotion **TSC:** Health Promotion

TSC Description	Raise awareness to maintain and optimise health and well-being of patients
TSC Proficiency Level	Level 2
TSC Proficiency Description	Support health promotion activities to maintain and optimise health and well-being of patients
Knowledge	<ul style="list-style-type: none">• Models of health promotion within the practice• Educational initiatives that contribute to service awareness• Availability of existing services and their target audience
Abilities	<ul style="list-style-type: none">• Support health promotion activities• Assist in conducting health promotion activities, including public events• Communicate service availability to stakeholders



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● TSC Category: Patient Care		TSC: Intervention Planning in Genetic Counselling
TSC Description	Develop targeted intervention plans according to patient conditions and clinical practice guidelines	
TSC Proficiency Level	Level 3	
TSC Proficiency Description	Utilise evidence-based intervention plans for routine cases independently and refer complex cases.	
Knowledge	<ul style="list-style-type: none"> • Evidence-based intervention practices and methods • Clinical reasoning to justify interventions • Multi-disciplinary approaches to therapy planning • Factors that can influence patients' motivation to continue with therapeutic interventions 	
Abilities	<ul style="list-style-type: none"> • Identify and evaluate evidence-based testing approaches to address goals • Arrange tests for patients • Plan for follow-up appointments and facilitate referrals • Utilise evidence-based intervention plans according to patient assessment findings • Refer complex cases • Demonstrate appropriate prioritisations and patient review frequency • Ascertain patients' understanding of the problems and the intervention plans • Communicate intervention plans and rationale to patients and/or caregivers 	



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Department Management

TSC: Inventory Control and Equipment Maintenance

TSC Description	Perform inventory control and maintain equipment
TSC Proficiency Level	Level 2
TSC Proficiency Description	Maintain inventory control and equipment maintenance
Knowledge	<ul style="list-style-type: none"> • Types of inventory and items included in department inventory • Organisational protocols for notifying supervisor of equipment and resource material unavailability • Manufacturers' Instructions for storing and maintain equipment • Procedures for storing materials • Procedures for checking availability and maintenance of equipment, and resource materials
Abilities	<ul style="list-style-type: none"> • Conduct checks on equipment and resource materials to ensure that they are up-to-date • Support teams in storage and maintenance of equipment and resources • Ensure teams adhere to procedures in carrying out storage and maintenance of equipment and resource materials • Conduct checks to ensure the availability and maintain the supply of equipment and resources



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Patient and/or Client Education and Health Promotion **TSC:** Patient Education in Genetics

TSC Description	Communicate with patients and caregivers to deliver and facilitate the continuity of care
TSC Proficiency Level	Level 2
TSC Proficiency Description	Support in educating stakeholders on genetic conditions and the relevant management options available.
Knowledge	<ul style="list-style-type: none"> • Effective teaching techniques • Barriers to learning • Readiness of patients or caregivers in receiving information • Factors that influence the efficiency of delivering patient education programmes • Responsibilities and limitations of the roles of practitioners providing genetic counselling • Available sources of patient and/or support resources • Relevant genetic knowledge
Abilities	<ul style="list-style-type: none"> • Identify educational needs of the patients and their family members • Support in the development and updating of written, illustrative and audio materials for use in patient education with guidance • Provide genetics education and/ or management options to patients and caregivers • Determine appropriate types of delivery methods for patient education • Evaluate the patients' and/or caregivers' understanding of education topics • Give feedback to support learning



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Ethics and Professionalism

TSC: Professional, Legal and Ethical Healthcare Practice

TSC Description	Apply legal and ethical principles and professional code of conduct to uphold the integrity and reputation of the organisation and the profession
TSC Proficiency Level	Level 3
TSC Proficiency Description	Uphold principles of professional, legal and ethical conduct, policies and procedures and inclusive work practices into practice
Knowledge	<ul style="list-style-type: none"> • Guidelines and standards of regulatory bodies in the healthcare sector • Legal, ethical and regulatory requirements in professional practice • Principles of ethical and professional conduct and inclusive work practices • Ethical decision-making framework • Concept of patient advocacy in professional practice • Types of ethical issues and dilemmas and their impact on patients, caregivers and professional practice • Culturally inclusive policies and practices, including communication styles and methods • Workplace safety and health requirements relevant to professional role • Risk management principles and policies
Abilities	<ul style="list-style-type: none"> • Practice within professional boundaries • Apply decision-making process to resolve ethical dilemmas • Uphold the organisational, professional, legal and ethical policies and procedures to professional activities, • Advocate for the needs of patients, ensuring their safety, security and well-being and inclusiveness • Implement plans of care within legal, ethical and regulatory frameworks of professional practice



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

● **TSC Category:** Quality and Patient Safety

TSC: Service Quality Management

TSC Description	Manage, develop and review the quality with which services are provided to clients
TSC Proficiency Level	Level 1
TSC Proficiency Description	Adhere to service delivery standards and policies that have been set out by the department and organisation
Knowledge	<ul style="list-style-type: none"> • Legislation, policies, guidelines and procedures on quality standards • Components of service quality • Methods to reduce risks to service quality • Efficient use of resources to support quality standards • The importance of teamwork to provide quality service • Use of audits in service quality improvement • Client and family feedback processes • Escalation procedures
Abilities	<ul style="list-style-type: none"> • Identify how quality standards link to legislation, policies and procedures • Manage personal attitudes and behaviours in a work role and their impact on service quality • Execute personal responsibilities in line with service quality standards and procedures • Seek guidance from senior staff in service delivery and escalate issues for assistance • Utilise resources appropriately and efficiently to contribute to service quality standards • Support audit preparations and processes



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Quality and Patient Safety		TSC: Workplace Safety and Health
TSC Description	Establish a workplace safety and health system as well as maintain and comply with Workplace Safety and Health (WSH) policies and procedures	
TSC Proficiency Level	Level 1	
TSC Proficiency Description	Comply with Workplace Safety and Health (WSH) policies and procedures by following safe work practices, workplace emergency response procedures and risk control and participating in WSH management activities	
Knowledge	<ul style="list-style-type: none"> • Worker's responsibilities stipulated under the WSH Act • Risks associated with assigned tasks • Workplace procedures for reporting WSH issues and contributing and participating in WSH • Organisational procedures for risk control and dealing with emergencies • Types of personal protective equipment and safety devices • Types and importance of safety signs • Procedures for proper use of personal protective equipment, safety devices, anti-viral, and disinfectants 	
Abilities	<ul style="list-style-type: none"> • Practise personal hygiene at workplace and report WSH issues to appropriate persons in accordance with the organisational procedures and WSH Act • Follow safety signs, instructions and workplace risk control measures in accordance with the organisational procedures • Identify and report potential hazards and risks associated with the work areas and unsafe working conditions and work practices in accordance with the organisational procedures • Adhere to PPE requirement and safety devices required 	<ul style="list-style-type: none"> • Follow the instructions given by authorised personnel and infectious disease outbreak control in the event of emergency at the workplace in accordance with the guidelines provided by the relevant regulatory bodies • Participate in resolving hazards and risks identified in the work areas in accordance with the organisational procedures • Seek assistance and guidance from co-workers and supervisors in dealing with workplace emergencies • Participate in WSH training and provide feedback on information needed to handle workplace emergencies



TECHNICAL SKILLS AND COMPETENCIES REFERENCE DOCUMENTS

TSC Category: Enterprise Risk Management

TSC: Workplace Violence

TSC Description	Anticipate, respond to and report physical, verbal and emotional abuse in the workplace
TSC Proficiency Level	Level 2
TSC Proficiency Description	Report incidences of workplace violence by staff, colleagues or clients to the relevant stakeholders and deploy workplace violence protocols where necessary
Knowledge	<ul style="list-style-type: none">• Escalation procedures• Organisational policies and procedures in managing workplace violence
Abilities	<ul style="list-style-type: none">• Take the necessary action steps in accordance to the organisation's policies and procedures on workplace violence• Report instances of workplace violence to supervisors



PROGRAM LISTING

The programs below have been assessed by the MOH Panel for Genetic Counselling to fulfil the evaluation criteria that are harmonized with the MOH In-Service Scholarships. They are subjected to updates and serve as a reference only. Available training programs that are subsidized by Skills Future Singapore (SSG) will be listed on [SSG's website](#).

Title of Program	Training Provider
Executive Certificate Programme in Clinical Genomics	Singhealth Duke-NUS Genomic Medicine Centre in partnership with the Centre for Lifelong Learning at Duke-NUS Medical School
Graduate Certificate in Clinical Genetics and Genomics	University of Connecticut, USA

ACKNOWLEDGEMENT

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