



Genetic Counselor

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NSQF Level: 5

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HSS/Q8705: Genetic Counselor

Brief Job Description

A genetic counselor is an allied healthcare professional who is responsible for obtaining clinical, family and health information, advising individuals/families about their risk of inheriting genetic diseases, informing testing options for diagnosis and providing available options to prevent/ treat genetic conditions. They also focus on empowering their patients by helping them understand and adjust to the genetic conditions.

Personal Attributes

The job requires individuals to be proficient in communication skills. They must possess sensitivity towards the emotional wellbeing of patients.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [HSS/N8713: Collect detailed patient and family history to draw a pedigree](#)
2. [HSS/N8714: Assess risk for genetic disorders or syndromes](#)
3. [HSS/N8715: Provide counselling on various genetic tests and coordinate for their execution](#)
4. [HSS/N8716: Interpret the inferences of the genetic tests and carry out post- test counselling](#)
5. [HSS/N8717: Provide need- based genetic counselling to the patient and their family members](#)
6. [HSS/N8718: Promote genetics related awareness](#)
7. [HSS/N9615: Maintain interpersonal relationship with patients, colleagues and others](#)
8. [HSS/N9616: Maintain professional & medico-legal conduct](#)
9. [HSS/N9618: Follow infection control policies & procedures including biomedical waste disposal protocols](#)

Qualification Pack (QP) Parameters

Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling

Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL
Minimum Educational Qualification & Experience	Post Graduate (Masters in Public Health (MPH)) OR Graduate (life sciences/ MBBS/ B.Sc. nursing/clinical psychology/ biotechnology/ pharmacy/ BDS/ B. Tech Biotechnology or genetics)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	21/05/2020
Next Review Date	21/05/2025
NSQC Approval Date	
Version	1.0

HSS/N8713: Collect detailed patient and family history to draw a pedigree

Description

This unit covers the knowledge and skills required to obtain a family history and draw pedigree charts

Scope

The scope covers the following :

- Obtain and record a comprehensive clinical and family history of the patient
- Prepare a pedigree chart to assess inheritance patterns

Elements and Performance Criteria

Obtain and record a comprehensive clinical and family history of the patient

To be competent, the user/individual on the job must be able to:

- PC1.** obtain written consent from the patient
- PC2.** extract the detailed history of a patient, including family history or any other genetic disorders in the family to assess the chance of disease occurrence or recurrence
- PC3.** communicate in a culture, religious and gender sensitive manner while obtaining a family history
- PC4.** record the clinical findings using appropriate terminology
- PC5.** record the relevant details from medical documents of the patient
- PC6.** document the physical examination findings of the patients/relatives including detailed anthropometry
- PC7.** elicit developmental history in detail
- PC8.** elicit and document the reproductive and perinatal history
- PC9.** maintain the confidentiality of medical information of the patients and families

Prepare a pedigree chart to assess inheritance patterns

To be competent, the user/individual on the job must be able to:

- PC10.** ask questions about the medical and clinical history of the patient and family members such as siblings, parents, aunts, uncles, cousins, nieces, nephews and grandparents, etc.
- PC11.** draw a basic outline of the family tree using pedigree symbols, standard notation, and nomenclature with proficiency and accuracy
- PC12.** record the gathered information on the pedigree chart drawn to complete the pedigree analysis
- PC13.** assess the probability of conditions with a genetic component or carrier status using relevant knowledge and data based on pedigree analysis
- PC14.** apprise the patient/ family members sensitively of the cause, inheritance, risk of a genetic anomaly and its likelihood of affecting other family members.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures in the field of genetics followed in the healthcare organization/country.
- KU2.** SOPs of maintaining patient's genetics file
- KU3.** current professional hierarchy of genetic counselors, at the institutional, state, regional and national levels.
- KU4.** service request procedures, tools, and techniques
- KU5.** role and responsibilities of a genetic counselor and other members of the multi-disciplinary team
- KU6.** importance of attributes such as empathy, patience, tolerance, integrity, ethics etc
- KU7.** importance of respecting religious and cultural diversity
- KU8.** foundations of genetics, embryology, dysmorphology, principles of genetics, medical genetics
- KU9.** foundations of pedigree chart/tree symbols
- KU10.** family history and pedigree analysis
- KU11.** anatomy and physiology of human beings
- KU12.** basic Mendelian genetics and deviations
- KU13.** fundamentals of cell biology, molecules, embryology, cells, genomics and chromosome studies
- KU14.** basics and the importance of inheritance patterns of genetic disorders and penetrance estimates
- KU15.** basics of taking patient history, making observations and the process of their interpretation to arrive at differential diagnosis and further testing to confirm a diagnosis
- KU16.** the nature of the diagnosis, common clinical presentation, information about the previous investigation, anticipated course of the disease, complications, risk estimation and management of common genetic diseases
- KU17.** standard questions to obtain family and clinical history
- KU18.** importance of displaying empathy towards PwD.
- KU19.** different type of disabilities, genetic syndromes and disorders such as congenital anomalies, anatomic deformities etc
- KU20.** principles of medical and public health genetics and genomics
- KU21.** genetic principles and how they contribute to etiology, clinical features, and disease expression, natural history, differential diagnosis, genetic testing and test report interpretation, pathophysiology, recurrence risk, management and prevention, and population screening
- KU22.** difference between patterns of inheritance
- KU23.** importance of maintaining privacy
- KU24.** the verbal and non-verbal cues of the patient and relatives

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document call logs, reports, task lists, and schedules
- GS2.** write history, clinical findings, status and progress reports without making language errors
- GS3.** plan for secure record keeping

- GS4.** write memos and e-mail to patient and the family, co-workers, and vendors
- GS5.** record the proceedings of counselling session to share with patients, family members, and other healthcare professionals
- GS6.** be updated on the recent advances in the field of genetics in India and other countries by reading relevant published literature, brochures, pamphlets, product information sheets and through participation in professional conferences and seminars
- GS7.** network with clinical, diagnostic and research specialists
- GS8.** communicate relevant and latest genetic and genomic information to help patients and families understand and adapt to conditions or the risk of conditions
- GS9.** communicate in a way that reflects cultural, religious, gender and PwD sensitivity
- GS10.** use a range of tools to enhance the learning encounter such as handouts, visual aids, and other educational technologies
- GS11.** give clear instructions to the patients/relatives and keep them informed about progress
- GS12.** speak and write in a clear manner and avoid using jargon, slang or acronyms when communicating with a patient, unless it is required
- GS13.** build a therapeutic rapport and manage relationships with patient and the family who may be stressed, frustrated, confused, grieving in denial or angry
- GS14.** build interpersonal relationships that foster inter- and intra-departmental unity and coordination
- GS15.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Obtain and record a comprehensive clinical and family history of the patient</i>	20	9	10	10
PC1. obtain written consent from the patient	-	-	-	-
PC2. extract the detailed history of a patient, including family history or any other genetic disorders in the family to assess the chance of disease occurrence or recurrence	-	-	-	-
PC3. communicate in a culture, religious and gender sensitive manner while obtaining a family history	-	-	-	-
PC4. record the clinical findings using appropriate terminology	-	-	-	-
PC5. record the relevant details from medical documents of the patient	-	-	-	-
PC6. document the physical examination findings of the patients/relatives including detailed anthropometry	-	-	-	-
PC7. elicit developmental history in detail	-	-	-	-
PC8. elicit and document the reproductive and perinatal history	-	-	-	-
PC9. maintain the confidentiality of medical information of the patients and families	-	-	-	-
<i>Prepare a pedigree chart to assess inheritance patterns</i>	23	10	10	10
PC10. ask questions about the medical and clinical history of the patient and family members such as siblings, parents, aunts, uncles, cousins, nieces, nephews and grandparents, etc.	-	-	-	-
PC11. draw a basic outline of the family tree using pedigree symbols, standard notation, and nomenclature with proficiency and accuracy	-	-	-	-
PC12. record the gathered information on the pedigree chart drawn to complete the pedigree analysis	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. assess the probability of conditions with a genetic component or carrier status using relevant knowledge and data based on pedigree analysis	-	-	-	-
PC14. apprise the patient/ family members sensitively of the cause, inheritance, risk of a genetic anomaly and its likelihood of affecting other family members.	-	-	-	-
NOS Total	43	19	20	20

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N8713
NOS Name	Collect detailed patient and family history to draw a pedigree
Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling
NSQF Level	5
Credits	TBD
Version	1.0
Next Review Date	NA

HSS/N8714: Assess risk for genetic disorders or syndromes

Description

This unit covers how to assess probability/ risks for specific genetic disorders or syndromes based on initial findings and counsel the patient/ family members on related parameters such as nature, type and prognosis of the genetic disease.

Scope

The scope covers the following :

- Assess the probability/ risk of a genetic condition or carrier status
- Identify suitable genetic/predictive tests
- Carry out pre-test counselling by interpreting preliminary test results

Elements and Performance Criteria

Assess the probability/ risk of a genetic condition or carrier status

To be competent, the user/individual on the job must be able to:

- PC1.** carry out a risk assessment using previously captured information, data based on pedigree analysis, inheritance patterns, genetic epidemiology, genetics principles, quantitative/ mathematical calculations
- PC2.** educate the patient and family members on etiopathogenesis, common clinical presentations, anticipated course of disease, complications, and management of genetic disorders
- PC3.** identify broad disease groups where the diagnosis is not apparent
- PC4.** assess psychological problems or needs of the patients of families like fear, stress, stigma, marital conflicts, etc.
- PC5.** provide information about the prognosis based on preliminary findings

Identify suitable genetic/genomic tests

To be competent, the user/individual on the job must be able to:

- PC6.** identify various genetic testing options such as screening, diagnostic and genomic genetic tests
- PC7.** prepare a list of screening, diagnostic and predictive genetic tests required to be performed for a patient/family based on history, clinical findings and course of the disease
- PC8.** evaluate various genetic testing options such as screening, diagnostic and genomic genetic tests as per patient's feasibility

Carry out pre-test counselling while interpreting preliminary test results

To be competent, the user/individual on the job must be able to:

- PC9.** maintain the confidentiality of medical information regarding patients and families
- PC10.** prepare a plan of action based on preliminary findings
- PC11.** educate the patient about various genetic testing options such as screening, diagnostic and genomic genetic tests

- PC12.** apprise the patients and their family members of important aspects of all types of screening and diagnostic genetic testing options such as the availability, analytic and clinical validity etc.
- PC13.** interpret the clinical implications of preliminary genetic test reports
- PC14.** conduct an empirical risk assessment by applying the results of the preliminary tests
- PC15.** apprise the patient of the importance and procedure to carry out predictive genetic testing
- PC16.** interpret the results of pre-symptomatic genetic testing/ carrier testing
- PC17.** guide the patient/ family about various aspects of the test results such as the nature, type, and prognosis of genetic diseases
- PC18.** advise the patient about the differential diagnosis of common presentations in genetic disorders
- PC19.** convey to patient and family, the possibility of likely genetic disorder and plan of required investigations for reaching a diagnosis
- PC20.** address the concerns of the family/patient, allay the doubts based on the available factual information
- PC21.** inform about various procedures performed for prenatal sample collection e.g. amniocentesis, chorionic villus biopsy, umbilical cord blood sampling
- PC22.** inform the patient and the family members about the success rates and failure of each procedure
- PC23.** advise the patient/ family members to share the results of genetic tests with at- risk family members

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures in the field of genetics followed in the healthcare organization/ country.
- KU2.** read relevant information about the genetic disease or the mutations
- KU3.** internal and external specialists to be contacted for support to resolve incidents and service requests
- KU4.** service request procedures, tools, and techniques
- KU5.** foundations of genetic counseling and medical genetics
- KU6.** significance of empathy and compassion
- KU7.** difference between chromosomal versus genetic (Mendelian) disorders and relevant diagnostic tests
- KU8.** concept and prevalence of consanguinity, endogamy, founder mutations
- KU9.** uncertainties in the tests due to various causes like undetected/unidentified causative mutation
- KU10.** the availability, analytic validity, clinical validity, and clinical utility of all types of genetic testing
- KU11.** the verbal and non-verbal cues of the patient and relatives
- KU12.** the difference between the screening and diagnostic procedures such as ultrasound, NIPT maternal blood sampling, biochemical test vs Chorionic Villus Sampling (CVS) and amniocentesis.

- KU13.** basics of making observations and the process of their interpretation to arrive at differential diagnosis and further testing to confirm a diagnosis
- KU14.** specific considerations relevant to genetic versus genomic and clinical versus research testing
- KU15.** differential diagnosis of common presentations in genetic disorders
- KU16.** aspects of screening and diagnostic genetic testing options such as the availability, analytic and clinical validity, clinical utility, potential benefits, risks, limitations, and costs etc
- KU17.** the importance of carrying out pre- symptomatic genetic testing
- KU18.** process and importance of conveying important information to other team members involved in the care of patients
- KU19.** the SOPs of carrying out pre- implantation studies
- KU20.** the SOPs of carrying out newborn screening
- KU21.** accuracy and reliability of various diagnostic tests
- KU22.** the importance of non-directive, non-paternalistic and non-judgmental approach when counseling the patients and relatives
- KU23.** the concept of non-maleficence
- KU24.** types of genetic disorders Chromosomal disorders, Monogenic (Mendelian) inheritance, Polygenic or multifactorial, and Mitochondrial disorders
- KU25.** principles of prenatal diagnosis, different modalities available for prenatal diagnosis
- KU26.** basic principles and methodologies of common genetic test procedures
- KU27.** available diagnostic tests for prenatal and postnatal diagnosis
- KU28.** demarcation of teratogenic versus genetic causes of disease conditions

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document call logs, reports, task lists, and schedules
- GS2.** write history, clinical findings, status and progress reports
- GS3.** plan for secure record keeping
- GS4.** be updated on the recent advances in the field of genetics in India and other countries by reading relevant published literature, brochures, pamphlets, product information sheets and through participation in professional conferences and seminars
- GS5.** read comments, suggestions, and responses to Frequently Asked Questions (FAQs) posted on the helpdesk portal
- GS6.** deliberate task lists, schedules, and work-loads with co-workers
- GS7.** communicate in a way that reflects cultural, religious and gender sensitivity
- GS8.** give clear instructions to the patients/relatives and keep them informed about progress
- GS9.** speak and write in a clear manner and avoid using jargon, slang or acronyms when communicating with a patient, unless it is required
- GS10.** make decisions about the concerned area of work
- GS11.** interact adequately with personnel in other departments to coordinate for the investigations and care plan
- GS12.** plan and organize sessions of counseling

- GS13.** maintain ethical behaviour while dealing with the patients and families
- GS14.** network between advocacy groups/support groups and clinicians, researchers
- GS15.** build a therapeutic rapport and manage relationships with patient and the family who may be stressed, frustrated, confused, grieving in denial or angry
- GS16.** maintain cordial relationships with all other team members
- GS17.** think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS18.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Assess the probability/ risk of a genetic condition or carrier status</i>	20	10	10	12
PC1. carry out a risk assessment using previously captured information, data based on pedigree analysis, inheritance patterns, genetic epidemiology, genetics principles, quantitative/ mathematical calculations	-	-	-	-
PC2. educate the patient and family members on etiopathogenesis, common clinical presentations, anticipated course of disease, complications, and management of genetic disorders	-	-	-	-
PC3. identify broad disease groups where the diagnosis is not apparent	-	-	-	-
PC4. assess psychological problems or needs of the patients of families like fear, stress, stigma, marital conflicts, etc.	-	-	-	-
PC5. provide information about the prognosis based on preliminary findings	-	-	-	-
<i>Identify suitable genetic/genomic tests</i>	12	6	10	12
PC6. identify various genetic testing options such as screening, diagnostic and genomic genetic tests	-	-	-	-
PC7. prepare a list of screening, diagnostic and predictive genetic tests required to be performed for a patient/family based on history, clinical findings and course of the disease	-	-	-	-
PC8. evaluate various genetic testing options such as screening, diagnostic and genomic genetic tests as per patient's feasibility	-	-	-	-
<i>Carry out pre-test counselling while interpreting preliminary test results</i>	36	30	10	12
PC9. maintain the confidentiality of medical information regarding patients and families	-	-	-	-
PC10. prepare a plan of action based on preliminary findings	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. educate the patient about various genetic testing options such as screening, diagnostic and genomic genetic tests	-	-	-	-
PC12. apprise the patients and their family members of important aspects of all types of screening and diagnostic genetic testing options such as the availability, analytic and clinical validity etc.	-	-	-	-
PC13. interpret the clinical implications of preliminary genetic test reports	-	-	-	-
PC14. conduct an empirical risk assessment by applying the results of the preliminary tests	-	-	-	-
PC15. apprise the patient of the importance and procedure to carry out predictive genetic testing	-	-	-	-
PC16. interpret the results of pre-symptomatic genetic testing/ carrier testing	-	-	-	-
PC17. guide the patient/ family about various aspects of the test results such as the nature, type, and prognosis of genetic diseases	-	-	-	-
PC18. advise the patient about the differential diagnosis of common presentations in genetic disorders	-	-	-	-
PC19. convey to patient and family, the possibility of likely genetic disorder and plan of required investigations for reaching a diagnosis	-	-	-	-
PC20. address the concerns of the family/patient, allay the doubts based on the available factual information	-	-	-	-
PC21. inform about various procedures performed for prenatal sample collection e.g. amniocentesis, chorionic villus biopsy, umbilical cord blood sampling	-	-	-	-
PC22. inform the patient and the family members about the success rates and failure of each procedure	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. advise the patient/ family members to share the results of genetic tests with at- risk family members	-	-	-	-
NOS Total	68	46	30	36

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N8714
NOS Name	Assess risk for genetic disorders or syndromes
Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling
NSQF Level	5
Credits	TBD
Version	1.0
Next Review Date	NA

HSS/N8715: Provide counselling on various genetic tests and coordinate for their execution

Description

This unit covers in detail about counseling patients and their family on various diagnostic/ screening test, the facility to conduct them, methods and Turn Around Time (TAT), etc. and coordinating with the physician/ medical geneticist to perform the diagnostic test

Scope

The scope covers the following :

- Provide detailed information on various aspects of pre-natal and post-natal screening/diagnostic genetic diseases
- Coordinate with the appropriate specialist/ medical geneticist to carry out identified confirmatory diagnostic genetic test

Elements and Performance Criteria

Provide detailed information on various aspects of pre-natal and post-natal screening/diagnostic genetic diseases

To be competent, the user/individual on the job must be able to:

- PC1.** prepare contract of agreement to give the results
- PC2.** provide information about all available options of screening/ diagnostic genetic diseases without bias
- PC3.** counsel on the advantages and disadvantages of each option within the context of individual values and beliefs
- PC4.** ensure that patients and family members are given sufficient time and freedom to deliberate and seek further relevant input as necessary
- PC5.** guide the patient about the actionability of the genetic/ genomic test such as likelihood of all possible results such as positive, negative as well as uncertain or unexpected result
- PC6.** notify about the associated financial cost to the patient or family members in an appropriate manner
- PC7.** guide the patient/ family about the screening tests for prenatal screening, newborn screening or any other kind of population screening in detail and comprehensible manner
- PC8.** inform regarding various diagnostic tests for prenatal diagnosis including various sophisticated options like pre-implantation genetic diagnosis
- PC9.** provide appropriate pretest information such as the nature of the sample required, appropriateness, limitations of the test and the scope of the outcome
- PC10.** assist in informed decision making

Coordinate with the appropriate specialist/ medical geneticist to carry out identified confirmatory diagnostic genetic test

To be competent, the user/individual on the job must be able to:

- PC11.** obtain the pre-test consent
- PC12.** coordinate with appropriate clinicians and healthcare professionals for consultation time

- PC13.** inform the attending physician/ medical geneticist about the findings of the preliminary examination, pedigree analysis etc.
- PC14.** handover the originals/ copies of the reports of the preliminary findings as and when appropriate to the clinician
- PC15.** address any queries raised by the physician/ geneticist about the patient or collected information
- PC16.** guide the patient/ family members about the next step such as pre- test preparations
- PC17.** co-ordinate with labs/organizations to obtain timely reports

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures in the field of genetics followed in the Healthcare Organization (HCO)/country
- KU2.** service request procedures, tools, and techniques
- KU3.** common apprehensions of the patient and the family and the process to address them
- KU4.** the cultural sensitivity of the patient
- KU5.** the concept and importance of empathy and compassion in treating suffering patients and relatives
- KU6.** the basics of gene mutation
- KU7.** various screening and diagnostic tests and procedures
- KU8.** the verbal and non-verbal cues of the patient and relatives
- KU9.** concept of Variant of Uncertain Significance (VUS)
- KU10.** various genetic diseases or the mutations obtained through Next Generation Sequencing (NGS), or any such genetic test
- KU11.** PNDT Act
- KU12.** ACMG guidelines
- KU13.** newborn screening, diagnostic testing, carrier testing, prenatal testing, preimplantation testing, predictive and presymptomatic testing, forensic testing
- KU14.** types of available genetic tests- diagnostic tests, genetic carrier test, screening tests, predictive tests, pre-symptomatic tests, research tests etc.
- KU15.** importance of single cell multiplex-polymerase chain reactions for monogenic diseases and fluorescent in situ hybridization for chromosomal aberrations
- KU16.** the importance of decision-making in selecting tests or follow-up regarding results
- KU17.** general information about the conditions being tested for, including variability and common features
- KU18.** nature of the testing (screening, carrier screening, diagnostic)
- KU19.** available alternative testing options and the risks, benefits and limitations of each possible results of testing (positive, negative, unclear and unexpected)
- KU20.** Implications and follow-up options if the results are positive
- KU21.** cost of testing and expectations regarding insurance coverage
- KU22.** various possibility of the test results such as such as a mutation in a different gene
- KU23.** importance and procedure to carry out predictive genetic testing

- KU24.** the options, and limitations of the tests with couples, patients or families with genetic disease
- KU25.** the types of tests that are available like carrier, screening, diagnostic, predictive, pre-symptomatic, and collection of samples for research purposes
- KU26.** process and importance of conveying important information to other team members involved in the care of patients
- KU27.** common genetic test procedures e.g. different types of PCR, DNA extraction, MLPA, real-time PCR, gel electrophoresis, CGH array and sequencing etc
- KU28.** the conditions under which Pre-Natal Diagnosis (PND) is appropriate, and the reasons justifying the same

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document call logs, reports, task lists, and schedules
- GS2.** write history, clinical findings, status and progress reports
- GS3.** plan for secure record keeping
- GS4.** prepare status and progress reports
- GS5.** write memos and e-mail to patient and the family, co-workers, and vendors to provide them with work updates and to request appropriate information
- GS6.** be updated on the recent advances in the field of genetics in India and other countries by reading relevant published literature, brochures, pamphlets, product information sheets and through participation in professional conferences and seminars
- GS7.** read comments, suggestions, and responses to Frequently Asked Questions (FAQs) posted on the helpdesk portal
- GS8.** analyze the patient's reaction to each option and consequence
- GS9.** plan to manage task lists, schedules, and work-loads with co-workers
- GS10.** communicate in a way that reflects cultural, religious and gender sensitivity
- GS11.** speak and write in a clear manner and avoid using jargon, slang or acronyms when communicating with a patient, unless it is required
- GS12.** make decisions about the concerned area of work
- GS13.** network adequately with personnel in other departments to coordinate the multi-disciplinary investigations and care of patients with genetic diseases
- GS14.** plan and organize sessions of counseling
- GS15.** maintain ethical behaviour while dealing with the patients and families
- GS16.** network between advocacy groups/support groups and clinicians, researchers
- GS17.** build a therapeutic rapport and manage relationships with patient and the family who may be stressed, frustrated, confused, grieving in denial or angry
- GS18.** think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS19.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Provide detailed information on various aspects of pre-natal and post-natal screening/diagnostic genetic diseases</i>	35	28	10	12
PC1. prepare contract of agreement to give the results	-	-	-	-
PC2. provide information about all available options of screening/ diagnostic genetic diseases without bias	-	-	-	-
PC3. counsel on the advantages and disadvantages of each option within the context of individual values and beliefs	-	-	-	-
PC4. ensure that patients and family members are given sufficient time and freedom to deliberate and seek further relevant input as necessary	-	-	-	-
PC5. guide the patient about the actionability of the genetic/ genomic test such as likelihood of all possible results such as positive, negative as well as uncertain or unexpected result	-	-	-	-
PC6. notify about the associated financial cost to the patient or family members in an appropriate manner	-	-	-	-
PC7. guide the patient/ family about the screening tests for prenatal screening, newborn screening or any other kind of population screening in detail and comprehensible manner	-	-	-	-
PC8. inform regarding various diagnostic tests for prenatal diagnosis including various sophisticated options like pre-implantation genetic diagnosis	-	-	-	-
PC9. provide appropriate pretest information such as the nature of the sample required, appropriateness, limitations of the test and the scope of the outcome	-	-	-	-
PC10. assist in informed decision making	-	-	-	-
<i>Coordinate with the appropriate specialist/ medical geneticist to carry out identified confirmatory diagnostic genetic test</i>	12	6	10	10

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. obtain the pre-test consent	-	-	-	-
PC12. coordinate with appropriate clinicians and healthcare professionals for consultation time	-	-	-	-
PC13. inform the attending physician/ medical geneticist about the findings of the preliminary examination, pedigree analysis etc.	-	-	-	-
PC14. handover the originals/ copies of the reports of the preliminary findings as and when appropriate to the clinician	-	-	-	-
PC15. address any queries raised by the physician/ geneticist about the patient or collected information	-	-	-	-
PC16. guide the patient/ family members about the next step such as pre- test preparations	-	-	-	-
PC17. co-ordinate with labs/organizations to obtain timely reports	-	-	-	-
NOS Total	47	34	20	22

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N8715
NOS Name	Provide counselling on various genetic tests and coordinate for their execution
Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling
NSQF Level	5
Credits	TBD
Version	1.0
Next Review Date	NA

HSS/N8716: Interpret the inferences of the genetic tests and carry out post- test counselling

Description

This unit covers the interpretation, documentation and providing information about the result of the genetic tests carried out to the patient and the family members. This unit also include details post- test counselling

Scope

The scope covers the following :

- Interpretation and documentation of results of the genetic tests
- Carry out post-test counseling

Elements and Performance Criteria

Interpretation and documentation of results of the genetic tests

To be competent, the user/individual on the job must be able to:

- PC1.** prepare a plan of action based on the diagnostic findings
- PC2.** make a psychosocial assessment
- PC3.** interpret genetic test reports and their implications on the patient
- PC4.** obtain a second opinion in case of uncertainty
- PC5.** interpret results of various genomic testing as appropriate like chromosomal microarray, whole- exome sequencing, Next Generation Sequencing (NGS) based panel testing, cytogenetic reports (karyotypes, FISH, spectral karyotypes), newborn screening results
- PC6.** file copies of consent forms for assessing medical records, DNA testing or sample storage and copies of correspondence to patient/first and extended families and health professionals
- PC7.** document results of investigations including the records that the reports have been seen by the appropriate health professional
- PC8.** maintain a record of the copies of complete birth records, birth defect register form if applicable and arrangement for follow up
- PC9.** maintain appropriate health record, preferably electronic, in a complete and comprehensive file for each family
- PC10.** access central clinical genetics unit for the records of patients observed in outreach areas
- PC11.** maintain the confidentiality of records
- PC12.** store the files of patients with genetics consultation securely in a separate place at the concerned hospitals/ health records
- PC13.** encourage paperless documentation and record keeping as per the SOPs

Carry out post-test counseling

To be competent, the user/individual on the job must be able to:

- PC14.** educate the patient and family members about the results of investigations through an agreed process
- PC15.** communicate the genetic test results timely while maintaining utmost confidentiality

- PC16.** apprise the patient of multidisciplinary clinical examination, electrophysiological/ radiological/ genetic or any other tests required for further diagnosis
- PC17.** schedule communication about further counseling sessions according to the urgency of the timeline in which further testing may be needed
- PC18.** provide psychosocial support
- PC19.** give details about the implications of the genetic tests to the patients and their family members
- PC20.** refer the patient immediately to a medical geneticist to discuss the implications of the findings in detail
- PC21.** assess the emotional status of the patient and family members after disclosure of the test results
- PC22.** provide the written summary of the test result and discussions done during the post counselling session to the patient and family members
- PC23.** provide comprehensive post-test counselling report with definitive health recommendations to the patient and family members
- PC24.** advise the patient and the family members about the follow-up plan
- PC25.** obtain a consent signature on the final post- test report after completion of the case study
- PC26.** document proceedings of a genetic counselling according to the SOPs

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures in the field of genetics followed in the Healthcare Organization (HCO)/country.
- KU2.** the process of ascertaining and complying with current professional credentialing requirements, at the institutional, state, regional and national levels
- KU3.** various notes, records, paperwork required in genetic counselling process
- KU4.** concepts related to interpretation of results like normal finding(s), physiological finding, normal variation, non-specific finding(s) without clinical relevance, incidental finding(s) with possible clinical relevance, finding(s) of uncertain significance, pathognomonic (disease-specific, pathological) finding(s)
- KU5.** importance of informed consent, empathy and confidentiality
- KU6.** the importance of non-directive, non-paternalistic and non-judgmental approach when counseling the patients and relatives
- KU7.** psychosocial impact of the diagnosis
- KU8.** segregation analysis
- KU9.** guidelines, importance and process of documentation and record keeping
- KU10.** the process of forming a network of clinical, diagnostic and research specialists for support to diagnose and manage cases
- KU11.** service request procedures, tools, and techniques
- KU12.** importance of religious and cultural diversity
- KU13.** process and importance of conveying important information to other team members involved in the care of patients

- KU14.** the method of interpretation of estimate theoretical risks and empirical risks for the disorders
- KU15.** the process of determining the pathogenicity of VUSs using linkage analysis, in silico and functional assays
- KU16.** the complete concept Next Generation Sequencing (NGS) based test
- KU17.** process of distinguishing which Next Generation Sequencing (NGS) obtained data is important and should be considered in the analysis, and which data is not significant
- KU18.** the use of genetic databases in determining variant classification depending on the mutations obtained.

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document call logs, reports, task lists, and schedules
- GS2.** write history, clinical findings, status and progress reports
- GS3.** plan for secure record keeping
- GS4.** write memos and e-mail to patient and the family, co-workers, and stakeholders to provide them with work updates and to request appropriate information
- GS5.** store clinical genetics and the patient database according to the organizational policies
- GS6.** read and correctly interpret internal communications
- GS7.** be updated on the recent advances in the field of genetics in India and other countries by reading relevant published literature, brochures, pamphlets, product information sheets and through participation in professional conferences and seminars
- GS8.**
 - read comments, suggestions, and responses to Frequently Asked Questions (FAQs) posted on the helpdesk portal
 - speak and make presentations in English and/or a regional/local language
- GS9.** give clear instructions to the patients/relatives and keep them informed about progress
- GS10.** communicate in a way that reflects cultural, religious, gender and PwD sensitivity
- GS11.** speak and write in a clear manner and avoid using jargon, slang or acronyms when communicating with a patient, unless it is required
- GS12.** make decisions about the concerned area of work
- GS13.** interact adequately with personnel in other departments to coordinate the multidisciplinary investigations and care of patients with genetic diseases
- GS14.** use electronic documentation methods and adopt a paperless approach wherever possible
- GS15.** think through the problem, evaluate the possible solution(s) and suggest all available alternatives for patient families to arrive at the best possible solution(s)
- GS16.** prepare and maintain files of clinical genetics units separate from records of the health unit
- GS17.** make decision to ensure security in terms of password access, systems for back-up and virus protection (with regular upgrade)
- GS18.** make plan to use the existing data to arrive at a specific diagnosis
- GS19.** access relevant databases to analyses, interpret and convey the results
- GS20.** plan and organize sessions of counseling
- GS21.** maintain ethical behaviour while dealing with the patients and families

- GS22.** build a therapeutic rapport and manage relationships with patient and the family who may be stressed, frustrated, confused, grieving in denial or angry
- GS23.** maintain cordial relationships with all other team members
- GS24.** be empathetic with the patient
- GS25.** use the existing data to arrive at specific consequences
- GS26.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interpretation and documentation of results of the genetic tests</i>	25	23	15	15
PC1. prepare a plan of action based on the diagnostic findings	-	-	-	-
PC2. make a psychosocial assessment	-	-	-	-
PC3. interpret genetic test reports and their implications on the patient	-	-	-	-
PC4. obtain a second opinion in case of uncertainty	-	-	-	-
PC5. interpret results of various genomic testing as appropriate like chromosomal microarray, whole-exome sequencing, Next Generation Sequencing (NGS) based panel testing, cytogenetic reports (karyotypes, FISH, spectral karyotypes), newborn screening results	-	-	-	-
PC6. file copies of consent forms for assessing medical records, DNA testing or sample storage and copies of correspondence to patient/first and extended families and health professionals	-	-	-	-
PC7. document results of investigations including the records that the reports have been seen by the appropriate health professional	-	-	-	-
PC8. maintain a record of the copies of complete birth records, birth defect register form if applicable and arrangement for follow up	-	-	-	-
PC9. maintain appropriate health record, preferably electronic, in a complete and comprehensive file for each family	-	-	-	-
PC10. access central clinical genetics unit for the records of patients observed in outreach areas	-	-	-	-
PC11. maintain the confidentiality of records	-	-	-	-
PC12. store the files of patients with genetics consultation securely in a separate place at the concerned hospitals/ health records	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. encourage paperless documentation and record keeping as per the SOPs	-	-	-	-
<i>Carry out post-test counseling</i>	26	34	15	15
PC14. educate the patient and family members about the results of investigations through an agreed process	-	-	-	-
PC15. communicate the genetic test results timely while maintaining utmost confidentiality	-	-	-	-
PC16. apprise the patient of multidisciplinary clinical examination, electrophysiological/ radiological/ genetic or any other tests required for further diagnosis	-	-	-	-
PC17. schedule communication about further counseling sessions according to the urgency of the timeline in which further testing may be needed	-	-	-	-
PC18. provide psychosocial support	-	-	-	-
PC19. give details about the implications of the genetic tests to the patients and their family members	-	-	-	-
PC20. refer the patient immediately to a medical geneticist to discuss the implications of the findings in detail	-	-	-	-
PC21. assess the emotional status of the patient and family members after disclosure of the test results	-	-	-	-
PC22. provide the written summary of the test result and discussions done during the post counselling session to the patient and family members	-	-	-	-
PC23. provide comprehensive post-test counselling report with definitive health recommendations to the patient and family members	-	-	-	-
PC24. advise the patient and the family members about the follow-up plan	-	-	-	-
PC25. obtain a consent signature on the final post-test report after completion of the case study	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. document proceedings of a genetic counselling according to the SOPs	-	-	-	-
NOS Total	51	57	30	30

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N8716
NOS Name	Interpret the inferences of the genetic tests and carry out post- test counselling
Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling
NSQF Level	5
Credits	TBD
Version	1.0
Next Review Date	NA

HSS/N8717: Provide need- based genetic counselling to the patient and their family members

Description

This unit covers knowledge and skills required to plan and carry out the genetic counselling session after preparing the patients and their first and extended family members for the same.

Scope

The scope covers the following :

- Prepare the patient and the paperwork required for counseling
- Provide appropriate genetic counseling to patients and their family members

Elements and Performance Criteria

Prepare the patient and the paperwork required for counseling

To be competent, the user/individual on the job must be able to:

- PC1.** ensure that the patient appointments are organized
- PC2.** review the purpose of the consultation
- PC3.** guide the patient about the consultation process and possibility of a physical examination
- PC4.** address the concerns that the patient may have regarding the nature and conduct of the consultation
- PC5.** file the plan of the session including cross- references and tests required
- PC6.** ascertain the needs and expectations of the patient/family, identifying any special requirements e.g. wheelchair access or interpreter services and clarify unrealistic expectations of the consultation
- PC7.** provide emotional support to reduce any pre- clinical anxiety
- PC8.** check that all information needed for the consultation has been obtained
- PC9.** review relevant health unit record and/or clinical genetics unit records
- PC10.** prepare information that will be given to the patient, including appropriate support group information and fact sheets as applicable
- PC11.** set the agenda for the counselling session of the patient
- PC12.** ensure that the confidentiality of the patient information is maintained
- PC13.** consult with the clinical geneticist after a definite diagnosis is drawn to plan prospective counselling sessions

Provide appropriate genetic counseling to patients and their family members

To be competent, the user/individual on the job must be able to:

- PC14.** prepare detailed pre-test and post-test counselling reports for different genetic conditions having varied inheritance patterns that include monogenic, polygenic, multifactor etiology
- PC15.** provide adequate information about the condition including its prognosis to help patients/families take a decision

- PC16.** provide full disclosure to individuals and families of all information relevant to their health the nature, usual course, anticipated problems or complications, investigations, management and follow up plan
- PC17.** provide information about the condition, which may include its cause, pattern of inheritance, natural history, complications, and treatment options
- PC18.** provide information about the risk of a condition and their implications affecting the patient, their children and/or other relatives
- PC19.** address the medical, emotional and social implications for the individual and family
- PC20.** adopt a non-directive approach, except when treatment is available and the affected individuals and families need guidance
- PC21.** communicate in a way that reflects cultural, religious, PwD and gender sensitivity and modify the communication pattern as and when necessary
- PC22.** advise about options, including genetic testing and reproductive options and assisting with informed decision making in a non-judgmental / non-coercive manner
- PC23.** arrange genetic tests after obtaining informed consent, which may include carrier testing, predictive testing, screening, research testing
- PC24.** carry out pre-marital counselling
- PC25.** carry out pre-conception counselling
- PC26.** undertake prenatal counselling
- PC27.** provide genetic counseling in specified areas of clinical genetics such as obstetrics, pediatrics, oncology, and neurology
- PC28.** apprise about invasive procedures wherever necessary for future offspring by providing information, education, or reassurance
- PC29.** assess patients' psychological or emotional needs such as those relating to stress, fear of test results, financial issues, and marital conflicts to make referral recommendations or assist patients in managing test outcomes
- PC30.** advise patient and family member to contact close, at risk relatives, for cascade testing
- PC31.** carry out appropriate individualized counselling sessions and refer to a psychologist or other appropriate specialists
- PC32.** document proceedings of a genetic counselling session and hand them over to patient/family for their medical records

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures in the field of genetics followed in the Healthcare Organization (HCO)/country
- KU2.** SOPs of maintaining patient's genetics file
- KU3.** the process of ascertaining and complying with current professional credentialing requirements, at the institutional, state, regional and national levels.
- KU4.**
 - process of networking with clinical, diagnostic and research specialists for support to diagnose and manage cases
 - service request procedures, tools, and techniques
- KU5.** the religious/ cultural beliefs of the patient
- KU6.** genetic diseases and disorders

- KU7.** process of genetic counselling session
- KU8.** psychosocial aspects of counseling
- KU9.** genetic evaluation for common diseases of adulthood
- KU10.** genomic perspective of genetic counseling
- KU11.** ethics of genetic counseling- basic concepts and relevance to various communities
- KU12.** process of interpretation of test results
- KU13.** components of genetic counseling and case preparation
- KU14.** genotype- phenotype correlation
- KU15.** importance of anticipation
- KU16.** types of counseling to be offered for pre-marital genetics, reproductive genetics, pre-pregnancy genetics, pediatric genetics, oncology genetics, prenatal genetics
- KU17.** penetrance and inheritance of cancer- predisposing gene mutations
- KU18.** risk- reducing and treatment options available for mutation carriers
- KU19.** consanguinity and birth defects
- KU20.** history of pre-marital and pre-conception cases to enquire whether any testing was done for autosomal recessive diseases
- KU21.** the significance of informing the spouses/ partners about the carrier state and possible harmful effects on the marriage from disclosure
- KU22.** risk factors such as aneuploidies of pregnancy at an advanced age
- KU23.** concept, importance and process of amniocentesis
- KU24.** chromosomal microarray analysis
- KU25.** importance of informing blood relatives about the potential genetic risk

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document call logs, reports, task lists, and schedules
- GS2.** write history, clinical findings, status and progress reports
- GS3.** plan for secure record keeping
- GS4.** write proceedings of a genetic counselling session in an appropriate manner
- GS5.** be updated on the recent advances in the field of genetics in India and other countries by reading relevant published literature, brochures, pamphlets, product information sheets and through participation in professional conferences and seminars
- GS6.**
 - read comments, suggestions, and responses to Frequently Asked Questions (FAQs) posted on the helpdesk portal
 - communicate in a way that reflects cultural, religious, gender and PwD sensitivity
- GS7.** communicate in a way that reflects cultural, religious, gender and PwD sensitivity
- GS8.** plan to identify social and/or cultural issues which may impinge on the consultation
- GS9.** speak and write in a clear manner and avoid using jargon, slang or acronyms when communicating with a patient, unless it is required
- GS10.** make decisions of the concerned area of work
- GS11.** work in close contact with clinical geneticist and scientist to provide efficient genetic counseling services

- GS12.** • respect the rights of persons and families to full disclosure of their conditions after the diagnosis
 - preserve family integrity
- GS13.** preserve family integrity
- GS14.** plan to involve children and adolescents in the decisions affecting them
- GS15.** make decisions to protect the privacy of individuals and families from unjustified intrusion by authorities, employers, and insurers
- GS16.** interact adequately with personnel in other departments to coordinate the multidisciplinary investigations and care of patients with genetic diseases
- GS17.** plan and organize sessions of counseling
- GS18.** maintain ethical behaviour while dealing with the patients and families
- GS19.** • be cautious of using outdated, offensive terms while communicating with the patient/ family members
 - network between advocacy groups/support groups and clinicians, researchers
- GS20.** network between advocacy groups/support groups and clinicians, researchers
- GS21.** make use of assistive technology when necessary while during counselling session with PwD
- GS22.** manage relationships with clients who may be stressed, frustrated, confused, or angry by using patient-centric approach
- GS23.** think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS24.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare the patient and the paperwork required for counseling</i>	16	26	15	10
PC1. ensure that the patient appointments are organized	-	-	-	-
PC2. review the purpose of the consultation	-	-	-	-
PC3. guide the patient about the consultation process and possibility of a physical examination	-	-	-	-
PC4. address the concerns that the patient may have regarding the nature and conduct of the consultation	-	-	-	-
PC5. file the plan of the session including cross-references and tests required	-	-	-	-
PC6. ascertain the needs and expectations of the patient/family, identifying any special requirements e.g. wheelchair access or interpreter services and clarify unrealistic expectations of the consultation	-	-	-	-
PC7. provide emotional support to reduce any pre-clinical anxiety	-	-	-	-
PC8. check that all information needed for the consultation has been obtained	-	-	-	-
PC9. review relevant health unit record and/or clinical genetics unit records	-	-	-	-
PC10. prepare information that will be given to the patient, including appropriate support group information and fact sheets as applicable	-	-	-	-
PC11. set the agenda for the counselling session of the patient	-	-	-	-
PC12. ensure that the confidentiality of the patient information is maintained	-	-	-	-
PC13. consult with the clinical geneticist after a definite diagnosis is drawn to plan prospective counselling sessions	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Provide appropriate genetic counseling to patients and their family members</i>	40	57	15	15
PC14. prepare detailed pre-test and post-test counselling reports for different genetic conditions having varied inheritance patterns that include monogenic, polygenic, multifactor etiology	-	-	-	-
PC15. provide adequate information about the condition including its prognosis to help patients/families take a decision	-	-	-	-
PC16. provide full disclosure to individuals and families of all information relevant to their health the nature, usual course, anticipated problems or complications, investigations, management and follow up plan	-	-	-	-
PC17. provide information about the condition, which may include its cause, pattern of inheritance, natural history, complications, and treatment options	-	-	-	-
PC18. provide information about the risk of a condition and their implications affecting the patient, their children and/or other relatives	-	-	-	-
PC19. address the medical, emotional and social implications for the individual and family	-	-	-	-
PC20. adopt a non-directive approach, except when treatment is available and the affected individuals and families need guidance	-	-	-	-
PC21. communicate in a way that reflects cultural, religious, PwD and gender sensitivity and modify the communication pattern as and when necessary	-	-	-	-
PC22. advise about options, including genetic testing and reproductive options and assisting with informed decision making in a non-judgmental / non-coercive manner	-	-	-	-
PC23. arrange genetic tests after obtaining informed consent, which may include carrier testing, predictive testing, screening, research testing	-	-	-	-
PC24. carry out pre-marital counselling	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. carry out pre-conception counselling	-	-	-	-
PC26. undertake prenatal counselling	-	-	-	-
PC27. provide genetic counseling in specified areas of clinical genetics such as obstetrics, pediatrics, oncology, and neurology	-	-	-	-
PC28. apprise about invasive procedures wherever necessary for future offspring by providing information, education, or reassurance	-	-	-	-
PC29. assess patients' psychological or emotional needs such as those relating to stress, fear of test results, financial issues, and marital conflicts to make referral recommendations or assist patients in managing test outcomes	-	-	-	-
PC30. advise patient and family member to contact close, at risk relatives, for cascade testing	-	-	-	-
PC31. carry out appropriate individualized counselling sessions and refer to a psychologist or other appropriate specialists	-	-	-	-
PC32. document proceedings of a genetic counselling session and hand them over to patient/family for their medical records	-	-	-	-
NOS Total	56	83	30	25

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N8717
NOS Name	Provide need- based genetic counselling to the patient and their family members
Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling
NSQF Level	5
Credits	TBD
Version	1.0
Next Review Date	NA

HSS/N8718: Promote genetics related awareness

Description

This unit covers details about creating awareness related to genetic counseling. It discusses in detail about how to promote activities related to genetic counseling amongst the fellow non-genetics healthcare providers and promote the advocacy the objective of the genetic counselling profession.

Scope

The scope covers the following :

- Educate the fellow healthcare providers about the merits of genetic counseling
- Identify and educate the at-risk population regarding the need for genetic counseling

Elements and Performance Criteria

Educate the fellow healthcare providers about the merits of genetic counseling

To be competent, the user/individual on the job must be able to:

- PC1.** update and maintain literature related to genetics for its usage in continuous learning programs and conferences
- PC2.** design genetics training programs for physicians, graduate students and other health professionals by doing a gaps analysis
- PC3.** conduct sensitization and refresher genetics training programs for physicians, graduate students and other health professionals.
- PC4.** support healthcare team in research activities related to the field in the healthcare facility
- PC5.** evaluate or make recommendations for drafting standards in genetics as appropriate
- PC6.** liaison between genetics-trained and non-genetics-trained health care providers for educating and supporting them in the genetics domain
- PC7.** prepare and provide genetics-related educational materials to patients or medical personnel
- PC8.** ensure IEC material used are paperless by substituting handouts/ pamphlets/ leaflets with electronic presentation
- PC9.** ensure compliance and adherence with the ethical/ legal issues surrounding the access and use of information, media, information technology

Identify and educate the at-risk population regarding the need for genetic counseling

To be competent, the user/individual on the job must be able to:

- PC10.** identify community resources/NGOs involved in education, support services, physiotherapy, speech therapy or offering any other aids to individuals with special needs
- PC11.** connect with major genetics and local administration to utilize them advocates for genetic counselling education sessions in the community
- PC12.** prepare appropriate Information, Education and Communication (IEC) material and encourage re-use of material
- PC13.** address patient's attitudes, perceptions and concern areas such as, privacy concerns, values, social norms, lack of perceived benefit and fatalism, etc.
- PC14.** educate the community on subjects like preventative counseling, associated myths and screening etc

- PC15.** plan and organize community programs on genetic counselling including group counselling sessions
- PC16.** provide genetics services such as prenatal screening to minority and underserved communities while maintaining the confidentiality of medical information
- PC17.** educate the families about the community resources/ societies/ voluntary organization for specific genetic disorders for patient registration or support

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of being a part of a multi-disciplinary team
- KU2.** the importance of working in close contact with clinical geneticist and scientists to provide efficient genetic counselling services
- KU3.** relevant legislation, standards, policies, and procedures in the field of genetics followed in the Healthcare Organization (HCO)/country
- KU4.** process of engaging with both internal and external specialists for support to resolve incidents and service requests
- KU5.** the concept of population genetics
- KU6.** importance of social media in awareness activities
- KU7.** effective use of charts/leaflets and other IEC material for counseling preferably electronic presentation
- KU8.**
 - strategy of connecting organizations/advocacy groups working in their region/country for providing community, social, legal and economic support to individuals and families suffering from genetic disorders
 - existing socio-cultural contexts
- KU9.** existing socio-cultural contexts
- KU10.** the method of preparation of charts/leaflets/presentations for advocacy of genetic counseling profession to healthcare providers
- KU11.** the benefits of association or registration with organization catering to genetic disorders
- KU12.** protocols for conducting surveys
- KU13.** the process of delivering information using visual aids, slides, electronic presentation, hand-outs , and engage with media
- KU14.** importance of outreach programs to spread awareness about basics of genetics and dispel myths, among the community
- KU15.** various religious/ cultural perspectives in the field of genetics
- KU16.** appropriate IEC material to educate community with various language backgrounds
- KU17.** the effective methodology of conserving and re-using IEC material
- KU18.** the importance of optimizing material utilization used for awareness related activities
- KU19.** various materials which can be replaced by environment friendly substitutes
- KU20.** importance and process of organizing Continuing Medical Education (CMEs) and Continuing Nursing Education (CNEs) for hospital staff
- KU21.** the process of tackling any negative publicity pertaining to organ donation that might arise

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document call logs, reports, task lists, and schedules
- GS2.** write history, clinical findings, status, and progress reports
- GS3.** plan for secure record keeping
- GS4.** write a to-the-point and crisp message for counseling in the community
- GS5.** write memos and e-mail to patient and the family, co-workers, and vendors to provide them with work updates and to request appropriate information
- GS6.** write grant proposals for eligible programs or services as and when necessary
- GS7.** be updated on the recent advances in the field of genetics in India and other countries by reading brochures, pamphlets, product information sheets and through participation in professional conferences and seminars
- GS8.** respect the cultural, religious, gender diversity of the patient
- GS9.** treat suffering patients and relatives with empathy and compassion
- GS10.** read and correctly interpret internal communications
- GS11.** address comments, suggestions, and responses to Frequently Asked Questions (FAQs) posted on the helpdesk portal
- GS12.** speak and make presentations in English and a regional/local language
- GS13.** network with co-workers to discuss task lists, schedules, and work-loads
- GS14.** be encouraged to extend and expand counselling for common disorders
- GS15.** work as a team with clinical geneticist and scientist to provide efficient genetic counseling services in the community
- GS16.** communicate in a way that reflects cultural, religious, gender and PwD sensitivity
- GS17.** speak and write in a clear manner and avoid using jargon, slang or acronyms when communicating with a patient, unless it is required
- GS18.** make decisions about the concerned area of work
- GS19.** network adequately with personnel in other departments to coordinate the multi-disciplinary investigations and care of patients with genetic diseases
- GS20.** network between advocacy groups/support groups and clinicians, researchers
- GS21.** plan and organize sessions of counseling
- GS22.** maintain ethical behaviour while dealing with the patients and families
- GS23.** build a therapeutic rapport and manage relationships with patient and the family who may be stressed, frustrated, confused, grieving in denial or angry
- GS24.** maintain cordial relationships with all other team members
- GS25.** think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS26.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Educate the fellow healthcare providers about the merits of genetic counseling</i>	17	9	13	12
PC1. update and maintain literature related to genetics for its usage in continuous learning programs and conferences	-	-	-	-
PC2. design genetics training programs for physicians, graduate students and other health professionals by doing a gaps analysis	-	-	-	-
PC3. conduct sensitization and refresher genetics training programs for physicians, graduate students and other health professionals.	-	-	-	-
PC4. support healthcare team in research activities related to the field in the healthcare facility	-	-	-	-
PC5. evaluate or make recommendations for drafting standards in genetics as appropriate	-	-	-	-
PC6. liaison between genetics-trained and non-genetics-trained health care providers for educating and supporting them in the genetics domain	-	-	-	-
PC7. prepare and provide genetics-related educational materials to patients or medical personnel	-	-	-	-
PC8. ensure IEC material used are paperless by substituting handouts/ pamphlets/ leaflets with electronic presentation	-	-	-	-
PC9. ensure compliance and adherence with the ethical/ legal issues surrounding the access and use of information, media, information technology	-	-	-	-
<i>Identify and educate the at-risk population regarding the need for genetic counseling</i>	22	8	7	12
PC10. identify community resources/NGOs involved in education, support services, physiotherapy, speech therapy or offering any other aids to individuals with special needs	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. connect with major genetics and local administration to utilize them advocates for genetic counselling education sessions in the community	-	-	-	-
PC12. prepare appropriate Information, Education and Communication (IEC) material and encourage re-use of material	-	-	-	-
PC13. address patient's attitudes, perceptions and concern areas such as, privacy concerns, values, social norms, lack of perceived benefit and fatalism, etc.	-	-	-	-
PC14. educate the community on subjects like preventative counseling, associated myths and screening etc	-	-	-	-
PC15. plan and organize community programs on genetic counselling including group counselling sessions	-	-	-	-
PC16. provide genetics services such as prenatal screening to minority and underserved communities while maintaining the confidentiality of medical information	-	-	-	-
PC17. educate the families about the community resources/ societies/ voluntary organization for specific genetic disorders for patient registration or support	-	-	-	-
NOS Total	39	17	20	24

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N8718
NOS Name	Promote genetics related awareness
Sector	Healthcare
Sub-Sector	Social Work & Community Health
Occupation	Counselling
NSQF Level	5
Credits	TBD
Version	1.0
Next Review Date	NA

HSS/N9615: Maintain interpersonal relationship with patients, colleagues and others

Description

This OS unit is about effective communication and exhibiting professional behavior with co-workers, patients & their family members in response to queries or as part of health advice and counseling. It also describes the skills required for meeting work requirements by allied health professionals working in a team or collaborative environment.

Scope

This unit/task covers the following:

- Communicating and maintaining professional behavior with co-workers and patients & their families
- Working with other people to meet requirements
- Establishing and managing requirements, planning and organizing work, ensuring accomplishment of the requirements

Elements and Performance Criteria

Communicating & maintaining professional behavior with co-workers and patients & their families

To be competent, the user/individual on the job must be able to:

- PC1.** communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics without using terminology unfamiliar to them
- PC2.** utilize all training and information at ones disposal to provide relevant information to the individual
- PC3.** confirm that the needs of the individual have been met
- PC4.** respond to queries and information needs of all individuals
- PC5.** adhere to guidelines provided by ones organization or regulatory body relating to confidentiality
- PC6.** respect the individuals need for privacy
- PC7.** maintain any records required at the end of the interaction

Working with other people to meet requirements

To be competent, the user/individual on the job must be able to:

- PC8.** integrate ones work with other peoples work effectively
- PC9.** utilize time effectively and pass on essential information to other people on timely basis
- PC10.** work in a way that shows respect for other people
- PC11.** carry out any commitments made to other people
- PC12.** reason out the failure to fulfill commitment
- PC13.** identify any problems with team members and other people and take the initiative to solve these problems

Establishing and managing requirements

To be competent, the user/individual on the job must be able to:

- PC14.** clearly establish, agree, and record the work requirements

- PC15.** ensure his/her work meets the agreed requirements
- PC16.** treat confidential information correctly
- PC17.** work in line with the organizations procedures and policies and within the limits of his/her job role

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** guidelines on communicating with patients and other individuals
- KU2.** guidelines on maintaining confidentiality and respecting need for privacy
- KU3.** the business, mission, and objectives of the organization
- KU4.** the scope of work of the role
- KU5.** the responsibilities and strengths of the team and their importance to the organization
- KU6.** the information that is considered confidential to the organization
- KU7.** effective working relationships with the people external to the team, with which the individual works on a regular basis
- KU8.** procedures in the organization to deal with conflict and poor workingrelationships
- KU9.** the relevant policies and procedures of the organization
- KU10.** how to communicate effectively (face-to-face, by telephone and in writing)
- KU11.** how to handle stressful or risky situations when communicating with patients and/or other individuals
- KU12.** when to ask for assistance when situations are beyond ones competence andauthority
- KU13.** how to maintain confidentiality and to respect an individuals need for privacy
- KU14.** how to ensure that all information provided to individuals is from reliable sources
- KU15.** disclosure of any information to unauthorized persons would subject to disciplinary action and possible termination
- KU16.** the essential information that needs to be shared with other people
- KU17.** the importance of effective working relationships and how these can contribute towards effective working relationships on a day-to-day basis
- KU18.** the importance of integrating ones work effectively with others
- KU19.** the types of working relationships that help people to work well together and the types of relationships that need to be avoided
- KU20.** the types of opportunities an individual may seek out to improve relationships with others
- KU21.** how to deal with difficult working relationships with other people to sort out
- KU22.** the importance of asking the appropriate individual for help when required
- KU23.** the importance of planning, prioritizing and organizing, timely work
- KU24.** the importance of clearly establishing work requirement
- KU25.** the importance of being flexible in changing priorities when the importance and urgency comes into play
- KU26.** how to make efficient use of time, and to avoid things that may prevent work deliverables from being expedited
- KU27.** the importance of keeping the work area clean and tidy

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write effective communications to share information with the team members and other people outside the team
- GS2.** write at least one local/ official language used in the local community
- GS3.** report progress and results
- GS4.** record problems and resolutions
- GS5.** read and understand work related documents and information shared by different sources
- GS6.** read organizational policies and procedures
- GS7.** communicate essential information to colleagues face-to-face or through telecommunication
- GS8.** speak at least one local language
- GS9.** question others appropriately in order to understand the nature of the requestor compliant
- GS10.** report progress and results
- GS11.** interact with other individuals
- GS12.** negotiate requirements and revised agreements for delivering them
- GS13.** make decisions on information to be communicated based on needs of the individual and various regulations and guidelines
- GS14.** plan and organize files and documents
- GS15.** be responsive to problems of the individuals
- GS16.** be available to guide, counsel and help individuals when required
- GS17.** be patient and non-judgmental at all times
- GS18.** communicate effectively with patients and their family, physicians, and other members of the health care team
- GS19.** be capable of being responsive, listen empathetically to establish rapport in a way that promotes openness on issues of concern
- GS20.** be sensitive to potential cultural differences
- GS21.** maintain patient confidentiality
- GS22.** respect the rights of the patient(s)
- GS23.** understand problems and suggest an optimum solution after evaluating possible solutions

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicating & maintaining professional behavior with co-workers and patients & their families</i>	5	-	-	-
PC1. communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics without using terminology unfamiliar to them	5	-	-	-
PC2. utilize all training and information at ones disposal to provide relevant information to the individual	-	-	-	-
PC3. confirm that the needs of the individual have been met	-	-	-	-
PC4. respond to queries and information needs of all individuals	-	-	-	-
PC5. adhere to guidelines provided by ones organization or regulatory body relating to confidentiality	-	-	-	-
PC6. respect the individuals need for privacy	-	-	-	-
PC7. maintain any records required at the end of the interaction	-	-	-	-
<i>Working with other people to meet requirements</i>	5	-	-	-
PC8. integrate ones work with other peoples work effectively	5	-	-	-
PC9. utilize time effectively and pass on essential information to other people on timely basis	-	-	-	-
PC10. work in a way that shows respect for other people	-	-	-	-
PC11. carry out any commitments made to other people	-	-	-	-
PC12. reason out the failure to fulfill commitment	-	-	-	-
PC13. identify any problems with team members and other people and take the initiative to solve these problems	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Establishing and managing requirements</i>	3	-	-	-
PC14. clearly establish, agree, and record the work requirements	3	-	-	-
PC15. ensure his/her work meets the agreed requirements	-	-	-	-
PC16. treat confidential information correctly	-	-	-	-
PC17. work in line with the organizations procedures and policies and within the limits of his/her job role	-	-	-	-
NOS Total	13	-	-	-

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N9615
NOS Name	Maintain interpersonal relationship with patients, colleagues and others
Sector	Healthcare
Sub-Sector	Social Work & Community Health, Healthcare Management, Allied Health & Paramedics
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	16/12/2019
Next Review Date	29/01/2026
NSQC Clearance Date	NA

HSS/N9616: Maintain professional & medico-legal conduct

Description

This OS unit is about recognizing the boundaries of the role and responsibilities, practice code of conduct and working within the level of competence in accordance with legislation, protocols and guidelines set up by the healthcare provider.

Scope

This unit/task covers the following:

- Acting within the limit of one's competence and authority o Knowing one's job role o Knowing one's job responsibility o Recognizing the job role and responsibilities of co workers
- Following the code of conduct and demonstrating best practices in the field
- Reference: This National Occupational Standard is from the UK Skills for Health suite [SFHGEN63, Act within the limits of your competence and authority] It has been tailored to apply to healthcare in India and has been reproduced with their Permission

Elements and Performance Criteria

Maintain professional behavior

To be competent, the user/individual on the job must be able to:

- PC1.** adhere to legislation, protocols and guidelines relevant to ones role and field of practice
- PC2.** work within organizational systems and requirements as appropriate to ones role
- PC3.** recognize the boundary of ones role and responsibility and seek supervision when situations are beyond ones competence and authority
- PC4.** maintain competence within ones role and field of practice
- PC5.** maintain personal hygiene and contribute actively to the healthcare ecosystem

Acting within the limit of ones competence and authority

To be competent, the user/individual on the job must be able to:

- PC6.** use relevant research based protocols and guidelines as evidence to inform ones practice
- PC7.** promote and demonstrate good practice as an individual and as a team member at all times
- PC8.** identify and manage potential and actual risks to the quality and safety of practice
- PC9.** evaluate and reflect on the quality of ones work and make continuing improvements
- PC10.** use relevant research-based protocols and guidelines as evidence to inform ones practice

Following the code of conduct and demonstrating best practices in the field

To be competent, the user/individual on the job must be able to:

- PC11.** recognize the boundary of ones role and responsibility and seek supervision when situations are beyond ones competence and authority
- PC12.** promote and demonstrate good practice as an individual and as a team member at all times
- PC13.** identify and manage potential and actual risks to the quality and safety of practice
- PC14.** maintain personal hygiene and contribute actively to the healthcare ecosystem
- PC15.** maintain a practice environment that is conducive to the provision of medico-legal healthcare

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies & procedures followed in the organization
- KU2.** the medical procedures and functioning of required medical equipment
- KU3.** role and importance of assisting other healthcare providers in delivering care
- KU4.** how to engage and interact with other providers in order to deliver quality and maintain continued care
- KU5.** personal hygiene measures and handling techniques
- KU6.** the limitations and scope of the role and responsibilities of self and others
- KU7.** the importance of working within the limits of ones competence and authority
- KU8.** the importance of personally promoting and demonstrating good practice
- KU9.** The detrimental effects of non-compliance
- KU10.** the importance of intercommunication skills
- KU11.** the legislation, protocols and guidelines affecting ones work
- KU12.** the organizational systems and requirements relevant to ones role
- KU13.** the sources of information and literature to maintain a constant access to upcoming research and changes in the field
- KU14.** the difference between direct and indirect supervision and autonomous practice, and which combination is most applicable in different circumstances
- KU15.** the importance of individual or team compliance with legislation, protocols, and guidelines and organizational systems and requirements
- KU16.** how to report and minimize risks
- KU17.** the principle of meeting the organizations needs, and how this should enable one to recognize ones own limitations and when one should seek support from others
- KU18.** the processes by which improvements to protocols/guidelines and organizational systems/requirements should be reported
- KU19.** the procedure for accessing training, learning and development needs for oneself and/or others within ones organization
- KU20.** the actions that can be taken to ensure a current, clear and accurate understanding of roles and responsibilities is maintained, and how this affects the way one work as an individual or part of a team
- KU21.** the risks to quality and safety arising from:
 - o Working outside the boundaries of competence and authority
 - o Not keeping up to date with best practice
 - o Poor communication
 - o Insufficient support
 - o Lack of resources
- KU22.** the importance of personal hygiene

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document reports, task lists, and schedules
- GS2.** prepare status and progress reports
- GS3.** record daily activities

- GS4.** update other co-workers
- GS5.** read about changes in legislations and organizational policies
- GS6.** keep updated with the latest knowledge
- GS7.** discuss task lists, schedules, and work-loads with co-workers
- GS8.** give clear instructions to patients and co-workers
- GS9.** keep patient informed about progress
- GS10.** avoid using jargon, slang or acronyms when communicating with a patient
- GS11.** make decisions pertaining to the concerned area of work in relation to job role
- GS12.** act decisively by balancing protocols and work at hand
- GS13.** communicate effectively with patients and their family, physicians, and other members of the health care team
- GS14.** be responsive and listen empathetically to establish rapport in a way that promotes openness on issues of concern
- GS15.** be sensitive to potential cultural differences
- GS16.** maintain patient confidentiality
- GS17.** respect the rights of the patient(s)

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain professional behavior</i>	5	-	-	-
PC1. adhere to legislation, protocols and guidelines relevant to ones role and field of practice	5	-	-	-
PC2. work within organizational systems and requirements as appropriate to ones role	-	-	-	-
PC3. recognize the boundary of ones role and responsibility and seek supervision when situations are beyond ones competence and authority	-	-	-	-
PC4. maintain competence within ones role and field of practice	-	-	-	-
PC5. maintain personal hygiene and contribute actively to the healthcare ecosystem	-	-	-	-
<i>Acting within the limit of ones competence and authority</i>	7	-	-	-
PC6. use relevant research based protocols and guidelines as evidence to informones practice	7	-	-	-
PC7. promote and demonstrate good practice as an individual and as a team member at all times	-	-	-	-
PC8. identify and manage potential and actual risks to the quality and safety of practice	-	-	-	-
PC9. evaluate and reflect on the quality of ones work and make continuingimprovements	-	-	-	-
PC10. use relevant research-based protocols and guidelines as evidence to inform ones practice	-	-	-	-
<i>Following the code of conduct and demonstrating best practices in the field</i>	7	-	-	-
PC11. recognize the boundary of ones role and responsibility and seek supervision when situations are beyond ones competence and authority	7	-	-	-
PC12. promote and demonstrate good practice as an individual and as a team member at all times	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. identify and manage potential and actual risks to the quality and safety of practice	-	-	-	-
PC14. maintain personal hygiene and contribute actively to the healthcare ecosystem	-	-	-	-
PC15. maintain a practice environment that is conducive to the provision of medico-legal healthcare	-	-	-	-
NOS Total	19	-	-	-

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N9616
NOS Name	Maintain professional & medico-legal conduct
Sector	Healthcare
Sub-Sector	Allied Health & Paramedics, Social Work & Community Health, Healthcare Management
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	16/12/2019
Next Review Date	29/01/2026
NSQC Clearance Date	NA

HSS/N9618: Follow infection control policies & procedures including biomedical waste disposal protocols

Description

This OS unit is about the safe handling and management of health care waste and following infection control policies

Elements and Performance Criteria

Classification of the Waste Generated, Segregation of Biomedical Waste, Proper collection and storage of Waste

To be competent, the user/individual on the job must be able to:

- PC1.** handle, package, label, store, transport and dispose of waste appropriately to minimize potential for contact with the waste and to reduce the risk to the environment from accidental release
- PC2.** store clinical or related waste in an area that is accessible only to authorized persons
- PC3.** minimize contamination of materials, equipment and instruments by aerosols and splatter

Complying with an effective infection control protocols

To be competent, the user/individual on the job must be able to:

- PC4.** apply appropriate health and safety measures following appropriate personal clothing & protective equipment for infection prevention and control
- PC5.** identify infection risks and implement an appropriate response within own role and responsibility in accordance with the policies and procedures of the organization
- PC6.** follow procedures for risk control and risk containment for specific risks. Use signs when and where appropriate
- PC7.** follow protocols for care following exposure to blood or other body fluids as required
- PC8.** remove spills in accordance with the policies and procedures of the organization
- PC9.** clean and dry all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled
- PC10.** demarcate and maintain clean and contaminated zones in all aspects of health care work
- PC11.** confine records, materials and medicaments to a well designated clean zone
- PC12.** confine contaminated instruments and equipment to a well designated contaminated zone
- PC13.** decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilization protocols
- PC14.** replace surface covers where applicable
- PC15.** maintain and store cleaning equipment
- PC16.** report and deal with spillages and contamination in accordance with current legislation and procedures

Maintaining personal protection and preventing the transmission of infections from person to person

To be competent, the user/individual on the job must be able to:

- PC17.** maintain hand hygiene following hand washing procedures before and after patient contact /or after any activity likely to cause contamination
- PC18.** cover cuts and abrasions with waterproof dressings and change as necessary

- PC19.** change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact
- PC20.** perform additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant up-to-date information on health, safety, and security that applies to the organization
- KU2.** organizations emergency procedures and responsibilities for handling hazardous situations
- KU3.** person(s) responsible for health, safety, and security in the organization
- KU4.** good personal hygiene practice including hand care
- KU5.** importance of and how to handle, package, label, store, transport and dispose of waste appropriately to minimize potential for contact with the waste and to reduce the risk to the environment from accidental release
- KU6.** the importance to adhere to the organizational and national waste management principles and procedures
- KU7.** the hazards and risks associated with the disposal and the importance of risk assessments and how to provide these
- KU8.** the required actions and reporting procedures for any accidents, spillages and contamination involving waste
- KU9.** the requirements of the relevant external agencies involved in the transport and receipt of your waste
- KU10.** the importance of organizing, monitoring and obtaining an assessment of the impact the waste may have on the environment
- KU11.** The current national legislation, guidelines, local policies and protocols which affect work practice
- KU12.** the policies and guidance that clarify scope of practice, accountabilities and the working relationship between yourself and others
- KU13.** identification and management of infectious risks in the workplace
- KU14.** aspects of infectious diseases including opportunistic organisms & pathogens
- KU15.** basic microbiology including bacteria and bacterial spores, fungi, viruses
- KU16.** the path of disease transmission including direct contact and penetrating injuries, risk of acquisition
- KU17.** how to clean and sterile techniques
- KU18.** susceptible hosts including persons who are immune suppressed, have chronic diseases such as diabetes and the very young or very old
- KU19.** routine surface cleaning procedures at the start and end of the day, managing a blood or body fluid spill
- KU20.** sharps handling and disposal techniques
- KU21.** effective hand hygiene including hand wash, surgical hand wash, when hands must be washed
- KU22.** good personal hygiene practice including hand care

KU23. how to use personal protective equipment such as: The personal clothing and protective equipment required to manage the different types of waste generated by different work activities

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** report and record incidents
- GS2.** read and understand company policies and procedures to managing biomedical waste and infection control and prevention
- GS3.** listen patiently
- GS4.** report hazards and incidents clearly with the appropriate level of urgency
- GS5.** take in to account opportunities to address waste minimization, environmental responsibility and sustainable practice issues
- GS6.** apply additional precautions when standard precautions are not sufficient
- GS7.** consistently ensure instruments used for invasive procedures are sterile at time of use (where appropriate)
- GS8.** consistently follow the procedure for washing and drying hands
- GS9.** consistently maintain clean surfaces and limit contamination
- GS10.** how to make exceptional effort to keep the environment and work place clean
- GS11.** identify hazards and suggest effective solutions to identified problems pertaining to hospital waste and related infections
- GS12.** analyze the seriousness of hazards pertaining to hospital waste and related infections
- GS13.** apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to act
- GS14.** take into account opportunities to address waste minimization, prevent infection, environmental responsibility and sustainable practice issues

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Classification of the Waste Generated, Segregation of Biomedical Waste, Proper collection and storage of Waste</i>	5	-	-	10
PC1. handle, package, label, store, transport and dispose of waste appropriately to minimize potential for contact with the waste and to reduce the risk to the environment from accidental release	5	-	-	10
PC2. store clinical or related waste in an area that is accessible only to authorized persons	-	-	-	-
PC3. minimize contamination of materials, equipment and instruments by aerosols and splatter	-	-	-	-
<i>Complying with an effective infection control protocols</i>	8	-	-	10
PC4. apply appropriate health and safety measures following appropriate personal clothing & protective equipment for infection prevention and control	8	-	-	10
PC5. identify infection risks and implement an appropriate response within own role and responsibility in accordance with the policies and procedures of the organization	-	-	-	-
PC6. follow procedures for risk control and risk containment for specific risks. Use signs when and where appropriate	-	-	-	-
PC7. follow protocols for care following exposure to blood or other body fluids as required	-	-	-	-
PC8. remove spills in accordance with the policies and procedures of the organization	-	-	-	-
PC9. clean and dry all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled	-	-	-	-
PC10. demarcate and maintain clean and contaminated zones in all aspects of health care work	-	-	-	-
PC11. confine records, materials and medicaments to a well designated clean zone	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. confine contaminated instruments and equipment to a well designated contaminated zone	-	-	-	-
PC13. decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilization protocols	-	-	-	-
PC14. replace surface covers where applicable	-	-	-	-
PC15. maintain and store cleaning equipment	-	-	-	-
PC16. report and deal with spillages and contamination in accordance with current legislation and procedures	-	-	-	-
<i>Maintaining personal protection and preventing the transmission of infections from person to person</i>	8	-	-	10
PC17. maintain hand hygiene following hand washing procedures before and after patient contact /or after any activity likely to cause contamination	8	-	-	10
PC18. cover cuts and abrasions with waterproof dressings and change as necessary	-	-	-	-
PC19. change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact	-	-	-	-
PC20. perform additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection	-	-	-	-
NOS Total	21	-	-	30

National Occupational Standards (NOS) Parameters

NOS Code	HSS/N9618
NOS Name	Follow infection control policies & procedures including biomedical waste disposal protocols
Sector	Healthcare
Sub-Sector	Social Work & Community Health, Healthcare Management, Allied Health & Paramedics
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQF Clearance Date	31/03/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score a minimum of 70% of % aggregate marks to successfully clear the assessment.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
HSS/N8713. Collect detailed patient and family history to draw a pedigree	43	19	20	20	102	10
HSS/N8714. Assess risk for genetic disorders or syndromes	68	46	30	36	180	15
HSS/N8715. Provide counselling on various genetic tests and coordinate for their execution	47	34	20	22	123	15
HSS/N8716. Interpret the inferences of the genetic tests and carry out post- test counselling	51	57	30	30	168	15
HSS/N8717. Provide need-based genetic counselling to the patient and their family members	56	83	30	25	194	20
HSS/N8718. Promote genetics related awareness	39	17	20	24	100	10
HSS/N9615. Maintain interpersonal relationship with patients, colleagues and others	13	-	-	-	13	5

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
HSS/N9616.Maintain professional & medico-legal conduct	19	-	-	-	19	5
HSS/N9618.Follow infection control policies & procedures including biomedical waste disposal protocols	21	-	-	30	51	5
Total	357	256	150	187	950	100

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
HLA	Human Leukocyte Antigen
DNA	Deoxyribonucleic Acid
MLC	Medico Legal Case
CVB	Chorionic Villous Biopsy
HPLC	High Performance Liquid Chromatography
ELISA	Enzyme Linked Immune Sorbant Assay
NTDs	Neural Tube Defects
NGS	Next Generation Sequencing

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.
Clinical Genetics	A specialty of medicine concerned with the diagnosis and provision for risks of developing an illness with a genetic basis in individuals and families.
Codominance	Codominance is a form of dominance wherein the alleles of a gene pair in a heterozygote are fully expressed. This results in offspring with a phenotype that is neither dominant nor recessive. A typical example showing codominance is the ABO blood group system
Consanguinity	Mating between two individuals with a common ancestor, for example, first cousins
Pedigree	A diagram of family relationships that uses symbols to represent people and lines to represent relationships. These diagrams make it easier to visualize relationships within families, particularly large extended families
Population Genetics	A diagram of family relationships that uses symbols to represent people and lines to represent relationships. These diagrams make it easier to visualize relationships within families, particularly large extended families