Unit 7: Introduction to Genomics, Clinical Bioinformatics and Precision Medicine

Level:	**2**
Unit type:	**Optional (Bioinformatics)**
Credit value:	**3**
Guided learning hours:	**16**

Unit summary

This unit aims to give learners knowledge and understanding of the fundamental principles of genomics and the applications in healthcare. The use of genomics in routine clinical care is now possible in the NHS through the National Genomic Test Directory. The role of Genomics in predictive, preventive, personalised medicine will be explored. The ethical, legal, and social issues associated with genetic and genomic healthcare are also covered. Learners will have the opportunity to reflect on own practice and the impact of genetics and genomics.

Unit assessment requirements

Assessment tasks and activities must enable learners to produce valid, sufficient, authentic and appropriate evidence that relates directly to the learning outcomes and assessment criteria of the unit. Suitable forms of evidence for this unit include:

- written tasks such as reports, articles for journals, newsletters, leaflets, posters
- workbooks, work logbooks or learner diaries
- written or oral presentations
- projects
- oral question and answer

Observation records should not be used as the primary evidence of achievement for this unit, but can be used to supplement the more appropriate forms of evidence listed above or to provide sector contextualisation or evidence of how the learner has applied knowledge within their job role.

When devising the assessment activities, centres need to look closely at the verb used in each assessment criterion to ensure that learners can provide evidence with sufficient breadth and depth to meet the requirements. Centres need to produce assessment briefs for learners with clear instructions of what they are required to do.

Additional information

AC2.2, including e.g. inherited disorders

AC2.3, including e.g. exposure

AC2.5, including e.g. predictive and preventive testing

LO5 includes:

- your own role
- an individual's, and
- their family's health and wellbeing.

Learning outcomes and assessment criteria

To pass this unit, learners need to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria outline the requirements that the learner is expected to meet to achieve the learning outcomes and the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand the fundamentals of genetic disorders, its impact on an individual and their family and the role of clinical diagnostic testing services	1.1	Identify common inherited disorders			
		1.2	Explain how a common genetic condition may affect an individual and their family			
		1.3	Explain how genomic testing can be used to identify common genetic disorders			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Understand the fundamentals of the human genome, how it can influence a person's health and how genomic information can be used in healthcare	2.1	Define the terms Gene, DNA, Chromosome, Mutation			
		2.2	Explain how family history influences a person's health			
		2.3	Explain how environmental factors influence a person's health			
		2.4	Identify common conditions that involve alteration to the genome			
		2.5	Explain how genomic information is used in healthcare			
3	Know common conditions involving alterations to the genome that may occur within own area of practice	3.1	Explain how personalised medicine can be integrated into healthcare			
		3.2	Outline the range of situations in which genomic information can be used			
		3.3	Explain how a common genetic condition may affect an individual and their family			
4	Understand the ethical, legal and social issues associated with genetic and genomic healthcare	4.1	Explain ethical issues associated with the use of genomic information			
		4.2	Explain legal issues associated with the use of genomic information			
		4.3	Explain social issues associated with the use of genomic information			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
5	Reflect on own practice and the impact of genetics and genomics on self and others	5.1	Explain the impact of an inherited condition on the individual and their family			
		5.2	State how genetics and genomics currently impacts on own role			
		5.3	Identify emerging developments in genetics and genomics that may impact on own role in the near future			
		5.4	Explain the potential impact of genetics and genomics on the services provided by own department			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)