Unit 29: Clinical Biochemistry in Practice

Level: 4

Unit type: Optional (Laboratory Science)

Credit value: 30

Guided learning hours: 240

Unit summary

In this unit, you will apply the knowledge and skills gained in *Unit 19: General Laboratory Practice* to work in a clinical biochemistry setting. You will also be required to demonstrate appropriate attitudes and behaviours and integrate your learning as you develop your professional practice.

Unit assessment requirements

There are no specific assessment requirements for this unit, however **learners completing this unit must also complete *Unit 19: General Laboratory Practice.*** Please refer to the assessment strategy in *Annexe B*.

Additional information

All procedures must be undertaken in accordance with the Standard Operating Procedure (SOP).

Learning outcome 2: the type of equipment that learners will be assessed using (automated/semi-automated or manual equipment) will depend on their own specific area of clinical biochemistry.

AC2.4 could include:

- liver function (LFTs)
- thyroid function (TFTs)
- urea and electrolytes (U&Es)
- cardiac markers
- lipid profiles
- fasting glucose, HbA1c and osmolality
- glomerular filtration rate (GFR)
- urinalysis
- blood gases
- tumour markers for cancer biochemistry
- protein markers; electrophoresis etc.
- uric acid

- vitamins and trace metals
- GI tract
- therapeutic drugs, poisons, toxicology, drugs of abuse
- more general endocrine systems such as pituitary, adrenal and reproductive axes
- inherited disease.

AC2.15 includes:

- liver function (LFTs)
- thyroid function (TFTs)
- urea and electrolytes (U&Es)
- calcium, phosphate and magnesium
- cardiac markers
- lipid profiles
- fasting glucose and HbA1c
- kidney function.

AC3.1 requires learners to describe **three** examples.

AC3.2 requires learners to use the same **three** examples as used in 3.1.

AC3.3 requires learners to use **one** patient pathway.

AC3.4 includes contribution to the delivery of high-quality, safe, patient-centred services.

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 **in own area of work and in accordance with Standard Operating Procedures (SOPs)** to achieve the learning outcomes and the unit.

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand the principles and practice of clinical biochemistry	1.1	Compare the pre-analytical, analytical and post-analytical functions in a clinical biochemistry setting			
		1.2	Explain the principles of spectrophotometry, immunoassay and electrochemistry			
		1.3	Explain the purpose of reference ranges in relation to routine clinical biochemistry analyses			
		1.4	Explain the derivation of reference ranges in relation to routine clinical biochemistry analyses			
		1.5	Discuss safe handling and preparation of human blood in a clinical biochemistry setting			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
2	Be able to perform routine analysis on equipment in clinical biochemistry to specified quality standards	2.1	Explain the maintenance procedures required on chemistry and immunoassay analysers			
		2.2	Explain the principles and practice of quality control, external quality assessment and quality management in clinical biochemistry			
		2.3	Explain the role of audit and laboratory accreditation in supporting quality-assured services			
		2.4	Explain the common indications for clinical biochemistry measurements			
		2.5	Demonstrate the measurement of liver function tests (LFTs)			
		2.6	Demonstrate the measurement of thyroid function (TFTs)			
		2.7	Demonstrate the measurement of urea and electrolytes (U&Es)			
		2.8	Demonstrate the measurement of calcium, phosphate and magnesium			
		2.9	Demonstrate the measurement of cardiac markers			
		2.10	Demonstrate the measurement of lipid profiles			
		2.11	Demonstrate the measurement of fasting glucose and HbA1c			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		2.12	Demonstrate the performance of a urinalysis test			
		2.13	Demonstrate the measurement of blood gases			
		2.14	Maintain quality standards and related quality control, assessment and management techniques in own area of work			
		2.15	Describe common conditions where a clinical biochemistry result is below or above the reference range			
		2.16	Separate clinical trial samples in accordance with the clinical trial protocol and the ethical and governance approvals in place			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Understand the impact of clinical biochemistry on patients and the work of the multidisciplinary team	3.1	Describe patient pathways where clinical biochemistry services contribute to diagnosis and long-term monitoring			
		3.2	Explain how clinical biochemistry results are used in patient pathways			
		3.3	Explain the common symptoms experienced by a person in a patient pathway			
		3.4	Explain the work of multidisciplinary teams in own area of work			
		3.5	Discuss how personalised medicine can be used in the diagnosis and treatment of conditions appropriate to own work area			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

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