



LEVEL 3 CERTIFICATE / DIPLOMA

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MEDICAL SCIENCE UNIT 6 (Medical Conditions)

*For use with **Unit 6 Medical Case Study** examination*

**Pre-Release Article for use in the following
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Level 3 Diploma in Medical Science

Level 3 Certificate in Medical Science

Epilepsy

Epilepsy is a common condition that affects the brain. There are over 40 different types of epilepsy.

Symptoms of epilepsy

Epilepsy causes seizures. These seizures can be partial or generalised and can affect people in different ways, depending on how much of the brain is involved.

Symptoms include:

- a convulsion or seizure, which is known as a 'tonic-clonic' seizure
- losing awareness, often called an 'absence'
- muscle jerking and shaking, often called a 'myoclonic' seizure
- 'tonic' or 'atonic' seizure, which is a 'drop attack' with stiffening
- strange sensations, such as a 'rising' feeling in the tummy, unusual smells or tastes, and a tingling feeling in the arms or legs.

Causes of epilepsy

In epilepsy, the electrical signals in the brain become scrambled with sudden bursts of electrical activity. This is due to an abnormality in the brain neurons and the synapses. In most cases it is not clear why this happens. Epilepsy can be caused by damage to the brain, such as:

- stroke
- a brain tumour
- a severe head injury
- drug abuse or alcohol misuse
- a brain infection
- a lack of oxygen during birth.

Diagnosing epilepsy

If a GP suspects a patient has epilepsy, they will refer them to a neurologist who will recommend a test to check brain activity called an electroencephalogram (EEG). During the EEG, the neurologist will check for the presence of abnormal brain patterns, especially spikes, patterns of tonic or atonic seizures, or triggers that will cause a tonic-clonic seizure.

Treatments for epilepsy

Treatment can help most people with epilepsy so that they have fewer seizures, or stop having seizures completely. Treatments include:

- anti-epileptic drugs (AED). In the British National Formulary (BNF) published by NICE there are about 26 AEDs. The most common one prescribed in the UK is sodium valproate. All patients prescribed AEDs are monitored by regular blood tests because of their toxic side effects.
- surgery to remove a small part of the brain that is causing the seizures
- a special diet that can help control seizures.

Living with epilepsy

Epilepsy is usually a lifelong condition. Most epileptics can live normal lives if their seizures are well controlled. Epileptics need to check with their doctors before they do things such as driving, certain jobs, swimming, using contraception and planning a pregnancy. Advice is available from the GP and support groups to help patients adjust to life with epilepsy.

Bowel Cancer

Bowel cancer is a general term for cancer in the large intestine. Bowel cancer is sometimes called colon or rectal cancer.

Symptoms of bowel cancer

The three main symptoms of bowel cancer are:

- blood in the stools
- changes in bowel movements
- persistent lower abdominal pain, bloating or discomfort.

Causes of bowel cancer

The exact cause of bowel cancer is unknown, but there are several things that can increase the risk. These include:

- age
- a diet high in red or processed meats and low in fibre
- obesity
- lack of exercise
- alcohol and smoking
- family history.

Diagnosing bowel cancer

If symptoms suggest bowel cancer the GP will refer a patient for a colonoscopy, and a biopsy is usually taken. This tissue sample is then processed and analysed by histopathology.

Treating bowel cancer

The main treatments are:

- surgery – the cancerous section of bowel is removed. This is the most effective way of treating bowel cancer
- chemotherapy – combination drugs are often used which affect DNA replication, e.g. fluorouracil and folinic acid
- radiotherapy
- other treatments, which can include immunotherapy and photodynamic therapy.

Living with bowel cancer

Bowel cancer can affect the daily life of a patient in different ways, depending on the stage of the cancer and the treatment prescribed. Chemotherapy and radiotherapy always cause side effects.

Patients should have access to appropriate support, to help them cope with their diagnosis and understand their treatment.

Cellulitis

Cellulitis is a skin infection caused by bacteria. It can be serious if not treated quickly.

Symptoms of cellulitis

Cellulitis causes skin to become red, hot and painful. It can appear swollen and blistered.

Cellulitis usually affects the hands, feet and legs.



Causes of cellulitis

Cellulitis is caused by a bacterial infection. The bacteria infect the deeper layers of the skin following, for example, an insect bite, a cut, or if the skin is cracked and dry. Particular strains of *Streptococcus* and *Staphylococcus* cause cellulitis.

Patients are more at risk of cellulitis if they:

- have poor circulation
- find it difficult to move around
- have a weakened immune system
- have lymphoedema, which causes fluid build-up under the skin
- inject drugs
- have had surgery

Diagnosing cellulitis

A doctor is able to diagnose cellulitis by observing the infected area. The doctor may take a blood sample and a swab of the infected area to confirm diagnosis.

Treatment for cellulitis

For mild cellulitis affecting a small area of skin, a GP will prescribe antibiotics. The antibiotics prescribed can be administered topically, orally, or intravenously, depending on the severity of the infection. The most common antibiotics used to treat cellulitis are penicillin, dicloxacillin and erythromycin. Most people make a full recovery after 7 to 10 days.

Preventing cellulitis

Some people with recurring cellulitis might be prescribed low-dose, long-term antibiotics to stop the infection from coming back. Recurring cellulitis is a concern in some patients due to the possibility of MRSA infection.