The Role Of Biomedical Scientists And Pathology Services In Patient Focused Healthcare

Biomedical Scientists are instrumental in centred patient care as up to 70% of all diagnoses are based on pathology results and they are often considered to be ‘behind the scenes’ in healthcare. Diagnostic testing can identify conditions before they are clinically apparent, such as high cholesterol which can lead to heart disease or high glucose related to diabetes.

A multidisciplinary team (MDT) is a group of healthcare professionals from different clinical disciplines who make decisions about the treatment of individual patients. MDTs organise and co-ordinate health and care services in order to meet the needs of patients with complex care needs. Each member of the teams brings a wealth of knowledge, expertise and skills from their profession and they work as part of a team to support the individual patients care goals. MDTs may specialise in certain conditions such as cancer and are mandatory within NHS hospitals providing cancer services. Each cancer patient is discussed in the meeting to make sure that all relevant treatment options are considered, and they plan the treatment that will be most effective for the patient. The MDT may include individuals from the following professions: surgeon, medical or clinical oncologist, pathologist, clinical nurse specialist and radiologist. Each MDT is responsible for all cancers within their speciality. MDTs are also used for other specialities such as orthopaedics, rheumatology, neurology and gastroenterology. Biomedical Scientists based in Histology now take part in MDT meetings to review cancer cases. This is due to the advancement of roles in areas such as cytology and histological dissection.

Biomedical Scientists are predominantly laboratory based but some work in Point of Care Testing (POCT). POCT brings laboratory testing to the patient where Biomedical Scientists are engaging with patients and provide a ‘face’ to the laboratory. Some of the tests available at the point of care include blood gases, urinalysis, hCG, blood glucose and INR. This enables clinicians to have results quicker and ultimately start treatment quicker if it is required.

In Accident and Emergency (A&E) the current waiting time target is 4 hours for 95% of patients to be admitted, transferred or discharged. If a patient waits longer than 4 hours, then they are considered to have breached the target and the Trust can be fined for each patient. The laboratory plays a critical role in breach times and samples are fast tracked so that clinicians can have results as soon as possible. If a sample goes missing or isn’t entered into the system correctly then this can contribute to a breach in the target.

Elective surgery patients attending pre-operative assessment clinics in the days prior to surgery will have their blood taken. A sample for blood group and save will be obtained so that the patient’s blood group is confirmed, and it will be screened for antibodies. A nasal swab for MRSA will also be obtained so that suppression therapy can be issued if the result is positive. Due to the recent pandemic, all elective patients and patients at the point of admission are also screened for Covid-19, which has put an enormous strain on the department due to the volume of samples being sent and the amount of staff available to perform testing.

Life threatening situations such as major trauma, surgical blood loss or post-partum haemorrhage can require blood products. In emergency situations the laboratory will issue the

same ABO and RhD group as the patient, which is uncrossmatched, or if there is no blood group information available then O RhD negative will be issued. Biomedical Scientists are responsible for ensuring that the blood groups of donors and patients are compatible. If the wrong blood products are administered, then the patient can experience a transfusion reaction which can be life threatening.

The Intensive Care Unit (ICU) send urgent samples to the laboratory from patients who are seriously ill and require intensive treatment and close monitoring. These samples are processed as quickly as possible so that the medical team can act upon the results. ICU have their own blood gas analyser which they are trained to use and maintain.

Employee Health and Wellbeing Services send samples to the laboratory to test current and potential employee's immunity levels for communicable diseases such as Rubella and Hepatitis B. These tests will indicate whether the employee will require a booster jab. They also send samples to be tested for latent TB for healthcare workers who have recently arrived from high-incidence countries or if they have had contact with patients in settings where TB is highly prevalent.

Outpatient clinics use the Phlebotomy service provided by the Pathology department. Often clinicians require the results before they see the patient, or due to seeing the patient they require further investigations to be performed. Patients attending the Haematology clinic are required to have their blood taken just before their appointment and the samples are fast tracked down to the laboratory so that the most up-to-date results will be available when the patient sees their consultant. A pneumatic tube connects the phlebotomy clinic to the Blood Sciences department so that the samples can be received and analysed quickly.

General Practitioners send their patient samples to the laboratory via a transport link. Certain results can be available the same day and any abnormal results will be telephoned to the requesting clinician. Abnormal results can be due to a delay in the sample arriving in the laboratory, so patients can be sent to use the Phlebotomy service located in the hospital's Outpatients department so that their samples can be analysed quickly, and a true result can be obtained. This often happens when GP's request a U&E and there is a delay in separation of the sample and the potassium result will be elevated due to this.

The role of Biomedical Scientist has advanced and evolved over the years, but the patient will always be central to the work that Biomedical Scientists undertake. Biomedical Scientists work both independently and as part of a team to provide a service where hopefully the patient can have the best possible outcome.