

Knock Knock, Who's There? Biomedical Scientists Who?

Your Guide to Biomedical Scientists

Biomedical scientists are a core part of the clinical team within hospital laboratories in Scotland. They carry out a vast array of tests and analysis on tissue, blood, fluids etc taken from patients to establish the diagnosis and treatment plan. They carry out some 16 million tests per year for the NHS in Scotland. Examples of the type of work biomedical scientists will carry out are broken down into disciplines as follows:

Cellular Pathology

This discipline is very practically based and the biomedical scientist will prepare and analyse biopsies and resections of tissue taken at theatre for pathological diagnosis. Within this discipline biomedical scientists are developing into roles traditionally within the medical profession including tissue dissection and identification of tumour areas.

Clinical Chemistry

In this discipline the biomedical scientist will analyse blood and fluids to ascertain diagnoses which range from evidence of cardiac issues through liver and renal function tests. Across the disciplines this is where the bulk, by quantity of tests, are carried out and virtually every patient will have biochemical tests carried out at some time in their life. When you go to your GP for a cholesterol, first line colorectal screening or a fasting glucose test this is the laboratory the test will be carried out.

Cytopathology

Involves the analysis of cervical preparations taken from women every 3 years as part of the national screening programme. The biomedical scientist examines microscopically stained preparations to identify abnormal changes. Cytopathology biomedical

scientists may also review preparations of body fluids from patients to detect malignancy. This discipline was one of the first in the NHS to have an advanced practitioner status with staff having the opportunity to undertake areas of work in parallel with consultant medical staff.

Haematology

The biomedical scientist in this discipline analyses blood for evidence of abnormalities from malignancy through to for example malarial parasite infection. They also have a significant role in monitoring coagulation for patients on anti coagulant therapy. This role takes the biomedical scientist from their traditional focus in the laboratory in an acute hospital setting out into the community, particularly in ensuring quality of point of care testing with GP practices and clinics.

Medical Microbiology and Virology

Biomedical scientists in Microbiology culture and identify bacteria and other infectious agents and establish their receptiveness to antibiotics. Biomedical scientists in this field also play a very active role in infection control e.g. MRSA. The virology biomedical scientists help to detect viral infection and can use an array of modern molecular techniques e.g. PCR

Transfusion Science

Biomedical scientists carrying out blood transfusion in Scotland are employed in the acute hospital sector in cross matching blood for patients to ensure compatibility. They are also involved nationally though the Scottish National Blood Transfusion Service in ensuring donations are processed appropriately and blood products are available to the NHS as they are required.

Overview

There are over 2000 biomedical scientists practicing in the NHS in Scotland and they are professionally regulated by the Health Professions Council (HPC). The outline above only covers some of the areas worked and this expands to other disciplines such as immunology, genetics and molecular pathology.

Their professional body is the Institute of Biomedical Science (IBMS) who represent the profession in areas of government policy, education, science and professional development.

The services provided centre mostly on the acute sector hospital but extend to what we call point of care testing within the community, ensuring a quality of test result within patients homes and GP practices.

The above does not convey some of the complexity and nature of the work. The biomedical scientist may be cross matching blood for a major road traffic incident, dealing with a request for analysis of a suspected drug overdose through to identifying a potential malarial parasite from a patient admitted with fever. At the end of a long night shift this can become particularly challenging and requires a high level of competence matched to good management skills. They also play an inherent role in many of the screening programmes in Scotland including bowel, cervical and breast screening.

The major acute hospital service is provided 24 hours a day, 7 days a week and on many occasions the biomedical scientist will be working on their own.

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