Every cell in our body contains **DNA** which contains regions known as **genes**. Genes determine how our bodies make different components to perform **functions** our body needs.

Most variation in our genes is harmless, and is part of what makes us unique – but some changes in our DNA affect how genes work and can cause disease.

All our cells contain DNA, including genes…

…that are processed to make molecules...

…that perform functions our body needs!

How do we use genetics to improve patient care?

Since our genes impact how our bodies work, genetic testing can be used in many different aspects of healthcare to improve care and treatment.

Erin Middleton / S001006 / East of Scotland Regional Genetics / erin.middleton3@nhs.scot

Rare & Inherited Disease

Harmful genetic changes can be inherited, or can happen during development. Testing can provide a diagnosis and help make healthcare decisions, like monitoring and treatment, for both the individual and their family.

Cancer

In cancer, genetic testing can tell us about progression, help pick the right treatment and tell if it's working or if there's a risk of relapse. This means doctors can respond quickly to give the best treatment.

Newborn Screening

Newborn screening in Scotland currently tests for 9 genetic disorders. Early diagnosis can make sure these conditions are managed correctly, and can save lives. Prenatal genetic testing can also tell us about a baby's health.

Personalised Medicine

Our genes also determine how well we react to treatment. Testing can tell us if someone may process a drug quickly and need a higher dose, or if they don't process it well and might benefit from a different treatment.