NHS 75 England

75 years of genetics and genomics in the NHS

Healthcare

Birth of the NHS

1946 First genetic counselling clinic in Europe started at Great Ormond Street Hospital

1948 NHS launched

1958 The first consultant clinical geneticist appointed in the UK at Great Ormond Street Hospital

Early genetics services

1960 Cytogenetics starts to be used for diagnoses

1971 Cytogenetics is funded in some laboratories by the NHS

Early diagnostics

1985 First NHS-funded DNA diagnostic service is launched

Testing and diagnostics

1997 DNA sequencing used within NHS diagnostic services

2001 Molecular testing for *BRCA1&2* mutations in high-risk families

Setting the direction for genomics

2013 First multigene sequencing diagnostic test for tumour profiling in the NHS

2014 NHS Genomics Education Programme is launched to support NHS staff to have the right knowledge, skills and experience in genomics

2018 NHS Genomic Medicine Service established with a network of seven Genomic Laboratory Hubs and a new National Genomic Test Directory

Realising the vision

2021 Five-month old baby with spinal muscular dystrophy is first NHS patient to be treated with life-changing gene therapy

2022 Genomics Education Programme launches GeNotes to support clinicians in accessing the right genomic test for their patient

2022 NHS publishes *Accelerating Genomic Medicine in the NHS* – a strategy for embedding genomics in the NHS over the next 5 years

1948 · 1950 · 1960 · 1970 · 1980 · 1990 · 2000 · 2010 · 2020 · 2023

Research and discovery

Genetic discoveries

1953 The DNA double helix structure is identified

1956 The number of human chromosomes is established

1961 Genetic code deciphered: how DNA provides the instructions to make an organism

First DNA sequencing

1977 Sanger sequencing developed and first genome (a bacteriophage) is sequenced

Copying DNA

1983 Polymerase chain reaction (PCR), a way of making copies of DNA, is developed – essential for most sequencing technologies

Getting serious about sequencing

1990 Human Genome Project begins

1995 First bacterial genome is sequenced

1999 First human chromosome (22) is sequenced

Genomics in the new millennium

2003 Human Genome Project is completed

2012 UK government announces 100,000 Genomes Project

2014 Cost of sequencing a whole genome reduces to $1,000

2016 First patients enrolled in 100,000 Genomes Project receive diagnoses

100,000 genomes and beyond

2018 100,000th whole genome is sequenced

2018 NHS patients having a sequencing test given a choice to allow approved researchers to access their de-identified genomic data and samples for clinical studies

2021 Genomics England launches Newborn Genomes Programme to explore benefits and challenges of sequencing and analysing newborns' genomes

Learn more about genomics and how it is shaping healthcare

www.genomicseducation.hee.nhs.uk

Dates accurate to the best of our knowledge at the time of writing, based on published literature