ILLUSTRATIVE EXAMPLES
CONSULTANT CLINICAL SCIENTIST ROLE

This document aims to further explain the role of the consultant clinical scientist (CCS) by combining explanations of what consultant clinical scientists do, along with specific examples:

Consultant clinical scientists:

• develop and introduce complex clinical procedures that are safe and effective for patients with multiple and various clinical problems
• invent new devices and generate useful revenue
• share knowledge internationally to bring state of the art diagnosis and treatment to NHS patients.

SPECIFIC EXAMPLE:

Consultant clinical scientists collaborate worldwide to tackle inborn errors of metabolism/enzyme assays

Approximately one baby in a thousand is affected by one of over 1,400 known metabolic abnormalities.

CCSs in biochemistry develop highly sensitive tests to pick up these conditions, assessing risks and working with the clinicians who treat very sick babies, to obtain samples safely, design new assays and interpret complex results on a patient-by-patient basis. CCSs network with professionals across the world to push the boundaries and share knowledge regarding existing and new diagnoses and treatment.

They then work closely with local health professionals managing patients, giving advice on diet and treatment, which in rare diseases, can be novel. Thousands of young lives are saved every year across England through these specialist interventions.
Consultant clinical scientists:

- are leading the development of precision and personalised medicine by applying new scientific and technical discoveries for the benefit of patients.

### SPECIFIC EXAMPLE:

**Consultant clinical scientists are leaders in genetics**

There are nearly 8,000 rare diseases and cancers diagnosed in the UK, each one affecting less than one per cent of the UK’s population, but together touching the lives of more than five million people each year. A CCS in genetics provides leadership to those working to test, clinically interpret and diagnose these disorders and provide the information for onward clinical treatment and management to healthcare professionals caring for these individuals. Genetics is a constantly changing field and services need to constantly evolve to meet the ever changing technologies and growing expectations of patients. Part of this role is to ensure services remain at the cutting edge of science and patients receive the most effective test, using the most efficient processes.

Consultant clinical scientists:

- question and evaluate the benefit of existing and new techniques in clinical use
- find ways to encourage faster adoption of beneficial technologies through innovative projects and cultural change
- lead complex projects across multiple health economies
- take a strategic approach to investments in technology for provider organisations and ensure successful outcomes.

### SPECIFIC EXAMPLE:

**Consultant clinical scientist role in clinical biomedical engineering**

CCSs are developing a patient rehabilitation support service that starts when a patient leaves hospital, working with therapists, nursing, medical and social care teams to prescribe, supply and manage technologies for home use. The aim is to maximise patient function and independence and minimise the need for hospital admissions.
Risks and costs associated with the acquisition and use of medical equipment are minimised by integrating responsibility for medical device management and technology innovation support across health and social care minimises through best practice health technology management.

The CCS personally contributes to complex service delivery, with their essential contribution being to take a system wide view of healthcare, ensuring patient outcomes are optimal and health service delivery remains at the limits of science.

Consultant clinical scientists:

- deal with difficult scientific and technical problems in complicated equipment, working with and challenging manufacturers to get what the service needs
- improve quality and efficiency within and across health systems and providers.

SPECIFIC EXAMPLE:

Consultant clinical scientists reduce demands on the NHS by working across secondary and primary care

CCSs working in patient-facing roles in physiology seek to address clinical problems that use a lot of healthcare resources across primary and secondary care. For example, CCSs working within a CCG multi-disciplinary strategic team, looked closely at the available evidence to identify what was needed to reduce demands on the NHS for the diagnosis and treatment of chronic respiratory conditions, such as asthma and obstructive pulmonary disease.

They devised clear patient pathways across primary and secondary care to accurately and efficiently diagnose lung disease, supported by carefully targeted training and clear measurement standards. They also benchmarked the way oxygen assessment was carried out to ensure services were matched closely to patient need.

Their insight came from an ability to move flexibly across secondary and primary care, together with strengths in project management and the technical and change skills needed to introduce appropriate innovation. In this way CCSs are spearheading the introduction of science and technology into the community, working with other healthcare groups to improve the diagnosis, treatment and monitoring of patients in a revolutionary way.
Consultant clinical scientists:

- equip other healthcare staff to get the best from the NHS’s investment in technology and processes.

**SPECIFIC EXAMPLE:**

Consultant clinical scientists are educators and systems improvers

All healthcare staff must continuously develop their skills. This is particularly important as the NHS becomes more science and evidence based and increasingly dependent on technology.

CCSs provide education and training to medical, nursing and AHP staff in the underlying science and its technological applications, to maximise the benefit and improve outcomes. Analysis of incidents allows training to be targeted where it is most needed and CCSs use this information to help improve equipment and processes and increase patient safety.

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Published October 2016 © NHS Employers 2016.