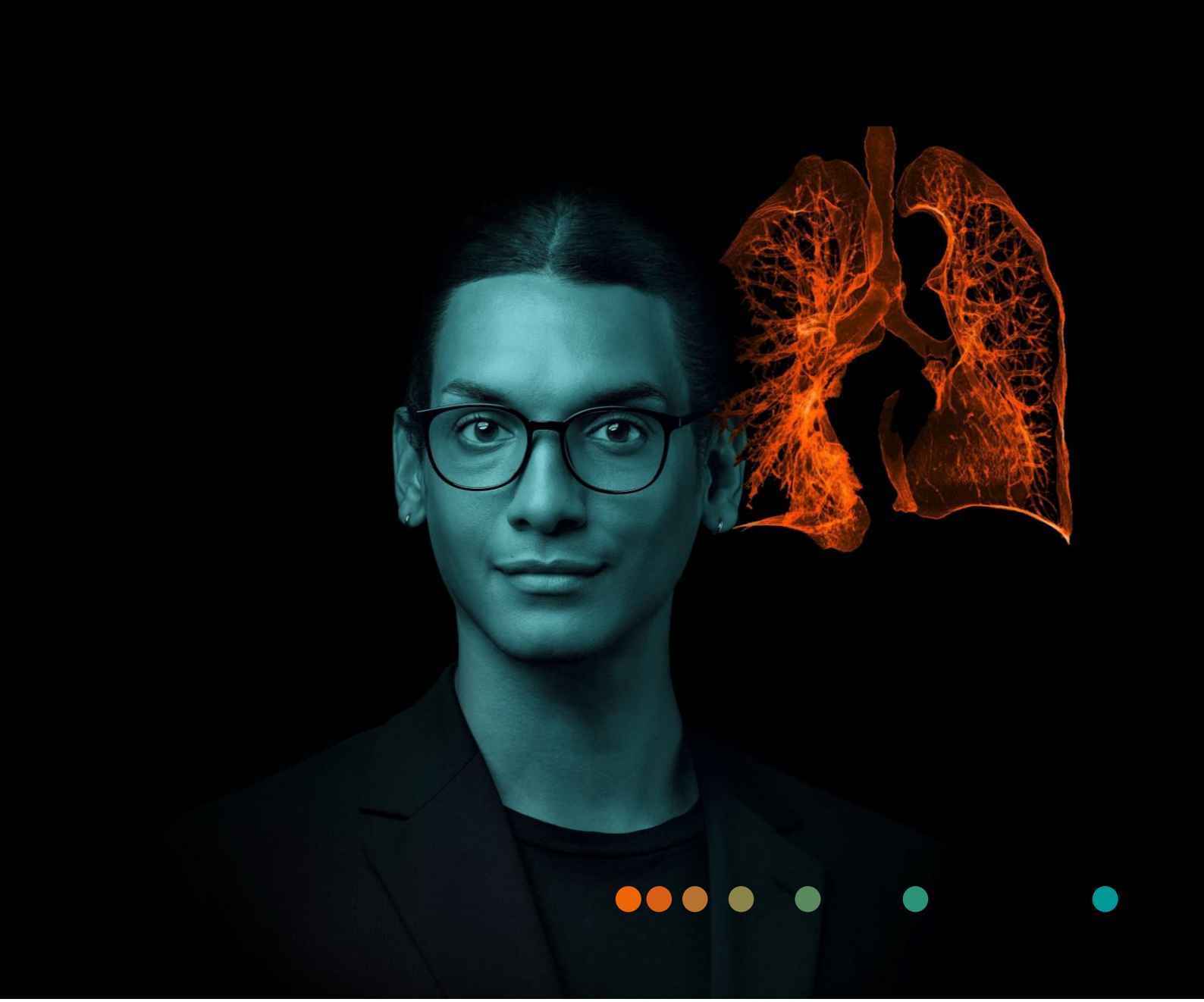

Case study: Wythenshawe Hospital, Manchester University NHS Foundation Trust

Co-designing an innovative centre for lung cancer

Driving excellence in lung cancer care across Greater Manchester

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Executive summary

After a successful pilot of The Lung Health Check in Manchester, the NHS Lung Cancer Screening Programme (formerly called The NHS Targeted Lung Health Check Programme) will continue its launch across the UK, offering lung cancer screening appointments to all high-risk patients by 2030.

This initiative is set to shift stage diagnosis for lung cancer, helping to save more lives, faster. In Greater Manchester, where lung cancer is the most common cause of death in those under 75, the NHS Lung Cancer Screening Programme is currently live, and is expected to have a transformative impact. Estimations indicate the screening programme will support the diagnosis of 700 Stage 1 and 2 lung cancers per year, over the next 15 years.

To fully harness the potential of these earlier diagnoses, advanced diagnostic and treatment capacity will be key. The Diagnostic and Treatment Centre for Lung Cancer at Wythenshawe Hospital, part of Manchester University NHS Foundation Trust (MFT), will help to unify regional provision for lung cancer care under one roof, supporting improved patient experience and outcomes.

Siemens Healthineers Consulting facilitated the design of this new centre, in partnership with Manchester University NHS Foundation Trust, Greater Manchester Cancer Alliance and The Christie NHS Foundation Trust.

Together, we have harnessed experience-based techniques and simulation modelling, to develop an agile, future-proof design that strengthens service provision and supports patients and staff. By unlocking insights behind the centre's regional impact on lung cancer care and outcomes, the design plays a key role in strengthening the business case for the centre, to support its upcoming creation.

The customer

Wythenshawe Hospital, part of Manchester University NHS Foundation Trust, is a major acute teaching hospital serving patients across Greater Manchester and the wider North-West of England.

The trust is involved in several national studies which are run through the Thoracic Oncology Research Hub (TORCH), part of Cancer Research UK's Lung Cancer Centre of Excellence. While the breadth of research encompasses diagnostic, treatment and supportive care studies, research strengths lie in early disease, thoracic surgery, adjuvant therapy and mesothelioma.

Given the Diagnostic and Treatment Centre for Lung Cancer's regional role in Greater Manchester, healthcare stakeholders from across the region contributed to its design.

Key stakeholders in the design programme included:

- Wythenshawe Hospital, MFT
- Greater Manchester Cancer Alliance
- The NHS Lung Cancer Screening Programme
- The Christie NHS Foundation Trust

The challenge

To address growing demand for lung cancer services, Siemens Healthineers Consulting was approached to support the design of a one-stop lung cancer diagnostic treatment centre.

This treatment centre would absorb all tertiary referrals from the NHS Lung Cancer Screening Programme, which is currently live in Greater Manchester, and would provide patients with all required treatments and diagnostic options under one roof.

The facility aimed to achieve the following goals:

- Provide equitable care
- Improve patient waiting times
- Provide patient-centric care
- Futureproof operations
- Expand research capabilities
- Achieve cost efficiency

The solution

Siemens Healthineers Consulting set a vision and goals for the facility with all key stakeholders at the outset of the programme to ensure strategic alignment throughout. Using an experience-based design process, the consulting team conducted a total of 80 workshops with over 200 stakeholders across the project.

Workshops were run with a wide breadth of roles, from nurses to surgeons, patients and patient representatives. These workshops were delivered through four sequential stages, progressing from insight capture to detailed operational, facility and pathway design.

The sessions led to the generation of 140 inputs from both patients, and staff; providing a valuable source of insight that helped to shape the design of the facilities and pathways. By actively co-creating with both patients and staff across these sessions, the consulting team was able to reflect key challenges and opportunities in the existing facilities and departments for lung cancer care, including Pathology, Radiology, Oncology, Surgery and the North-West Lung Cancer Research Centre, into the new, holistic facility design.

To support the requirements of the Thoracic Oncology Research Hub as a Centre of Excellence, Siemens Healthineers Consulting integrated research capability throughout the facility and patient pathway design. The team also helped to design a world-class training facility equipped with cutting-edge technology, including surgical simulation.

The consulting team's connections in the wider medical technology industry enabled it to link the Diagnostic and Treatment Centre for Lung Cancer with trusted technology partners to inform and support the design of the building to accommodate industry-leading robotic surgery devices.

Alongside this work, simulation modelling was used to stress-test patient pathways, maximise cost-efficiencies and create an optimal staffing plan that can adapt to forecasted increases in demand over time.

To provide an additional perspective on what the facility will look like once built, the facility design team deployed by Siemens Healthineers, generated a 3D fly through of the facility and shared this with stakeholders.

The consulting team worked in close collaboration with all stakeholders across the project. From the workshops with staff and patients, through to the simulation modelling, the breadth of insights gathered have forged a holistic redesign of care pathways and facilities that offer significant benefits.

The results

The work undertaken by Siemens Healthineers Consulting has provided the actionable insights required to inform facility design, processes and workflow. In turn, these insights have helped to both bolster future operational strategy and shape a cutting-edge model that could be developed for other cancers and diseases.

By substantially eliminating diagnostic and treatment backlogs, the design of the Diagnostic and Treatment Centre for Lung Cancer will help to reach national targets for lung cancer care. Once the centre is live, improvements across throughput, waiting times, staff and patient satisfaction, will have further support from the expansion of research space on the site.

The design of the facilities and pathways indicate the following potential outcomes*:

296 more lives saved per year - linked to improvements in mortality and survivorship

Over £4m in financial benefits – including income uplift, productivity savings and capacity released for Wythenshawe Hospital

Improved patient throughput - uplift of 100% for PET-CT, 11% for MRI, 35% for CT & Biopsy

Patient satisfaction - co-design with patients & families helps to create a comfortable environment

Reduced patient waiting time - 94% waiting time reduction for RAPID diagnostic clinic, 20% reduction for surgery, 12% reduction for lung function testing

Staff wellbeing - co-location eliminates travel, while session over-run is removed by flow-based pathways

**Figures are based on implementation of all improvements & recommendations when new buildings are built and in operation*

Testimonial

"The challenges of lung screening implementation taken together with the poor infrastructure and performance of the pathway mandate a significant change in the model of care. The 'centre' concept, driven by staff and patients, and facilitated by the superb team at Siemens Healthineers, is key to seeing the required impact on patient experience and aftercare."

Professor Richard Booton
Clinical Director for Lung Cancer and Thoracic Surgery
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