



LEEDS CITY REGION

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DIAGNOSTICS AND PERSONALISED MEDICINE

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LEEDS CITY REGION
ENTERPRISE
PARTNERSHIP

LEEDS CITY REGION'S STRENGTHS:

LIFE SCIENCES – THE OPPORTUNITY

TAP INTO WORLD-LEADING RESEARCH FROM LEEDS CITY REGION'S UNIVERSITIES
ACCELERATING R&D ACROSS THE DIAGNOSTICS AND PERSONALISED MEDICINE SECTOR.

THINK SCALE



Largest UK city region economy outside London



196,000 health and life sciences jobs



Largest concentration of medical device companies in the UK with a cluster of over 200 different businesses



4 out of 5 NHS headquarters, **13** clinical commissioning groups and **12** NHS trusts are based in Leeds City Region

THINK SKILLED



38,900 graduates annually from 9 universities

ANNUAL STEM GRADUATES

LEEDS CITY REGION



GREATER MANCHESTER



GREATER BIRMINGHAM AND SOLIHULL



SHEFFIELD CITY REGION



HESA Students in Higher Education 2014/15

THINK INNOVATION



World Leading Centres of Excellence in translating medical innovation through clinical trials to patient use



36% of Leeds City Region's combined university research is world-leading and a further 10% is world-class



A diverse collaborative health ecosystem supports **'living lab'** concept

LEEDS CITY REGION IS SHAPING THE FUTURE OF HEALTHCARE

LIFE SCIENCE CENTRES OF EXCELLENCE

Leeds City Region is home to six world-leading life sciences clusters of academic excellence and commercial innovation.



DIAGNOSTICS AND PERSONALISED MEDICINE

- Leeds Centre for Personalised Medicine and Health
- NIHR Diagnostic Evidence Cooperative (DEC)
- Leeds Academic Health Partnership spans Primary, Secondary and Social Care Systems



WOUND CARE AND REGENERATIVE MEDICINE

- Institute for Skin Integrity and Infection Prevention
- NIHR WoundTEC Health Technology Cooperative
- Nonwovens Innovation and Research Institute (NIRI): provides technical textile design to wound dressings used internationally



DIGITAL HEALTH AND TELECARE

- Tunstall Healthcare telecare products bridge the gap between health and social care systems
- Konnektis is revolutionising elderly home care through technology



PATIENT SYSTEMS & HEALTH INFORMATICS

- Home to emisHealth and TPP - suppliers of patient record systems to more than 85% of GPs in the UK
- Leeds Institute for Data Analytics at the University of Leeds
- Home to NHS Digital, IT & information leader for the NHS
- Home to the Open Data Institute (ODI)
- Over 2,000 informaticians based in the City Region
- MRC Medical Bioinformatics Centre



MEDICAL TECHNOLOGIES

- Home to Charnley, inventor of the Hip Replacement System
- Base of the world research centres of DePuy Synthes and Johnson & Johnson
- Over 200 medical device companies based in Leeds
- Home to Steeper, inventor of the world's first robotic hand
- Home to the UK's only heart valve manufacturer, JenaValve Technology
- Medical Technologies Innovation & Knowledge Centre (IKC)



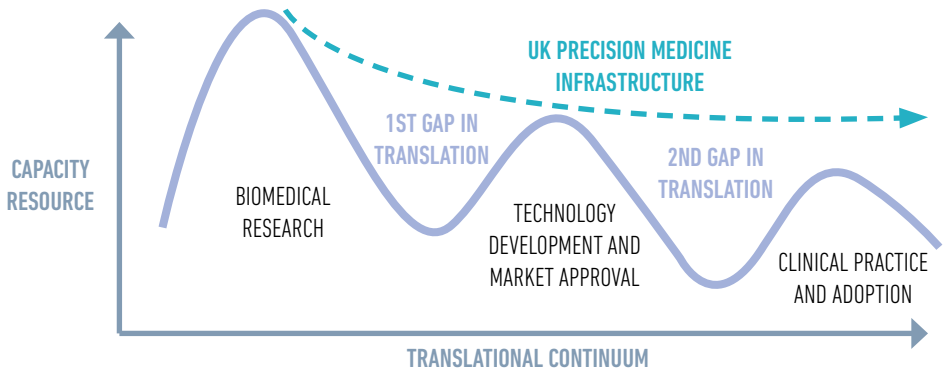
DRUG DISCOVERY & PHARMACEUTICALS

- Home to Covance UK, Teva, Thornton & Ross, Avacta and Dr. Reddy's Laboratories

PERSONALISED MEDICINE DISCOVERY AND TREATMENT CAPABILITY

Personalised medicine – getting the right treatment to the right patient at the right time – is one of the major drivers of how medicine will be practised in the future. Better understanding of the causes of disease has shown common illnesses such as lung cancer are in fact a collection of sub-types of cancer, all with different molecular characteristics.

The UK's research and clinical expertise, combined with Government investment of around £1 billion in precision medicine research infrastructure over the previous decade, has placed the country in a leading international position to traverse the traditional "gaps in translation" and accelerate the translation of new technologies into clinical practice.



Source: National Institute for Health Research (NIHR).

LEEDS TEACHING HOSPITAL TRUST

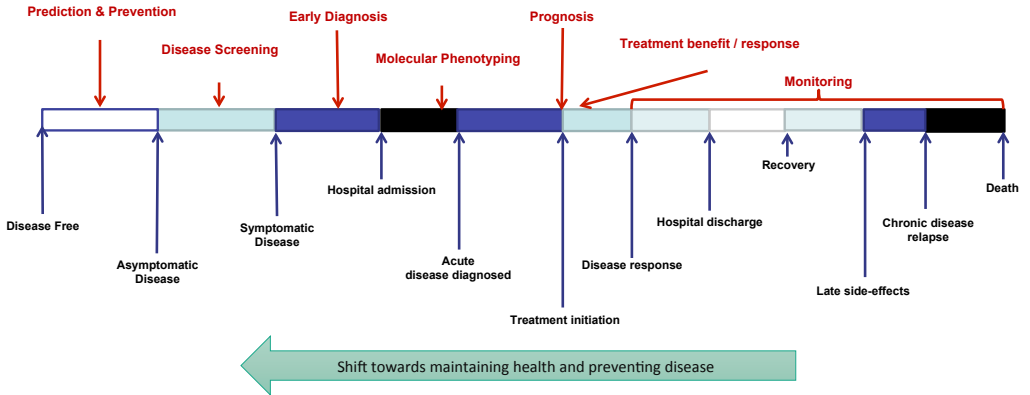
- **15,000** staff
- **£1 billion** annual budget
- **Level 1 trauma centre** for West and North Yorkshire
- **2,000** beds
- **120** wards and departments
- **12,000+** patients involved in cutting-edge clinical trials

The Leeds Teaching Hospital Trust (LTHT) serves over 1.5 million patients each year. The Trust's strength in the clinical provision of cancer, cardiovascular and musculoskeletal disease are mirrored by their partner, the University of Leeds', research strengths.

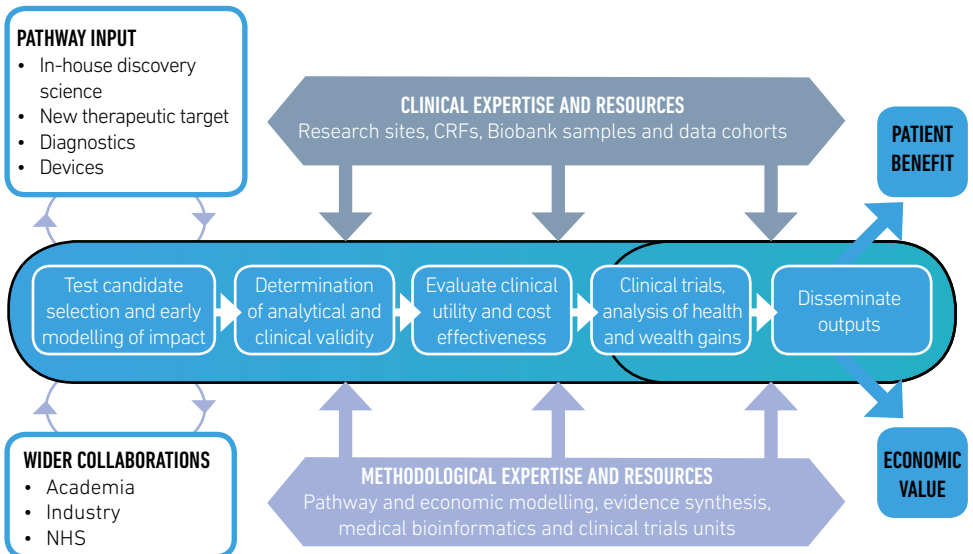
PERSONALISED MEDICINE AND HEALTH FOCUS

Personalised medicine and health uses diagnostic tests and data-based insights to understand a patient's disease more precisely and to select treatments with more predictable, safer, cost-effective outcomes for each patient. The UK's research and clinical expertise, combined with the Government's major investment in research infrastructure, has strengthened the City Region's position as a world leader.

PERSONALISED MEDICINE HELPS TO TARGET THERAPIES TO HALT OR REVERSE DISEASE PROGRESSION

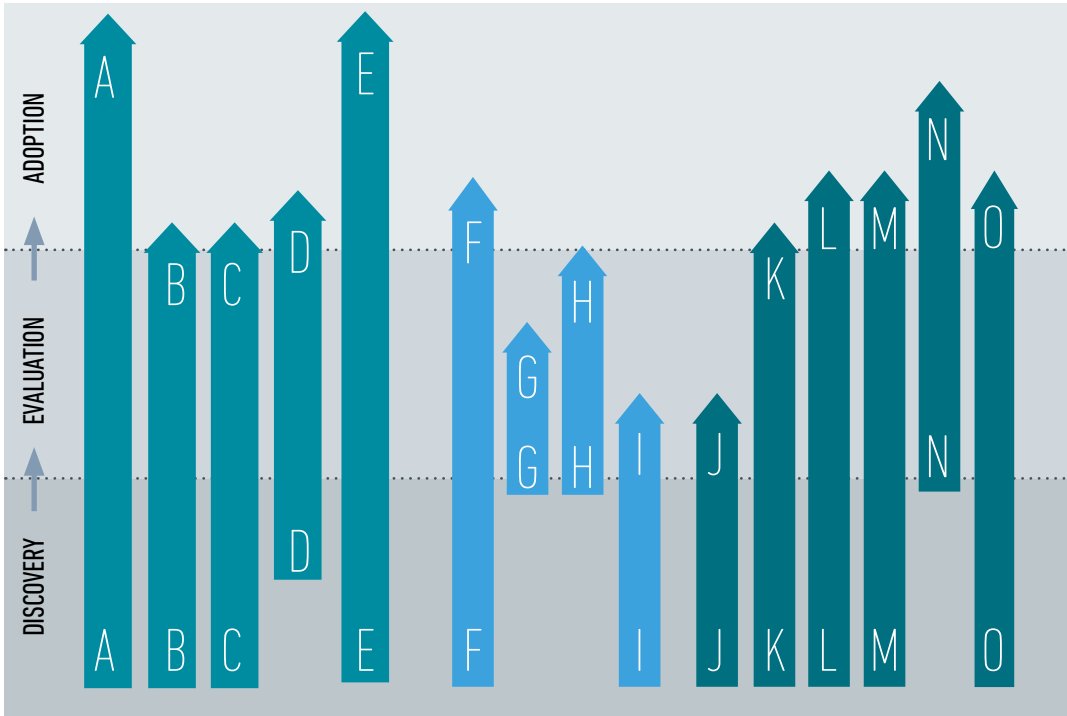


THE LEEDS PERSONALISED MEDICINE AND HEALTH LABORATORY - THE PUSH-PULL FOR RAPID INNOVATION



Source: The University of Leeds.

THE A-Z OF LEEDS CITY REGION PERSONALISED MEDICINE PARTNER ORGANISATIONS



RESEARCH CENTRES

- A MRC* MEDICAL BIOINFORMATICS CENTRE**
Develops new insights into the factors that drive disease
- B MRC SINGLE CELL GENOMICS CENTRE**
Applies high-throughput approaches to individual cells
- C MRC HYPER-POLARISED MRI CENTRE**
Transforming diagnostics and treatment of patients suffering from cancer, heart disease and musculoskeletal disease
- D WELMEC**
A Wellcome Trust and EPSRC funded Centre of Excellence in Medical Engineering, researches and develops new types of intervention for musculoskeletal and cardiovascular systems
- E LEEDS CENTRE FOR PERSONALISED MEDICINE AND HEALTH**
Enables the population of Leeds to benefit from information through accelerated regional evaluation and implementation

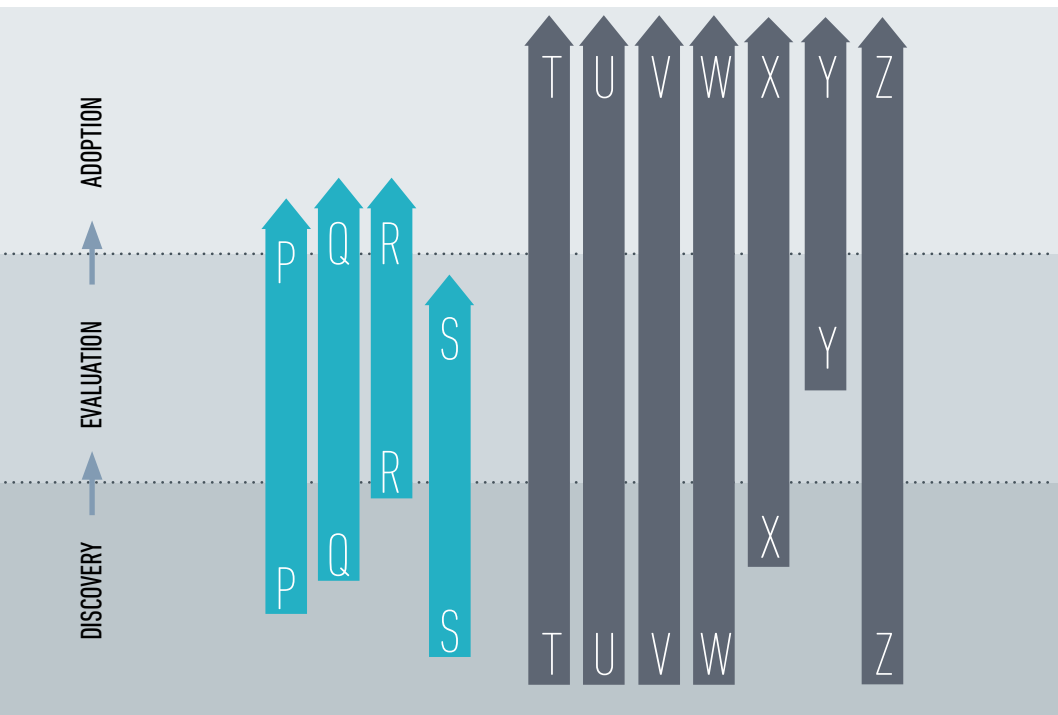
CHARITABLE

- F CANCER RESEARCH UK CANTEST**
Assessing the accuracy, safety, cost effectiveness and suitability of a range of diagnostic methods and tools in order to lower diagnostic waiting times
- G YCR* CENTRE FOR EARLY PHASE CLINICAL TRIALS**
Accelerates the transition of novel therapies through early phase trials
- H MYELOMA UK**
Implements clinically relevant patient-centric clinical trials
- I BREAST CANCER NOW TISSUE BANK**
The UK's largest unique collection of high-quality breast tissue, breast cells and blood samples from breast cancer patients

UNIVERSITIES

- J ASTBURY CENTRE FOR STRUCTURAL BIOLOGY**
Expertise and infrastructure in chemical biology, structural biology and biophysics to understand molecular interactions in detail
- K MULTIDISCIPLINARY CARDIOVASCULAR RESEARCH CENTRE**
Basic and traditional researchers delivering significant discoveries and innovations and developing them to improve the lives of patients
- L INSTITUTE OF MEDICAL AND BIOLOGICAL ENGINEERING**
"50 active years after 50" - improving quality of life for the elderly
- M LEEDS MULTI-DISCIPLINARY RESEARCH TISSUE BANK**
Licensed ethical storage of multiple types of diseased tissue samples
- N LEEDS CLINICAL TRIALS RESEARCH UNIT**
Innovative design, delivery and knowledge transfer in clinical trials
- O BRADFORD'S CENTRE FOR PHARMACEUTICAL ENGINEERING SCIENCE**
An interdisciplinary research and industrial collaboration centre

THE A-Z OF LEEDS CITY REGION PERSONALISED MEDICINE PARTNER ORGANISATIONS



NIHR*

- P** **NIHR LEEDS MUSCULOSKELETAL BIOMEDICAL RESEARCH CENTRE**
Enables translational research in musculoskeletal disease areas
- Q** **NIHR COLORECTAL THERAPIES HEALTH TECHNOLOGY COOPERATIVE**
Develops novel solutions to therapies in colorectal disease
- R** **NIHR DIAGNOSTIC EVIDENCE COOPERATIVE**
Generates high quality evidence on in-vitro medical devices
- S** **NIHR CLINICAL RESEARCH NETWORK UK CO-ORDINATING CENTRE**
Manages the Clinical Research Network (CRN) on behalf of the Department of Health

*NATIONAL INSTITUTE FOR HEALTH RESEARCH

NHS*

- T** **LEEDS CARE RECORD**
A seamless combined primary, secondary and social care record system for patients
- U** **NHS DIGITAL**
UK national centre for information, data and IT systems for the NHS
- V** **LEEDS TEACHING HOSPITAL TRUST**
One of the largest NHS hospitals in Europe with 15,000 staff
- W** **YORKSHIRE AND HUMBER ACADEMIC HEALTH SCIENCE NETWORK**
Adopting excellence and creating opportunity for healthcare innovation
- X** **NHS GENOMIC MEDICINE CENTRE**
The 100,000 Genomes Project will sequence genomes from around 70,000 people with rare diseases
- Y** **HEALTH EDUCATION ENGLAND**
Supports the delivery of excellent healthcare and health improvement to the patients and public of England
- Z** **NHS ENGLAND**
Manages the commissioning of the NHS in England

*NATIONAL HEALTH SERVICE



Leeds Centre for Personalised MEDICINE & HEALTH

Leeds City Region is an ideal location to trial personalised medicine and health innovations, as it has a large but simple healthcare system, excellent clinical data, relevant expertise within our universities and a diverse patient population.

LEEDS CENTRE FOR PERSONALISED MEDICINE AND HEALTH

A collaboration between Leeds' universities, NHS trusts, commissioning groups and council is enabling the City's population and beyond to benefit from the latest innovations in personalised medicine and health, by accelerating research, evaluation and implementation of new treatments and technologies.

Personalised Medicine and Health is a process by which the decisions made about health and care by patients and the public, supported by clinicians, are enriched and improved by the availability of the best possible information, technology and evidence.

The Centre:

- Helps Leeds to respond to increasing demand for healthcare services with limited financial resources, by accelerating research, evaluation and adoption of personalised medicine and health innovations
- Designs programmes that reduce cost, reduce waste and improve patient outcomes
- Attracts global clinical, academic and commercial talent to Leeds and enables wealth creation

PERSONALISED MEDICINE INDUSTRY

LEEDS CITY REGION PERSONALISED MEDICINE COMPANIES INCLUDE:

BUSINESS	EXPERTISE
Abingdon Health	Lateral Flow Diagnostic Testing, Design and Manufacture
ACM Global Central Laboratory	Laboratory Testing for Clinical Trials
Aptamer Group	Development Of Nucleic Acid Aptamers
Badrilla	Molecular Cardiovascular Researcher Products
Covance UK	Companion Diagnostics & In Vitro Services
Diagnostic Healthcare	Medical Diagnostic Imaging Services MRI, Ultrasound, DEXA, CT and X-ray
EMIS Health	Patient Clinical Management Systems
ResearchOne	Healthcare Research Database
TPP	Patient Clinical Management Systems
X-Labs	Custom Web Based Healthcare Applications
York Health Economics Consortium (YHEC)	Health Economic Analysis Centre
York Test Laboratories	Laboratory Diagnostic Testing

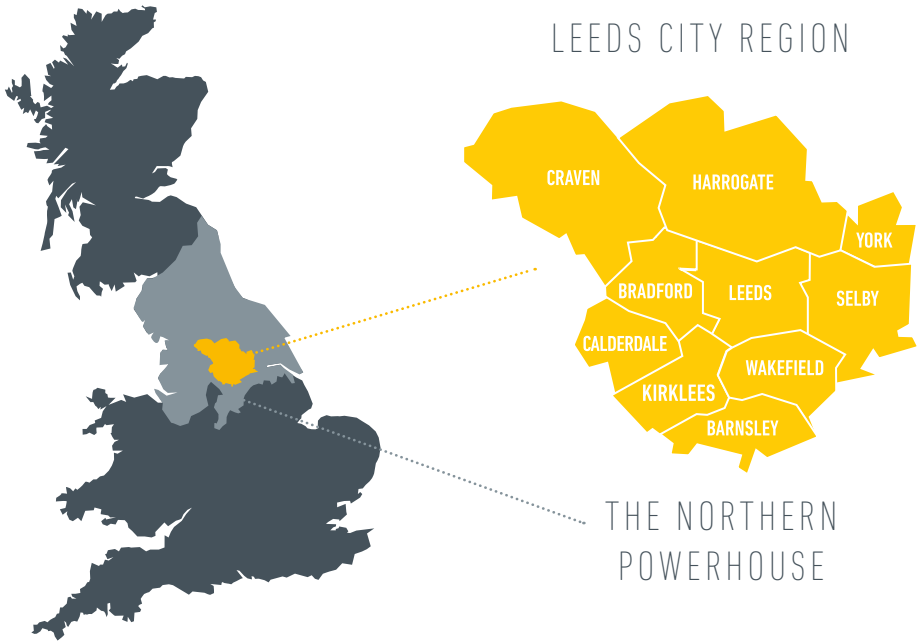


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THE NAFIC SPACE IN YORK IS JUST 27 MILES FROM OUR CURRENT HARROGATE LOCATION AND IS IDEAL FOR EXTENDING OUR LABORATORY FOOTPRINT. THIS EXPANSION WILL PROVIDE OUR CLIENTS WITH FURTHER ACCESS TO OUR SERVICES, MANAGED BY A TEAM THEY ALREADY KNOW AND TRUST AS A TOP-TIER BIOPHARM CMC PARTNER.

Steve Street, Vice President and Head of Covance Early Development

THINK LOCATION



HOW CAN WE HELP?

Invest Leeds City Region offers a comprehensive service to investors from the initial point of enquiry right through to soft-landing and aftercare. We can help you identify, secure and fund the perfect solution for your business to grow.

Our services include:

- Property search, match, advice and negotiation
- Support with access to finance and grants
- Soft-landing packages and facilities
- Support with recruitment of core and specialist staff
- Aftercare and ongoing business support
- Providing detailed intelligence and data
- Orientation visits for relocating staff

GET IN TOUCH

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LEEDS CITY REGION



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