

Health, life sciences and medicines manufacturing: A growth strategy for the North East

January 2021



Contents

| | |
|---|-----------|
| Foreword | 3 |
| Executive summary | 4 |
| Support for our strategy | 5 |
| Introduction | 6 |
| What the data tells us | 7 |
| Our assets | 10 |
| Opportunities and challenges | 11 |
| Vision and objectives | 12 |
| Our approach | 13 |
| Governance and delivery | 14 |
| Taking action: key interventions | 19 |
| Why businesses choose the North East | 19 |

Would you like more information?

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Richard Baker
Strategy and Policy Director
North East Local Enterprise Partnership

Foreword

This strategy has been finalised at a time when the world is grappling with the social and economic consequences of COVID-19. The pandemic has challenged policy makers, health professionals and manufacturers to deliver immediate responses to the health challenges and to build a more resilient health environment for the future.

The North East has made an active contribution to the immediate response, both regionally and nationally through our manufacturing and innovation strengths, our public health and care services, and in the development of testing. This has utilised the best of our diverse life sciences, health innovation and medicines manufacturing capabilities - capabilities that are established and identified as an area of growth in our Strategic Economic Plan.

We have opportunities to strengthen regional growth in pharmaceuticals which is valued at over \$1.25 trillion per annum globally, and to improve the performance of our health care system, which accounts for 10% of GDP, through new technologies and treatments that will have a positive impact on business growth and the quality of people's lives.

Both of these areas are recognised by government as national strengths and a focus for investment, innovation and growth through the UK Life Sciences strategy, and this strategy demonstrates how the North East can be positioned as being central to this part of our country's economic future.

The health and life sciences industry generally is experiencing significant change.

For our manufacturers, digitalisation is resulting in new methods of production and packaging. New methods of formulating drugs and new therapies are leading to new treatments being trialled, developed and made.

For health services, technologies like data and genetics are creating new opportunities to diagnose and target treatments. Digital communications are creating new possibilities to communicate between patients and practitioners. Each of these trends has been accelerated by the COVID-19 pandemic.

Looking forward, in a world increasingly characterised by population ageing, the countries and businesses that can add quality of life to these extra years will generate high levels of personal wellbeing, higher workforce productivity and new opportunities for economic value from these developments. The focus has to be on integrating care and the development and production of more targeted and personalised medicines.

For these reasons our vision for this strategy is clear:

"To position the North East as a leader in the development, testing, manufacturing and adoption of people-centred treatments, therapeutics and medicines at a time of demographic change."

It sets out the ambitious but realistic aims of doubling both the number of jobs and the number of businesses active in this area of our economy over the next decade and identifies priority interventions that will improve global health from the North East.

The strategy has been developed by the North East Life Sciences steering group which brings together leaders from all parts of our health, life sciences and medicines manufacturing ecosystem to work together to drive forward the interventions.

I would like to thank the members of the steering group and pay tribute to the Chair, Professor Michael Whitaker for his personal commitment and excellent leadership.

It provides a platform for collaboration with partners in government and other parts of the country, which I look forward to and I am delighted to see it come to fruition.



Lucy Winskell, OBE
Chair, North East Local Enterprise Partnership

Support for our strategy



The North East has a diverse and vibrant clustering of life sciences, manufacturing and health services.

I believe that the work that is being done in the North East can support more growth in the region and make a strong contribution to our wider UK initiative to promote research collaboration, partnership and investment globally as part of government's strategic national approach to Life Sciences.



Sir John Bell

Regius Professor of Medicine, University of Oxford and champion and sponsor of the UK Life Sciences Industrial Strategy



The North East is home to international academic research expertise in health and life sciences which not only provides competitive advantage but creates significant regional benefits. Our growing reputation as a testbed and living lab is enabling us to accelerate innovation as well as attract investment and skills.

This Health and Life Sciences Strategy will enable us to further strengthen the excellent partnerships in place between industry, the public sector and our universities to grow the economy and improve health outcomes.



Professor Chris Day

Vice Chancellor, Newcastle University and Chair of the Office for Strategic Co-ordination of Health Research



One of the North East's great strengths is its ability to collaborate to deliver strategic goals and nowhere is this more evident than in the health and life sciences industry. Partnership between the public and private sector is more crucial than ever to ensure we form a core part of the UK's Industrial Strategy and to allow our capabilities to be recognised on a global stage.

We have a fantastic innovation ecosystem supported by an incredible translational environment where healthcare technologies and medicines are being constantly developed. Forward thinking leadership here in the North East is helping to drive forward global health services and markets – something of which we should all be very proud.



Professor Michael Whitaker
FRSA FRSB FMBA FMedSci

Chair, Health and Life Sciences Group

Executive summary

Our vision

"To position the North East as a leader in the development, testing, manufacturing and adoption of people-centred treatments, therapeutics and medicines at a time of demographic change."

Objectives

By 2030, we will have:

- Doubled the number of businesses active in the health and life sciences community in the region from 150 to 300
- Doubled the number of jobs in the health, life sciences and pharmaceuticals businesses and the research and development community in the region from 12,000 to 24,000

Opportunities and challenges

Opportunities

-  Growth and modernisation of manufacturing and the supply chain
-  Development of new services and treatments
-  Collaboration with the NHS to adopt and commercialise drugs and treatments
-  Inward investment
-  Growth and investment in life sciences SMEs
-  Strengthening our cluster and networks

Challenges

-  Overall size of the economy
-  Brand and awareness
-  Connectivity
-  Aspects of the business environment

What the data tells us

£1.7bn

In 2019, health and life sciences in the North East region had a turnover of £1.7bn.

Overall employment in the sector increased by

1,400

(from 2010-2019)



This represents an equivalent increase of:

22%

compared to nationally:

9%

We expect this employment trend to continue.

7,680

Total North East regional employment in the health and life sciences sector in 2019

(3.0% of UK total)

Our framework

Pharmaceutical Manufacturing

Market requirements

- Onshoring
- Manufacturing of advanced therapeutics
- Continuous manufacturing
- Manufacturing automation
- Pharma and med tech on demand
- Sustainability

Supporting SMEs advancing science

Market requirements

- Translation environment
- Innovation to adoption clinical pathway
- Life sciences business facilities
- Drug discovery and development innovation
- Ageing and health innovation
- Digital health innovation

Access to NHS as a market and trusted research environment

Collaboration between pharmaceuticals SMEs and science

Regional communications and coordination

North East Ecosystem Enablers

- Centre for Process Innovation

North East Ecosystem Enablers

- Academic Health Science Network
- The National Healthcare Photonics Centre
- Campus for Ageing and Vitality
- The National Innovation Centre for Ageing
- Northern Alliance
- Academic Health Science Centre

North East Enabling Opportunities

- Lower Capital requirements
 - Access to finance
 - Development space and infrastructure
- Manufacturing, engineering, healthcare and life science skills and expertise
- Logistics and connectivity

Introduction

Health and life sciences form one of the four areas of strategic importance set out in the North East Strategic Economic Plan, due to our exceptional health and life sciences assets and strengths in medicines manufacturing.

COVID-19 has disrupted global healthcare systems and the human and economic cost has been far greater than anyone could have predicted. The North East is set to help lead the economic recovery, with health and life sciences playing a critical role.

Responding to the challenge of demographic change and the economic impact this has on health services will be crucial. As people are now living longer, the North East requires a health and life sciences strategy that demonstrates how we can develop solutions and processes that help people achieve a better quality of life, stimulates new businesses and business growth, reduces pressure on health services and as a result, creates more and better jobs for the region.

Growth and change in medicines and therapies

A rapidly developing area of the economy, the global pharmaceuticals market has a total annual value of \$1.25 trillion. Changing processes in the delivery of medicines, and the development and production of new pharmaceutical therapies and treatments all offer huge opportunity as changes in technology, demography and markets interact. Manufacturing and delivery processes for existing drugs are being modernised through automation and digitalisation and new types of treatments and novel therapies continue to be launched.



Directions in health and care policy and services

Globally, health care policy is changing to meet the needs of an ageing population. New drugs, treatments and interventions are helping to extend life expectancy and deliver a higher quality of life, enabling people with diverse needs to stay physically and mentally healthy and productive. More integrated care systems offer a range of opportunities for innovation in services and in digital application.

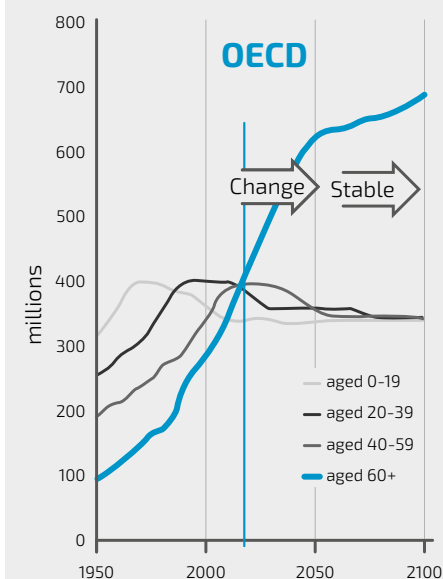
Detailed patient data mapping and artificial intelligence are helping to provide more personal, individually tailored services, from consultation and prescribing, through to drug tracing and delivery. COVID-19 has accelerated the potential for new models of treatment and care.

The use of personal data and the relationship between patients and professionals offers multiple opportunities for research and science, testing, collaboration and innovation in delivery. The UK government has highlighted digital health as a priority within the NHS Plan that can deliver both service and commercial improvement.

Social and demographic changes: population ageing and diversity

The global population is projected to make a fundamental age shift to an older population by 2050, when it is expected there will be 2.1 billion people over the age of 60 globally, double the current total.

Population ageing is the world's dominant demographic trend. Most people in most countries can expect to live longer and healthier lives than previous generations, and the balance of our population is being transformed as extended life expectancy combines with declining birth rates.



What the data tells us

There is a range of data which illustrate the current profile of health, life sciences and medicines manufacturing in the North East.

Employment and economic value

Economic value

£1.7bn In 2019, health and life sciences in the North East region had a turnover of £1.7bn

Employment

Overall employment in the sector increased by **1,400** (from 2010–2019) This represents an equivalent increase of: **22%** compared to nationally: **9%** We expect this employment trend to continue

7,680 Total North East regional employment in the health and life sciences sector in 2019 (3.0% of UK total)



2,060 Biopharma core (3.2% of UK total)

2,180 Biopharma service and supply (3.6%)

2,150 Med-tech core (2.1%)

1,290 Med-tech service and supply (4.5%)

300 new jobs An additional 300 jobs were reported in the pharmaceuticals sector during the COVID-19 pandemic

48% 48% of spinouts from the Northern Accelerator Programme came from life sciences businesses

4,300 4,300 related research and science activities in the NHS, education and business

1,000 new jobs The new COVID-19 Lighthouse project in Gateshead and Newcastle is expected to deliver 1,000 new jobs in research and testing

40,000 university students 22,000 of which are studying health and life sciences

Trade and exports

The region exported **£13.3 billion of goods in 2019**, including **£2.8 billion of chemicals and pharmaceuticals**.

86% of North East pharmaceutical production is exported

64% of finished products go to the United States

Inward investment



The North East attracted **4.2% of all life sciences projects into the UK** between 2013 to 2017

Pharmaceuticals and advanced manufacturing

£868 million The North East hosts a significant cluster of the global pharmaceutical industry, generating £868 million for the regional economy in 2017

73 pharmaceuticals and biotechnology supply chain companies



4,100 people employed



£601m annual turnover

Its wider impact is estimated at

£1.5 billion supporting between 18,800 and 23,500 jobs

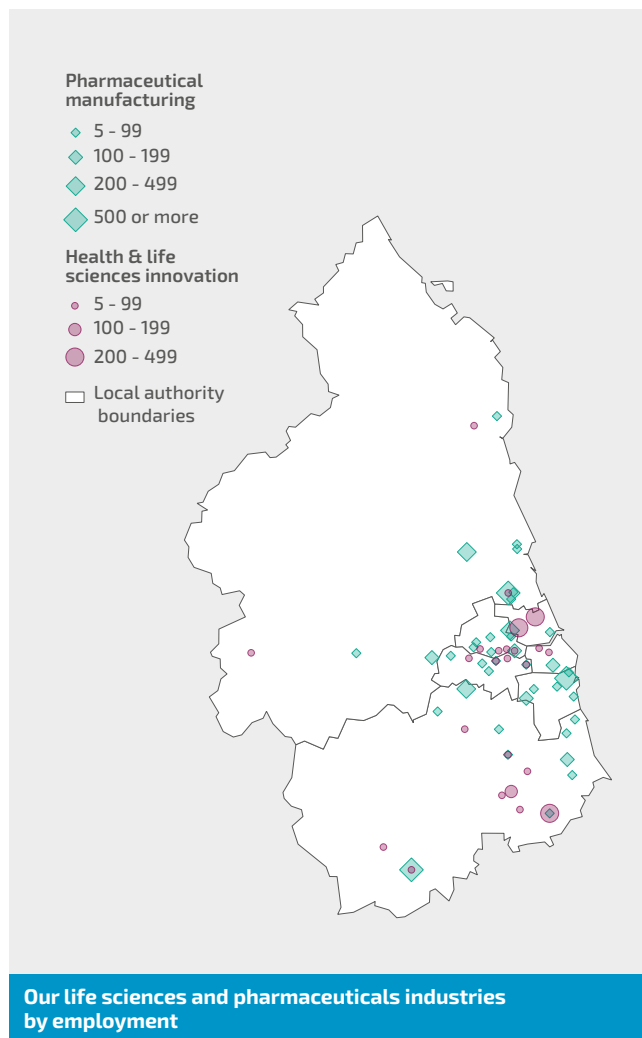
Wider advanced manufacturing footprint (chemicals and automotive)

15.3% of the North East LEP area's GVA

11.3% of employment

Our assets

When mapping our assets in the North East, it's clear that the health and life sciences economic activity here falls into two main categories that are spread across the entire region. We have pharmaceutical manufacturing and health and life sciences innovation, represented on the map below.



We are home to many world class businesses in these areas:

Companies who create and manufacture pharmaceuticals and biotechnology



An emerging biotech cluster of businesses driven by corporate and university spinouts



Companies developing clinical diagnostics, medical devices and equipment, and digital health applications to diagnose and deliver care



Supporting all of these businesses is an evolving ecosystem of innovation centres and supply chains:

A broad ecosystem

A broad spectrum of institutions, innovation centres and networks that support the functioning growth and development of the sector.



Our two science parks at Newcastle Helix and NETPark host a number of our key facilities.



Support services and value chain – including specialists in the engineering and equipment supply chain and construction of facilities



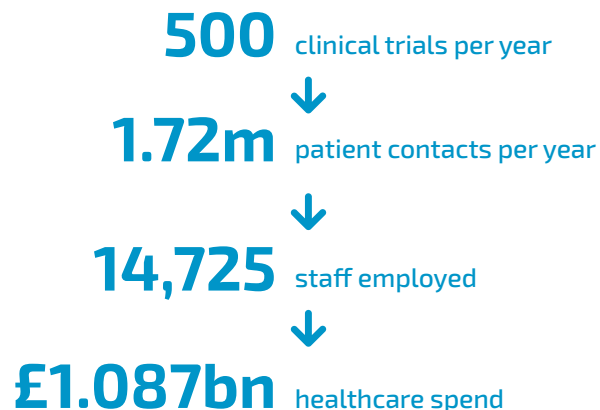
Our assets

The NHS

Our four Hospital Trusts and the wider commissioning and public health systems are one of our biggest assets. The NHS:

- Supports SMEs and spinouts to commercialise products and services
- Conducts real world evaluation and clinical research and trials for product development
- Acts as a testbed of technology innovation and accelerates the commercialisation of products
- Offers a significant health market – healthcare spending in the UK totals about £200 billion annually, equivalent to 10% of GDP.

Newcastle-upon-Tyne Hospitals NHS Foundation Trust is consistently one of the highest performing and ranking Trusts for clinical research and clinical trials:



Collectively they are rated **CQC Outstanding** and with the Great North Care Record recognised as a **Global Digital Exemplar**.

NHS-led bodies

Newcastle Health Innovation Partners / Academic Health Science Centre (AHSC)

Newcastle Health Innovation Partners is one of only eight Academic Health Science Centres in the UK, improving the health, wealth and wellbeing of 3.2 million people in the North East and North Cumbria.

Diagnostics North East (DNE)

DNE is a collaboration between Newcastle-upon-Tyne Foundation Trust, Newcastle University and the AHSN NENC working across the region to provide expertise that spans all elements of diagnostic pathway. Newcastle is the only UK centre with a joint Medical Research Centre/Engineering and Physical Sciences Research Council supported Molecular Pathology Node.

Northern Alliance Advanced Therapy Treatment Centre (NA-ATTC)

The Northern Alliance Advanced Therapy Treatment Centre develops the systems and infrastructure required to support the delivery of cell and gene therapies with the ultimate aim of increasing patient access to advanced therapy medicinal products (ATMPs) on a national level.

Academic science and research

Nationally recognised assets in North East universities which develop new science, work in partnership with industry and the NHS to introduce new products and services and spin out new businesses.

One of eight Academic Health Science Centre partnerships in England, Ranked 4th in the UK for Research Intensity in Clinical Medicine, Europe's largest concentration of ageing-related interdisciplinary researchers and national centres of excellence in ageing, Northern Accelerator partnership between five universities

Catapults

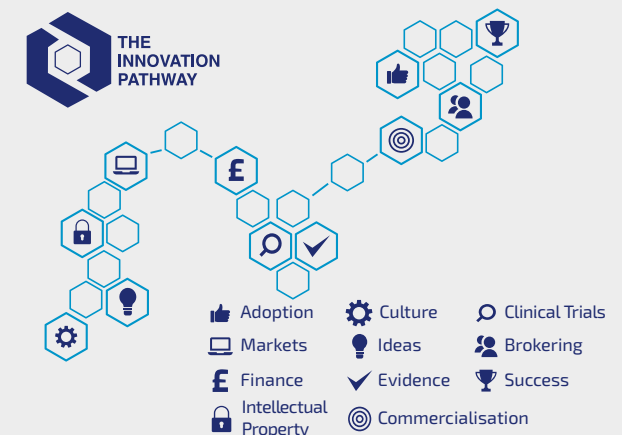
Centre for Process Innovation (CPI)

The CPI is a catalyst bringing together academia, businesses, government and investors to translate smart ideas and research into the marketplace. It is a founding member of the UK government's High-Value Manufacturing Catapult with expertise in pharmaceuticals and med-tech.

North East and North Cumbria Academic Health Science Network (AHSN NENC)

The AHSN NENC focuses on economic growth by mobilising the assets within the region's Trusts, Clinical Commissioning Groups and universities to attract and grow business.

It developed and successfully implemented The Innovation Pathway which sets out the stages and process of development to support the commercialisation of healthcare products and services. A key component of this is the Great North Care Record. This is the UK's leading initiative to share medical information across the North East and North Cumbria between authorised health and social care practitioners. It will ensure that health care activities such as diagnosis, medications, hospital admissions and treatments can be improved for both patients and the health system.



Our assets

North East universities and research excellence



World-leading research

50%
★★★★★

50% of biological sciences research at Newcastle University was rated four stars in the Research Excellence Framework 2014, meaning it is world-leading.

This was also the case for

51%

of research in psychology, psychiatry, and neuroscience

38%

of research in clinical medicine

In the top 20 for research publications

The Witty Review rated North East universities in the top 20 for 11 subjects including life sciences and regenerative medicine.

Research funding secured by North East institutions between 2008 and 2018

£92m

from the Biotechnology and Biological Sciences Research Council

£122m

from the Medical Research Council

University-led centres and programmes

Campus for Ageing and Vitality

The Campus for Ageing and Vitality (CAV) is a 29 acre brownfield mixed use site being developed by Newcastle University with partners. Our ambition for CAV is to construct an internationally renowned test-bed for innovation, implementation and evaluation, helping people lead longer, healthier lives through our global leadership in ageing research.

National Innovation Centre for Ageing (NICA)

The UK's National Innovation Centre for Ageing is uniquely positioned to help pharmaceutical, medical technologies and diagnostics, consumer brands and services optimise the opportunities provided by the demographic revolution and longevity economy.

National Innovation Centre for Data (NICD)

The £30m centre is co-located with NICA and funded with £15m from UK government and £15m from Newcastle University to address the availability shortage of data skills in the UK and open access to a vibrant data ecosystem.

National Institute for Health Research Innovation Observatory

The National Institute for Health Research applies state-of-the-art data analytics to explore trends in health innovation across drugs, medical technologies, diagnostic tools and healthcare services, helping better healthcare and new innovations to be cascaded into practice more rapidly.

Northern Accelerator

Northern Accelerator places entrepreneurial business leaders into university spinouts, offers a venture capital fund and supports a vibrant community of businesses.

ARROW

The ARROW programme targets SMEs looking into new products, processes or services and offers fully funded research and innovation support from university academics to accelerate progress.

Intensive Industrial Innovation Programme

The Intensive Industrial Innovation Programme is an ERDF funded programme and collaboration between Durham, Newcastle and Northumbria universities. Each university works directly with regional SMEs to develop new services and products.

Newcastle Joint Research Office

The Newcastle Joint Research Office is a partnership between The Newcastle upon Tyne Hospitals NHS Foundation Trust and Newcastle University supporting researchers in the development, implementation and delivery of world-class experimental, translational and clinical research.

International Centre for Life (Life)

Life brings together NHS services, university research, spin out businesses, education and public engagement in science on one site. The proximity of NHS clinics to university research departments facilitates collaboration and having access to a science centre allows researchers to undertake vital public engagement activity – in many cases, a necessary element of their funding criteria.

Research specialisms

Ageing and health

Newcastle is an acknowledged leader in the scientific response to global demographic change including the process of ageing, ageing well and societal responses to ageing.

Precision medicine

Newcastle has a well-developed programme focused on precision medicines. It leads two stratified medicine consortia funded by the Medical Research Council and is a key partner in three others. It co-chairs the Rare Diseases Translational Research Collaboration funded by the NIHR with the leadership of work focused on diseases of the liver.

It hosts the Wellcome Trust Centre for Mitochondrial Disease and the Medical Research Council Single-Cell Functional Genomics Unit.

Newcastle University's Institute of Genetics, based at the International Centre for Life, is acknowledged for its world-leading research into rare diseases and cancer.

The Northern Institute for Cancer Research acts as a national centre of excellence for clinical trials and development of biomarkers for cancer drug discovery focused on both adult and childhood cancer.

Opportunities and challenges

| Opportunity area | Summary |
|---|---|
|  Growth and modernisation of manufacturing and the supply chain | Onshoring pharmaceutical manufacturing will increase investment and strengthen our supply chain. Digitalisation in manufacturing will streamline production processes, grow contract manufacturing and create opportunities for new delivery processes and packaging. Formulating and manufacturing new treatments and therapies is a real growth area. |
|  Development of new services and treatments | We will focus on the growth and delivery of cell and gene therapies and exploit our strengths in diagnostics, digital health, ageing and medical technologies. We will also leverage the innovation assets we hold in photonics and regional assets on biologics. |
|  Collaboration with the NHS to adopt and commercialise drugs and treatments | Our partnership work will promote the adoption of new treatments and processes. We will prioritise the further development of the innovation pathway and develop a trusted research environment which will increase trials and demonstration. We will facilitate the deployment of digital health services and the design and delivery of early stage and stage 2 translational and clinical research studies. |
|  Inward investment | Our strengths in securing manufacturing projects provide an opportunity for new investment into the cluster, for partnerships and for supply chain growth. Our research capabilities and partnership focused NHS create opportunities for new collaborations including on demographic change and healthy ageing through our joint High Potential Opportunity programme with the Department for International Trade (DIT). |
|  Growth and investment in life sciences SMEs | We will continue to strengthen the business environment to support regional SMEs and the strong and growing programme of university and health services spinouts and collaborations. |
|  Strengthening our cluster and networks | We will strengthen our leadership structures and institutions and foster collaboration between them. Key locations in the region will be a particular focus as hubs for collaboration and investment. |

| Challenge area | Narrative and mitigation |
|--|--|
|  Overall size of the economy | While the overall scale of the economy is a constraint, we will ensure the region is well positioned within wider networks and has a key role in collaborations with national clusters, the Northern Powerhouse and Scotland. |
|  Brand and awareness | The UK life sciences industry is concentrated on the golden triangle. We will use communications and partnership working to establish the region as a 'go to' destination in our areas of strength. |
|  Connectivity | We are working to strengthen connectivity to key markets and collaborating with DIT to focus on opportunities and mitigate the risks from political developments like the EU Transition. |
|  Aspects of the business environment | We will strengthen our finance offer and maintain a strong skills supply with skills development activities through the Skills Advisory Panel. We will facilitate business growth in SMEs and manufacturing and ensure our property assets and facilities create growth and attract inward investment. |

Vision and objectives

Our vision for the future

"To position the North East as a leader in the development, testing, manufacturing and adoption of people-centred treatments, therapeutics and medicines at a time of demographic change."

The North East has an opportunity to become the go-to region for the development, testing and production of personalised treatments and services as technologies and demographics drive change.

To do this effectively we will focus on four priority areas which together can drive our aims of business and employment growth:

Four priority areas

1

To modernise and grow pharmaceutical manufacturing in the region

2

To increase the number of innovative health and life sciences businesses that are born, grow and scale in the region. We will do this by increasing the number of university spinouts, supporting life sciences entrepreneurs and by encouraging partnerships between our institutions, businesses and investors to develop and deliver new ventures.

3

To create a world class translation environment that can support new ideas from businesses and research to commercialisation and entry to health markets and supply chains. We'll do this by investing in our innovation pathway that provides a supported route from discovery into delivery.

4

To create a supportive environment where health and life sciences businesses can grow and have access to global markets. To do this, we need to:

- Ensure access to the right finance models
- Deliver support for our cluster bodies and networks
- Develop the property infrastructure needed to develop from labs to bigger manufacturing premises
- Improve freight access to markets.

How will we know if we have been successful?

By 2030, we will have:

- Doubled the number of businesses active in the health and life sciences community in the region from 150 to 300
- Doubled the number of jobs in the health, life sciences and pharmaceuticals businesses and the research and development community in the region from 12,000 to 24,000.

We will also:

- Be recognised as a key area for the delivery of clinical trials with three top ranking NHS Trusts on a year-on-year basis and be a leading area for the translation of innovation into the NHS
- Have quadrupled the number of university spinouts in this area.
- Be systematically recognised by government as a leading cluster location for health and life sciences
- Have secured one major and several smaller additional pharmaceuticals investments into the North East
- Have strengthened physical connectivity along the pharmaceuticals supply chain including direct freight logistics links to the United States from the North East.

Our approach

The North East Health and Life Sciences strategy has been developed to demonstrate how, as an area of opportunity in the North East Strategic Economic Plan, the sector can contribute to delivering 100,000 more and better jobs for the region.

The Health and Life Sciences Strategy has been developed around our assets, challenges, opportunities and insights into the future and priorities of the global economy.

The strategy is focused on four priority areas that are then underpinned by an ecosystem that supports businesses to start, grow and scale in the North East.



Our framework

Pharmaceutical Manufacturing

Market requirements

- Onshoring
- Manufacturing of advanced therapeutics
- Continuous manufacturing
- Manufacturing automation
- Pharma and meditech on demand
- Sustainability

North East Ecosystem Enablers

- Centre for Process Innovation

Access to NHS as a market and trusted research environment

Collaboration between pharmaceuticals SMEs and science

Regional communications and coordination

Supporting SMEs advancing science

Market requirements

- Translation environment
- Innovation to adoption clinical pathway
- Life sciences business facilities
- Drug discovery and development innovation
- Ageing and health innovation
- Digital health innovation

North East Ecosystem Enablers

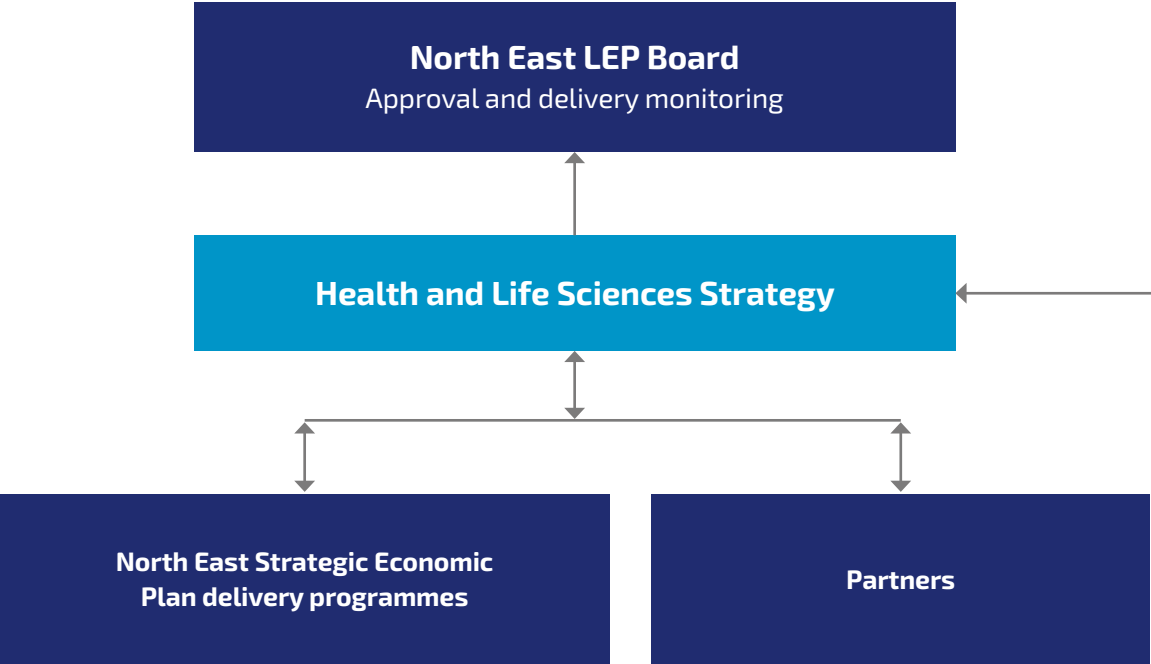
- Academic Health Science Network
- The National Healthcare Photonics Centre
- Campus for Ageing and Vitality
- The National Innovation Centre for Ageing
- Northern Alliance
- Academic Health Science Centre

North East Enabling Opportunities

- Lower Capital requirements
 - Access to finance
 - Development space and infrastructure
- Manufacturing, engineering, healthcare and life science skills and expertise
- Logistics and connectivity

Governance and delivery

The Health and Life Sciences Strategy will be developed and delivered by the steering group and key partners, approved by the North East LEP board and its delivery facilitated across the five programmes of the North East Strategic Economic Plan.



Health and life sciences steering group

Brings together leaders from our health, life sciences and medicines manufacturing ecosystem to work together to develop and steer the delivery of the strategy.

| | |
|--------------------------|---|
| Michael Whitaker (Chair) | Pharma North East and Innovation Board member |
| Tim Hammond | Durham University |
| Geraint Lewis | Newcastle University |
| Tony Alabaster | University of Sunderland |
| Carolyn Horrocks | Northumbria University |
| Richard Baker | North East LEP |
| Alan Welby | North East LEP |
| Geoff Davison | BioNow |
| Nicola Wesley | AHSN |
| Philip Aldridge | NEPIC |
| Arun Harish | CPI |
| Rachel Burdis | Invest North East England |
| Sarah Pavlou | RTC North |
| Dale Athey | NPL |
| Kevin Cook | Sterling Pharmaceuticals |
| Will Dracup | Biosignatures |
| Roger Kilburn | Arcinova |
| Andrew Tasker | Femeda |
| Ben Cantwell | Kromek |
| Andrea Burroughs | Newcastle Upon Tyne Hospitals Trust |
| Peter Rippingale | North East Combined Authority |
| Vicky Cuthbertson | North of Tyne Combined Authority |
| Mike Capaldi | Newcastle University |

Taking action: key interventions

Key interventions

| Priority 1: To modernise and grow pharmaceutical manufacturing | | |
|---|--|----------------------------------|
| Project or activity | More details | Lead body |
| North Shoring (re-shoring manufacture of generic drugs and medicine) | A proposal for a pharmaceutical manufacturing and innovation facility will be developed to build resilience in the UK's supply chain and manufacture of NHS critical generic drugs and provide a focus for new innovation activities. | Pharma North East |
| North Shoring - supply chain development | Ongoing analysis of supply chain development needs from raw materials to production will make the North East a primary location to manufacture generic drugs and medicines. | NEPIC |
| Delivery of smart medicines | 'Testbed' models for trials will demonstrate the value of innovations in real world settings to accelerate development and scaling of new technologies in the North East, particularly those focused on medicines packaging, medical drug delivery devices and wearable devices. | CPI |
| Strengthening regional pharmaceutical leadership | A new business-led leadership group, Pharma North East, will champion the role of the sector and provide a collaborative approach and focus on employment and skills, investment, exports and supply chains. | Pharma North East |
| Support for inward investment activity | Invest North East England will build the relationship with the Department for International Trade to promote and develop an inward investment proposition around our advanced manufacturing strengths. | Invest North East England |
| Industrial digitalisation: North East Made Smarter programme | The North East LEP and Tees Valley Combined Authority have submitted a bid to government, together with partners, to accelerate industrial digitalisation across North East manufacturing as part of the Made Smarter Adoption programme. If successful, this will include a focus on pharmaceuticals and supply chain businesses. | North East LEP |

Key interventions

| Priority 2: To increase the number of innovative health and life sciences business that are born, grow and scale in the region | | |
|--|--|--|
| Project or activity | More details | Lead body |
| Northern Accelerator | The Northern Accelerator will increase early stage spinouts, enhance academic commercialisation aspirations through an ideas impact hub, deliver proof of concept support, and establish a seed capital investment fund. | North East Universities led by Durham University |
| Purposeful Health Accelerator | This accelerator programme will help SMEs to grow or expand into the health, wellness and social care delivery sectors building on the product, process and service innovations created by COVID-19. | Northumbria University |
| Health and Life Sciences IP Protection Fund | In the short term, businesses which have seen opportunities to deploy their intellectual property constrained by COVID-19 will be able to access a unique £300,000 fund to help protect the intellectual property of high-value health and life sciences businesses in the North East. The COVID-19 Patent Protection Scheme will offer up to £25 000 to support high-value proposition (pre-commercial) health and life sciences businesses negatively impacted by the coronavirus crisis until 31 March 2021. This will mitigate the risk of patent and intellectual property loss due to lack of funds. | North East LEP |
| Biosphere | We have invested in the Biosphere at the Newcastle Helix site to create new accommodation for life sciences businesses and continue to develop the associated support programmes. Future accommodation needs will be identified in our property review. | Newcastle City Council |
| Healthy ageing high potential opportunity | Through the High Potential Opportunities process we will work with the Department of International Trade to attract new collaborations with the regions research expertise on ageing and health. | Newcastle City Council and Invest North East with DiT |

Key interventions

| Priority 3: To broker access to a range of expert support and services across the health and care sectors through the Innovation Pathway | | |
|--|--|---|
| Project or activity | More details | Lead body |
| Great North Care Record | This digital platform has been established to enable health professionals and carers to have access to the right information at the point of need and give individuals improved access to information. In the next stage of the development, the project will develop a Trusted Research Environment enabling the strengthening of clinical research and trials. | AHSN NENC |
| North East Health Evaluation Ecosystem | This evaluation ecosystem model will address a recognised gap in the UK for translational innovation, integration, scale up and pre-commercialisation activities in life sciences and strengthen our region's innovation pathway. It will provide a single point of access for businesses seeking to accelerate the commercialisation of product development and adoption by the NHS and social care. | AHSN NENC |
| CPI – Photonics 2 | This innovation facility which focuses on the Med-Tech market will continue to enhance our capabilities related to digital imaging and in-vitro diagnostics. The SONNET programme supports businesses in the development and application of digital technologies for solving healthcare problems. | CPI |
| Centre for Public Health Data | This centre builds on data analytics expertise and capabilities to support the development of the GNCR's Trusted Research Environment, improving data access and analytics, allowing better population health planning based on demand and enabling the development and deployment of more innovative treatments. It is currently supporting the regional Trusts in planning and responding to COVID-19. | Durham University |
| Early Diagnostics Institute | The Early Diagnostics Institute will help to raise the profile of the North East's scientific, medical and technological knowledge. This project represents an industrial approach to applied clinical research, helping to enhance the region's attractiveness for clinical trials and inward investment to support them. In time, the Early Diagnostics Institute will be an active central diagnostic testing and clinical trials centre. | Turbinia |
| Innovation Delivery partnerships | The North East LEP will promote a programme of Innovation Delivery partnerships which will bring together businesses, science and innovation partners to collaborate on new initiatives in areas of innovation opportunity. | North East LEP |
| Northern Alliance Accelerated Therapy Treatment Centre | The NAATTC is a consortium of 20 industry, NHS and academic organisations led by Newcastle Hospitals and the Scottish National Blood Transfusion Service (SNBTS). The centre is developing the systems and infrastructure required to support the delivery of cell and gene therapies, to increase patient access to advanced therapies and treatments. | Newcastle Upon Tyne Hospital Trust |
| Academic Health Science Centre (AHSC) | One of only eight established in the UK, the AHSC will work to create world-leading improvements in health and social care, through collaboration in translational health research, clinical care and education. It will focus on scientific advancement, translation into healthcare, and careers and skills, and will support industry to access the NHS. | Newcastle Health Innovation Partners |

Key interventions

| Priority 4: Developing our ecosystem | | |
|---|---|---|
| Project or activity | More details | Lead body |
| Digital Clinical Skills Hub | A UK leading Digital Clinical Skills Hub for health will be developed to enable the development, training and adoption of robotic and digital surgery, mental health and rehabilitation - building on expertise across immersive tech, robotics and AI. | AHSN NENC |
| Building facilities and places to grow | We need to understand the property infrastructure needs of the sector, ensuring we have the sites, laboratories and facilities we need to enable businesses to grow when they are ready to move to the bigger facilities. A property study will be undertaken by the North East LEP and local authorities looking at existing sites and exploring the potential for use of sites around the region including Enterprise Zones and existing hubs, and exploring models from elsewhere including ITAC at SciTech Daresbury, with the aim of developing a 10 year property plan. | North East LEP and local authorities |
| Enhanced connectivity to markets | Led by Newcastle International Airport and the North East LEP, we will carry out a market feasibility study to assess the potential for enhancing the air connectivity between Newcastle and our growth markets (especially North America) built around freight logistics. It will have a particular focus on pharmaceuticals but will also explore potential in other areas of the economy. | Newcastle International Airport |
| Cluster development support | The North East has created a fund to support our key cluster organisations. | North East LEP |

Hear from some of our businesses on why they chose the North East...

Dr David Simpson

Chief Executive Officer, Iksuda Therapeutics, Newcastle

Iksuda is a drug development company specialising in an enhanced, new generation of Antibody Drug Conjugates (ADCs) targeting difficult to treat solid tumours.

“The reason we are based in the North East is because it is an ideal place for our business. The North East has multiple universities with science focus so in terms of talent recruitment, this region is a key place to be for us. The skill set here is a perfect fit for our industry.

While our industry is global in terms of partners we work with, we are manufacturing our second drug in the North East.

The region is very well-placed in our drug class. We could actually take one of our drugs to Phase Two and not need to go any further south than Leeds. It's a pretty powerful story for the North East – as a region, we are incredibly capable of innovation.

Dr Nathalie Huther

Senior Director of Business Development, Europe, Arcinova, Alnwick

Arcinova is a contract development and manufacturing organisation that helps pharmaceutical and biotechnology companies across the globe develop life-changing medicines.

“We initially thought it could be a challenge to recruit the right people in Northumberland however we soon learned the North East has a remarkable talent pipeline.

The huge benefit of being based in the North East is that there is so much talent in the local universities and there is such a big pharmaceutical ecosystem harnessing expertise in the region.

Being based somewhere where we can access the right talent has helped us to grow to where we are today.

Andrew Turner

Inventor and Managing Director, Quality Hospital Solutions and SamplePod Limited, NETPark Science Park, Sedgefield

Quality Hospital Solutions (QHS) is purely focussed on NHS innovation and has launched products such as beverage trolleys to be used within the NHS.

“The North East innovation network that we have been able to tap into has been hugely beneficial. It has allowed us to accelerate our product quickly and keep much of our supply chain in the region.

The digitisation of the SamplePod tracking was facilitated by NETPark manager Janet Todd who introduced us to PragmatIC, the company that produced the flexible integrated circuit technology that is used on our smart labels. They are one of the only companies in the world that could offer this and they also happened to be here in the North East.

Dr Sam Whitehouse

Chief Executive Officer, LightOx, Newcastle

LightOx's work is based around the development of new molecules that can penetrate and 'light up' damaged cells with a fluorescent drug in a multitude of cell types.

“The North of England presents some great opportunities to develop new drug entities. Commercialising and driving a drug to market involves the skill sets of a large number of companies to support, test, analyse and manufacture and protect your drug products.

Companies such as High Force Research who can develop new synthetic routes and provide GMP manufacture, Sygnature Discovery who can provide in-vitro and in-vivo testing models, Histologics who provide histology services, formulation work from CPI in Darlington, or Quay Pharma in Alderley Edge, Aptus Clinical on trial design and of course the many NHS trusts that can provide clinical trial sites.

And of course, protecting the intellectual property is key to making it to market and Definition IP in Newcastle are experts in the field, the list goes on and on.

The North of England has many companies that can make up part of the supply chain needed to bring a new drug to the market and provide world-class expertise to the industry.

