Leeds Academic Health Partnership Business Case

March 2016

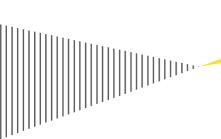




Table of contents

1.	Executive Summary	1
2.	Introduction	3
2.1 2.2 2.3	Purpose of the business case	3
3.	National and local context	4
3.1 3.2 3.3 3.4 3.5	NHS Five Year Forward View and the NHS England Mandate The challenge for Social Care The Leeds health challenge The Leeds financial challenge Health and Wellbeing Strategy for Leeds	5 6 7
4.	The Case for, the Purpose and Benefits of the LAHP	8
4.1 4.2 4.3	The case for an academic health partnership	10
5.	The LAHP Proposition	22
5.1 5.2	Assessing successThe LAHP proposition	
5.2 6.	Governance	
6.1	Introduction	
6.2	Current Arrangements	
6.3	Future Options	
6.4	Timing	
6.5	Other AHPs	
6.6	Positioning of the LAHP within the wider system	
7.	Financial Impact Assessment	
7.1	The LAHP management structure	
7.2 7.3	Costs of the LAHP Core Team	
8.	Risk Assessment and Mitigation	
8.1	Key risks	
	Recommendations and next steps	
9.1	Recommendations	
9.2	Priorities	
9.3	Next steps	
Append	dix A Local Initiatives	37
Append	dix B Documentation Provided	40
Append	dix C Interviews	43
Append	dix D Organisational Forms	44
Annend	dix F Similar nartnershins	45

1. Executive Summary

There has never been a more compelling time to establish the Leeds Academic Health Partnership (LAHP).

Nationally, the direction is clear: NHS England's Five Year Forward View and the financial climate make it imperative that health and care services work more closely together and that health and care systems utilise their wider assets to realise improved health outcomes. In Leeds, our three universities are central to helping our local health and care system make a step change in improving health and wellbeing, bringing their vast range of skills, knowledge and expertise to bear to help make robust, evidence-based decisions and accelerate the implementation of change.

The decision for each organisation to invest in a partnership arrangement at a time of austerity will always be a strategic one. The contribution of time and focus across Leeds' health, care and university sectors in developing the LAHP over the past year demonstrates that senior leaders see significant potential in this arrangement. The LAHP has already started to deliver benefits and will continue to make a positive and important contribution across the overlapping national, and local agendas outlined above. Making a clear commitment to its continued development now is a statement of intent for the city's ambition.

The LAHP has a clear purpose:

To improve the health and wellbeing of the people of Leeds by engaging the educational and research capabilities of all three universities in Leeds with the health and social care system in order to speed up the adoption of research and innovation; creating inward investment, and raising the national and international profile and reputation of the city and the LAHP member organisations.

Whilst ensuring we use our talents to make our mark on the national and international stage, the benefits that the LAHP seeks to bring are very much about improving the lives of people in Leeds; adding years to life and life to years. The LAHP aims to:

- Improve health and wellbeing ensuring that we address the health challenges that Leeds faces now such as tackling our worse than average rates of cardiovascular disease and cancer alongside taking the action needed now to mitigate the major health risks of the future, such as those caused through increased levels of obesity caused by factors such as diet and lack of exercise
- ▶ Reduce inequalities helping redress the imbalance in the health of communities across the city by improving the health of those who need it most, the fastest a stark example being the 10-year difference in male life expectancy between the most and least deprived wards in a city measuring a mere 15 by 13 miles in size.
- ► Create wealth bringing investment into the city, both through greater involvement in national and international public sector programmes, alongside encouraging more private sector investment bringing jobs into the city, recognising that a major determinant influencing good health is employment.

Applying world-class research knowledge and insight to help service improvement and re-design will contribute to improving services and reducing inequality. However, health and care services play only a small part in addressing overall population health; increased levels of education are strongly and significantly related to improved health, as is good housing; while and economic hardship – such as that caused by the lack of employment – is highly correlated with poor health. Education, employment, environment and housing matter for good health and wellbeing.

Within the city itself, the new five year Health and Wellbeing Strategy to be published in spring 2016, and our Sustainability and Transformation Plan for health and care services to follow in the summer, will both set out a clear ambition for Leeds to be the best city for health and wellbeing. This is an ambition built on the qualities of our people. It is an ambition that aims to reduce health inequalities and build a stronger economy, an ambition that can only be realised through stronger relationships.

Whilst there are already a variety of interactions between the LAHP partners, bringing them all together as a single, formal partnership offers a unique proposition to those outside the city who are, or are considering, engaging with Leeds with the intention of investing in our health and care economy. The LAHP cuts through the complexity of a major city, presenting a united approach and offering a single point of contact - one that combines academic and research excellence, the full range of frontline practice, access to the economic assets of the city and a uniquely diverse and broad-based population.

As Leeds increasingly competes with other national and international cities for investment, the LAHP places the city on a firmer footing to present the strength and simplicity of its partnership arrangements. Several other major UK cities already have the equivalent of a LAHP - although few are as inclusive as the Leeds model - and Leeds is looking to draw on the best learning from these, whilst also maximising our unique strengths and characteristics.

These themes resonate with the new Health and Wellbeing Strategy and the wider ambition that Leeds will be the best city in the UK by 2030 and will do so in a way that creates a strong economy within a compassionate city. In particular, the LAHP will make a major contribution to two important areas of work that help to realise these benefits – developing our health and care workforce for the future and harnessing the potential of information and technology (informatics). The LAHP will build a stronger link between the way people are trained and developed and the more integrated health and care system we need to rapidly develop for the future. It will ensure that cutting-edge informatics innovation, for which Leeds is already a leader within the health and care sector, continues to be developed, tested and supported in Leeds for the benefit of our own and wider populations.

Measuring success will be critical. The LAHP will combine measures of both the 'means' it brings to improve health and care - such as the number of successful bids it secures and the events and activities it facilitates - as well the 'ends' it plays a part in achieving - for example, projects initiated or supported by the LAHP which clearly result in improvements to health outcomes, reductions in levels of inequality or increased investment in the city. It will do this by creating the culture that enables leaders from across the partnership to think and work creatively and innovatively together, underpinned by clear governance arrangements.

We have huge potential – working together to a common purpose, our universities and statutory services are a powerful combination that can attract the best ideas, talent and investment from outside the city and affect major change within it. The Leeds Academic Health Partnership provides a focal point to make that happen.

2. Introduction

This section introduces the business case, its purpose and intended readership.

2.1 Purpose of the business case

The purpose of the business case is to act as a focus for collaborative action.

It sets out the rationale for the creation of the Leeds Academic Health Partnership (LAHP), describes its purpose and benefits, and goes on to articulate the financial costs and risks associated with its creation and operation.

2.2 Intended Audience

The primary target audience for this document is the Leeds City Council Executive Board to support them in identifying the value that the LAHP will deliver for the citizens of Leeds and providing evidence to support decisions regarding funding contributions.

The secondary audience is the remaining core members of the LAHP -- the three NHS Clinical Commissioning Groups, the three NHS provider Trusts and the three universities in Leeds – and the Yorkshire and Humber Academic Health Science Network, which is an associate member. This document aims to support their understanding of how the LAHP will help these member organisations to deliver against their organisational priorities.

2.3 The starting point

Leeds has a diverse population of some 810,000, spread throughout a city of 217 square miles. A further 2.2 million people live in the wider Leeds City region, the largest city region economy outside of London, with an economic output of £60bn GVA, of which some 10 per cent comes from health and care.

Within the city, there are three universities with a total of 70,000 students, including a Medical School with 6,000 undergraduates, together with a wide range of other health, wellbeing and social care academic research and educational teams.

Over the past 24 months, the local public sector organisations active in the Leeds health and care system have demonstrated their capability to work in a collaborative fashion and created momentum across a range of health and care related initiatives.

These initiatives have been established within Leeds, either organically through joint working by city partners - for example the development of the Leeds Care Record - or through collective bidding to secure the selection of Leeds as a host for major national initiatives such as its recent selection by Innovate UK as one of five Centres of Excellence for Precision Medicine. A summary of major initiatives and other "city assets" is included at Appendix A.

As well as the local "city assets", Leeds is a major centre for the NHS outside London. The following organisations are either headquartered here or have a sizeable presence in the city:

- ▶ NHS England, responsible for over £106bn annual healthcare spend
- the Health and Social Care Information Centre, which hosts national health and social care data collections,
- ▶ the NHS Leadership Academy, responsible for leadership development and training throughout the NHS
- ▶ Health Education England, the national body responsible for planning professional healthcare education and training.

Leeds is also home to the National Coordinating Centre of the Clinical Research Network for the *National Institute for Health Research*, the Northern regional headquarters of *Public Health England*; and the headquarters of *NHS Employers*.

3. National and local context

This section summarises national and local health and social care challenges.

3.1 NHS Five Year Forward View and the NHS England Mandate

Published in October 2014, the Five Year Forward View is the most recent strategy document outlining the challenges facing the NHS. It sets out how health services in England need to change to address a mismatch between resources and patient needs of almost £30m by 2020/21, suggesting that action will need to be taken in three areas -- demand, efficiency and funding -- to bridge this gap. It also argues for a more engaged relationship with patients, carers and citizens to promote well-being and prevent ill-health.

NHS England is responsible for arranging the provision of health services in England. The Government's objectives and any requirements for NHS England, as well as its budget are set out in the national Mandate for NHS England². The mandate sets direction for the NHS, and helps ensure the NHS is accountable to Parliament and the public.

The mandate sets out NHS England's contribution to the Government's goals for the health and care system as a whole, in line with the manifesto commitments.

The latest version of the mandate was published in December 2015. It sets out:

- objectives to 2020;
- requirements relating to the Better Care Fund;
- NHS England's budget for five years.

The mandate is structured around seven objectives as illustrated in Table 1 below. All local NHS organisations will be held to account against the delivery of these objectives.

L https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/494485/NHSE_mandate_16-17_22_Jan.pdf

- Through better commissioning, improve local and national health outcomes, particularly by addressing poor outcomes
 and inequalities. Secure measurable reductions in inequalities in access to health services, in people's experience of
 the health system, and across a specified range of health outcomes.
- To help create the safest, highest quality health and care service. Roll-out seven day services; significantly reduce
 avoidable deaths; reduce still births, neonatal and brain injuries; improve antimicrobial prescribing and resistance
 rates; improve patient experience; improve cancer survival rates
- 3. To balance the NHS budget and improve efficiency and productivity. Balance the books; achieve efficiency savings; improve primary care productivity
- 4. **To lead a step change in the NHS in preventing ill health and supporting people to live healthier lives.** Measurable reduction in childhood obesity; reduce risk of diabetes; PM's 2020 Dementia challenge
- 5. **To maintain and improve performance against core standards** To cover areas such as A&E waiting times, Referral to Treatment times, ambulance response times
- 6. **To improve out-of-hospital care.** New models of care and general practice; evening/weekend access; reduce hospital admission rates; better integration of health and social care, including fewer delayed transfers of care; parity for mental health
- 7. **To support research, innovation and growth.** Improve UK ranking for health research; improve in uptake of new innovations including digital technologies; deliver 100,000 genomes programme

Table 1 - NHS Mandate

3.2 The challenge for Social Care

Our ageing population, living longer but often living with long term conditions, will increasingly need co-ordinated, person centred social support services, shaped around their needs and those of their carers. The clear expressed desire from people with have such needs is for as much choice, control and independence as possible, and a consistent, joined-up service.

However, after four years of budget reductions, alongside the continuing rise in need and the requirement to meet the provisions of The Care Act³, the most significant change in social care legislation for 60 years, the challenge facing local health and care systems is to meet these needs for a more personalised approach to social care and ensuring that shifts in the commissioning and provision of care do not have unintended consequences in terms of simply moving problems between health and social care, whilst living with an incresingly constrained financial system. The financial challenge is further exacerbated as a result of the cost pressures for social care providers to implement the national living wage, a challenge in a sector with a substanial proportion of its workforce being low paid.

The Care Act is now law and requires significant co-ordination at national and local level. The major issues are understanding the costs and being confident that not only are the provisions of the Act funded, but the overall funding for social care is sufficient. The other dimension is how many people who are currently self funders or carers will take up the offer of additional funding or help, and the extent to which removing thresholds for safeguarding impact on those needing support

As well as the underlying increasing demand for social care support for older people, safeguarding has become increasingly important. There has been an increase in safeguarding referrals as a result of increased public awareness of safeguarding in domestic and community settings and concerns about the quality of regulated care.

³ http://www.legislation.gov.uk/ukpga/2014/23/contents/enacted

Furthermore Transforming Care **[63]**, the post Winterbourne View programme, was a commitment to reduce the numbers of people with learning disabilities who are in specialist hospitals.

Although there has been much debate about the need for integration between health and social care, such integration must not be seen as an end in itself but simply as a step on a route to achieving better health and wellbeing outcomes. Integration in itself will not signifineatly increase the size of the resources available – although there may be opportunities for economies of scale and increased productivity – but rather provides the opportunity to take a fresh, balanced look at what servics are required to deliver maximum health and wellbeing benefit and value from across the the complete health and care system.

Social care commissioners are already engaging strongly with the Five Year Forward View, the local development of models of care and in testing partnership arrangements. The expectation is that local government will be a full and active partner in the development of the 5-year Sustainability and Transformation Plans, recognising that social care services are critical to achieving transformation of NHS services, which are seeing an increasing shift of care out of hospital settings and into the community.

Many published research reports emphasise the importance of the interdependent relationship between health and social care including those from the National Audit Office, the Kings Fund, the Nuffield Trust and the much respected Barker Commission ⁴. As well as calls for the integration of health and social care budgets, the research also advocates developing strong partnership working across agencies to collectively consider how best to use their joint resources to maximise value in terms of improving health and wellbeing for a population, an approach already in train in Leeds through the concept of the "Leeds Pound" and extensive joint planning activity.

The 2015 Spending Review provided new powers for councils to raise Council Tax by up to two percent to spend on social care. While giving additional flexibility to councils, implementation of such a policy will be for local political determination and may disadvantage deprived areas with low tax bases.

Regardless of the sources of funding, the ultimate aim must be to ensure that health and care services enable `right care, right place, right time' in order to improve health and wellbeing outcomes and reduce the level of inequality. Academic research and insight has an important part to play in supporting NHS organisations and the Council to make robust evidence-based decisions which maximise the benefit from the available resources.

3.3 The Leeds health challenge

In addition to the national challenge of improving access and outcomes whilst reducing cost, Leeds has some specific health and social care issues.

In common with the rest of the UK, the Leeds health and care system is facing a combination of challenges of an ageing population living with multiple long-term conditions combined with population lifestyle factors or behaviours around diet, smoking and alcohol, all leading to a continual increasing demand for health and care services at a time when funding levels are constrained. Analysis of the Public Health England health profiles for 2015 [55] illustrates areas where the city is facing significant health challenges. While there are a few exceptions, on the profile metrics the city is invariably "significantly worse than" or "in line with" the national average.

The profile paints a picture of a city facing not untypical health challenges for an urban area of northern England with significant populations of mixed ethnic groups, and where lifestyle factors play a significant bearing on the overall health of the population.

http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/Commission%20Final%20%20interactive.pdf

3.4 The Leeds financial challenge

Work undertaken in summer 2014 [42] indicated that – without substantial and radical transformational change – the Leeds health and care system as a whole would be facing a net collective cumulative deficit on the order of £639m by 2020/21.

More recent work [32] building on 2015/16 financial plans of the local partners indicated that, with net recurrent pressures for NHS providers and the Council averaging 7 per cent per annum and taking into account a range of other factors and alternative assumptions to those adopted in the earlier 2014 work, then that would equate to a total challenge of £850m.

This subsequent work has suggested that the balance between local solutions – that is solutions which are planned and delivered by the individual statutory organisations in the local health and care eco-system - and those that require collective action involving co-ordinated action by all system partners could be in the order of £607m "local" and £243m "collective".

3.5 Health and Wellbeing Strategy for Leeds

Recognising the picture painted by the health profiles, and cognisant of the current picture of health and care services, the draft Leeds H&WB strategy for 2016-21[26] envisages Leeds as a "healthy and caring city for all ages, where people who are the poorest will improve their health the fastest".

The five intended outcomes of the strategy are that:

- 1. People will live longer and have healthier lives
- 2. People will live full, active and independent lives
- 3. People's quality of life will be improved by access to quality services
- 4. People will be actively involved in their health and their care
- 5. People will live in healthy, safe and sustainable communities

Recognising that there are many more determinants to health and wellbeing than simply access to, and quality of, health and care services, the strategy seeks to achieve these outcomes through delivery of eleven priority themes, which include maximising the benefits of information and technology, creating a strong economy with quality jobs for local people, creating a valued, well-trained, and supported workforce, and placing a stronger focus on prevention, especially for long-term conditions.

4. The Case for, the Purpose and Benefits of the LAHP

This section sets out the principles of the strategic case for change, addressing the question "why does Leeds need an Academic Health Partnership?"

4.1 The case for an academic health partnership

It has long been clear that the nature of the health and social care challenges are such that individual statutory organisations cannot deliver alone. They need to work not only with each other but also with others outside the sector. The "Leeds equation", illustrating this, is shown in Figure 1 below.



Figure 1 - The "Leeds equation"

The recent report "Building Healthy Cities: The role of universities in the health ecosystem" by the University Alliance [40] reinforces the important role that universities can play in their local communities as major "anchor institutions" – "providing leadership and coordination, working in partnership to co-design solutions, making services more responsive to local needs, training the health and social care workforce of tomorrow, and harnessing world-class research to make a real difference to health outcomes."

There are three universities in Leeds - the University of Leeds; Leeds Beckett University and Leeds Trinity University.

The University of Leeds, established in 1904, is one of the largest higher education institutions in the UK - a world top 100 university and renowned globally for the quality of its teaching and research.

The strength of its academic expertise combined with the breadth of disciplines it covers, provides a wealth of opportunities and has real impact on the world in cultural, economic and societal ways.

Leeds Beckett University has over 190 years of teaching experience. The Leeds Mechanics Institute, to which the University can trace its origins, was founded in 1824. Leeds Beckett has been ranked first in the UK for virtual learning, online library and technology services.

Leeds Trinity University is one of the UK's top universities for employability, and has pioneered the inclusion of professional work placements with every degree.

Each of the three universities has unique strengths and capabilities which can support the issues and challenges of the health and social care system.

Many other cities across the country – including Manchester, Liverpool, Birmingham, Newcastle and Bristol - have already established local city-wide academic health partnerships as focal points, leaving Leeds (until recently) as the largest city in England without such a partnership in place.

The LAHP has existed as an informal partnership since March 2015.

Other cities, however, have often forged their partnership simply between the local NHS acute provider(s) and the main, research intensive university, with a focus on a medical model and they have not always engaged NHS commissioners or local government. A defining characteristic of the LAHP is the active engagement of the local authority, all three NHS Trusts all three clinical commissioning groups and all local universities. The Leeds partnership reflects a broader group with a strong emphasis on population health and wellbeing which helps differentiate it from most other AHPs.

4.1.1 Core Members

Leeds is a city of some 213 sq. miles with a population of over three quarters of a million, the second highest population of any local authority in the UK, covering the second greatest area of any English metropolitan district. It is the country's fourth largest urban economy, yet 65 per cent of its area is designated green belt.

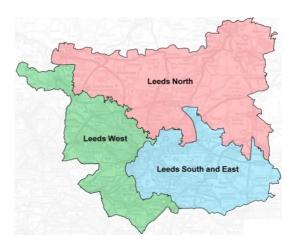


Figure 2 - Leeds and the three CCGs

Within this footprint, there are three clinical commissioning groups, three major NHS provider Trusts, one local authority, and as noted, three universities. Despite the extensive range of services, and wealth of skills, knowledge and talents represented by those working in the health, social care and academic sectors, decision making involves only ten member organisations. This contrasts at with metropolitan areas such as London, the West Midlands and Greater Manchester, which have many more statutory bodies across the health and social care landscape. The comparative simplicity and compactness of the structure allows Leeds to make fully inclusive decisions in a faster, more agile fashion than many other large cities, whilst still having the size and diversity of population, and richness of skills, capabilities and services to make the city highly attractive for inward investment.

For our purposes we use Kindigs 2003 definition of "Population health" as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group. These groups are often geographic populations such as nations or communities, but can also be other groups such as employees, ethnic groups, disabled persons, prisoners, or any other defined group."

4.1.2 Associate and Affiliate Members

The value of collaboration between NHS and academic bodies and industry has long been recognised and accepted. Fifteen Academic Health Science Networks (AHSNs) were given licence to operate by NHS England in May 2013 to create partnerships between patients, health services, industry, and academic institutions.

The aim of the local Yorkshire and Humber AHSN is to create significant improvements in the health of the population by reducing service variability and improving patient experience in the health care system.

For the AHSN to realise its full potential, it needs strong, well-aligned cities that have a clear focus of local activity and which draw on the talent from across the health and care system aligned with their academic partners.

The Leeds Academic Health Partnership will not replicate the work of the wider AHSN, but acts as a key node on the AHSN network, identifying where relevant work is available, adopting and adapting it to meet local circumstances, and acting as a force to accelerate implementation of the local H&WB strategy. In turn, the LAHP will give value back to the AHSN by generating knowledge and insight, and providing an outlet for ideas and innovation generated elsewhere.

The AHSN is an associate member of the LAHP, with a seat on the Board, emphasising the closeness of this relationship.

Whilst not diluting the effectiveness of a tightly focused core group, the members of the LAHP also recognise the critical role that the voluntary and third sector organisations play in delivering health and care services for the population, and are beginning discussions about extending affiliate membership to other not-for-profit health and social care organisations based in Leeds. St Gemma's Hospice, for example, has already approached the LAHP to discuss this.

4.2 Purpose of the LAHP

Early collaborative work between the LAHP's ten core member organisations has resulted in the following definition of the LAHP's purpose:

"To improve the health and wellbeing of the people of Leeds by engaging the educational and research capabilities of all three universities in Leeds with the health and social care system in order to speed up the adoption of research and innovation, creating inward investment, and raising the national and international profile and reputation of the city and the LAHP member organisations."

This is represented diagrammatically in Figure 3 below, which also highlights the potential benefits of a successful academic-health partnership for the city of Leeds – improvements in health; reduction of inequalities; and the creation of wealth:

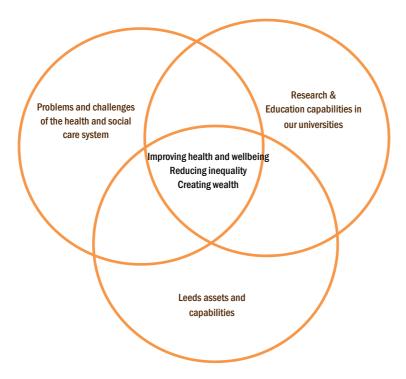


Figure 3 - Purpose and Benefits of the LAHP

The LAHP will have a key contribution to make, for example, in responding to the requirement for the NHS to produce Sustainability and Transformation Plans to set out local intentions which are "at the forefront of science, research, and innovation" and which articulate how "service changes over the next five years will embrace breakthroughs in genomics, precision medicine and diagnostics."

4.2.1 Aligning the LAHP members

This purpose statement has been developed following a dialogue about the "self-interest goals" of the LAHP member organisations, because the members of the LAHP need to be assured, of course, that their involvement – and their financial contributions – will lead to the delivery of activity which supports their own individual organisational goals and objectives.

A process of discussion and sharing of individual organisational goals therefore took place over summer 2015 and provided the basis for greater awareness and understanding of both the common – and diverse – goals of all the partners. It enabled LAHP member organisations to coalesce around a set of shared goals, which have been expressed as follows:

11 LAHP Business Case

 $^{6 \\ \\ \}underline{\text{https://www.england.nhs.uk/wp-content/uploads/2015/12/planning-guid-16-17-20-21.pdf}}$

- 1. Emphasis on health and wellbeing promotion, illness prevention and early intervention as a means of reducing inequalities
- 2. Improving health and wellbeing of individuals and populations
- 3. Engaging citizens and communities in the planning and delivery of personal and population health and wellbeing, and associated decisoin making and governance
- 4. Attracting talent (workforce) and investment associated with the planning, delivery and research in the fields of health, care and wellbeing
- 5. Contributing to economic growth as a key factor in raising employment levels and hence improiving health
- 6. Recognising the critical role of data and technology in improving health and wellbeing

Table 2 - LAHP Member Shared Goals

While these shared goals have a local focus and reiterate the role of the LAHP in improving local population health and wellbeing, they are also of relevance on a national and international level, and a city that can demonstrate progress in achieving these goals will attract widespread interest and profile.

4.3 LAHP Core Themes

The intention is that the LAHP will deliver benefits by:

- Improving health and well being
- Reducing inequality
- Creating wealth

4.3.1 Improving Health and Wellbeing

4.3.1.1 Public Health Profiles

Analysis of the Public Health England (PHE) health profiles for 2015 [55] illustrate the areas where the city is facing significant health challenges

While the city is significantly better than the national (England) average in terms of **statutory homelessness** and **violent crime**, it is significantly worse in terms of **deprivation**, **child poverty** and **long term unemployment**, all major determinants of good health, and in **levels of GCSE attainment**, although the latter does show an improvement over the 2013-2014 period.

Children's health is significantly worse than the national position in respect of *smoking status at time of delivery*, *breastfeeding initiation* and *under 18 conceptions*.

For adults, **smoking prevalence** is significantly worse than the national average although the figures for **percentages of obese adults**, **excess weight adults**, and **physically active adults** are similar to the national average.

In terms of specific diseases, the city is significantly worse than the national average in relation to *hospital stays for alcohol related harm, drug misuse and sexually transmitted infections*. While the *percentage of recorded diabetes* is significantly better than the national average, it does show a slight worsening trend.

Life expectancy at birth of both males and females is also significantly worse than the national average, as are *smoking related deaths*, and the *under 75 mortality rate for cardiovascular disease and cancer.*

The profile therefore paints a picture of a city facing not untypical health challenges for an urban area of northern England where lifestyle issues have a very significant bearing on the overall health of the population

4.3.1.2 Delivering quality care

In his 2008 report High Quality Care for All⁷ Professor Lord Ara Darzi described quality care as being care that is safe, effective – with good outcomes - and provides a good personal experience.

There is commonality between Darzi's descriptors of quality and the Triple Aim of the US-based Institute of Health Improvement which refers to the need to

- ▶ Improve patient experience of care (including quality and satisfaction);
- Improve the health of populations; and
- reduce the per capita cost of health care

In their distinctive areas, the three Leeds universities have much to offer in supporting the improvement of health and healthcare through their contribution towards initiatives such as the Leeds Institute of Quality Healthcare, which supports both improving health and reducing inequalities.

Harnessing the strength of the academic sector to the current work of the health and social care sector provides both increased capacity and exceptional capability to bring skills and experience to bear to pursue this ambition, although changing many of these measures will be a long-term process.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228836/7432.pdf

⁸ http://www<u>.ihi.org/engage/initiatives/tripleaim/Pages/default.aspx</u>

Tackling cardiovascular disease

Cardiovascular disease is the leading cause of emergency hospitalisation in Europe, a leading cause of death and disability and has major impacts on global health economies. Throughout the world, but especially in the UK, there are substantial quantities of rich longitudinal and cross-sectional cardiovascular data available to study the quality of care and outcomes.

The Leeds Institute of Cardiovascular and Metabolic Medicine (LICAMM) at the University of Leeds is a leading centre for research into cardiovascular disease. Research in LICAMM has defined the poor prognostic combination of diabetes mellitus and heart failure – outcomes now form disease stratification for the management of heart failure patients across Leeds and beyond.

The work of the Leeds Institute of Quality Healthcare (LIQH)⁹ is a collaboration between some of the LAHP member organisations which is aimed at reducing variations in health.

LIQH acts as the vehicle through which the Leeds health and care system partners can translate this leading research into the actions required to improve health in one of the key areas for which the city is rated as worse than the national average.

As well as actions which can improve the quality of the healthcare provided through the work of LIQH on addressing variation, many of the other indicators of health published by PHE illustrate the need for collaborative working to help improve the health of the population as they can only be achieved through multi-agency working. The Leeds academic community is involved in leading national research which can be drawn on for the benefit of the local population.

Tackling Obesity

Obesity is a major global health crisis and while some of the PHE indicators associated with obesity show that Leeds is not worse than the average, there is no room for complacency. Obesity and lack of exercise are major determinants of good health and without action the trend will be for an increase in the level of obesity and the consequent increase in demands on a hard pressed health and care system

Leeds Beckett University are leading a national three year programme to identify ways in which local authorities can create a whole systems approach to tackle obesities, while Leeds Trinity University is undertaking leading research into the field of exercise, health and nutrition.

Translating the knowledge and insight gained from this national research into local action, through the work of both Council and NHS partners, will benefit the local population and health and care system, as well as provide an opportunity to validate the research conclusions in practice, adding even greater value to the research programme.

4.3.2 Reducing Inequalities

The PHE report Due North [34] highlighted the wide disparity and levels of inequality in the UK, where, despite inner London being identified as the richest region in Northern Europe, nine of the ten poorest regions are in the UK, with the majority of these in the north of England.

Due North recognised that the burden of local government cuts and welfare reforms has fallen more heavily on the north than the south, and that there is a risk of further widening the gap of health inequalities with large proportions of children in the north of England growing up in poverty.

http://www.leedsqualityhealthcare.org.uk/

Improving the health and well-being of whole populations and communities, and reducing levels of inequality, cannot be achieved by health and care delivery organisations alone, but requires a co-ordinated input from across public and voluntary sector bodies as well as contributions from private sector organisations, all organised around a place-based approach.

As has been highlighted previously, one of the factors which differentiate the LAHP from many other academic health partnerships is the involvement of commissioners, the local authority and all three universities, and an emphasis on the wider factors which influence personal life satisfaction and population health including employment, housing and the environment. This reflects an increasing recognition that health cannot be measured in a simple, single dimensional way, but must reflect both the physical and mental health of individuals and the health of the communities within which they live.

By bringing together the skills and talents of its members, the LAHP can develop analytics-based insight and an understanding of the drivers and determinants which create and perpetuate health inequalities, and then – through the research and subsequent application of that research – identify the actions that can be taken to reduce levels of inequality whether at a personal level – such as the disparity in life expectancy across the city – or in the wellbeing of communities.

Personal and population health and wellbeing is also integrally bound to the economic health of the city and its communities; addressing health inequalities has to involve targeting economic and environmental inequalities. Again, this is an area that the LAHP can play a key role, in identifying opportunities and providing a welcoming environment to encourage development of new businesses which have a positive impact on improving health.

Technology also has a key role to play, helping people to retain their independence and increasingly to fit their care around their lives rather than fit their lives around their care. This will take a variety of forms, ranging from the opportunity for Leeds citizens to have access to their own health and care records, for them and their carers to be able to use technology to interact with their care professionals at a time and place more suited to them, and to be able to use technologies that empower them to manage their health conditions and lives and keep them safe and independent for longer through technology-enabled self-care.

The LAHP offers the opportunity to extend that work to bring in academic partners and to apply additional skills, knowledge and talent to address this challenge, not only locally for Leeds, but with the goal of being recognised as a national centre of excellence in the UK and a city with an international reputation for achieving a high standard of health and wellbeing and reduced levels of inequality, through providing a workforce suitably skilled to deliver future models of care and the utilisation of data and technology.

Given the city's aspiration to improve the health of the poorest, the fastest – and recognising that in many cases the poorest are those from the ethnic groups associated with the developing countries – the LAHP should recognise the diversity of its population as an important "city asset" and use that to its advantage. By looking to improve the health of the local poor many of whom are from developing countries, the LAHP can also access research funding targeted at improving the health of the poor in developing countries and thus deliver benefits at both local and international levels.

The combination of significant local BME groups, together with an almost uniquely inclusive set of partners from all sectors of the NHS, local government and universities, offers an opportunity for the LAHP to not only address local health inequalities but also develop a national and potentially international reputation for addressing those issues that impact most on BME populations, for example the high levels of prevalence of cardiovascular disease and diabetes in groups from Asian backgrounds, and utilising the specific local expertise around the use of mobile digital technologies.

Linking National and Local Programmes

Leeds Beckett University have led and supported evaluation of both national and local programmes of community health and wellbeing initiatives and programmes. The Health and Social Care Volunteering Fund (HSCVF) is an innovative programme established by the Department of Health to build organisational and community capacity for volunteering through a national and local grant scheme for Voluntary, Community and Social Enterprise (VCSE) organisations. An independent evaluation of the HSCVF was carried out by a team from Leeds Beckett University, who gathered evidence from a variety of sources.

The programme has achieved its key aim of connecting strategic health and social care goals to what projects do in communities. Valuing and supporting the contribution of volunteering is a core theme connecting national policy to local action. The team found that Volunteers gain a range of benefits from taking part; for many volunteering opens up new opportunities and leads to increased wellbeing. HSCVF volunteers have more contact with friends, families, and their own and other communities since joining their projects.

The evaluation team was able to identify opportunities for strengthening networking between projects and in supporting projects to build a case for future funding or disseminating good practice on volunteer support, and evidencing long term impact. This experience will be available to support the LAHP is delivering its aims going forward.

Early detection of lung cancer in Leeds

England has for many years lagged behind many other countries for patient survival rates for many of the leading types of cancers. Whilst recent improvements in survival rates have been achieved there is still a significant gap between England and international comparable countries. Moreover considerable variation exists between and within English Regions. Lung Cancer mortality rates in Leeds were some of the highest in the UK Early Detection is critical to reducing both regional and national survival rates.

The 'early detection of lung cancer in Leeds' is a project is focussed on early diagnosis as an essential requisite to improving detection rates. The project seeks to educate and encourage patients using social media to present symptoms to the GP earlier, use of self referral chest X- rays and the accelerated provision of treatment where this is required. The project is being run in communities with some of the highest incidences of cancer in Leeds Inner City particularly East and South Leeds. The Project is having a dramatic effect on the number of chest X-rays and is supporting improvements across the city overall in the survival rates for lung cancer

4.3.3 Creating wealth

Both economic growth and employment in the Yorkshire and Humber region have been below the national average since 2012, reflecting the underlying structure of the Yorkshire and Humber economy, with activity more weighted towards manufacturing and financial services than in the rest of the UK outside of London.

However, housing market data shows that price rises in Yorkshire and Humber in August 2015 significantly outpaced the UK average, while the region's private sector growth rate in recent months has been similar to, or above, that of the UK as a whole. These figures herald a better performance in the next few years, and in the three years to 2018 the region's GVA is expected to grow at around 2.0 per cent per annum, close to the national average of 2.3 per cent [37].

Although the wider Yorkshire economy will grow at a steady rate over the next three years, the impact of the Chancellor's 'Northern Powerhouse' vision will be felt more in the next decade than this one [37].

Economic forecasts predict that Yorkshire's economy will grow by 1.9 per cent a year in GVA between 2015 and 2018, compared with a wider UK average of 2.3 per cent, while London (3.0 per cent), the South East (2.5 per cent), and the East of England (2.4 per cent) makes up the top three.

Despite the rather disappointing regional forecast, of the cities analysed, at a forecast GVA expansion of 2.3 per cent per annum, Leeds will be the second fastest growing city outside of the South of England over the next three years, just behind Manchester (2.5 per cent) [37]. This means that Leeds is matching the UK average and outpacing the rest of Yorkshire region thanks to expansion in its information and communications, administration and support, and professional services sectors.

Gross Value Added (GVA) measures the contribution to the economy of each individual producer, industry or sector in the UK. GVA is used in the estimation of Gross Domestic Product (GDP). GVA (at current basic prices; available by industry only) plus taxes on products (available at whole economy level only) less subsidies on products (available at whole economy level only) equals GDP (at current market prices; available at whole economy level only). GVA + taxes on products - subsidies on products = GDP. Source: Office for National Statistics website — http://www.ons.gov.uk/

This offers the city a sound basis to drive sustained economic growth through both through organic growth by supporting and developing local entrepreneurs and businesses, as well as attracting inward investment by companies seeking to locate or relocate their operations.

This in turn leads to a cycle of improvement, with employers being attracted to an area if they are confident of access to a well-skilled and appropriately educated workforce with an attractive living and working environment, and students being attracted to study and then remain in an area if there are attractive employment opportunities.

The city has been successful in its goal of delivering recovery across a broad range of growth platforms including financial services, professional services and the wider digital industries as well as health and wellbeing. However, to maintain that growth requires academic and educational establishments to ensure their courses deliver education and training that will lead to a skilled workforce fit for future requirements of the growth platforms – health and medical technology, professional services, financial services and digital industries – and in sufficient numbers to continue to support a local transformed health and care eco-system both in terms of the skills required in public service delivery and private sector support.

The positive outlook of this success has to be tempered by the report from the Centre for Cities ¹¹ which found that in other cities where economic growth has been driven through these same growth platforms then although there is evidence of an attractor effect and this has tended to raise the wealth of those involved in these growth areas, it has had less impact on those employed in traditional areas. While the overall wealth of the area might rise, there is a relative worsening of the economic position of those not engaged in these sectors – e.g. through rising house prices – and a risk of widening inequality across the population.

Given the close links between economic prosperity and good health, the Council's clear policy objective of ensuring that the whole population benefits from economic growth is an essential one if the objective of reducing inequality - in both health and wealth terms - is to be achieved.

4.3.3.1 Industry clusters

It is estimated [41] that there are currently 193,000 people employed in the health and life sciences sector across the Leeds City Region with 50,000 employed in the healthcare provision sector in Leeds alone, and a further 3,500 people employed by medical sector businesses.

At present, Leeds is home to two major health-related industry clusters:

▶ Digital health and analytics. The Leeds City Region is home to some of the most prominent companies in this subsector including TPP and EMIS, the UK's largest providers of primary care systems and patient record care services, BJSS - provider of the NHS Spine2, Immedicare, InHealthcare, Answer Consulting, Ssentif Intelligence and BT Technology.

Along with the national headquarters of the NHS Health and Social Care information Centre, Leeds has one of the largest concentrations of health informaticians in the UK and the wider City Region supports that cluster though initiatives such as the Digital Health Enterprise Zone supported by the University of Bradford, the Bradford Metropolitan Council and BT.

The creation of LIDA with the presence of both the MRC Medical Bioinformatics Centre and the ESRC Consumer Data Research Centre also creates a focus of activity around data analytics.

The development and implementation of the Leeds Care Record, containing 500,000 patient records and connecting every GP in Leeds, with secondary and social care providers also is a key attractor for the digital health industry.

 $^{{\}bf 11}_{\begin{subarray}{c} {\bf http://www.centreforcities.org/blog/the-winners-and-losers-of-city-economic-development/} \end{subarray}$

Medical technology. There are currently over 160 medical technology and health informatics companies in the Leeds City Region with over 100 of these based in Leeds, including Steeper, Surgical Innovation, Xiros and Brandon Medical. As with Digital health and analytics, there are important sub-clusters in the wider city region around Bradford, Huddersfield and York

Together these industry clusters have a combined estimated turnover of £4.33 billion and employ approximately 13,300 people across the wider Leeds City Region. [36]

Earlier work [36] recognised this strength and recommended the positioning of Leeds City Region as "a national focus for health technologies combining medical device manufacturing and related services with data and health related information technology innovation and management (health informatics)". The same report recommended "harnessing the know-how and expertise of sector champions and advocates to take ownership of the 'network' and to inform key strategic decisions and initiatives in the form of a steering group or advisory board with a short term (3 year) and long term plan (10 year)", a function which the LAHP would be well placed to adopt.

The LAHP provides a means through which innovative SMEs in the industry clusters can get rapid access to the NHS and the wider local health and care system to develop new solutions and benefit from engagement with both local health and care planning and delivery organisations. The LAHP also provides a route for these SMEs to access the skills and expertise of three diverse universities covering almost all aspects of personal and community health, care and wellbeing.

Encouraging SME development through digital health

Both national and local NHS bodies have worked with local digital health organisations to provide an outlet for their developments and help them grow and attract new talent to the city.

As well as the presence of the two largest suppliers of systems to primary care, EMIS and TPP, the work of mHabitat – a joint venture involving two of the NHS Trusts in Leeds – has created a national reputation for excellence in the field of person driven digital health applications, while Leeds based companies such as Answer Consulting – through their work on the Leeds Care Record and work with the Leeds Teaching Hospitals Trust – and BJSS - through their work on the national NHS Spine in conjunction with the Health and Social Care Information Centre – both contribute to the creation of new jobs and opportunities.

Stratifying patients with prostate cancer

Background - problem to solve

Prostate cancer is the most common cancer in men in the UK, accounting for 25% of all new male cancer cases and approximately 10,800 deaths. The majority of men diagnosed with prostate cancer present with early stage disease, which can be managed in a variety of ways. Although clinical/pathological features of the disease can guide decision-making, there remains ambiguity even among risk-stratified patients - low and intermediate risk patients represent a large subgroup (22,700) of the approximately 41,000 patients diagnosed annually in the UK. A prognostic test has been developed to address this ambiguity by directly measuring tumor biology in order to accurately stratify patients with localised prostate cancer according to disease aggressiveness and risk.

Summary of the oppportunity

The national Precision Medicine Catapult has now indicated that it wishes to work with the city to identify and develop exemplars which the Leeds PMC Centre of Excellence will take forward in the first wave of activity. Stratifying patients with prostrate cancer is an example of the type of projects which can be progressed through this new relationship.

We therefore propose to study the utility of this test to identify patients under consideration for radical therapy who do not

require aggressive management:

- ▶ Report the test cell cycle progression (CCP a new biomarker demonstrating improved the prediction of prostate cancer aggressiveness) scores in a NHS patient cohort and determine the correlation with routinely used risk categories, specifically the European Association of Urology (EAU) stratification.
- Assess the time from diagnosis of prostate cancer to availability of prognostic test.
- Assess the impact of the test on treatment decisions, measured in terms of the percentage of treatment decisions altered.
- Report the potential clinical utility and value of the CCP score in patient counselling and clinical decision making.
- Identify uncertain parameters in the evidence base in need of further research.

Outcomes

Application of this test will assist in downgrading radical therapy by identifying which patients can safely be managed in active surveillance by:

- ▶ Better differentiation of patients with similar clinical risk profiles
- ▶ Better assessment of the risk of prostate cancer specific mortality
- ▶ Improved individual patient prostate cancer treatment decision making

4.3.4 Enablers

Two of the critical enabling factors which will support delivery of both national and local objectives are workforce modernisation and health informatics, covering use of both data and digital technologies.

In terms of workforce, the changing demographics and needs of the population, together with changes in the way care is delivered, particularly in primary and community settings, means that the capacity, capability and competencies – and location - of the future health and care workforce will change, in some cases very significantly. The changing dynamics between patients, carers and professionals – with a greater emphasis on professionals supporting patients and carers to self-manage - will also lead to a change in the skills needed by professionals.

As well as the changing demographics of the patients, the expectations of new joiners to the health and care workforce are changing in line with society's attitude to work more generally, and health and care service employers need to reflect that in order to attract and retain staff into the workforce.

Developing the new health and care workforce

Within the city there are capacity and skills shortages now, particularly in primary care and acute nursing as well as a shortage in social care. There is a local need to provide the future workforce with the roles and skills it needs to respond to the opportunities and threats that arise from the pressures to change.

Workforce development, training and education assets in Leeds are currently under-utilised and many are of poor quality. The workforce training estate is distributed with no single, high-quality place-based facility that encourages the sort of multi-disciplinary working that will be key to the future workforce needs

To address that the academic institutions, together with the local health and care partners will create a Leeds Health and Social Care 'Academy'. The Academy will be

- ► A physical place and virtual space where health and social care employers can provide training and development for their current and future employees
- A framework for closer collaboration between health and social care employers and the three universities to deliver the single workforce plan for Leeds

The Academy will be a place-based framework to collaborate and pool resources. In it, we will work together to deliver and sustain a system-wide workforce plan. Respecting statutory responsibilities, the Academy will ensure the effective provision of training and education and be the vehicle through which we collaborate to:

- respond to opportunities and threats as a whole health and care system
- identify and develop plans to fill any gaps in training and education provision
- identify and act on opportunities to reduce complexity, duplication, waste and cost, and opportunities to join-up, add value and increase asset utilisation
- deliver new roles, skills and capacity

It will own the Leeds vision for system-wide training and education provision; acting as a 'transmission belt' for taking adoption of innovation into practise, it will accelerate the embedding of research into education. It will also influence and be influenced by the Leeds workforce plan owned by the Transformation Board; it will have dedicated resource, staff and physical presence managed as one body with system-wide governance and oversight.

Health informatics also provides another huge enabling opportunity – the increasing use of advanced data analytics to identify population health need and more effectively and efficiently target the right kind of services, the use of informatics tools to support personalised care planning, and the adoption of new technologies to enable patients to play a greater part on their own self-care and interact in new ways with health and care professionals has the potential to be truly transformational.

Transformation through technology

New diagnostic technologies provide opportunities to re-evaluate care pathways and redesign them so that they shift the burden on the health and care system while at the same time making the lives of patients.

These technologies mean that patients are now better able to self-monitor their chronic conditions themselves, with monitoring of their readings and the ability to intervene when those readings move outside of certain key parameters.

Adopting new technologies such as this delivers improved health and care, as well as demonstrating the opportunity for medical technology innovation. A pilot with diabetes patients is underway and evaluation of the pilot will inform the options for a wider rollout across the city and potential for expansion to other long-term conditions with the opportunity for financial and quality benefits.

Transformation through data

As well as the adoption of new innovative technologies, the introduction of the Leeds Care Record and associated informatics initiatives across the city creates a wealth of linked data

The application of advanced population risk stratification and predictive modelling techniques such as those being developed through the work of the Leeds Institute of Data Analytics – bringing together talent and expertise from across the local health and care system - creates sophisticated insights into patterns of care, and identify cohorts of patients who are most likely to benefit from specific types of interventions.

These two examples are symbiotic and demonstrate the interaction between technology and data – the better the data analytics to identify cohorts of the population, the more effective the application of new technologies will be, and the greater the value of the data collected as a consequence

Creating and developing the new workforce through new forms of education and training, together with the innovative adoption of health informatics, also provides the opportunity to accelerate the adoption of research and knowledge into practice

Places that set the pace in the development of these critical enablers will both help and support their own local communities to be at the leading edge of transformational change in their own localities, and also create the potential to attract national and international talent and investment.

5. The LAHP Proposition

5.1 Assessing success

LAHP member organisations are conscious of the need to demonstrate the value added by the LAHP and the return on their investment. Early discussions have centred on identifying a simple set of metrics, which could be derived from the three core ambitions and benefits of the LAHP:

- Improving health and well being
- Reducing inequalities

measured by "lives saved" and "lives improved"

► Creating wealth – measured by "jobs created" and "inward investment secured"

It has been difficult to uncover much detail about how other AHPs around the country measure their impact. Where there is evidence of assessing value, it is often at programme level – to judge how well a balanced portfolio of initiatives meet the objectives and goals of the partner organisations – and also on a project by project basis, where there are opportunities to develop and monitor more specific measureable objectives. UCLP and Bristol do this, for example.

Project level metrics can be specific to each initiative. It is clear that an individual project -such as Precision Medicine - may deliver against a number of dimensions [13] such as:

- measureable impact and improvements to health and wellbeing of individuals and communities
- evidence of "lives saved" whether as a simple "lives saved" measure as adopted by University College London Partners (UCLP) in their work on stroke or more sophisticated measure to reflect quality of life improved, exploring measures such as PYLL¹² and/or QALYs¹³.
- jobs and apprenticeships created, both in terms of the absolute "number of jobs" alongside the "quality" of jobs created.
- levels of inward investment secured, including research funding.
- enhanced levels of reputation for research and adoption of research into practice.

There is desire amongst LAHP member organisations to keep measures as simple as possible, and an acknowledgement that it often can be difficult to measure the value added by a partnership, as its impact can often be intangible – for example, the existence of the LAHP presents Leeds as a "joined-up" city that is easy to do business with, which enhances reputation and results in improved profile, leading inevitably to more approaches from external investors and others wanting to do business here.

The LAHP can make this easier for external partners by clearly setting out a compelling proposition of why certain types of health related businesses should look to the city as a preferred place to invest in – a "best for" approach.

The LAHP will therefore adopt two relevant types of success indicators

► LAHP success indicators – which are "means measures" – will be measured using SMART and quantitative metrics to report how well the LAHP is performing against the use of LAHP resources. Examples include number of bids submitted, bid conversion rate, events held etc., and the LAHP is accountable to its members for delivery of these activities.

¹² Potential Years of Life Lost

Ouality Adjusted Life Year

System success indicators – which are essentially "ends measures" – will be used as part of project selection process. Examples include improving health and well-being, reducing inequality, generating wealth. The role of the LAHP is a critical factor in identifying projects and the LAHP will track value added on a project by project basis but responsibility for realising benefit will lie with the appropriate delivery bodies.

As an example of a system success measure, inward investment into the city health and care system will arise from a number of public sector sources such as Innovate UK programmes, funding from Health Education England, HEFCE¹⁴, MRC¹⁵, ESPRC¹⁶ - all of which contribute to city-wide developments as well as support to local businesses apply for funding and support from sources such as the LEP¹⁷, SBRI¹⁸ and other local, national and EU programmes such as the EU Horizon 2020 programme¹⁹. The LAHP will seek to use all such sources alongside private sector investment in order to deliver against its success indicators.

To avoid duplication of effort the LAHP will work closely with colleagues at the Yorkshire & Humber Academic Health Science Network (Y&HAHSN) and the Northern Health Science Alliance (NHSA) to capitalise on their work in identifying potential sources of funding and support.

5.2 The LAHP proposition

This proposition can be based on the key priorities for the city, and presented in such a way as to differentiate Leeds from other AHPs.

Fundamental to this proposition is the ability of the LAHP to be the single gateway to supporting health and care innovation and differentiating Leeds as "an easy place to do business in", whether that business is undertaking research, training and education of the current and future health and social care workforce or creating new products and services.

In effect, this becomes a differentiator for the city in the competition for resources and investment, whether in bidding for public or private investment -- it answers the "why Leeds?" question.

5.2.1 Best for applied health and wellbeing research

Section 4.3.2 identified an opportunity for Leeds to capitalise on its inclusive and integrated AHP to address the health and wellbeing issues associated with its diverse population, including the opportunity to undertake practical applied research into those issues for local, national and potentially international benefit.

Similarly addressing the needs of the frail elderly will be important priority in many parts of the country – and internationally – and so the LAHP can articulate the different approach that the city is looking to adopt by being able to support research on a system-wide basis, recognising the roles that all relevant public, private and voluntary sector parties play in caring for frail elderly people, in a way that personalises the care provided to that individual, utilising appropriate technology.

While other AHPs may emphasise the absolute number of patients recruited into clinical trials - and the scale is an important factor - the LAHP can capitalise on the performance of the generally high-performing Yorkshire and Humber Clinical Research Network (CRN), and the local Collaborations for Leadership in Applied Health Research and Care (CLAHRC) and

 $^{^{14}}$ Higher Education Funding Council for England - $\underline{\text{http://www.hefce.ac.uk/}}$

 $^{{\}it 15} \atop {\it Medical Research Council- \underline{https://www.mrc.ac.uk/}}$

¹⁶ Engineering and Physical Sciences Research Council - https://www.epsrc.ac.uk/

¹⁷ Leeds City Region Enterprise Partnership- http://www.the-lep.com/

¹⁸ Small Business Research Initiative - http://www.sbrihealthcare.co.uk/

¹⁹ https://ec.europa.eu/programmes/horizon2020/

focus on the quality and appropriateness of membership of practical applied health and wellbeing research programmes, having regard to the multi-faceted multi-disciplinary place-based approach of the LAHP.

5.2.2 Best for developing the new workforce

The emphasis on integrating health and social care will be another common theme across many parts of the country. The LAHP can differentiate Leeds by not only demonstrating new and effective models of integrated health and social care delivery, but also in recognising the impact that this will have on the nature of the workforce needed for the future, in terms of both capacity – the numbers of staff needed and their locations – as well as capability – the skills and competencies of those staff to work in the health and care workforce of the future.

Again the differentiator is around a city looking forwards to the future, where not only can you be educated and trained to develop the skills needed for future health and care, but you can also have the opportunity to put that learning into practice as the training and education system is so integrally linked with the local approach to health and care delivery.

Given that addressing the workforce needs of the future will be a key requirement nationally – and indeed internationally – for the LAHP to be able to demonstrate a successful link between the way it trains and educates the workforce of the future and the delivery of improved outcomes through an integrated approach to health and social care delivery will offer the potential for elevated reputation and attract research interest, as well as being an opportunity for economic growth through attracting students.

5.2.3 Best for using data and technology

Local, national and international health and care systems are increasingly recognising the crucial role that health data assets can play in identifying health and care needs – including for example cohorts such as BME groups, frail elderly and those with long term conditions - and then targeting and delivering direct care services along with other initiatives which influence personal and community health such as public health campaigns. Cross-sectoral initiatives such as Leeds Institute of Data Analytics (LIDA) demonstrate the strength of the city in terms of its resources for the capture, collation, analysis and interpretation of data while the strong local digital health eco-system - both public and private organisations – creates the climate for encouraging technological innovation. LIDA cross sectoral capabilities means, for example, consumer data and combined with health data to give many new insights into community health.

Adopting such a positioning will be attractive to private sector businesses that provide products and services that support such an approach; for example from the utilisation and analysis of data and associated processes to identify individual needs, through to the provision of technology to support that personalised form of care delivery.

The LAHP can support this approach by encouraging the advanced and innovative use of data analytics and then applying the insight gained by delivering change on the ground locally, whether through using that insight to rebalance services to meet personal and community needs or through the use of innovative technologies to deliver services in new ways, for example through in-home patient monitoring etc.

5.2.4 Best for adopting innovation

Research, product and service development only delivers maximum value when applied in practice. The LAHP is the vehicle to support the rapid adoption of innovation, translating research into action, as well as providing well designed, appropriate approaches to evaluation.

This will be cultivated in an environment which supports access to a wide range of capabilities, places for incubation growth

An example is the proposed adoption of the Sandbox approach set out in the NHS Innovation Test Bed proposal, looking to provide a technological environment which links and connects a range of technologies and devices based around the individual.

The differentiator would be not only that Leeds provides a 'test bed' platform to demonstrate that such integration is technologically possible with clear and measurable benefits to patients to national partners such as NHS England and the

Health and Social Care Information Centre but that these have been developed on the basis of 'interoperable' and open standards to enable rapid scaling for larger populations

Coupled with a high quality innovation business support environment, the LAHP can provide the kind of facilities and advisory services that help SMEs to grow. This would be a clear attractor both for organic growth of current Leeds-based businesses and/or university spinouts, and for other technology businesses wanting to set up in a welcoming eco-system, which provides access to the skilled people and other resources that are needed to incubate and grow their businesses.

6. Governance

6.1 Introduction

This chapter sets out the proposals for the organisational form of the LAHP both in its early years and longer term.

6.2 Current Arrangements

The LAHP currently operates as an informal partnership, with two decision making bodies:

- ► A Board, chaired by Sir Alan Langlands, with the core members and the associate member (AHSN) being represented at CEO or equivalent level
- ▶ A Planning and Operational Group, chaired by the Director of Health Partnerships at the University of Leeds, with each of the core LAHP member organisations being represented at a Director or equivalent level

The LAHP members recognise that the current style of working has achieved much, as evidenced by the successful creation of a strong portfolio of initiatives, but it has been highly dependent on the goodwill and commitment of a number of key individuals with substantive roles within their employing organisations.

During the current phase of informal partnership the University of Leeds has been acting as the "host" organisation for the LAHP, holding funds and paying bills on behalf of members, providing accommodation, and meeting facilities, and IT and financial support.

The majority of successful AHPs in England have established themselves as companies limited by guarantee for both the financial flexibility that this offers, and for the independence it gives, ensuring that no single organisation is or is perceived to be driving the agenda. It also provides investors – both public and private - with a clear entity with which to contract for services, and which is not dependent on the creation of multiple agreements across partners working in an informal relationship.

The future intention is to establish a more flexible and agile vehicle through which to progress the aims and objectives of the LAHP, whist remaining accountable to the LAHP members.

6.3 Future Options

6.3.1 Legal status

Any separate vehicle for the LAHP will require a formal status in law - as a company, a trust or an association.

The vehicle can be incorporated or unincorporated. If the organisation will take on financial risk, hold intellectual property or employ staff, it should be incorporated.

Companies are covered by Companies Act.

Limited companies can be limited by shares – that is an obligation for the members to pay the company for the shares they have taken in it – or guarantee – which requires the members to pay the company's debts up to a fixed sum.

6.3.2 Organisational forms

Many organisations may also want to be a particular kind of body in addition to having a legal status as a company – for example a Community Interest Company (CiC) has an additional status over being a limited company.

Companies have few inherent restrictions so it is possible to design almost any sort of structure and relationship within a company vehicle. For example, whilst there are common models for an Industrial Provident Society, it is possible to register a "free draft" set of rules written specifically for that society.

Whilst the organisational forms have different characteristics, they are not mutually exclusive. Theoretically, an organisation could be a Social Enterprise, a Joint Venture and a Special Purpose Vehicle.

All forms could involve sharing out all or some of any profits or surplus amongst members, raising funds by issuing shares, raising funds from public bodies, trading and protecting the assets of the organisation from distribution for private benefit.

Being a charity is neither a legal form nor an organisational form. It is a separate legal status that applies to some organisations meeting a set of criteria. Organisations that distribute profits are not eligible for charitable status.

Appendix D presents some of the organisational forms and some of their advantages and disadvantages.

6.4 Timing

The view of the LAHP members is that while a formal vehicle is likely to be required in the future, for the short term, the LAHP should continue as an informal partnership, hosted by the University of Leeds on behalf of the others, with a view to establishing an independent vehicle from 2017/18 onwards, subject to satisfactory progress in pursuit of the initial aims and objectives.

6.5 Other AHPs

Details of other UK Academic Health Science Partnerships/Centres are given at Appendix D. As mentioned previously, where it has been possible to determine their legal form they have all chosen to establish as a private company limited by guarantee, but without share capital (Anglia Ruskin, Imperial, Kings, Liverpool, Manchester, UCLP). Academic Health Science Networks have been established using a similar legal form.

As indicated in 6.3.2 above, this does not preclude declaration of the aims of the company as a social enterprise, a community interest company or as a joint venture.

Analysis of the other partnerships indicates three stages of evolution and complexity:

- Informal partnerships such as Bristol, Newcastle and Birmingham
- Established formal relationships based on a private limited company Manchester, Cambridge, Kings, Imperial, Anglia-Ruskin
- Mature formal relationships example of UCLP which has been in operation for many years [62] and which has established a range of operating units and partnerships with other bodies.

Based on the experience of other similar city-based academic health partnerships and the AHSNs, the governance of such a company might typically involve the creation of a Board with representation from each member organisation as company directors.

Subject to its terms and powers of incorporation – which can be shaped by the partners at its inception - and its obligations under the Companies Act and related legislation, the Board will be free to take decisions in pursuit of the objects of the LAHP, with accountability to the LAHP partners through their representative governors.

If the LAHP were not to move to a Private Limited Company status and remain as an informal partnership then some LAHP initiatives are less likely to be attractive to private sector partners who will prefer to contract with one body rather than multiple organisations, or through more complicated lead provider structures.

Unlike previous initiatives to attract inward investment which involved the creation of a Private Limited Company and a large financial commitment from the City Council, the greater involvement and engagement from the NHS and university sectors shares that risk more broadly across all the partners.

6.6 Positioning of the LAHP within the wider system

A governance review of decision making structures across the Leeds Health and Social Care System has been recently undertaken and a new Governance Model which seeks to significantly improve decision making has been proposed – see Figure 4 below.

The review included within its scope the position and role of the LAHP within the wider context of other partner networks. The review concluded that the LAHP should remain as having an arms-length relationship with the System Executive Board and that any large scale programme work (not funding requests) will be delivered through the System Executive Board.

The overarching principle of the LAHP will be to act as a predominately externally facing body, in the best interests of the city and its member organisations, to pull in investment to support the health and social care system, either directly or through research funding. In this sense, the LAHP itself will not be a "delivery" organisation in the same way, for example, that UCLP is. The desire of partners is to maintain a "lean" LAHP infrastructure. The delivery of projects will therefore need to be driven through member organisations and the existing system-wide delivery infrastructure -- for example, the transformation board PMO.

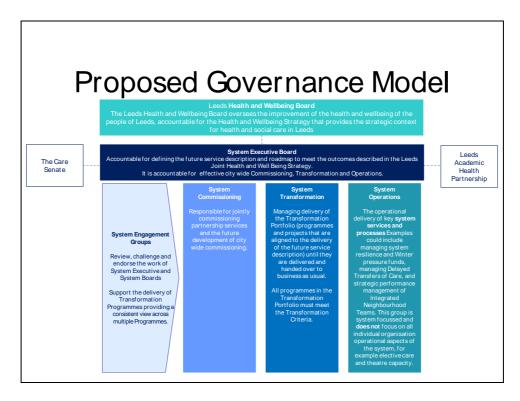


Figure 4 - Proposed Governance Model

7. Financial Impact Assessment

This section sets out the proposed costs associated with the initial early years establishment and operation of the LAHP and is based on certain assumptions about the size and organisation of the LAHP in its start-up period, and from an examination of the early years of other AHPs across the country.

7.1 The LAHP management structure

The proposal is based on the working assumptions that:

- ► For 2016/17, as now, the LAHP will continue to operate as an informal collaboration of eleven fee-paying members (ten core plus one associate), supported by a LAHP team made up of a small number of substantive employees drawn from the core member organisations (with appropriate salary reimbursement to their employers to account for the time they spend on LAHP activity). Necessary "host" activity (such as financial and IT support) will continue to be provided by the University of Leeds.
- In the medium term from 2017/18 at the earliest the LAHP could operate as a private company limited by guarantee, with a Board supported by a small, lean core team (either employed by the company, or more likely seconded to the company from member organisations) focused on delivery of the aims and objectives of the LAHP and accountable to the LAHP Board.

The Core Team will require access to a range of following capabilities. As the Core Team will remain small and focused on strategy rather than delivery, of some of these capabilities may need to be drawn either from within the LAHP members or through third parties:

- Ability to engage with and command the respect of clinicians, management, politicians and civil servants
- Clinical and other professional leadership
- Strategic planning skills
- Programme and project planning and management
- Benefits identification and realisation
- Programme and project evaluation
- Stakeholder management across private/public/voluntary sector organisations and at local/national/international levels
- Bid writing and bid management
- Communications
- Supporting Administration

7.2 Costs of the LAHP Core Team

A paper detailing the estimated cost of the Core Team – whether through direct employment, secondment or commissioned support – was submitted to and approved by the LAHP Board in May 2015, and this is estimated to be £683k for 2016/17. This annual running costs figure can be expected to rise in line with inflation.

In addition to the running costs of the Core Team, individual projects and initiatives will also be required to set out their objectives, costs, benefits and the risks associated with that project, as well as the metrics which they will be judged by.

While the LAHP needs to be flexible to respond quickly to in-year opportunities, the LAHP will develop an annual Business Plan setting out its intended work programme for the forthcoming year and major lines of development. This plan will act as the guideline criteria for in-year opportunity qualification.

7.3 Funding of the LAHP

All LAHP member organisations have been engaged in a process to consider equitable methods for sharing LAHP costs, bearing in mind that the member organisations are of widely varying size. Members have committed to a percentage contribution basis, as shown in Table 3 below. They have also agreed that any future expenditure agreed by the LAHP Board will be apportioned on the same basis, and in the event of there being any income to return to members, the same percentage shares will be applied.

	LTHT	UoL	LCC	LW CCG	LS&E CCG	LN CCG	LBU	L&YP	LCH	LTU	Y&H AHSN	Total
%age share	15	15	15	12	11	7	7	7	7	2	2	100
16/17 £	102,450	102,450	102,450	81,960	75,130	47,810	47,810	47,810	47,810	13,660	13,660	683,000

Table 3 - LAHP Funding Contributions for 2016/17

8. Risk Assessment and Mitigation

This section summarises some of the risks associated with the LAHP and sets out the proposed mitigation actions.

8.1 Key risks

The key risks of the LAHP can be classified as falling into one of two categories

- strategic risks those which impact on the overall success of the LAHP
- ▶ tactical risks those risks which affect the individual initiatives overseen by the LAHP.

8.1.1 Strategic Risks

Strategic risks are set out in Table 4 below, and represent the risks to the overall long-term sustainability and effectiveness of the LAHP.

Ref	Nature of Risk	Impact	Probability	Mitigation
S1	Failure of LAHP members to agree on aims and priorities	High	Medium	Ensure leaders and key staff within member organisations are explicitly committed to the aims and priorities of the LAHP.
S2	Failure of LAHP members to maintain commitment	High	Low	LAHP members commit to maintining senior level input to Board and Planning Group meetings. Continue to engage and communicatee with all LAHP aprtners
S3	Failure to recruit to substantive LAHP Core Team positions	High	Medium	Look for short-term secondment opportunities from across LAHP partners, and/or access third party support
S4	Perception that LAHP is not delivering value for member organisations	Medium	Medium	LAHP Core Team publish annual report setting out work undertaken, costs incurred and benefits achieved at LAHP and individual partner levels Review funding approach to ensure it is still equitable in terms of benefit to partners
S 5	LAHP opportunities fail to meet goals of member organisations	Medium	Low	Opportunity qualification process and business development activity to be orientated around specific member goals LAHP Annual Report to demonstrate how projects have involved/benefited members
S6	Failing to deliver benefits from specific LAHP initiatives	High	Medium	Every LAHP initiative to have a benefits plan as part of the initiation process
\$7	Failure to fund LAHP sufficiently to attract talent and resources to successfully plan, bid for and deliver initiatives	High	Medium	Members to make long-term statements of commtiment to funding.
S8	Failure to establish LAHP as credible entity at local, national and international levels	Medium	Medium	Ensure LAHP has a strong brand in terms of both content and positioning.
S 9	Risk of duplication of work across LAHP and other groups	Medium	Low	Maintain active communications with other groups Establish reporting and governance arrangements to ensure LAHP activity is aligned with aims of the LAHP

Table 4 - Key strategic risks

8.1.2 Tactical risks

Tactical risks are those which relate to the day-to-day operation of the LAHP and which will impact on its effectiveness in delivery. Ultimately cumulative failures associated with tactical risks will impact on the overall sustainability of the LAHP.

Ref	Nature of Risk	Impact	Probability	Mitigation
T1	Failure to create pipeline of significant opportunities	High	Medium	Based on agreed priority areas create plan of opportunity creation and pro-actively. With advice from LAHP Board identify priority sources of opportunities to pro-actively monitor – e.g. ESIF ²⁰ plus key organisations and programmes to proactively contact and develop relationships with – e.g. DH ²¹ , MRC ²² , Wellcome Trust, etc
T2`	Failure of LAHP members to contribute to opportunity proposal development	Medium	Low	For each proposal, develop and agree workplan with relevent members and for collective sign off at LAHP Board
T3	Failure to meet deadlines for submission of opportunities	High	Low	Create resourced workplan for any opportunity proposal, signoff by members and work to plan. Ensure sufficient resource available when qualifying oppportunities and agreeing work plan
T4	Low opportunity conversion rate	Medium	Medium	Create and agree opportunity qualification criteria to ensure that LAHP Core Team invests time in chosen areas with high probability of success. Design and implement professional production and quality management processes
T5	Failure to mobilise following successful opportunity bid	Medium	Low	Every LAHP proposal to clearly set out an agreed delivery process together with roles and responsibilities of the bodies responsible for subsequent implementation.

Table 5 - Key tactical risks

In line with recognised good practice, a risk log should be created, routinely reviewed and reassessed by the LAHP Core Team and progress reported to LAHP members. New risks identified should be added to the list over time, and appropriate mitigating actions identified and implemented. Once the LAHP Core Team is in place and the risk log is established, each risk should be allocated a risk owner, responsible for ensuring that agreed mitigation actions are progressed.

 $^{{\}overset{20}{\text{European Structural and Investment Funds}}}$

²¹ Department of Health

²² Medical Research Council

9. Recommendations and next steps

This final chapter summarises the key recommendations arising from the business case and sets out the timetable for next steps

9.1 Recommendations

While the Leeds health and care system has achieved much to date, there is still a strong case for the formal establishment of the LAHP to capitalise on the substantial assets already operating within the system, and to deliver added value for the LAHP member organisations in order to make a significant and measurable impact on the health and wellbeing of those people living and working in the city of Leeds and – in due course – beyond.

Of the eight English members of the UK Core Cities Group²³ Leeds is the largest of the three not yet to have formally established any form of academic health centre or partnership, the others being Nottingham and Sheffield, although the latter does have a university-led Sheffield Healthcare Gateway.

Although the work of the individual partners to date has proved successful in attracting inward investment, creation of the LAHP on a formal basis should achieve a step change in the development of the city proposition to national bodies - and international bodies - and in attracting both public and private inward investment. It will also enable a more professional and integrated approach across the city to the development of responses to national and international initiatives.

An early task for the LAHP Core Team will be the development of a clear set of priority criteria and a robust opportunity qualification process to ensure that the efforts of the team are focused on a few key activities and not dispersed or duplicate other work.

As example of criteria, any proposed LAHP initiative should:

- ▶ Be associated with one or more the chosen LAHP core or enabling themes
- Address one or more of the Health and Well-Being Board's outcomes
- Require collaborative working from across at least two of the three major service sectors involved in the LAHP namely the NHS, local authority and university sectors.

9.2 Priorities

Priorities for the coming year fall into two categories, establishing the LAHP and delivering LAHP activity.

9.2.1 Establishing the LAHP

The immediate priorities for 16/17 for establishing the LAHP are:

- Create corporate commitment from member organisations for the formal establishment of the LAHP
- Reaffirm the funding commitments already made
- Develop and agree governance structure and delegated authorities
- Agree on the functions and responsibilities of the University of Leeds as the host organisation and the respective obligations (liability sharing) of the other partners to the host while the LAHP is operating as an informal partnership

²³ http://www.corecities.com/

- Recruit or second into the LAHP Core Team to increase capability and capacity.
- Develop brand and establish brand awareness

9.2.2 Delivering LAHP activity

As well as the tasks associated with establishing the LAHP as a sustainable body, the LAHP needs to make progress in delivery.

The 16/17 priority delivery areas for the LAHP have been identified as:

- ► Growth and development of a city-wide approach to personalised medicine and care, involving all LAHP member organisations, building on the early success of securing Leeds as an Innovate UK Precision Medicine Catapult Centre of Excellence
- Co-ordinate the work of the LIQH and the Clinical Senate with the LAHP
- Reassessment of the opportunity for local funding support for implementation of the NHS Innovation Test Bed Programme proposal
- Development of a Future Health and Care Academy to support local workforce development and develop national/international education and training offers, and potentially the development of a health and social care University Technical College.
- Continued development of technological solutions including the Integrated Health and Care Record and associated related digital technologies and telesolutions (e.g. assisted living technologies, condition self- management apps etc.) and utilisation of data analytics.

Additional propositions identified in the course of the development of the business case for further development and action as Innovation Accelerators include:

- Explore opportunities to create Leeds based health, care and wellbeing "think tank" potentially though partnership with an existing relevant think tank group e.g. Health Foundation [11], Kings Fund, and Nuffield etc. Any such "think tank" should reflect the specific needs and characteristics of Leeds and similar cities, for example Northern Health Cities.
- Assessment of the potential creation for an Institute of Health and Care System Flow, extending the current "Improving System Flow" work programme of the Leeds Health & Social Care Transformation Portfolio, drawing on expertise of LIDA and LIQH working together and potentially with Health Foundation support, and building on work of the Y&H AHSN patient flow group.

Table 6 below illustrates the relationship between the priority initiatives/innovation accelerators and the LAHP objectives.

							breadth
Priority Initiatives	Will the project improve health and wellbeing of people in Leeds?	Will the project reduce inequalities for the people in Leeds?	Will the project increase the wealth of the city?	Will the project develop the workforce through training and education?	Will the project join up the system further and deliver more integrated care?	Will the project improve more people's quality of life by access to quality services?	Does the project involve 1-

P1 - Leeds Precision Medicine Catapult	Yes	Yes	Yes	Yes	Yes (depending on detailed definition of scope)	Yes	Yes
P2 - Integration of LIQH/ Clinical Senate	Yes	Yes	Potentially	Yes	Yes	Yes	Yes
P3 - Local Test Bed Programme	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P4 - Future Health and Care Academy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P5 - Develop and adopt technical solutions	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6 - Basis of project selection

9.3 Next steps

The health and care system in England is at a critical point as the vision set out in the Five Year Forward View moves into implementation with 50 Vanguard communities across the country exploring New Models of Care, including the West Yorkshire Urgent Care Vanguard.

Individual NHS organisations are required to produce individual operational plans for 2016/17 and every health and care system will be required to work together to produce – by June 2016 - a Sustainability and Transformation Plan, a separate but connected strategic plan covering the period October 2016 to March 2021.

In parallel, and to the same timescale, local health and care systems have been tasked by NHS England to develop local Digital Roadmaps setting out plans for the digitization of local services.

Locally the Leeds Health and Wellbeing Strategy are in the process of being launched, setting out the local priorities across the city for the coming [n] years.

These strategy and planning initiatives need to result in aligned plans for delivery, whether through individual organisations or by system wide bodies on their behalf, notably the Leeds Transformation Board.

The LAHP has an important contribution to make to help local organisations and the Transformation Board deliver this challenging agenda by providing a source of additional capacity and capability, helping accelerate implementation and reduce risk.

Next steps and key milestones for the LAHP are

Date	Action	
Jan-March 2016	Revise business case in light of LAHP Planning Group and Board feedback	
	Develop LAHP branding and corporate communications style pack	
April 2016	Initiate LAHP Core Team recruitment process	
20th April 2016	LAHP business case presentation at LCC Council Exec	
	Hold inaugural meeting of formal LAHP.	
	Begin to identify senior leadership for the LAHP	
	Undertake launch event with associated press announcements	
March – June 2016	LAHP Planning Group supporting STP/LDR development processes.	
April 2016 - thereafter	Begin LAHP business development and opportunity management processes	
Autumn 2016	Review option to establish LAHP as a private limited company	
March 2017	Prepare first LAHP Annual report	
April 2017 (earliest)	Provisional transition to private limited company	

Table 7 - Next steps/milestones

Appendix A Local Initiatives

Local initiatives and "city assets" include:

- Appointment of Leeds as one of the national Health and Social Care Integration Pioneer communities 24
- Appointment of West Leeds Primary Care 2.0 project²⁵ within Wave 2 of the Prime Ministers GP Access Fund (formerly Challenge Fund)
- Development and operational deployment of the Leeds Care Record²⁶ and the subsequent creation of the Ripple²⁷ community as part of NHS England's Integrated Digital Care Technology Fund²⁸ supporting the deployment of Integrated Digital Care Records
- ► The development of the multi-disciplinary, multi-organisational Leeds Institute of Data Analytics (LIDA)²⁹, building on the appointment of the University of Leeds as a centre for two major programmes for data intensive research the MRC Centre for Medical Bioinformatics and the ESRC National Consumer Data Research Centre.
- ► The creation of the Leeds Institute of Quality Healthcare (LIQH)³⁰ as a partnership between some of the LAHP partners and with the services delivered a relationship by the Centre for Innovation in Health Management (CIHM) of the University of Leeds in partnership with Intermountain Healthcare, USA and Ècole Nationale d'Administration Publique (ENAP), Canada.
- ► The appointment of Leeds as a centre of excellence within the UK Precision Medicine Catapult 11 programme involving members of the LAHP and the Northern Health Science Alliance 32
- ► The establishment of the EPSRC National Facility for Innovative Robotic Systems ³³ at the University of Leeds involving research on robotic therapies, assistive robotics and surgical technologies
- ► The national programme of work being led by the Institute for Health and Wellbeing at Leeds Beckett University on the whole systems obesity challenge arising from the Foresight report "Tackling Obesity"³⁴
- ► The continued development of the state-of-the-art Clinical Skills Suite 35 at Leeds Beckett University

https://www.england.nhs.uk/pioneers/2015/03/30/welcome/

²⁵ https://www.england.nhs.uk/ourwork/futurenhs/pm-ext-access/wave-two/about-wave-two-pilots/%20-%2024

http://www.leedscarerecord.org/

http://rippleosi.org

²⁸ https://www.england.nhs.uk/digitaltechnology/info-revolution/idct-fund/

http://www.lida.leeds.ac.uk/

http://www.leedsqualityhealthcare.org.uk/

³¹ https://pm.catapult.org.uk/

http://www.thenhsa.co.uk/

³³

http://www.leedsbeckett.ac.uk/wholesystemsobesity/

- The nationally and internationally recognised work of the Centre for Innovation in Health Management at the University of Leeds and their reputation for co-production and enhancing social value in communities.
- The operation and further development of Leeds City Council's Assistive Living Centre 17. Phase 1 of the ALC brings together a range of operational assistive technology services in a custom designed building. Phase 2 is under development and is exploring how to capitalise on the cluster of operational assistive technology services to offer new facilities such as an Assistive Technology Smart House, an Assistive Technology Retail Unit and an Assistive Technology Smart Innovation Lab.
- The work of the Leeds based mHabitat digital health innovation team ³⁸
- The Leeds node of the Open Data Institute 39 with its specific focus around open data for health and wellbeing
- The facilities for supporting innovation and growth at locations such as the Leeds Innovation Centre 40, including the Innovation Hub and the Bioincubator as well as the Tech Nation Future Labs initiative
- ► The Leeds Data Mill⁴¹ city open data platform owned and managed by Leeds City Council and backed by the Cabinet Office's Release of Data Fund
- ► The six year "Time to Shine" project funded by the Big Lottery programme ⁴² which Leeds is one of 15 Ageing Better areas addressing the health and wellbeing issues created as a result of social isolation
- Submission of a strong and coherent multi-agency proposal for the Leeds City Region Sandbox as part of the NHS Innovation Testbed⁴³ programme

This set of locally led initiatives is complemented by the major presence in the city of four of the most important UK NHS bodies

- NHS England, responsible for over £106bn annual healthcare spend
- ▶ the Health and Social Care Information Centre, which hosts national health and social care data collections,

http://www.leedsbeckett.ac.uk/our-university/facilities/clinical-skills-suite/

³⁶ http://www.cihm.leeds.ac.uk/

³⁷ http://www.leeds.gov.uk/c/Pages/assistedliving/default.aspx

³⁸ http://wearemhabitat.com/

http://leeds.theodi.org/

http://www.leedsinnovationcentre.co.uk/offices

http://leedsdatamill.org/

⁴² https://www.biglotteryfund.org.uk/global-content/press-releases/england/080914 vh ab 6m-to-tackle-leeds

⁴³ https://www.england.nhs.uk/ourwork/innovation/test-beds/

- ▶ the NHS Leadership Academy, responsible for leadership development and training throughout the NHS
- ▶ Health Education England, the national body for organising healthcare education and training.

Leeds is also home to the

- National Coordinating Centre of the Clinical Research Network of the National institute for Health Research
- Northern regional headquarters of Public Health England
- headquarters of NHS Employers

Appendix B Documentation Provided

Ref	Title	Date
1	LAHP Board 31/3/15 : Minutes of LAHP Board meeting 31/3/15	31/03/2015
2	LAHP Board 22/5/15 : Overview of the LAHP	22/05/2015
3	LAHP Board 22/5/15 : Resourcing issues during setup phase	22/05/2015
4	LAHP Board 22/5/15 : Minutes of LAHP Board meeting of 22/5/15	22/05/2015
5	LAHP Planning Group 2/6/15 : Public Health England – Leeds Unitary Authority Health Profile 2015	02/06/2015
6	LAHP Planning Group 26/8/15 : Individual Partner self-interest Goals.	26/08/2015
7	LAHP Planning Group 26/8/15 : Funding Model.	26/08/2015
8	LAHP Board 21/9/15 : Minutes of meeting 21/9/2015	21/09/2015
9	LAHP Board 21/9/15 : Establishment of the LAHP.	21/09/2015
10	LAHP Board 21/9/15 : IoT Cities Demonstrator Competition.	21/09/2015
11	LAHP Board $21/9/15$: Update on discussions with the Health Foundation.	21/09/2015
12	LAHP Board 21/9/15 : Precision Medicine Catapult.	21/09/2015
13	LAHP Planning Group $15/10/15$: LAHP Goals and $2015/16$ Work Plan Project Selection.	15/10/2015
14	LAHP Planning Group 25/11/15 : Leeds Health and Social Care Academy	25/11/2015
15	LAHP Planning Group 25/11/15 : Precision Medicine Catapult	25/11/2015
16	LAHP Planning Group 25/11/15 : Social work education and training	25/11/2015
17	LAHP Planning Group 25/11/15: Establishment of the LAHP	25/11/2015
18	LAHP Planning Group $25/11/15$: LAHP Contributions in Year 2 and Invoicing Procedure	25/11/2015
19	lem:LAHP Board 27/11/15: Opportunities for Leeds to bid for Data, Digital and Technology Enabler Care Funds	27/11/2015
20	LAHP Board 27/11/15 : Leeds Health and Social Care Academy	27/11/2015
21	LAHP Board 27/11/15 : Establishment of the LAHP	27/11/2015
22	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	17/12/2014
23	Leeds City Council: Smart Cities: Delivering a Sustainable City in the Digital Age - Author: Dylan Roberts	17/12/2014
24	Leeds City Council: Report to Executive Board - Proposal for a LAHP - Author: Rob Kenyon	18/03/2015
25	Leeds City Council: Leeds 2015 City Priority Plan 2011-2015	
26	Leeds City Council: Draft Executive Summary of Leeds JSNA 2015	07/05/2015
27	Leeds City Council: JSNA Background paper for themed CLT sessions	01/08/2015
28	Leeds City Council: Initial Summary for the 2015 Indices of deprivation	01/10/2015
29	Leeds City Council: Strong Economy, Compassionate City. Report to Executive Board Author: Tom Riorden	21/10/2015

Ref	Title	Date
30	Leeds City Council : A Business Case for a Leeds Academic Health Partnership - Author : Dr Ian Cameron / Martin Farrington	9/3/16
31	Inspiring Change : Leeds H&SC Transformation Portfolio Forward Look	
32	Inspiring Change : 2015/16 Local Savings Schemes and review of Financial Plans - Author Kim Gay	07/10/2015
33	Leeds City Region : Health and Innovation Hub of the UK :	04/04/2014
34	Due North: Inquiry Panel on Health Equity for the North of England - Author: University of Liverpool and Centre for Local Economic Strategies	01/09/2014
35	Presentation Pack: North Regional Tripartite Event - Author: NHS England, Monitor, TDA	04/11/2014
36	Growing science and medical technology companies in Leeds and Leeds City Region Author: Creative Space Management, Leeds City Council, University of Leeds	01/03/2015
37	EY: UK region and city economic forecast – Yorkshire and Humber EY	01/12/2015
38	Small Report of Big Impact Leeds City Region Enterprise Partnership :	
39	Innovate UK: Leeds Bid to NHS Health and Care Test Beds programme	
40	University Alliance : Building Healthy Cities	Undated
41	Presentation pack: international Economic Conference Health and Innovation panel pwc	01/07/2014
42	Leeds Health and Social Care economy - 5 year challenge. : West & South Yorkshire and Bassetlaw Commissioning Support Unit / ${\sf EY}$	06/07/1905
43	Integration Pioneers. : https://www.england.nhs.uk/pioneers/2015/03/30/welcome/ NHS England	
44	$Prime\ Ministers\ Challenge\ Fund\ Wave\ 2\ pilots: https://www.england.nhs.uk/ourwork/futurenhs/pm-ext-access/wave-two/about-wave-two-pilots/%20-%2024\ NHS\ England.$	
45	Assisted Living Centre: http://www.leeds.gov.uk/c/Pages/assistedliving/default.aspx Leeds City Council.	
46	2015/16 Financial Plan Pressures. : Author: Inspiring Change.	
47	Proposal for a SPV - role scope and function of a SPV - a discussion paper : - Author : Colin Mawhinney	
48	Leeds Clinical Skills Strategy :	03/07/2015
49	Transformation Portfolio Board: LIQH: Framework for the Future	07/10/2015
50	"Slide for DLT":	
51	Leeds Economy Briefing Note Issue 62 Index of Deprivation 2015 : Author : Economic Policy, Leeds City Council	01/10/2015
52	Health North: Proposals from the Northern Health Science Alliance	
53	Leeds Partnership Governance Review : Summary of Workshop 2 Model Design. Final Draft 1.3	14/09/2015
54	Realising the benefits of real-world data : Author : Marie Kane, North West EHealth	07/07/2015
55	Health Profiles Local Authority Summaries – Yorkshire & Humber: - Author: Public Health England	07/07/2015
56	City-wide informatics : the journey towards integrated health systems and intelligence in Leeds. Strategy Pack :	Undated
57	Making Leeds to best city for health and wellbeing: A one-side summary:	Undated
58	NHS Health and Care Test Beds: Initial Bid Assessment Feedback	23/11/2015

Ref	Title	Date
59	Connected Health Cities : Application Feedback	Undated
60	Leeds - A city of Health and innovation: Author Leeds and Partners	
61	City-wide Transformation Update	Oct/Nov 2015
	Leeds Health & Social Care Transformation Portfolio	
62	UCL Partners Annual Report 2014/15	2015
63	Transforming care: A national response to Winterbourne View Hospital https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213215/final-report.pdf	December 2012

Appendix C Interviews

As part of the development of the business case interviews were held with a range of local stakeholders to understand their position more clearly, and explore ideas and proposals.

Who	When	Where
Sir Alan Langlands	16 December 2015	University of Leeds
Vice-Chancellor, University of Leeds		
Jo Anne Wass	2 December 2015	University of Leeds
University of Leeds		
Councillor Lisa Mulherin	11 December 2015	Leeds Town Hall
Executive Board member for Health and Wellbeing and Adults, Leeds City		-
Council		
Kim Gay	4 December 2015	Thorp Park
Director of Finance, Leeds Transformation Board		
Dr Simon Stockhill	16 December 2015	Harrogate
Chair Leeds Institute of Quality Healthcare		
Medical Director Leeds West CCG		
Nigel Grey	16 December 2015	St Paul's House
Chief Officer, Leeds North CCG		
Dr Jason Broch	16 December 2015	St Paul's House
Clinical Chair, Leeds North CCG		
Colin Mawhinney		
Healdh of Health Innovation, Leeds Health Partnerships		
Professor Paul Stewart	17 December 2015	University of Leeds
Faculty Dean of Medicine & Health, University of Leeds.		
Professor leuan Ellis	27 November 2015	Leeds Beckett University
Faculty Dean of Health & Social Sciences, Leeds Beckett University		
Tom Bridges	11 December 2015	Leonardo Building
Chief Economic Development Officer, Leeds City Council		
Andy Harris	9 December 3105	Thorpe Park
Chief Clinical Officer, Leeds South & East CCG		
Phil Corrigan	10 December 2016	Wira House
Chief Executive, Leeds West CCG		
Professor Carlton Cooke	16 December 2015	Leeds Trinity University
Head of School and Social and Health Sciences, Trinity University		

Appendix D Organisational Forms

This Appendix summarises three of the potential organisational forms that the LAHP could choose to adopt.

Social Enterprise

The term "social enterprise" describes a purpose and is not a legal form. The term is typically attributable to entrepreneurial organisations with primarily social objectives and where surpluses are reinvested into the business or community.

Advantages

- ► May be more attractive to public sector organisations as several of the forms (e.g. CiC) have to satisfy a "community interest test"
- ► Trusts and Charitable Incorporated Organisations (CIOs) can achieve tax breaks (exempt from corporation tax on profits, VAT exemptions and business rates reliefs). Community Benefit Societies can also be treated as such.
- There are tax benefits to a charity with a commercial arm can generate profit and gift aid it back to partners
- ► There are social enterprise models that provide protection of assets and profits alongside the potential to attract government funding and private investment
- ► A social enterprise may be simpler to manage than a joint venture and simpler to set up than a special purpose vehicle
- ▶ Democratic, can have a culture led by members and user

Disadvantages

- The forms limited by share may not be able to gain grant funding
- Uncertainty over the interests of communities
- Potential loss of influence over quality and strategy depending on particular form and voting structure selected
- Share ownership or guarantees would need to be negotiated for CiC form

Joint Venture

A joint venture

- Can be contract based or organisational (e.g. set up company with members contributing equity)
- ▶ Can involve multiple parties, private and / or public, contribute equity for the development of assets
- May have complex governance if there are differing interests amongst partners
- Requires a shareholders' agreement covering: valuation of intellectual property, control of company, number of directors and rights of founders, whether an exec board or founders manage the organisation, the transferability of shares, a dividend policy, winding up conditions, confidentiality of know how, first right of refusal on shares.
- Need for clear and strong contract management of partners

Advantages

 Joint venture partners can provide commercial focus and funding for growth

Disadvantages

- ► Potentially complex governance
- Need for clear and strong contract management

Publicly owned Special Purpose Vehicle

A publicly owned SPV

- ▶ Is a legal entity created to fulfil specific, time limited objectives, and isolate an organisation from financial risk
- ▶ Will have assets transferred to a "Special Purpose Vehicle" (SPV). The SPV signs a contract with the assets' owners and with subcontractors to develop the asset
- Can also have an NPD (Non-Profit Distribution model) for enhanced stakeholder involvement in management of projects, no dividend bearing equity and capped private sector returns in the event of private sector participation

Advantages

- Can focus partners on time specific objectives and serve as a transition option
- ► Capped returns ensure that an 'acceptable' level of investment return is made by private sector and that returns are transparent
- Operational surpluses generated by the project company can be reinvested in the public sector
- Public interest is represented in the governance of the NPD structure

Disadvantages

- Requires clear contracting and effective contract management
- Potential tax implications

Appendix E Similar partnerships

Summary details for the following

Anglia Ruskin Health Partners

- Birmingham Health Partnership
- Bristol Health Partners
- Imperial Health Partners
- Kings Health Partners
- Liverpool Health partnership
- Manchester Health Partners
- Newcastle Academic Health Partnership
- UCL Partners

Anglia Ruskin Health Partnership

Status

Private company limited by guarantee without share capital (08016710). Incorporated April 2012

Mission

To work together to deliver demonstrable benefits to the health, well-being and social care of our local population, through innovation, education and research.

Composition

- 1 university
- 1 Council
- 6 NHS providers
- ▶ 1 social care provider

Finances

In 2014/15 7 of the 9 partners contributed £40,000 while 2 (Council and Social Care provider) each contributed £25,000, making a total of £330,000.

Accounts for 2014/15 indicate that the Partnership received a total income of £346,701 which was spent on £157,645 was spent on staff costs with the remainder - £189,577 - being spent on other operating costs including subscriptions figure of £50,000, possibly their contribution to UCLP. There was no surplus or loss.

Strategic Programmes

- Quality improvement in governance
- Deteriorating Patient Programme
- Integrated Leadership Programme
- 7 day working

Link

www.arhpartnership.com

Birmingham Health Partnership

Status

Not clear - informal collaboration.

Purpose

The long term objectives of Birmingham Health Partners are to

- improve healthcare;
- lacksquare contribute to the local economy through job creation and inward investment into the biomedical sector, and
- increase public engagement and education about biomedicine and clinical research through increased enrolment into early and late phase clinical trials

Its short term strategic objectives focus on the identification, adoption and spread of innovation and best practice, through the alignment of healthcare delivery, research and training

Composition

- 2 NHS Foundation Trusts
- University of Birmingham

Strategic Programmes

Multiple

Link

www.birminghamhealthpartners.co.uk

Bristol Health Partners

Status

Not clear - informal collaboration

Purpose

▶ To improve the health of those who live in and around Bristol and the delivery of the services on which they rely

Composition

- 3 NHS CCGs
- 3 NHS Trusts
- City Council
- 2 Universities

Finances

In 2014/15 they reported income from 6 NHS organisations (3 CCGs, 3 providers) of £220,000 and income from 2 academic partners of £120,000 totalling £340,000. City Council are recorded as a partner but no reference to their financial contribution.

Strategic Programmes

- Future health and care workforce
- Using data better
- Health and care leading sustainability

Link

www.bristolhealthpartners.org.uk

Imperial College Health Partners

Status

Private company limited by guarantee without share capital (08109403). Incorporated June 2012.

Mission

- ► To deliver demonstrable improvements in health and wealth for the people of North West London and beyond through collaboration and innovation, focused on:
 - Enabling the discovery of best practice
 - Diffusing best practice systematically
 - Supporting wealth creation in the sector and beyond.

Composition

- Six hospital trusts
- Two mental health trusts
- One community health trust
- ► Eight clinical commissioning groups
- ► Three universities

Strategic Programmes

- ► Future Neurorehabilitation
- Cancer
- ► COPD
- Medicine Optimisation
- Mental Health
- Intelligent use of data
- Diffusion of innovation
- Exploiting research
- Patient safety
- Overseas development

Link

www.imperialcollegehealthpartners.com

Kings Health Partners

Status

Private company limited by guarantee without share capital (0733 6065). Incorporated August 2010.

Company Objects

The advancement of education health, learning and resource and in furtherance thereof

- To pioneer better health and well-being locally and globally through integrated excellence in research education training and clinical care for the benefit for patients
- ▶ To improve health and well-being across ethnically and socially diverse communities and work to reduce inequalities
- To develop an academic health science centre that draws upon academic expertise in medical science and also in basic science, social science, law and humanities
- ▶ To work innovatively with stakeholders in the redesign of care pathways including the delivery of care closer to home

Composition

- ▶ 3 NHS Foundation Trusts
- Kings College London University

Finances

Accounts for 2013/14 indicate no turnover. Similar position reported for 2012/13.

Link

www.kingshealthpartners.org.uk

Liverpool Health Partnership

Status

A private company limited by guarantee without share capital (0825 9570). Incorporated in October 2012

Company Objects

- Bring together word class researchers and clinicians to focus on preventing and treating diseases in order to translate research and teaching excellence in the most efficient way into patient benefits
- Apply for and maintain official recognition from the Government of its status as an Academic Health Science Centre in accordance with criteria which may be set from time to time by Government (provided that the Directors consider that such status i in the best interest of the company and its Objects)

Composition

- 9 NHS providers (7 members and 2 affiliates)
- 1 Clinical Commissioning Group (affiliate)
- 2 academic bodies (both members)

Finances

Funded by contributions from 9 members – University of Liverpool, 7 NHS providers and the Liverpool School of Tropical Medicine

In year to 31/3/15 basic subscription from 9 members of £80,000 p.a. (expect for one contributing £40,000). Additional income from 3 affiliates (2 NHS provider trusts plus Liverpool CCG) of £80,000 per annum. Total subscription income £920,000

Operational processing managed by University of Liverpool.

	2014/15	2012/14 ⁴⁴
Income	£991,762	£1,435,544
Less Project Costs	£117,240	£214,144
Less Administrative Expenses	£729,470	£700,847
Operating profit / loss	£145,052	£520,533

Link

www.liverpoolhealthpartners.org.uk

Manchester Academic Health Science Centre

Status

⁴⁴ 12 March 2012 to 31 March 2014

Private Limited Company by guarantee without share capital use of 'Limited' exemption (07083059). Incorporated in March 2009

Purpose

To create a biomedical/health hub of global significance which delivers major benefits for patients and populations (7 more specific objects listed)

Composition

- 4 NHS Foundation Trusts
- 1 Mental Health and Social Care Trust
- ▶ 1 Clinical Commissioning Group
- University of Manchester

Finances

In 2012/13 each NHS body contributed £80,000 while the University of Manchester contributed £167,900, a total of £647,900)

Funding Agreement over period August 2013 to July 2018 commits MAHSC members to increased contributions of between £286,000 and £326,000 per annum.

In 2013/14 contributions from each member ranged from £270,000 (Manchester Mental Health and Social Care Trust) to £335,900 (University of Manchester), a total of £2,073,520.

Figures for the last set of accounts (2013/14) show that running costs of the MAHSC were almost £800,000 out of a total expenditure of a £1,969,000 (40%)

	2013/14	2012/13	2011/12	2010/11
Income	£2,079,769	£647,900	£624,500	£560,750
Less Project Costs	£1,171,856	£64,218	£88,404	£1,250
Less Administrative Expenses	£796,854	£706,615	£490,764	£480,557
Operating profit / loss	£111,059	-£122,933	£45,332	£78,943

Strategic Programmes

•	Population health and implementation	► Mental health
•	Women and children	► Cardiovascular
•	Inflammation and repair	► Cancer

Link

www.mahsc.ac.uk

Newcastle Academic Health Partnership

Status

Not clear, very recent - anticipated to be informal collaboration

Purpose

To deliver world-class healthcare through collaborative scientific research, education and patient care and mobilise the collective capabilities of the three organisations in support of economic growth.

The alliance will focus on delivering scientific advances that improve physical and mental health in common age-related chronic diseases, such as dementia and musculoskeletal disease. It will also specialise in improving understanding and treatment of cancer, diseases that affect the brain and those affecting children.

Composition

- 2 NHS Foundation Trusts
- Newcastle University

Strategic Programmes

- Age-related chronic disease
- Translating clinical research into practice

Link

www.nahp.org.uk

University College Partners Limited

Status

Private company limited by guarantee without share capital (06878225). Incorporated in April 2009, although operating informally before then for about 4 years.

Company Objects

Advancement of education, health, learning and research in furtherance thereof

- ► To bring together word class researchers and clinicians to focus on preventing and treating diseases in order to translate research and teaching excellence in the most efficient way into patient benefits
- Apply for and maintain official recognition from the Government of its status as an Academic Health Science Centre in accordance with criteria which may be set from time to time by Government (provided that the Directors consider that such status i in the best interest of the company and its Objects)

Mission

Our members are translating cutting edge research and innovation into measurable health improvement and wealth creation for patients and populations through a portfolio of programmes and cross-cutting themes.

Achievements include

- Saving lives Supported the partners to reduce cardiac arrests in hospitals by up to 50%.
- Reducing strokes Introducing a preventative strategy across the whole partnership could prevent 700 strokes each year and save over 200 lives.
- Building capability among staff Enabled the partners to train over 13,000 staff to improve care for patients with dementia.
- Giving patients access to life-saving treatments and technologies Sped up approvals for clinical trials across the partnership, attracting industry partners to invest in research in the region.
- Preventing disease and diagnosing early Focused on where we can make the most impact for patients with, or at risk of, heart disease and cancer with the aim of saving over 1,000 lives each year.

Composition

40 organisations covering NHS providers, academic bodies and other national bodies (NIHR, Health Education England). Note no commissioners or local government.

Notes

UCLP provides employment for 140 members of staff, 78 direct employees the majority of whom are on fixed-term contracts, and 62 on secondment. However unlike LAHP proposition, a large number of UCLP staff are involved in project delivery.

ULP turnover for 2014/15 was £14.7m (2013/14 - £9.5m) with associated expenditure of £14.5m (2013/14 - £9.4m) creating a surplus of £0.2m.

Turnover breakdown is

- AHSN funding £3.9m
- Partner contributions £1.26m

- NHS funding 45 £8.4m
- Non-NHS funding 46 £1.09m

Link

www.uclpartners.com

 $^{^{45}}_{\rm includes\ NHS\ England,\ Health\ Education\ England}$ $^{46}_{\rm includes\ charities,\ pharmaceutical\ companies.}$

EY | Assurance | Tax | Transactions | Advisory

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com.

Ernst & Young LLP

The UK firm Ernst & Young LLP is a limited liability partnership registered in England and Wales with registered number OC300001 and is a member firm of Ernst & Young Global Limited.

Ernst & Young LLP, 1 More London Place, London, SE1 2AF.

© 2016 Ernst & Young LLP. Published in the UK. All Rights Reserved.

This material has been prepared for general informational purposes only and is not intended to be relied upon as accounting, tax, or other professional advice. Please refer to your advisors for specific advice.

ey.com