Overview

Across England, there are 15 Academic Health Science Networks (AHSNs). We were established by NHS England in 2013 to spread innovation at pace and scale in order to improve health and generate economic growth.

As the only bodies that connect NHS and academic organisations, local authorities, the third sector and industry, we are catalysts that create the right conditions to facilitate change across whole health and social care economies, with a clear focus on improving outcomes for patients.

This means we are uniquely placed to identify and spread health innovation quickly and at serious levels, by driving the adoption and spread of innovative ideas and technologies across large populations.

“This is the story of what we are doing and how we are doing it. We hope you will find it useful, and use it often.”

The AHSN Network - collective impacts in numbers

- **£20 million support** for businesses through the SBRI Healthcare programme
- Enabling **33,000 patients** to self-manage with Flo Simple Telehealth
- **3 million patients** benefiting from innovations via the NHS Innovation Accelerator
- More than **800 jobs** created or safeguarded
- Running **15 Patient Safety Collaboratives**, which are preventing avoidable harm
- Supporting **7 test bed sites**, which link industry into the NHS and improve outcomes for citizens
- Supported over **500 new products or services** to be co-developed and / or supported into the NHS
- At least **365 strokes**, one every day, prevented by our work, saving lives, reducing disability and **saving almost £8.5m** to the NHS and social care
Delivering the Five Year Forward View requires radical care redesign within and across local systems. It involves changing the gearing between formal care and mobilising the potential of patients and their communities to stay healthy and well. It means realising the potential of technology and data to change care delivery models. It is also about engaging and organising the NHS workforce very differently, in new roles as part of new teams.

This report illuminates how AHSNs are right in the thick of supporting these changes to create a more sustainable NHS. They are providing a safe and expert place in their geographies to unlock innovation.

Uniquely, AHSNs connect industry partners, universities, local communities and the NHS to speed up the initial take up and subsequent spread of innovations. In doing this, their mission is not just to benefit the NHS but directly and demonstrably to support economic growth and create jobs.

AHSNs will remain an important part of the health and care landscape. The opportunity and challenge for each individual network, as well as for all networks working as a collective, is to build on the progress they have made to date, by creating the greatest possible value for the patients, communities, NHS partners and the taxpayer.

As our Academic Health Science Networks, or AHSNs across England enter the fourth year of operation, we are delighted to work together to present our second national impact report. This report demonstrates the depth and breadth of our work – not just within our own areas, but also our collaborations to address issues of national importance.

I am often asked, ‘what role do AHSNs play in the health system?’ Our remit is clear: we connect NHS and academic organisations, local authorities, the third sector and industry. We do this to help create the right conditions to achieve change across whole health and social care economies, with a clear and consistent focus on citizens, service users and patients.

Alongside transforming services through innovation, we play an important role in generating economic growth. As examples: we enable companies to grow and create jobs by supporting the NHS and industry to engage productively; and by meeting the health needs of our populations, we help people keep well and in work.

Each AHSN works within its own area to develop projects that meet the diversity of their local populations and healthcare challenges. Crucially, AHSNs also work together on key areas which include promoting economic growth; diffusing innovation; medicines optimisation; improving quality and patient safety; putting research into practice; and national programmes, such as SBRI Healthcare and the NHS Innovation Accelerator.

Across England, AHSNs are helping to implement the NHS Five Year Forward View. This impact report provides examples of where we have made progress under each of the Forward View themes, and where we are delivering on economic growth.

Our message for this report? On our own, we are strong; delivering new innovations into the NHS, improving patient experience and enabling economic growth for our regions.

Together, we are making a huge collective impact for the wider health system, united by the common goal of making care better for citizens, service users and patients.

AHSNs are flexible regional organisations. We have a small staff base but use our extended networks across regions to achieve great impacts for our partners. Our impact rests in our ability to bring people, resources and organisations together quickly, delivering benefits that could not be achieved without these connections.

Each AHSN works within its own geographical area to develop projects and programmes which reflect the diversity of our local populations and healthcare challenges. However, we all share the following priorities:

- Promoting economic growth: fostering opportunities for industry to work effectively with the NHS.
- Diffusing innovation: creating the right environment, and supporting collaboration across boundaries, to adopt and spread innovation at pace and scale.
- Improving patient safety: using our knowledge, expertise and networks to bring together patients, healthcare staff and partners to determine priorities and develop and implement solutions.
- Optimising medicine use: ensuring that medication is used to its maximum benefit – improving safety and making efficient use of NHS resources.
- Improving quality and reducing variation: by spreading best practice, we increase productivity and reduce variation, which should improve patient outcomes.
- Putting research into practice: our strong links with academia mean we are uniquely placed to support the translation of research into clinical practice.
- Collaborating on national programmes: our unified programmes focus on delivery of the SBRI Healthcare initiative supporting small-to-medium enterprises, the NHS Innovation Accelerator, Patient Safety Collaboratives and medicines optimisation.

Our licence from NHS England sets our four broad objectives:

• Focus on the needs of patients and local populations.
• Build a culture of partnership and collaboration.
• Speed up adoption of innovation into practice to improve clinical outcomes and patient experience.
• Create wealth through co-development, testing, evaluation and early adoption.

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Our collective impact

The Five Year Forward View, published in 2015 identified three gaps that must be closed in order to deliver health and care provision in England; health and wellbeing; care and quality; and finance and efficiency.

AHSNs developed a range of projects that seek to better tackle these gaps. While these projects have started in individual regions, we have actively enabled the work’s impact to extend well beyond a single region.

In this section, we show how AHSNs have increased the risk of having a stroke - a major cause of death and disability - and this can be reduced by using anticoagulation medication. If AF patients who needed it took the correct medication, almost 12,000 strokes could be avoided each year.

Across the AHSN Network diagnosis and management of AF is a major focus and through our Improvement Directors Forum formed the AHSN Network AF Community to spread and adopt the work nationally. The AF Community aspires to prevent an additional 5,000 strokes in people over the next five years.

Examples of work advancing in this area include:

- **Don’t Wait To Anticoagulate** - quality improvement programme, which supports primary care to reduce the burden of AF-related stroke. This programme is increasing rates of anticoagulation, and optimises therapy for AF patients unstable on current medication. Led by West of England AHSN.

- **AliveCor** - a highly effective mobile heart monitor that detects heart arrhythmias, including instantly highlighting AF in electrocardiograms. Being adopted by the Innovation Agency, Oxford, Imperial College Health Partners, UCLPartners and North East and North Cumbria AHSNs.

- **Increasing anticoagulation rates in London** – following success in Camden in 2014, London AHSNs are working together with GP practices across London. Based on early results, 70-90 lives will be saved and almost £700,000 in added value will be delivered to the NHS (net health cost) each year.

- **The AF landscape tool** - providing data to influence decision-makers and monitor the progress of improvement. Led by Greater Manchester AHSN and is supported by powerful infographics, provided by East Midlands AHSN.

- **Healthy Futures** – a commissioning strategy leading to an additional 1,940 patients receiving anticoagulation in just seven months. Led by Yorkshire & Humber AHSN.

The system needs to network its best practice collaboratively across all health economies: AHSNs are a means to that end.

“it is no secret that the NHS is under extreme pressure to deliver sustainable transformation over the next few years. Demand is increasing, and funding is tight. Against this backdrop, I remain strongly committed to the AHSNs, and to ensuring they help drive the uptake of innovation which is so critical to our future. Theirs is a unique offering, initiated by the NHS in the knowledge that this would be a new way to bring the benefits of innovation to patients and to population health more generally.

I am encouraged by the individual and collective work of the AHSNs since their inception, and their achievements to date which this report clearly illustrates. I look forward to their continuing development and contribution to the priorities identified in the Forward View and successive NHS Business Plans over future years.”

Sir Malcolm Grant, Chairman, NHS England

Telehealth and digital technology

New technologies can help the NHS in many ways, such as self-management, remote monitoring and access to interventions, therapies or GPS. People who feel empowered and confident to take an active role in their healthcare will have improved outcomes. One hugely successful example is Flo Simple Telehealth. This system is helping to support people and increase patient activation.

The Flo system uses text messages to support people to manage their own health and wellbeing. Flo can help people in many different ways: to manage diabetes; to live with chronic obstructive pulmonary disease; and even to breastfeed.

This system has now been widely adopted across the UK, reaching over 70 health and social care organisations with 33,000 patients registered for a wide range of conditions, using clinically-approved pathways: an increase from 11,000 registered patients in 2015. It is even in use in the USA as part of a healthcare programme for military veterans, and is being taken on as a national AHSN theme.

Another example is Digital Health.London, a virtual digital institute to help provide a single way into London’s NHS for small-to-medium sized digital enterprises and to increase uptake of digital innovation in healthcare and the capital. This work is a collaboration between the Health Innovation Network, Imperial College Health Partners, UCLPartners, MedCity and the NHS England Digital team.

National sharing on mental health

We ran our first intra-AHSN learning event focused on mental health in March 2016. Examples of AHSN mental health projects include:

- **Bradford checklist toolkit** – expanding the use of checklists to improve the quality of physical health checks for people with serious and enduring mental illness: Yorkshire & Humber AHSN.

- **iTHRIVE** - a comprehensive new approach to child and adolescent mental health services, rolling out to 11 NHS Innovation Accelerator sites: UCLPartners.

- **DeAR GP and House of Memories** – two approaches to improve training, screening and empathy in dementia care, particularly in care homes: Health Innovation Network and the Innovation Agency.

- **RAID** - an effective whole system approach to prevention of mental health crisis: West Midlands AHSN.

- **MINDset** - a quality improvement toolkit for mental health: West of England AHSN.

Atrial fibrillation, or AF causes irregular or abnormally fast heart rate and it affects around one million people in the UK. AF markedly increases the risk of having a stroke - a major cause of death and disability - and this can be reduced by using anticoagulation medication. If AF patients who needed it took the correct medication, almost 12,000 strokes could be avoided each year.
Our collective impact

NHS Innovation Accelerator

The role of the AHSNs in driving innovation is featured in the 2016/17 NHS England Business Plan: "During 2016/17 we will support our Academic Health Science Networks to help drive the uptake of innovation in the NHS at local and regional level" (p48).

In 2015/16 UCLPartners, East Midlands, Yorkshire & Humber, the Innovation Agency and Imperial College Health Partners AHSNs were partners in delivering the NHS Innovation Accelerator (NIA) programme. To date, some of the NIA's key achievements include:

• Three million patients are benefiting from new innovations, including: apps, safety devices, online networks, and a host of other new technologies and services.
• Supporting 17 fellows to scale their tried and tested innovations through the programme, which involves mentorship from seasoned healthcare innovators.
• Generating almost £8 million in investment (primarily through the private sector and charities).
• Signing contracts with 66 NHS organisations, representing 16% of the NHS.

The role of AHSNs has been noted by the NIA programme, which involves mentorship from seasoned healthcare innovators.

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"There is a real need across the NHS to speed up the process of innovation, from initial invention right through to mass uptake of the most successful across the health and care system. Together with their mentors, who are some of the most high-profile leaders in England, the NIA fellows will provide models and lessons for us in all how to do that."

Professor Sir Bruce Keogh, Medical Director, NHS England

Accelerated Access Review

Collectively, AHSNs are supporting the government’s Accelerated Access Review which aims to speed up access to transformative health technology that can change the lives of NHS patients, service users and citizens. AHSNs have been identified as one of the factors which will drive and enable the review. We have helped the review take place, participated in a sub group working directly with the Office of Life Sciences and we have supported a wide range of events to gain comments on the review from a range of partners.

Test beds

AHSNs are supporting the test beds announced by Simon Stevens at the World Economic Forum in Davos in January 2016. Test beds are taking place across the UK to test the impact of “combinatorial innovation”. In these seven localities, frontline health and care workers are pioneering and evaluating the use of novel combinations of different technologies and innovations in service delivery. This might be a new model for people with dementia that combines wearable devices linked into mobile technology, implemented alongside tech-enabled housing with new roles helping support them stay well at home. Successful innovations will then be available for other parts of the country to adopt and adapt to the particular needs of their local populations.

All of the test beds involve AHSNs. These are:

1. The Long Term Conditions Early Intervention Programme: Greater Manchester AHSN.
2. RAIDPlus integrated mental health urgent care test bed: West Midlands AHSN.
4. Care City: a London-based project to enable implementation and evaluation of nine innovations that will improve care delivered to people with long-term conditions, improve the experience of people with dementia, and improve resilience of carers.

Place-based planning

AHSNs are supporting change across the health and care landscape, driving innovation at a range of levels – local, regional and national. All parts of the country are currently engaged in creating collaborative Sustainability and Transformation Plans. AHSNs are playing an active role in supporting development of these plans and will be central to successful implementation. As neither commissioners nor providers, AHSNs have a unique role in systems as an honest broker. AHSNs are experts in implementation and have the knowledge, relationships and resources to operate credibly at a micro-level with regional partners to understand issues at a granular level, and importantly to help solve them.

Vanguards

NHS England has identified 50 vanguard sites for the new care models programme. AHSNs are collaborating with their local vanguards and the patients they serve in a wide range of ways to help support improvement and integration of services, and advance the introduction of new models of care.
Our collective impact

Patient safety and medicines optimisation

AHSNs lead a network of 15 Patient Safety Collaboratives to tackle the leading causes of avoidable harm to patients. These collaboratives are tasked with empowering local patients and healthcare staff to work together to identify safety priorities and develop solutions.

These priorities are then implemented and tested within local healthcare organisations, before being shared with the other collaboratives. South West AHSN developed the Life quality improvement project documentation and sharing platform, which is now in active use at six other AHSNs and their Patient Safety Collaboratives. For a full update on activity nationally visit www.ahsnetwork.com and download the progress report.

Using the collaboratives, AHSNs are working with NHS England and the Association of the British Pharmaceutical Industry to promote best practice that ensures patients get the best outcomes from medicines. Many AHSNs across the country are carrying out ‘transfers of care’ projects within the medicines optimisation programme. (See p15-16).

100,000 Genomes

This ground breaking NHS England led project will sequence 100,000 genomes from around 70,000 people and will be used to help deliver personalised medicine and potentially deliver more effective treatments for cancer and rare diseases. To support this project, 13 NHS Genomic Medicine Centres have been established with a clear remit to:

- Consent and recruit eligible patients.
- Collect and process samples for extraction.
- Collect data, validate and communicate whole genome sequencing results.

AHSNs are actively supporting delivery of this project, including starting to build its legacy, helping to form international collaborations and having significant impact on its pace and achievements. AHSN support has been most valuable in building CEO awareness and engagement across the system and helping to drive inward investment and strategic insight in mainstreaming genomics for the future. AHSNs have also proved to be effective in communicating genomics to the public. For instance, West Midlands AHSN has spread the message across the region and supported collaboration across 18 acute trusts involved via three Genomics Medicine Ambassadors, as well as through co-ordinated public involvement and communications. The Health Innovation Network has brought Macmillan Cancer Support and Genetic Alliance UK into a partnership with acute trusts and university partners to shape the way patients and their families are supported and guided through the project. Imperial Health College Partners, the Innovation Agency and West Midlands AHSNs ran regional consultation workshops on behalf of NHS England to advise on the next stages of the project.

“The UK is already a leader in genomic technologies and the world renowned structure of the NHS allows us to deliver these advances at scale and pace for patient benefit. I’m delighted that AHSNs have stepped up to the challenge and are providing a growing level of support to the project. I am sure they will make a highly valuable contribution to ensuring we achieve our goals.”

Professor Sue Hill, Chief Scientific Officer for England

The health and wellbeing gap

Since our inception, AHSNs have worked towards delivering improved clinical outcomes and patient experience by collaborating with multiple teams and organisations. We focus our efforts on significant health, care and wellbeing challenges in our regions, and can show successes in every area of England.

The health and wellbeing gap described by NHS England highlights diabetes and mental health as areas of concern. Below is a selection of case studies which demonstrate how we are beginning to accelerate the closure of these gaps, and tackle other important challenges.

100,000 Genomes

In the UK, it is expected that by 2030 4.6 million people will develop Type 2 diabetes, driven by increasing obesity. NHS England’s Annual Report 2014/15 estimates that £1 in every £10 of NHS funding is spent on diabetes.

**Hypoglycaemia care pathway for people living with diabetes**

A hypoglycaemia pathway developed by South East Coast Ambulance Service NHS Foundation Trust in collaboration with Merck Sharp & Dohme Limited, is being implemented across the entire Kent, Surrey and Sussex region with the assistance of Kent Surrey Sussex AHSN and the South East Clinical Network. Patients were missing out on education and intervention to prevent further 999 call-outs, following episodes of severe hypoglycaemia. Impacts from two pilot Clinical Commissioning Groups (CCGs) showed:

- 15 fewer ambulance trips to hospital per month in North West Surrey and Surrey Downs CCGs.
- Estimated savings in reduced admissions, emergency medicine costs and call-outs of £317,925 for the two CCGs in nine months.
- Savings could exceed £650,000 through swift follow-ups and improved self-care.

Kent Surrey Sussex AHSN is working with clinical leads and commissioning managers in CCGs to implement the new pathway to suit their locally commissioned services and to integrate it into future diabetes services. The South East Coast Ambulance Service NHS Foundation Trust is now using new blood glucose meters, supplied by Nova Biomedical, to ensure accurate blood glucose readings, which are fed back to GPs and are improving communication.

The project was shared with the Health Innovation Network, and following work with the London Ambulance Service NHS Trust a new hypoglycaemic pathway that meets the National Institute for Health and Care Excellence guidelines.

**The Diabetes Improvement Collaborative**

The Health Innovation Network has undertaken work in South London which is improving outcomes for people with Type 1 diabetes. The national insulin pump audit showed that only 6% of people with Type 1 were using National Institute for Health and Care Excellence recommended pump therapy, even though evidence indicated that 15-20% of patients could benefit. In South London uptake of insulin pumps was between 3% and 15%.

The Collaborative consists of ten secondary care diabetes teams and more than 60 healthcare professionals, pump manufacturers and people with Type 1 diabetes, focusing on improving access to technologies and patient education. **Results:**

- 350 more patients gained access to pump therapy.
- Insulin pump uptake increased by 30.8% thanks to the Collaborative.
- Pump usage across South London in April 2016 was 11.9% (UK average 6%).
- Sustainable plans are in place to reach at least 15% of Type 1 patients by 2018.

Martyn Hicks Photography, Courtesy of Yorkshire & Humber AHSN
The health and wellbeing gap

"Congratulations on this great work. Type 1 is a really important area and I am hugely grateful for the focus you are bringing to the diabetes space.”

Professor Jonathan Valabhji, National Clinical Director for Obesity and Diabetes, NHS England

NHS Diabetes Prevention Programme

The NHS Diabetes Prevention Programme was announced in 2015 and the first wave covers 26 million people in 11 of the 15 AHSN regions. Local health services will work with their chosen provider/s to deliver a service for their area.

People with severe mental ill health have a reduced life expectancy of 15-20 years, with an estimated annual cost to the economy of £105 billion.

**Mental Health**

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**People recovering from mental illness – using robust evidence to support change**

The Oxford AHSN Anxiety and Depression Clinical Network increased recovery rates by 10%. These improvements came from comprehensive data collection, accessing high-quality research; identifying patient outcome themes; and putting the right training in place.

An independent return on investment assessment by the Office of Health Economics and Rand Europe concluded that: “The project has led to an estimated net saving of £750,000 of NHS money, mainly through reductions in physical healthcare needs, and has helped an estimated 384 additional people return to work. The Oxford AHSN has therefore added significant value in this area, by improving patient lives, cutting NHS costs, and contributing to the wider economy.”

An additional 3,199 patients have been helped to recovery, with recovery rates consistently in the high end of the 50% range (the national average is approximately 45%). Oxford AHSN is running a series of ‘how we did it’ workshops for NHS England nationally.

“Thank you for your support. I can confidently say that we would have not secured this without the skill, expertise and perseverance from East Midlands AHSN. We are very fortunate to have this level of expertise to help us in the East Midlands.”

Melanie J Davies CBE, MB ChB MD FRCP FRCGP, Professor of Diabetes Medicine and NIHR Senior Investigator

### Impact Report 2016

**Individual placement and support - helping people into employment**

Individual placement and support is an evidence-based approach to supporting people with severe and enduring mental illness to get employment or to stay in education or training. It is consistently proving the most effective approach to helping people who want to work.

The East Midlands AHSN works with four mental health providers to ensure a consistent approach. A study by NIHR Collaboration for Leadership in Applied Health Research and Care East Midlands to implement individual placement and support in Nottingham showed that 59% of service users were able to attain paid work or work-related opportunities. The project is reducing variation, assisting with navigating complex commissioning arrangements, and engaging the national Centre for Mental Health. Greater Manchester is now looking to develop a similar project.

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**Early intervention in psychosis pathway**

Imperial College Health Partners worked with local teams and service users to co-design and deliver a pathway for early intervention in psychosis, adopted by all North West London mental health providers. The AHSN’s involvement was instrumental in supporting local teams to adhere with National Institute for Health and Care Excellence guidance on waiting times for mental health patients, and to collect and share clinical data that enabled service user outcomes to be measured against targets for delivering evidence-based care. Imperial College Health Partners also supported the co-design process for a new portal. Patients Know Best, enabling service users to access their clinical records and share their information at the point of care.

**Results:**

- Provider oversight of patient care records and waiting time data across institutional boundaries.
- Reduced referral time to assessment – average patient seen within 2.2 weeks, down from an average of 7.7.
- Creation of a patient-based portal, enabling service users to access their medical records and manage their care.
- Increased access to services for patients.

The pathway has been adapted and adopted by Wessex AHSN (TRiumph - Treatment and Recovery In Psychosis), with interest from Yorkshire & Humber, West of England, South West and North East and North Cumbria AHSNs.
The health and wellbeing gap

Faecal Microbiota Transplantation - effective treatment of recurrent Clostridium Difficile Infections

Wessex AHSN supported the creation of a Faecal Microbiota Transplantation bank in Portsmouth through their Innovation and Wealth Creation Accelerator Fund. Transplantation is the National Institute for Health and Care Excellence recommended provision of screened faecal matter via a nasal tube into the small intestine, restoring the balance of bacteria in patients. This is tackling Clostridium Difficile infections, which are a major cause of mortality. Each infection costs £5,000-10,000, with an average length of stay of 27 days and 22% chance of relapse. Around 2,500 people die from infections each year.

Wessex AHSN helped overcome the many logistical issues involved in the process, which was previously a major barrier to diffusion and spread. The first 23 patients have now received a transplant and the service will reach 30 patients within a year, with an expected cure rate of 94%. It can be expected to have saved nine lives in a year. The bank serves the region, including places as far afield as Jersey. It is a centre of excellence, and work has started with public sector organisations delivering the programme which is now being rolled out regionally.

Workplace wellness

Yorkshire & Humber AHSN has worked in partnership with Sheffield Hallam University and the National Centre for Sport and Exercise Medicine to roll out a highly effective workplace wellness programme to the NHS, public and private sectors. The ‘Working for a healthier tomorrow’ report stated that poor staff health and wellbeing is estimated to cost the UK economy £100 billion a year. Public sector organisations have historically lost over eight days of working time per employee due to sickness absence each year.

The programme provides staff health and wellbeing benefits, reducing sickness absence and improving attendance. Results from the pilot:

- For every £1 spent on the programme, the NHS as an employer saved £3 costs.
- 45% were identified as having one or more risk factors of cardiovascular disease (CVD), of which 42.9% improved their health by reducing at least one risk factor.
- A health economics evaluation showed that reductions in CVD risk factors are linked to improved productivity and outcomes, with a potential return on investment of 302% - 571%.

Two local authority, seven NHS and three private sector organisations deliver the programme which is now being rolled out regionally.

The care and quality gap

The NHS is recognising the importance of reducing variation, delivering value, supporting new care models/vanguards and the use of digital technology in healthcare. The following examples reference these areas.

Harnessing digital technology

FARSITE – rapid searching web application

Greater Manchester AHSN and the Greater Manchester Clinical Research Network (GMCRN) are accelerating health innovation through helping researchers and clinicians improve the way data is handled and studies are planned and conducted. FARSITE was developed by NorthWest EHealth, a partnership between the University of Manchester, Salford Royal NHS Foundation Trust and Salford Clinical Commissioning Group. The tool confidentially finds and contacts groups of patients in a population. It can be used to gauge the feasibility of and to recruit for clinical trials, medicines reviews, and also used for risk stratification. Results:

- Operational across the four northern AHSNs, covering over 1.3 million patients.
- Greater Manchester outperforms all other regions of the country for recruitment to life sciences trials as a consequence of FARSITE, for example, more than 4,500 people from 33 GP surgeries with were recruited to a care evaluation programme within 16 weeks with FARSITE.
- Hitachi is building FARSITE into their large-scale diabetes prevention programme, as it can rapidly establish which patients should be targeted for preventative therapy.
- Greater Manchester is currently reviewing whether FARSITE could be used to screen high-risk patients and help GPs target therapeutic interventions for stroke prevention.

In the last 12 months, the GMCRN has completed more than 250 feasibility searches for industry and academia studies in primary care.

After rolling out in Lancashire, FARSITE is also being extended across the Innovation Agency’s entire geography over the next two years.

Transfers of care using e-referrals and medicines adherence – improving patient safety and outcomes

We know that things can go wrong when patients need to move between settings, sometimes leading to readmissions, poorer outcomes and poor patient experience. Good referral of care regarding medicines from hospital to community pharmacy is helping to change this.

Based on evaluation from Wessex AHSN in the Isle of Wight, an electronic referral template using PharmOutcomes is resulting in readmissions being halved, and on average four beds saved per medicines review. AHSNs collaborated to agree a common data set for referrals and data collection to support evaluation of these new pathways, which have now been endorsed by the Royal Pharmaceutical Society and are available for all AHSNs to use.
In the North East and North Cumbria AHSN, hospital pharmacy staff are using the system successfully to refer patients to their community pharmacist and the project is improving communication and assisting patients with their medicines. Results:

- Six acute trusts are now making referrals to a potential 750 community pharmacies for follow up support with their medication after discharge from hospital.
- More than 750 patients have now received follow-up support.
- Community pharmacists reported that nearly 90% of patients had a better understanding of their medicines and would be therefore more likely to adhere to their prescribed medicine regimes.
- The project team has won two prestigious HSJ Awards in 2015, in the categories for ‘Enhancing Care by Sharing Data and information’ and ‘Most effective adoption and diffusion of best practice’.

This work has been taken on and adapted by the South West AHSN, where existing services are being used in community pharmacy to support patients with their medicines following discharge from hospital. Improving these transfers of care is helping patients better understand their medicines, improve patient outcomes, increase adherence, and reduce readmissions and medicines waste. They are working with Yeovil hospital and Somerset Local Pharmaceutical Committee on the implementation, funding them to help develop a package that can be shared across the South West and supporting The Royal Cornwall Hospital to move to electronic referrals instead of faxing.

Neurorehabilitation - e-referral pathway improving patient care and reducing variation

Imperial College Health Partners has co-designed and implemented a new system to help overcome the fragmented rehabilitation care pathway for acquired brain injury patients. The previous pathway was difficult to navigate, as it relied on a complex system of referrals between multiple providers, delaying timely rehabilitation and overall negatively impacting on patient experience and outcomes.

Imperial College Health Partners worked with commissioners, providers, academia and NHS England London to co-design the new system. Results:

- More accurate patient assessments through standardised provision of information on referral.
- Time between patient referral and admission to services reduced by almost half - 17.37 days to 9.78 days.
- Reduced costs on average by £1,700 per patient and saved 482 acute bed days.
- Staff satisfaction drastically improved, having previously been weighted towards 1-3 out of 5, staff now report exclusively 3-5.
- As a result of the programme’s success, the eight referring Clinical Commissioning Groups have agreed to fund the initiative going forward, guaranteeing sustained improvement.

Increasing patient access to innovative treatments and clinical trials

UCLPartners has partnered with Quintiles, the world's biggest clinical research organisation, to increase access to clinical trials and innovative treatments for over 4.2 million people in north central and east London and Essex. UCLPartners is now the highest performing Quintiles Prime Site in the world, with 619 patients recruited to trials in 2015/16.

Through UCLPartners and the Clinical Research Network North Thames, hospital trusts in north central and east London harmonised the approvals process and reduced the average time taken to approve trials from 104 to 17 days. The success of this work led to UCLPartners becoming a Quintiles Prime Site, meaning they get first notification of all trials taking place in Europe.

Prime Site has now been extended to Essex, increasing patient access to innovative treatment and supporting research capabilities. Results:

- An additional one million people have access to clinical trials since its expansion to Essex.
- For every 100 patients recruited, trusts receive an average of £1 million.
- For every 100 patients recruited, trusts also save approximately £6 million in costs of treatment if those patients were not on trials and were accessing normal care.
- UCLPartners is now replicating the model for other companies.

Dementia memory clinics - thousands of patients getting better care

All memory clinics in Oxford have been brought up to the standard of the best in the region through a comprehensive national accreditation programme. Memory clinics provide valuable support to people with dementia and their carers. Having identified unwarranted variations, Oxford AHSN appointed a specialist nurse to work with six different memory clinic teams. The aim was to bring them up to the standard of the best through the Royal College of Psychiatrists (RCP) Memory Services National Accreditation Programme (MSNAP), which provides a structured means of working and embeds consistent high standards. Results:

- By January 2016, all six memory clinics the Oxford AHSN worked with had been accredited by the RCP MSNAP, three of them receiving an excellent rating.
- Improvements have been embedded into dementia services, with benefits felt by 8,500 patients and their carers, with lots of positive feedback.
- Policies and procedures within memory clinics have been improved.
- Multi-disciplinary and inter-agency working has improved.

“Without your input, this service most definitely wouldn't have been as dynamic as it now is, and goes far beyond what I had anticipated at the start of this journey so thank you.”

Matt Harvey, Chief Officer, Somerset Local Pharmaceutical Committee

Lindy Jones, Chair of the Quintiles Europe, Middle East and Africa Board
The care and quality gap

“When we were first considering taking our memory service through the MSNAP review process, the prospect was somewhat daunting and overwhelming. We were extremely grateful that the Oxford AHSN was able to provide a very experienced clinician to act as an overall lead.”

Frances Finucane, Team Manager, North Buckinghamshire Memory Clinic

Developing a strong Board to improve safety culture – AQuA Programme

NHS Boards hold the ultimate responsibility for the quality and safety of care their organisation provides.

The Advancing Quality Alliance (AQuA) programme brings together Boards to explore how their organisation currently measures and monitors safety, using a proactive systems approach. Their Board development programme is consistently extremely highly rated by delegates who include executive and non-executive directors coming together to learn how they can more effectively provide the top leadership for safety in their organisation.

Eastern AHSN is developing a quality improvement infrastructure to support continued service improvement and innovation. The programme is based on the substantial experience of AQuA in delivering a similar programme in the North West funded by the Innovation Agency and Greater Manchester AHSNs throughout the lifespan of the networks. Using this experience existing programmes have been tailored to meet Eastern AHSN’s needs based on virtual design testing with system leaders in the region.

Five NHS trusts from across the East of England have participated in the programme, with more planning to do so. East Midlands AHSN also approached AQuA to work with them to deliver a similar programme. Eastern and East Midlands AHSNs have agreed a reciprocal approach, to allow trusts in either region to access the most convenient dates. So far in the East Midlands, the AHSN has enabled seven organisations to participate, with a total of 72 senior staff attending two-day board development sessions. The West Midlands AHSNs is also investigating the use of AQuA.

AHSNs are assisting with closing the finance and efficiency gap in many ways. Whether by delivering direct savings through our programmes, supporting test bed sites, making better use of technology, leveraging non-NHS funding or supporting scientific research and innovation, AHSNs are at the forefront of delivering new ways of working and collaborations with diverse partners, with patients at the heart of our work.

Patient safety - reducing falls, improving safety, saving money

Falls are estimated to cost the NHS more than £2.3 billion per year. Inpatient falls can lead to hip fractures and other injuries, while even falls without harm can lead to loss of confidence and increased length of stay for patients. Yorkshire & Humber AHSN’s Improvement Academy is actively working with more than 66 frontline teams across 23 organisations to roll out the Huddle Up for Safety Healthcare (HUSH) programme. Results:

- The average step change reduction in falls is 50%.
- One ward moved from an average of one fall per week to repeatedly achieving 30 days between falls, and in some cases up to 60 days.
- A preliminary health economics evaluation showed a return on investment of 388% - savings of £185,000.
- £500,000 funding received from the Health Foundation’s Scaling Up initiative.
- To date, 1,394 patients who would have fallen haven’t and £967,000 has been saved from direct care costs.
- The programme is being extended to include pressure ulcers, care of deteriorating patients and reducing delayed discharges.

PolyPhotonix – light therapy mask improving patient experience and saving costs

Current treatments for diabetic retinopathy are expensive and invasive, but sleep masks enhance patient experience as there is no need for expensive injections and the condition can be treated and monitored at home. It is estimated that savings of over £1 billion per year could be made if this new non-invasive technology were rolled out across the UK.

The Noctura 400 mask is currently being sold privately, and is in the process of National Institute for Health and Care Excellence approval for use in the NHS. North East and North Cumbria AHSN supported local company PolyPhotonix, as it was new to the market. PolyPhotonix successfully bid for SBRI funding.

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Following successful trials, the sleep mask is now commercially available with sales for 2015/16 estimated to be in excess of £3 million. PolyPhotonix’s workforce is expected to triple over the next two years to 60 employees: jobs directly created as a result of SBRI funding. The company has secured approximately £2 million of additional investment, and North East and North Cumbria AHSN has worked closely with Kent Surrey Sussex and South West AHSNs to extend the project’s reach through trials. In addition the Innovation Agency has provided procurement support to get the product into the NHS.

“The there is no contest that I would choose the mask over the laser treatment. It is easy to use, and removes any traumatic experience that occurred when having my eyes lasered. I still wear the mask at night and would encourage anyone with diabetes and suffering from retinopathy to do the same.”

Anonymous, patient

STarT Back – keeping patients well and at work

Back pain is the most common reason why middle-aged people visit their GP and indirect economic costs to the UK are over £10 billion a year (Pain Journal). It is the second most common reason for sickness absence, and for persistent disability and work loss in people under 65. Some patients are over-treated, while others fail to get the right care.

West Midlands AHSN supported the wider adoption of STarT Back, a stratified care tool for low back pain. Patients are screened for risk and placed into three risk groups, with matched pathways to target the right treatment to the right patient. STarT Back has now been adopted into several high quality clinical care pathways. Results:

- Improved clinical outcomes and reduces back pain disability.
- Reduced sickness absence, physiotherapy wait times, GP consultations, referrals to secondary care and referrals for imaging.
- Cost-effective, saving £34 per patient and £675 in societal costs.
- AHSN support has meant that an additional 18 community physiotherapy services nationally have adopted the STarT Back approach.
- The Innovation Agency is rolling out the tool across their geography. More than 80 GP practices in Liverpool have adopted the tool so far.
- At least eight CCGs across the UK are adopting the approach.
- The STarT Back tool has been translated into 12 languages.
- The programme team is working with services overseas, including Australia and the USA.
- STarT Back has been included in the Allied Health Professional Musculoskeletal toolkit, Map of Medicine and the Royal College of General Practitioners’ e-learning module.

“The STarT Back tool represents a high-value tool - this is what we need more of in the NHS.”

Sir Muir Gray, Director of the National Knowledge Service and Chief Knowledge Officer, NHS England

AHSNs bring together industry partners with the health and social care sectors, speeding up development of innovations and their uptake into practice. We help life sciences and healthcare technology companies navigate the complex NHS marketplace, driving economic growth by creating an environment more conducive to effective working between industry and the health and social care sectors.

“AHSNs connect academics, NHS, researchers and industry to accelerate the adoption and diffusion of innovation helping to catalyse economic growth at the same time as driving improvements in the quality and efficiency of care. They are working with partners locally and nationally to develop innovation ecosystems right across the NHS, so that innovation is championed by all - from patients to CEOs. Nationally, they are core to the delivery of the Small Business Research Initiative, National Innovation Accelerator programme and test beds - three fundamental national delivery platforms for innovation.”

George Freeman, MP, Minister for Life Sciences

Drivers economic growth

AHSNs have developed the national Innovation Pathway framework. This pathway clarifies our offer to all potential industry and enterprise partners. It articulates the offering from AHSNs and showcases our services to industry and to NHS innovators. Benefits include:

- A consistent approach across AHSNs.
- A single contact point: helping companies navigate the complex health system.
- Signposting to local partners and regional and national funding sources (such as the SBRI Healthcare programme) and support within the system for companies awarded funding.
Each AHSN will provide support along the Innovation Pathway for innovations of high potential in relation to local health needs and supporting economic growth. This might be in terms of:

- Stimulating inward investment.
- Supporting the export of UK products.
- Keeping people well and in work.
- Increasing productivity.

Some examples of our impacts on behalf of companies follow in this section. This is just a small selection and further details can be found at www.ahsnnetwork.com and individual AHSN websites.

Helping Zilico with adoption of their ZedScan technology to help detect cervical cancer

The ZedScan system uses measurement of electrical resistance to help detect cervical cancer cells. It can identify patients who require treatment at first visit, reducing the number of cervical biopsies performed and pinpointing the optimum site for biopsy.

Greater Manchester AHSN helped the surgeon inventor win his first deal with an NHS trust. Following this, the National Institute for Health and Care Excellence developed a Medtech Innovation Briefing to encourage its wider use. Central Manchester University Hospitals NHS Foundation Trust has procured a further contract and as of March 2016, more than 1,570 patient examinations had been completed in the first adopting hospital trust. Clinical results:

- A greatly improved and far less distressing process for women with cervical cancer.
- 40% reduction in the number of follow-up appointments in Sheffield.
- Reduction in ‘over-treatment’ of patients as a result of improved diagnostic capability.
- 11% drop in the number of biopsies undertaken over the last two years.
- Reduction in patient waiting times and immediate results for patients.

“...the benefit to patients is that they will get an immediate and objective result. It will reduce the need for biopsies, sparing patients a painful process often associated with bleeding afterwards.”

John Tidy, Professor of Gynaecological Oncology, Sheffield Teaching Hospitals NHS Foundation Trust and Clinical Founder, Zilico Ltd

Leanvation – speeding up the adoption of innovative surgical gloves

The Innovation Agency championed and assisted Leanvation, a manufacturer of innovative latex-free surgical gloves, to break through barriers and join the NHS Supply Chain (NSC). The AHSN helped the company overcome rigorous processes and secure three framework award contracts with Shared Business Services, Health Trust Europe and NSC.

Leanvation surgical gloves are now available to all NHS trusts throughout the country. The company recently received £500,000 venture capital investment. Three jobs have been safeguarded and an additional six posts have been created in this St Helens-based start-up.

“This is the breakthrough we have been waiting for. It is only as a result of the intervention of the AHSN’s commercial team that we were able to break through barriers to joining NHS frameworks, such as a requirement for a £1 million turnover.”

Dr. Jonathan Day, Managing Director, Leanvation
Driving economic growth

SBRI Healthcare

SBRI Healthcare is both a funding initiative run by the AHSNs and the source of some of the clearest examples of the benefit to companies from interaction with the AHSNs. On behalf of NHS England, the AHSNs host this £20 million programme to develop innovative products that address unmet health needs while creating UK-based industry and jobs.

SBRI run competitions inviting companies to come forward with their ideas and new technologies. It offers a fast track to funding for developing products matched to needs the NHS has specified. Critically, AHSNs provide support to companies by mobilising the expertise available in their localities, before, during and after the SBRI process. AHSNs are uniquely placed to assist with NHS evidence requirements, market insights and adoption and procurement challenges. This approach is really delivering impact.

Last year’s highlights include:

- **Six** new clinically-led competitions to attract businesses’ interest.
- **46** Phase 1 and 2 contracts awarded, with a total value of £573.5 million.
- **258** applications from industry assessed.

Impact since NHS England funding began in 2012/13:

- **Approximately 250** jobs created or safeguarded.
- **Annual savings forecast for 2013-15** £723 million.
- **£56.7 million** total funds awarded (Phases 1 and 2).
- **181** contracts awarded (Phases 1, 2 and 3) and **20** products already on the market.

“The biggest impact of SBRI funding has been in accelerating the commercial side of the business and considerably increasing the pace of activity with the NHS.”

Richard Kirk, Chief Executive, PolyPhotonix

Aseptika - home test for predicting lung infection flare-ups

Aseptika developed the Activ8rlives self-care system and home-use sputum test to give patients with chronic obstructive pulmonary disease (COPD) early warning of chest infections. This means that they can be treated effectively at home and reduce unplanned hospital admissions. Estimated savings to the NHS could exceed £50 million each year (SBRI Healthcare website). It has also secured a US patent. Results:

- Reliably predicts exacerbations 7-21 days before the patient would typically seek help.
- Patients find the self-monitoring tools and Activ8rlives website easy to use (more than 80,000 people have signed up), showing very high adherence rates.
- Aseptika was involved in the Eastern AHSN COPD test bed bid, and has been selected as an innovation partner for the Sheffield test bed site, where it will be integrating the self-monitoring package into new respiratory disease care pathways.

Advice from Eastern AHSN led to Aseptika gaining SBRI funding to develop its self-care system for people with COPD. Aseptika now funds five full-time staff and two researchers, with testing underway in Eastern and Wessex AHSNs.

Owlstone’s lung cancer breathalyser – helping develop a promising, early stage, technology

Owlstone developed a handheld breathalyser which can detect early stage lung cancer. The low-cost, non-invasive test has the potential to be used in national screening programmes and primary care settings. It could diagnose cancer early, transforming survival rates and potentially saving the NHS £245 million within three years, saving 10,000 lives.

Thanks to using SBRI funding, using microchip technology originally developed to ‘sniff out’ explosives, Owlstone reprogrammed the software to detect chemical biomarkers found in the breath of people who have lung cancer. They collaborated with researchers and designers from across Europe to design user-friendly breathalyser hardware. Eastern AHSN was able to connect the company to NHS organisations who wanted to trial and test their diagnostic. Results so far:

- **Laboratory testing showed** that the chemical sensor can detect all 12 biomarkers, potentially detecting lung cancer at an early stage.

“The SBRI Healthcare competition process enabled us to make a real difference in the care of long-term respiratory disease. It has been more than just funding; without it, the novel products we are developing would never have been developed.”

Kevin Auton, Managing Director, Aseptika

“Owlstone’s technology has the potential to deliver a quick and easy-to-use breath test, and SBRI Healthcare funding is allowing us to turn that potential into a reality.”

Billy Boyle, Co-Founder, Owlstone

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Contact details and regional footprint

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Note: East Lancashire Hospitals NHS Trust sits with Greater Manchester AHSN

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