

2019/20

Impact

review

Using local insights
to address
national priorities

Driving safe
behaviour change
across the system

**Our
purpose is to
turn great ideas
into positive
health impact**

Find out inside about our
impact in the Eastern
region and beyond

Innovators...
mind the gap
Innovation²:
the multiplier
effect of diversity

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If you would like to get in touch or find out more about our work and the innovations in this review, please contact enquiries@eahsn.org

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Keep in touch with our work

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 Eastern AHSN

 EasternAHSN.org



Making an impact

This review of our impact between April 2019 to 31 March 2020 was mostly business as usual, where we increased the breadth and depth of our collaborations with our regional health and care partners, academia, citizens and industry to deliver some major successes in terms of patient and investment impact.

Highlights of the year included our work on the national atrial fibrillation programme, in which we helped to reduce the number of avoidable strokes in our region. On other national programmes, we supported some of the region's most vulnerable mental health patients by working to integrate their care (see p10-11) and we helped to reduce the number of hospital readmissions occurring through medication errors (see p10-11). Elsewhere, we are delighted with the progress of Gut Reaction, the Health Data Research Hub for Inflammatory Bowel Disease, which we deliver in partnership with 17 organisations and is led by Cambridge University Hospital NHS Foundation Trust, which hosts the National Institute for Health Research (NIHR) BioResource. We have made progress to build an innovative cloud-based research environment that the team hopes will transform the understanding of inflammatory bowel disease (see p20-21).

Our Patient Safety Collaborative also made significant progress, supporting two major initiatives in maternity and neonatology, developing their work in care homes and helping our local hospitals to improve the safety of emergency laparotomy, a major invasive surgical procedure (see p15-17). And we have significantly increased the guidance we provide to our region's innovators in health and care, introducing our first scale-up academy (see p26) and a wider collaborative

programme called MedTechBOOST (see p30). We have also been thrilled to see the progress of innovators we have built longer-term partnerships with, including Little Journey, Just One Norfolk and Medic Bleep. We hope that you will enjoy reading about all these success stories and more, in this review.

But the advent of the COVID-19 pandemic changed everything. Our NHS colleagues responded with remarkable speed, reconfiguring hospitals in record time to create dedicated capacity and facilitating primary care colleagues to continue their work through the wholesale adoption of remote consultation technologies. At Eastern AHSN, we repositioned our work in March to provide some direct support to the frontline and to our regional teams managing the crisis. Three months on, though, the health and care sector is facing a difficult legacy. This includes a backlog of procedures ranging from elective surgery to cancer treatment and the question of how we respond to the crisis that overtook many of our care homes.

As the first wave of the virus starts to subside, we have the opportunity to reflect on the changes made to our health and care service and consider those we should continue to drive forward and those which may not have worked so well. Our plans for the coming year will be responsive to the needs of our partners and there is now a real opportunity to showcase the amazing range of innovators, start-ups and industries working across the East of England with the potential to relieve the extraordinarily challenging period now facing us. At Eastern AHSN, our focus for the coming year will be to signpost our NHS health and care partners to the most relevant of these new ideas while providing practical support, where we are able, to some of the most pressing issues facing staff and patients.



Piers Ricketts
Chief Executive



Elisabeth Buggins
Chair

Meeting the coronavirus challenge together



The COVID-19 pandemic had a huge impact on healthcare services, requiring an unprecedented national response. Piers Ricketts, CEO of Eastern AHSN and Chair of the AHSN Network, reflects on how the AHSN Network responded quickly to support the health and care system and on our work with partners across the East of England

As the majority of NHS staff were redirected to provide support during the pandemic, particularly on the frontline, the AHSN Network also quickly realigned our teams to support the national and regional responses where it was most needed. The key was to be clear about exactly where we would be able to add the most value and prioritise those areas of work. I've described below some of the support we have provided so far nationally and in the East of England:

Leveraging our knowledge

In the first week of the crisis, Eastern AHSN contributed to the national AHSN Network collation of more than 200 proven innovations in diagnostic testing, remote consultation and monitoring. These had the potential to support the health and

care service to change the way in which it delivered care in the context of a rapidly spreading new infectious disease. Additionally, we supported TechForce19, a call out – led by NHSX – for digital innovations to assist the elderly, vulnerable and self-isolating during lockdown. We helped the national team to evaluate more than 1,600 submissions, as a result of which 18 innovators received up to £25,000 each to rapidly develop their ideas with the support of the AHSN Network.

Going digital

The transformation of primary care and outpatients to a primarily telephone and online model was essential to enable clinicians to support their patients safely. Working nationally with our network of digital leaders and chief information officers and alongside the NHS, the AHSNs led on the rollout and adoption of existing procured solutions for remote triage and consultation. At Eastern AHSN we also developed a reporting dashboard to track and monitor implementation across our region. Additionally, we led another digital workstream to review and update cyber security measures and support the secure delivery and installation of new IT equipment across primary care. We shared our learnings from these initiatives, both across our region and on a national level.

This huge leap forward in digital capability in our region allowed us to develop the capacity for remote triage and digital consultations between primary care and residential and care homes. Eastern AHSN staff were redeployed alongside the AstraZeneca field force working, pro bono, to embed these solutions in different care settings.

The focus on digital innovations was not restricted to primary care:

- We supported Medwise.AI in developing an open-access, clinically curated, AI-powered platform to provide the NHS with free and fast access to official guidelines, share learnings and best practice during the COVID-19 crisis.
- Working closely with Cambridgeshire and Peterborough Clinical



Commissioning Group, we are evaluating the use of remote monitoring devices for patients within care homes and will share our learnings across the region.

- We helped Cambridge University Hospitals deliver cardiac rehab physiotherapy services online via the Active+me programme, which combined virtual exercise classes, health coaching and the use of remote monitoring technology to track participants' health and wellbeing.
- The Just One Norfolk service, which we helped establish to support parents with health information 24/7, had a 300% rise in people accessing information online, assisting to reduce pressure on services.
- We helped staff at Royal Papworth Hospital show their gratitude and publicly praise colleagues using the Laudix app, which had a record-breaking 100-plus callouts of praise for staff during the peak of the crisis in March.

Supporting the acute sector and care homes

As a national network, we have been active in supporting the procuring and delivering of personal protective equipment (PPE). AHSNs have helped to track supplies, collaborated with industry and universities to develop PPE, triaged offers from companies, provided communications support and shared resources. At Eastern AHSN, we supported a volunteer initiative – ShieldNHS – with the University of Cambridge Judge Business School, to design, manufacture and distribute more than 40,000 face shields to NHS staff.

The wealth of clinical and operational expertise we have at Eastern AHSN meant we could redeploy staff to join the frontline workforce on wards and to manage acute critical care services and resources across our region. Some seconded staff from acute providers and clinical commissioning groups also returned to their substantive organisations to support their COVID-19 response.

The Patient Safety Collaboratives hosted within AHSNs also adapted their workstreams to focus on the pandemic response. In the East, we continued to provide valuable training and resources to care homes, including the implementation of RESTORE2 and other tools for managing deterioration. We published e-learning materials and ran webinars with the Royal College of General Practitioners to ensure patient safety tools were used appropriately. We will continue to develop the capacity for remote monitoring in the care sector to help identify and respond to deterioration sooner to improve patient outcomes.

Keeping innovation at the core of NHS Reset

Given the importance of learning from change, the AHSN Network is partnering with the NHS Confederation and the Health Foundation on the NHS Reset campaign. The AHSNs will have a key role in collating and evaluating interventions that produced excellent results and those that may not be sustainable or necessary in the long term or may create difficulties for certain patient groups.

At Eastern AHSN, we are managing a survey across the East of England – in partnership with the regional office of NHS England and NHS Improvement and local authorities – to help us gather views on innovations that have been introduced during this unprecedented period of change and the factors that have enabled these rapid changes to normal practice. Undoubtedly there will be a great many lessons that will be drawn from this work for the future adoption of technology in the health service.

Next steps

This survey and your feedback will ensure we continue to evolve to take account of your needs. At Eastern AHSN, we too need to adapt to the new situation and ensure our priorities meet the current and future needs of our community. One of our learnings so far is that, while some aspects of face-to-face meetings cannot be replaced, we have shifted our innovator events online and have received positive

feedback on how this can enable participation in our programmes.

COVID-19 has forced a pace of change within health technology that we have not seen before. While these changes have been made under extraordinary and enforced circumstances, they are part of a momentum that has built up within the health technology sector, which we believe should not be allowed to lose pace once we start to emerge from the crisis.

Everyone who works for the NHS has rightly been recognised by the British public for everything they do and their commitment to patients and each one of them has our utmost respect. What is notable also is how industry and academia came together in new ways to fight a common cause. We hope to build on this collaborative momentum, boldness and energy to help co-create ideas that will make a positive health impact across other areas of high priority, including cancer, rare diseases, mental health and living and ageing well.

The key learning from the pandemic is perhaps the power of community and that we can achieve so much more by working together.

“Everyone who works for the NHS has rightly been recognised by the British public for everything they do and their commitment to patients and each one of them has our utmost respect”

Eastern AHSN: our impact in numbers

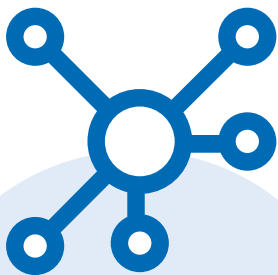
Throughout 2019/20 we worked hard to turn great ideas into positive health impact. At a glance, here are some of our achievements during that time



186 innovators benefitted from our bespoke business support. Of these, we brokered access to NHS stakeholders for **136 innovations**



We funded **21 innovators** with grants to support health economic evaluations, intellectual property and regulatory consultancy



27 pilot sites established



98% of delegates at our regional leaders' innovation forum felt inspired about our purpose to turn great ideas into positive health impact

89%

of surveyed stakeholders rate our current relationship as good

87%

rated access to our services as easy

91%

felt that they had a good or fair understanding of the role we play in the region



4,361 hours

spent with industry in 2019/2020.

This included **931 one-to-one meetings** with industry



224 attendees

at our industry events



235 innovations

reviewed to determine how we can support them.

52 were reviewed in depth by our innovation review panel



5 projects

were recognised across

10 award categories

See p41

Local insight to address national priorities



Dr Sarah Robinson, Interim Director of Delivery at Eastern AHSN, highlights three national programmes we are delivering in our region

In the Eastern region, we are privileged to act as a partner to and collaborator with a world-renowned NHS system and an extraordinary cluster of universities, biotech, life science and technology companies. It is through this established network and comprehensive understanding of our local system that we are in a unique position to spread innovation at pace and scale to deliver the national AHSN programmes, which will benefit patients and support the NHS across its priority areas of health and care.

We are responsible for the adoption and spread of the following seven national programmes in our region:

- Atrial fibrillation – to improve diagnosis and treatment across three areas of detect, protect and perfect
- Pharmacist-led information technology intervention of medication errors – PINCER
- Supporting people with complex mental health needs – SIM
- Prevention of cerebral palsy in pre-term labour – PReCePT (see p15-17)
- Transfers of care around medicine – TCAM (see p35)
- Self-care exercise programme for patients with osteoarthritis – ESCAPE-pain (see p18-19)
- Emergency laparotomy collaborative – improving standards of care for patients undergoing emergency laparotomy surgery (see p15-17)

Here, we focus on the impact we have achieved in the past year across three of these areas.

Reducing avoidable strokes

Cardiovascular disease causes a quarter of all deaths in the UK and has been identified as the single biggest area in which the NHS can save lives over the next 10 years.^{1,2} Individuals are at a high risk

of developing cardiovascular disease if they have high blood pressure, high cholesterol or atrial fibrillation.

Atrial fibrillation is a heart condition that causes an irregular and often abnormally fast heart rate, affecting around one million people in the UK,³ with many more suspected undiagnosed cases within the population. People with atrial fibrillation are more likely to develop blood clots in the heart and therefore, have a high stroke risk.

While it is currently not possible to prevent all atrial fibrillation-related strokes, it is estimated that 7,000 strokes and 2,000 premature deaths each year in England could be prevented using oral anticoagulant medication.⁴

In our region, we have been working with local clinical commissioning groups, acute providers and primary care providers to implement the national programme in three aspects:

- Detect – increasing detection using manual pulse checks or mobile electrocardiogram (ECG) devices
- Protect – increasing access (where eligible) to anticoagulant therapy medication
- Perfect – optimising anticoagulation therapy in people newly diagnosed and those with existing atrial fibrillation

Over 2019/20, we worked with our local system to add 8,622 people to the atrial fibrillation register, significantly exceeding our regional target to help diagnose 2,342 people with atrial fibrillation. In addition, 86% of eligible people with atrial fibrillation are now receiving anticoagulation medicine, which is just above the national average (84%). Every CCG in the Eastern boundary increased their rate by an average of 2%, as indicated in 2017/18 quality and outcomes framework data.

Building on the success of this programme, we look forward to implementing the next phase on this journey, the national AHSN cardiovascular disease programme, which aims to further improve diagnostics and management of those at risk of cardiovascular disease.

Making prescribing even safer for patients

In primary care, 900 million items are dispensed into the community in England each year,⁵ making prescribing an essential part of a GP's role. The range of medications and medical conditions with which patients present, combined with the high volumes of prescribing, mean errors can occur, and for a variety of reasons. Contributory factors often include communication, clinical procedures, education and training, organisational culture and factors relating to individual staff and patients.

The national AHSN programme PINCER (Pharmacist-led IT intervention to reduce clinically important medication errors in primary care) addresses these factors with a two-pronged approach:

8,622
people added
to the atrial
fibrillation
register

PINCER at work

Used to treat an irregular heartbeat, amiodarone can, as a side effect, impact thyroid function. As a result, it is recommended that patients have their thyroid function monitored every six months. If a practice runs PINCER and identifies a patient who hasn't had their thyroid examined in the past six months, the system will not only flag that the patient needs reviewing, but also examine the systems in place to call patients for monitoring, as part of a structured investigation.

1. Searching GP clinical systems to identify patients at high risk of prescribing errors that most often cause harm, across 14 indicators
2. Specific training for practice pharmacists (or other relevant staff) in quality improvement methods to identify and address the root cause of the error

It is the combination of these two approaches that makes PINCER successful in obtaining sustained reductions in prescribing errors in general practices.⁶ It is anticipated that the widespread use of PINCER will result in better outcomes for patients, fewer medication-related hospital admissions, and cost savings for the NHS.

As of March 2020, the PINCER algorithm had been applied to approximately 1.3 million patient records in the region (80% of our target) and we will continue to focus on this area in 2020/21 to achieve the full target. The PINCER intervention has also trained, educated and put systems in place at general practices across the region, to ensure the quantity of future prescribing errors is reduced significantly.

Supporting people with complex mental health needs

Across the UK, emergency and healthcare services respond every minute to people in mental health crisis, and calls of this nature are increasing each year. Up to 40% of this demand is caused by a small number of high-intensity users who are struggling to manage highly complex behavioural disorders. These disorders often expose the patient to higher levels of risk and harm, and can cause intensive demand on police, ambulance, A&E departments and mental health teams.

Recognising that these individuals could be better supported by an integrated approach to their care, the Serenity Integrated Mentoring (SIM) model of care was developed. SIM brings together all the agencies involved in responding to and

Find out more about our work in atrial fibrillation in the Eastern region by visiting EasternAHSN.org/AF



We supported
30 high-intensity
emergency and healthcare
service users to manage
highly complex
behavioural disorders
through our SIM
programme

supporting high-intensity users. A multi-agency panel selects each patient based on risk data and allocates them to a SIM team, led principally by a mental health professional and a police officer. The team regularly supports patients to better understand their crises, and to identify healthier and safer ways to cope. As part of the High Intensity Network (HIN), frontline responders are advised how to make high-quality decisions and all SIM teams work to ensure patients receive consistent care, even if they cross an NHS or policing border.

To implement the programme, police officers, care coordinators and other urgent care professionals complete a three-day SIM training course, which teaches staff how to integrate skills and decision-making protocols. The programme reinforces continuous learning with a range of support.

In our region, the programme went live in September 2019 and, since then, we have had 30 high-intensity users accepted onto the SIM programme, double our target of 15. To make a difference could take months of support; however, in the first quarter of the SIM programme, we have seen a 23% reduction in the amount of services (police responses, missing person incidents, inpatient admissions) used by SIM service users, demonstrating the impact SIM has already had on improving the safety of patients and reducing pressures on core services.

Author's views

Having recently joined Eastern AHSN, I have been impressed by the diverse collection of people committed to and enthusiastic for implementing change collaboratively across the system at scale and pace, to ensure innovations are embedded and sustained.

As we take on new areas of work in 2020/21, I am looking forward to implementing innovations in populations including young people and older adults. Striving for reduced inequality of access to healthcare and increasing opportunities has been a feature of my career to date and an area with great potential to find innovative ways to deliver health benefit.

AHSN Network national impacts

The cumulative impact
of national programmes
across the AHSN Network
by the end of the 2019/20
financial year



479,000+
patients benefitting from
our two-year national
adoption and spread
programmes



In 2018/19 our
atrial fibrillation work
helped prevent
3,165
strokes and saved
791
lives



45%
of all acute trusts
have implemented
Transfer of Care
Around Medicines



8,472
people with chronic
joint pain have
participated in
ESCAPE-pain courses



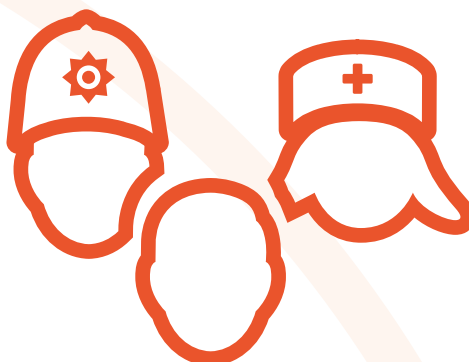
As a result of PReCePT,
850
additional mothers in
preterm labour received
MgSO₄ in 2019/20

The **AHSN** Network



At least
96%

of acute trusts have now
adopted the Emergency
Laparotomy pathway



535

people have benefitted
from our SIM programme,
exceeding our target by

14%

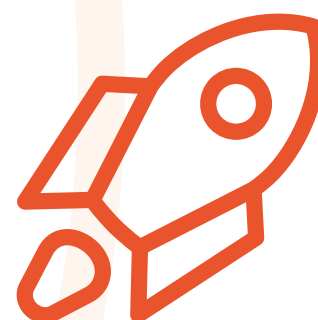
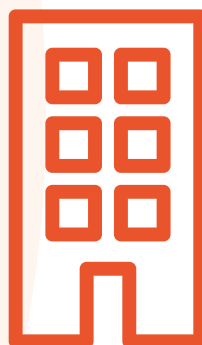


11,600+

interactions with companies since 2018,

4,000+

of which we have supported



300+

companies have created
long-term strategic
partnerships with our
help since 2018

Rapid uptake of national products



Dr Sarah Robinson, Interim Director of Delivery at Eastern AHSN, outlines the impact of two national products

Supporting the adoption and spread of proven innovations within the NHS is critical to delivering better outcomes for patients and a key focus of our work. Led by NHS England in partnership with the national AHSN Network, we have several workstreams under way to remove barriers, cascade best practice and accelerate the adoption of proven treatments and diagnostics.

Here we focus on placental growth factor testing and the high-sensitivity troponin test, which are being fast-tracked into the NHS through the Accelerated Access Collaborative (AAC) pathway transformation fund.

Bringing diagnostics to pre-eclampsia

During pregnancy, a condition called pre-eclampsia can occur that causes the flow of blood through the placenta to be reduced, limiting the oxygen and nutrients to the developing baby and potentially restricting growth. It usually occurs in the second half of pregnancy and can also put the mother's health at risk.

Other national products we are supporting:

SecurAcath, a device inserted under the skin to provide continuous securement for peripherally inserted central catheters. It ensures less movement and dislodging of the catheter, improving effectiveness and patient experience. Annual savings across the NHS in England from using SecurAcath are estimated to be £4.2 million.

HeartFlow leverages deep learning to create a 3D model of a patient's coronary arteries and uses a powerful algorithm to simulate blood flow, to assess the impact of blockages of coronary blood flow and determine the best course of treatment. Increasing the number of people benefitting from this technology and reducing the number of invasive coronary angiographs as a result, is estimated to save the NHS £17 million. In our region at the end of Q3, 452 scans had been performed.

Healthcare providers

Find out how we can help you get faster access to the latest innovations and technologies to deliver excellent patient care at EasternAHSN. org/HCP

3,250 placental growth factor (PIGF) tests carried out to diagnose women presenting with suspected pre-eclampsia

Previously, there has not been a diagnostic test for the condition and, as a result, many women were admitted with suspected pre-eclampsia. To address this and as part of the adoption and spread of national products, we are

implementing two placental growth factor (PIGF)-based tests that providers can choose between to confidently diagnose pre-eclampsia, improving patient experience and optimising efficiencies.

During 2019/20, 3,250 PIGF tests were carried out across six sites in our region. In addition, we supported a successful application for £24,000 to the shared collaboration fund for Lister Hospital to transform its PIGF-testing pathway.

Fast-tracking heart attack diagnosis

Annually in England and Wales, chest pain accounts for 6% of all emergency departments attendances, and while 80% of patients are admitted to hospital, less than 25% receive a diagnosis of myocardial infarction (MI), otherwise known as a heart attack.¹

To optimise this pathway there is a need to diagnose cases of MI as early as possible. One factor in the delay is the need to take two blood tests 10-12 hours apart. However, the introduction of high-sensitivity troponin testing means the two blood tests are taken one or three hours apart, supporting diagnosis within four hours of presentation at the emergency department.

This rapid diagnostic ensures more effective treatment leading to better outcomes for patients, as well as improved allocation of hospital resources.

During 2019/20 we have supported several providers to apply for and secure funding to support the adoption and spread of high-sensitivity troponin testing, including pathway transformation funding and shared collaboration funding totalling £50,000.

Driving safe behaviour change across the system



Caroline Angel,
Director of Patient
Safety at Eastern
AHSN, highlights four
key activities from the
team in 2019/20

The NHS patient safety strategy: safer culture, safer systems, safer patients describes how it will continuously improve patient safety. Its impact is estimated to save almost 1,000 lives and £100 million in care costs each year from 2023/24.¹

A key improvement and delivery arm of this strategy lies with England's Patient Safety Collaboratives (PSCs), which play an essential role in implementing safer care initiatives across the system. The PSCs are a joint initiative, funded and coordinated nationally by NHS Improvement and delivered locally by the AHSN Network.

Our four key activities from 2019/20 are summarised below.

Talking the same talk

The adoption of NEWS2 in all acute care and ambulance trust settings, alongside SBAR in the East has instilled a consistent measurement system to recognise deterioration, measure vital signs and communicate a patient's status, reducing the risk of incomplete information and improper handover.

However, these same tools are not standard across the whole system. So to ensure a common language, we have been working on the adoption of these tools in care homes, where there is a substantial advantage to be gained as people aged over 65 account for 68% of hospital emergency bed days.²

Deterioration of residents in a care home setting is often first identified through a carer's gut feeling that a resident isn't quite right, but that is often difficult to translate into words that

NEWS2 – National Early Warning Score 2 – a standardised tool used to identify and escalate a deteriorating patient, by measuring a set of key physiological parameters.

SBAR – Situation, Background, Assessment and Recommendation – a framework to guide a structured assessment of a patient's condition when handing over from one staff member to another.

“I’m thrilled to hear the project has sustained. It is a great example of a national directive implemented with local knowledge”

– Jo Knox, local learning lead on the Right place of birth project

all responders understand. If not detected early enough, the deterioration could be life threatening, possibly leading to a lengthy hospital admission. On average, when admitted an elderly inpatient will stay in hospital for more than 11 days,³ which could further increase the risk of physical and mental deterioration, possibly preventing them from returning to their previous residence of choice.

Over the past year, we have been supporting care home staff in completing their soft signs, NEWS2 and SBAR training, and 16 care homes are already testing a combination of soft signs, NEWS2 and SBAR. Through accurate assessments of deterioration and a more complete understanding of patients’ needs, the trials are expected to demonstrate reduced delays in the escalation of clinical care and reduced numbers of unnecessary outpatient appointments and hospital admissions.

The outcome is a common language that gets the right skills to the right patient at the right time, enabling care home staff to confidently escalate to GPs and other support staff to adjust treatment plans, medication or to initiate treatment earlier,

to make advanced decisions at a time when residents and their families can be involved.

A stronger start in life

In 2016, Better Births set out the five-year forward view for NHS maternity services in England. One of the key deliverables was to reduce the rate of stillbirth, neonatal death, maternal death and brain injury during birth by 20%, by 2020. We have been working on two projects to directly support this aim:

- Preventing cerebral palsy in pre-term labour (PReCePT)
- Right place of birth (RPoB)

Preventing cerebral palsy in pre-term labour

Every year, more than 8,500 women in the UK give birth very early because of complications with their pregnancy. If women go into labour at less than 30 weeks, there is an increased risk that their baby could develop cerebral palsy.

We have turned this around with the national PReCePT

156 mothers treated with magnesium sulphate as part of the PReCePT programme, which is estimated to have potentially prevented between four and five cases of cerebral palsy.*

*Based on a number needed to treat of 37

initiative by working with clinicians in every maternity and neonatal unit in England to ensure mothers going into pre-term labour before 30 weeks are offered a dose of magnesium sulphate, which costs just £1 and reduces the risk of cerebral palsy.

Over the past two years, we have been working with all 11 maternity units in the Eastern region to raise awareness of the national initiative. Each maternity unit has adopted the initiative and now record mothers eligible for magnesium sulphate treatment, those that received it and any reasons for not taking it, to learn and improve future outcomes.

We started with a baseline of 61% uptake of magnesium sulphate (2017 calendar year) across the East of England and have achieved the suggested 85% uptake as one of the outcomes of the PReCePT project. In the past year, 156 mothers were treated with magnesium sulphate, which is estimated to have potentially prevented between four and five cases of cerebral palsy (based on a number needed to treat of 37).

Right place of birth

When a baby is going to be born prematurely, particularly when the baby is less than 27 weeks, it is vital that the very best experts in neonatal critical care are present to provide the best possible outcome. This means, when possible, ensuring babies less than 27 weeks are delivered in a maternity unit with a level three neonatal critical care unit attached, of which there are three in the East of England – the Rosie Hospital in Cambridge, Norfolk and Norwich Hospital and Luton and Dunstable Hospital.

In our region, this was identified as an area that could be greatly improved and would make a substantial difference to women and their babies. Locally, we ran the Right place of birth project and actioned two interventions:

1. The Fit for Transfer handover tool – to ensure all the trusts communicated information in the same format
2. Working with the Neonatal Operational Delivery Network to agree an in-utero transfer policy with all clinicians across the East of England to strengthen the pathway for these very premature babies.

During the Right place of birth project, Jo Knox was working as a midwife at the Norfolk and Norwich University Foundation Trust Hospital and simultaneously as a local learning lead on the project.

She says: “The project empowered our midwives because when they transferred a woman they felt confident they had provided all the necessary information to give her the best possible outcome and when they received a woman, they had a

From the beginning of 2020, the East of England now has **81% of its premature babies born in level three neonatal critical care units**, an increase of more than 20% since the project initiated.

greater knowledge of the care required and could prepare accordingly.”

All 11 of the maternity units in the Eastern region adopted the Fit for Transfer handover tool and increased awareness of the importance of women giving birth in the right place. From the beginning of 2020 the East of England now has 81% of its premature babies born in level three neonatal critical care units, an increase of over 20% since the project initiated.

Jo adds: “I’m thrilled to hear the project has sustained. It is a great example of a national directive implemented with local knowledge.”

High-risk surgery benefits from quality improvements

In England, around 30,000 emergency laparotomy surgeries are carried out each year for people with severe abdominal pain.⁴ These patients are typically elderly and frail with co-morbidities and – as identified in the first Emergency Laparotomy audit in 2012 – there was a high risk with mortality rates at 14.9% for all patients and 24.4% in patients aged 80 and over.⁵

Since then, there have been several successful improvement projects and trials including the Emergency Laparotomy Collaborative (ELC), which was established to share local knowledge and best practice, encourage a culture of collaboration and imbed quality improvement skills to ensure sustainable change.

Regionally, 10 out of 11 acute hospitals joined our ELC and agreed to share their National Emergency Laparotomy Audit (NELA) data for analysis, to understand what was working well at different sites. Through the collaborative’s events, we could then focus our efforts to improve patient outcomes. We also conducted two bespoke quality improvement projects at North West Anglian NHS Foundation Trust and East and North Hertfordshire NHS Trust’s Lister Hospital.

In 2019/20, 1,300 patients (out of an estimated 1,400 procedures) in our region have benefitted from at least one of the initiatives in the emergency laparotomy care bundle. We are awaiting data on the final quarter which has been delayed due to COVID-19, but we are confident that a patient’s length of stay will have reduced because of the focus of the ELC on improving the emergency laparotomy pathway.

In 2019/20, **1,300 patients** (out of an estimated 1,400 procedures) in our region have **benefitted from at least one of the initiatives** in the emergency laparotomy care bundle.

Get in touch

If you’re interested in patient safety in our region and would like to get in touch, contact Caroline at caroline.angel@eahsn.org

“I usually walk with a stick, but today I have come here without it”

– Charles Oades, ESCAPE-pain patient

Supporting our community to take positive steps towards better self-care

Core to our strategy is enabling people to live healthy lives. At Eastern AHSN, we continue to see the importance of self-care in patients' ability to design and manage their own care and this desire will continue in our work moving forward.

Here we have summarised some of the initiatives that, over the past year, have supported patients in adopting behaviour changes and taking positive steps towards self-care.

Returning smiles to patients' faces

Osteoarthritis is the most common form of arthritis in the UK and affects almost a third (29%) of people over 45 in the East of England.¹ Despite physical activity being one of the most effective treatment options, patients often avoid exercise for fear of damaging their joints further.²

Kelly-Marie Grant, Superintendent Physiotherapist at Cambridge University Hospitals NHS Foundation Trust, said: “We found that people believed that if their joints were sore they shouldn't exercise, but research has shown that exercise for joint pain is hugely beneficial. The old saying ‘if you don't use it, you lose it’ definitely applies here.”

ESCAPE-pain is a national AHSN programme that helps address this issue and offers patients the reassurance and support they need to exercise safely over a six-week exercise and education course.

During 2019/20, there were 238 participants on the course across 17 locations in the Eastern region. Of those surveyed, more

than two-thirds reported an improvement in their ability to take part in daily activities and 67% reported pain reduction.

Charles Oades attends ESCAPE-pain sessions at Addenbrooke's Hospital. His osteoarthritis means he needs to have a double knee replacement. He said: “The system works. I've only been coming to the classes for two weeks, but it's already helped me so much. I usually walk with a stick, but today I have come here without it. My aim is to get back on the golf course, as I've been unable to play since last year because of my condition. Importantly, it's fun – it's a chance to meet people and exercise in a friendly environment.”

In addition to physical symptoms, two-thirds of people with osteoarthritis report depression when their pain is most severe. However, 62% of ESCAPE-pain participants surveyed in the Eastern region reported an improvement in quality of life following the programme.

Jag Ahluwalia, Chief Clinical Officer from Eastern AHSN, said: “ESCAPE-pain has made a great start in the Eastern region. According to the first reports from participants, the programme has demonstrated a clear clinical impact, bringing a reduction in pain and improvement in participants' quality of life.”

Monitoring cardiac rehabilitation at home

Regular activity is also one of the best ways for people to make a good recovery after cardiac surgery or a heart attack. However, research has shown that, nationally, only 52% of patients discharged from hospital after a heart attack sign up for the free NHS exercise programme and education.³

Aimed at the 26,000 people recorded as living with heart disease in Cambridge and Peterborough,⁴ integrated health monitoring programme Active+me was piloted in Cambridge and Huntingdonshire by Aseptika, in partnership with Eastern AHSN, to address this problem and drive greater adoption.

The programme guides patients through safe and appropriate exercise – but what makes this initiative different is that, alongside the classes, patients are given monitors to record their health metrics at home. These metrics are uploaded to an app, which is shared with their personal health coaches.

Mark Fiddan was the first patient to enrol on the programme via Addenbrooke's Hospital. He said: “Using the devices and app on my phone provided through the Active+me programme has enabled me to track and review my own health data with ease, so I can take an active role in managing my condition. Now when I meet my GP, I am so much more confident in talking about my health, arriving with all the information I need for an informed discussion. But over and above this, it has made me understand what I can do myself to improve my health and see and feel the positive effects.”

Driving patient confidence

How can healthcare and fitness providers know whether referred activities, such as exercise prescriptions, are working to relieve pressure on the system, or providing value for money?



238
patients with
osteoarthritis
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programme

With the support of Eastern AHSN, Active Suffolk set out to answer these questions by evaluating the impact on patients undergoing prescribed alternative treatment programmes over a three-month intervention period, with the total programme length spanning up to 18 months (September 2018 – March 2020). The team used the Patient Activation Measure (PAM) to assess the extent participants were engaged and confident in taking care of their condition before and after taking part in the programme, and to demonstrate the impact of the service.

The results showed that the participants' activation levels were, on average, higher after completing their referral programmes. The team also found that understanding patients' ability and motivation to self-manage illnesses, long-term health conditions or poor healthy living habits was a beneficial insight prior to starting behaviour-change intervention.

In addition, raising patient activation levels could reduce the pressure on NHS services, improve quality and ensure that medical resources focus on patients with the most complex health needs.

According to Nick Pringle, Senior Development Officer (Health & Wellbeing) at Active Suffolk: "A major part of our Active Wellbeing service is to use behaviour change and motivational interviewing models in one-to-one consultations, to support patients to make positive changes towards a more physically active lifestyle. The PAM has helped us to evaluate our intervention by comparing the difference between PAM scores at baseline and three-month stages. Second, it has helped our project officers to tailor their conversations and language to best suit the type of patient they are seeing. This has helped streamline

consultations, which has saved a lot of time and resources, which benefits the patient and staff."

Managing mental health digitally

Ipswich-based Moodwise provides young people (16-25) with preventative and crisis mental health support that is easily accessible, anonymous and cost-effective. The site, created by Mindwave, asks users simple questions to direct them to relevant support on anxiety, depression, stress, anger and loneliness.

Over the past year, Eastern AHSN has supported the development of the Moodwise site, as well as the social media and paid-search campaigns vital to driving young people to the site.

Since the collaboration was initiated, Moodwise has registered 3,585 new users. Almost two-thirds (64%) of users came to the site from paid search and were mostly concentrated in East Anglia.

Young people engaged most with the

website, viewing more pages per session than any other group.

In addition, while fewer males visited the site, those males that did visit it consistently viewed resources for longer than females.

"It has made me understand what I can do for myself to improve my health and see and feel the positive effects"

— Mark Fiddan, Active+me patient

How we work

Whether you are from a start-up or a big pharma company, we support anybody with a great idea with the potential to transform healthcare by making a positive health impact. Find our more here: EasternAHSN.org/how-we-work

Transforming our understanding of inflammatory bowel disease



Mark Avery, Director of Health Informatics at Eastern AHSN and Cambridge University Health Partners (CUHP) discusses how data science is paving the way for more effective inflammatory bowel disease treatment

Advances in genomics and techniques for understanding someone's genetic information are allowing us to move away from the traditional trial and error approach to treating diseases. By better understanding conditions and the genetic factors that determine a treatment's effectiveness we can find the most appropriate way to get the best and quickest outcomes for patients.

Understanding how to apply genetic information to clinical decision-making requires complex analysis to process and interpret data on genetics, disease progression (including diagnostics), lifestyle, treatment and outcomes. Insights may then be used to deliver more personalised treatments while keeping patient data safe and non-identifiable by researchers.

Building a secure data environment

In 2019, we successfully secured funding from Health Data Research UK (HDR UK) to deliver a proof of concept that the data of patients with rare diseases could be effectively de-identified and made available for analysis in a secure cloud research environment. This was successfully delivered as a pilot project (Sprint Exemplar: Cloud-

based integration of patient data to aid rare disease research), focusing on the data of around 1,600 patients.

Following the success of the initial pilot, Eastern AHSN convened partners to successfully secure a further £5m from HDR UK to develop Gut Reaction – the Health Data Research Hub for Inflammatory Bowel Disease (IBD). The hub builds upon the learning from the sprint pilot to integrate data from multiple sources and create a secure research resource that allows approved researchers to access data, while protecting the privacy of individuals.

Gut Reaction is being delivered as a collaboration of 17 organisations and is led by Prof John Bradley at the Cambridge University Hospital NHS Foundation Trust, which hosts the NIHR BioResource, a national platform that draws together the data of thousands of patients who have already provided consent for their health records to be retrieved and used for medical research. We've also worked closely with Crohn's & Colitis UK to ensure that public and patient involvement and engagement is central to how we work and we can understand and address any concerns patients may have about the use of data for research.

By building a secure environment to host this data, the Gut Reaction team is creating an unprecedented and world-leading resource to help researchers better understand the causes of inflammatory bowel disease and support the selection and development of better, more personalised treatments.

At Eastern AHSN, we believe that citizens, academia, health

Find out more about Gut Reaction at EasternAHSN.org/gut-reaction-article

A patient-centred approach to data



Sarah Sleet, Chief Executive Officer at Crohn's & Colitis UK outlines how patients' voices are central to the Gut Reaction programme

Crohn's disease and ulcerative colitis are estimated to affect one in every 130 people in the UK (over 500,000) and cost UK health budgets approximately £1.5 billion each year.¹ Treatment involves steroids, immunosuppressants and antibody therapies, but results are variable and it is unclear which is best for a patient.

As a result, there is an urgent need to better understand why patients respond differently to treatments in order to improve patient outcomes and reduce costs.

For more than 40 years, Crohn's & Colitis UK has been leading

“... this initiative will transform our understanding of inflammatory bowel disease”

– Dr Miles Parkes, Clinical and Academic Lead for Gut Reaction

services and industry will achieve more working together than they will in isolation and this project is a great example of our collaborative approach. We are grateful to all our partners on this hub including Cambridge University Hospitals and the NIHR BioResource, Crohn's & Colitis UK, the UK IBD Registry, Wellcome Sanger, AIMES, Privitar and Microsoft.

We are now in the process of collating data, selecting the best research use cases to focus on initially.

Dr Miles Parkes, Clinical and Academic Lead for Gut Reaction says: “By working together with patients, industry, academia and the health service this initiative will transform our understanding of inflammatory bowel disease. Excitingly it has the potential to turn a severe disease into a mild disease and we hope to deliver a sustainable model that could be replicated across multiple other disease areas.”

the drive to increase knowledge of the causes and best treatments of Crohn's disease and ulcerative colitis. We are a proud partner in Gut Reaction and I'm excited by the potential to support research that helps treat patients with really life-changing conditions in a much better way.

Data science has enormous opportunities and the information that patients provide is of immense value. It is only by cultivating active and sustained collaboration between health service providers, researchers, patients and the public that we can develop and maintain public trust in the responsible use of healthcare data. Our approach is based on four principles:

1. Be clear about the benefits

Describing clearly how the data used will contribute to public benefit is critical to patients agreeing that their data may be used for health research – any sense of data being used for any other purpose will drive patients away. We have a defined goal and can articulate how patients are key to achieving it.

2. Transparency

People are generally happy for the NHS to access and use patient-level data for public benefit reasons other than the individual's direct care. However, they are more hesitant about commercial organisations having access to this data.² We have been proactive in engaging our Patient Advisory Committee in discussions about how organisations can apply for access to data, the process by which decisions will be made, and the conditions that need to be satisfied for access to be approved.

3. Security

Patients need to know that their information is safe and only accessible to researchers for approved studies. One of our partners in Gut Reaction is specialist data privacy firm Privitar, which holds the national contract with NHS Digital to develop the NHS-wide De-ID solution. Another partner, AIMES, is a trusted aggregator of NHS Data working within the NHS firewall (HSCN network), and Microsoft help ensure we have world-class data security for our data research environments.

4. Empowering to guide and decide

The project Patient Advisory Committee (PAC) is independently facilitated by Crohn's & Colitis UK and is central to the Gut Reaction programme. The PAC has been actively involved in critical discussions concerning data governance, consent and data access request review and approval processes. All partners are committed to ensuring that patient views play a key role in the development of the Gut Reaction programme and have a conduit to have their opinions and concerns heard.

Gut Reaction has massive potential for improving the lives of people with Crohn's and colitis and we are really excited to be working on this with Eastern AHSN and the other partners to put the patient at the centre of research.

Surviving cancer through early diagnosis



Katrina Wilson, Principal Advisor, Cancer at Eastern AHSN highlights three cancer innovations contributing to earlier diagnosis

At some point in their lives, one in two people in this country will be told they have cancer. However, cancer survival is the highest it has ever been and thousands more people now survive every year.¹ To progress further, the NHS Long Term Plan identifies earlier diagnosis as a key action to improve cancer survival, with the ambition of increasing the number of cancers diagnosed at the early stages (stage 1 or 2) to 75% by 2028.²

At Eastern AHSN, this ambition, combined with our region's pioneering development of cancer medicines and treatments, has resulted in cancer being one of our four strategic priorities. By engaging with local stakeholders and innovators, we are focusing to ensure early diagnosis and innovation remains at the top of our collective agenda by turning great ideas into positive health impact.

Following on from a cancer-focused innovation exchange event in March 2019, our local stakeholders and systems confirmed their enthusiasm to explore digital and artificial intelligence (AI) applications to support their clinical pathway challenges.

Our ambition is that, through generating greater cross-partner understanding and working, we can deliver real-world evaluation in a service improvement setting, for the benefit of patients and staff.

Here are three cancer diagnosis innovations we have supported over the past year, which we believe will help contribute to the NHS Long Term Plan.

Share your idea

Do you have a great idea that could make a positive health impact? Get involved EasternAHSN.org/innovator-contact

Empowering clinicians to identify melanoma

The incidence of melanoma is, unfortunately, increasing faster than all other forms of cancer and it is responsible for most skin cancer deaths.³ When diagnosed with stage 1 melanoma, almost 100% of patients will survive for five years or more compared with an estimated 70% of patients diagnosed at stage 3. The Office for National Statistics does not publish survival data for patients with stage 4 melanoma, but the rate increases for stage 3 demonstrate the potentially lifesaving importance of early and accurate diagnosis.⁴

To address this need for early diagnosis and manage the demand for dermatology services, Skin Analytics has developed an app used with a dermoscopic attachment to help responsibly triage cases from primary care and community settings. The app – DERM – uses a clinically validated artificial intelligence (AI) system to analyse images of skin to help monitor moles and automatically filter urgent cases that are flagged to primary care as needing expert review and potentially a referral to a dermatologist.

In a study of some 1,500 patients, DERM successfully identified 100% of melanomas, with more than half in the earliest stage of malignancy.⁵

The app has already been adopted in the Norfolk Clinical Commissioning Group (CCG), and early data from trials have indicated that referrals into secondary care could be reduced by as much as 50%. Going forward, the team also hopes to encourage local Sustainability and Transformation Partnerships (STPs) to adopt the technology.

According to Rachael Dovey, Business Development Director at Skin Analytics: "Eastern AHSN has brokered conversations with CCGs and introduced our AI-enabled technology, to help primary care clinicians better identify skin cancer. The widespread use of the app within primary care has the ability to significantly reduce dermatology referrals and allow dermatologists the gift of time to treat the patients that need them most."



Early detection for high-risk individuals

Lung cancer is one of the most common types of cancer, but it is often only diagnosed when symptoms have developed and the cancer has spread, making treatment more challenging.⁷

As a direct response to this challenge, Oncimmune has developed EarlyCDT Lung, a simple, affordable blood test to support the early detection of lung cancer.

The test assesses the levels of seven autoantibodies and tumour-associated antigens to enable the detection of lung cancer at all stages of disease with high accuracy.

In primary care, EarlyCDT Lung can be used to detect lung cancer early in

high-risk patients. In secondary care, clinicians can assess lung cancer probability in intermediate-risk lung nodules

Over the past year, Eastern AHSN has introduced and brokered discussions between Oncimmune and several STPs including Norfolk and Waveney STP, which will be implementing the innovation in primary care screening for high-risk individuals.

Maggie Tween, Norfolk and Waveney Cancer Programme Manager, NHS Norfolk and Waveney CCG & North East of England Cancer Alliance, says: “Eastern AHSN has helped support this innovation proposal through successful co-ordination with the innovator and clarifying the evidence base, in order to work up the necessary business case this initiative needed to secure a successful pilot.”

A lens on oesophageal cancer

Each year, around 9,100 people in the UK are diagnosed with oesophageal cancer, a disease which is more common in older people.⁶ Cytosponge has developed a tool to detect Barrett’s Oesophagus – a precursor to oesophageal cancer – which is minimally invasive and can be used in primary care.

Using Cytosponge, a patient swallows a capsule, about the size of a multi-vitamin pill, which is attached to a cord. When swallowed, the capsule dissolves to release a sponge. The sponge can then be removed by a nurse a few minutes later collecting cells along its passage. These cells are then tested in the laboratory using an accurate method developed by the Fitzgerald Laboratory.

Prof Rebecca Fitzgerald, prof of Cancer Prevention at the Medical Research Cancer Unit, University of Cambridge and Co-Lead of the Cancer Research UK Early Detection Programme in Cambridge, who developed the technology, commented: “The real problem with this disease is late diagnosis, and unfortunately a lot of patients are incurable

at presentation, so the overall survival rate is extremely low – less than 20% – which is why we are so passionate about improving early diagnosis of this disease.”

Prof Fitzgerald continued: “Bear in mind that to run an endoscopy unit requires multiple staff members including at least three healthcare professionals at any one endoscopy. In contrast, Cytosponge can be delivered in an office setting by a single health worker.”

In April 2020, Dr Oliver Stovin, Joint Cancer Lead at Cambridge and Peterborough CCG, Macmillan GP and GP Appraiser NHS England, Central Midlands, said: “With the support of Eastern AHSN, we are ready to proceed with a project to explore the feasibility of delivering Cytosponge in primary care and a number of primary care networks have expressed interest in being involved. Once restrictions associated with COVID-19 are lifted, the plan is to perform 500 tests in primary care, to assess the practical delivery of the service.”





Four questions every clinical entrepreneur should ask themselves



Dr Tamsin Holland Brown, Community Paediatrician at Cambridgeshire Community

Services NHS Trust and Founder of Hear Glue Ear, reflects on her experiences as a clinical entrepreneur

Every day, medical professionals identify pressure points in the delivery of care that need to be solved. Working as a community paediatrician with a special interest in deafness, I saw children struggling with the effects of temporary hearing loss. When one

of my daughters was diagnosed with glue ear (the most common cause of temporary hearing loss), I saw an opportunity to improve care and better implement NICE guidance. I developed the Hear Glue Ear app to enable children with glue ear to develop speech, language, auditory processing and listening skills between appointments through specially designed resources, songs, games and audio books.

I have been asked how others can develop their ideas further and become a clinical entrepreneur:

What is glue ear?

Glue ear is caused by a build-up of fluid and mucous behind the ear drum which prevents sounds being transferred to the inner part of the hearing system. It affects one in 10 children at school entry age.

“The Cambridge network is hugely impressive; it feels as if there is one of the top 10 people in the world at everything here”

1. How can I free up time to develop my idea?

The biggest challenge is to find free time on top of a medical job and family time. For me, this meant mostly working on the project once the kids were in bed and seeing research patients at the weekend. I read once that if you are a woman in innovation you either need a supportive partner or no partner. Fortunately, I have the former. I regularly worked late to learn about start-ups, apply for funding streams and plan research. Talk to your employer as early as possible about flexible working and formal arrangements through approved programmes – our medical director was able to steer me to the NHS clinical entrepreneur training programme having heard about it through Eastern AHSN.

2. Who can help me?

You are inevitably going to need support to grow your business and develop your innovation. The Cambridge network is hugely impressive; it feels as if there is one of the top 10 people in the world at everything here. The generosity of time by medical,

tech and business giants was extraordinary. The challenge is that it can be overwhelming finding the right support. It's been so helpful having Eastern AHSN to make introductions, talk through my options or any uncertainties and give impartial advice on what's best for me.

3. You're sure your product can make a difference, but how can you prove it?

Research informs change but it is costly. Focus first on a smaller initial pilot to develop and test your innovation. Hopefully, this will yield positive results to help secure further funding or a larger pilot. Last year, Eastern AHSN established 27 pilot sites to evaluate and build evidence for innovation. Never stop asking the users of your innovation for feedback. Their insight will inform research, motivate you and provide the human stories around why your innovation is important.

4. You have an innovation, but do you have the business skills you will need?

There were many business skills I needed to learn about: intellectual property, CE marking, market analysis, pricing strategies and building the right team. My advice is to take advantage of the programmes and accelerators available to you. This also connects you with others going through the same process who you can learn from. Eastern AHSN can signpost you to programmes and provide practical advice to help you along the way – they gave 21 innovators financial support for health economic evaluations, grant funding, intellectual property and regulatory consultancy in 2019/20.

235 innovations reviewed by our commercial team, **52** of which were reviewed in-depth by the **innovation review panel**

186 innovators given tailored advice and provision of **bespoke business support**

Brokered access to **NHS stakeholders** to promote and accelerate innovation uptake for **136 innovators**

The Hear Glue Ear app was named **Children's App of the Year** at the 2019 UK App Awards

Tamsin received a grant through the **Medtech Accelerator**, a joint venture in which **Eastern AHSN is a partner**

Impact Stories

Read our impact stories to find out how we've helped innovators like Tamsin turn great ideas into positive health impact at EasternAHSN.org/impact-stories

Innovators... mind the gap

Dr Louise Jopling, Commercial Director at Eastern AHSN, and Dr Uday Phadke, at Cartezia, provide an overview of our scale-up academy programme, which we offer, in partnership, to selected innovators to help them navigate the potential chasms related to scaling-up



Success in business depends not just on having a great idea but also on the ability of innovators to integrate a wide range of economic, technological, commercial, social and cultural factors in the commercialisation process. Patience and fortitude also have an important role to play, as our research shows that the early stages of business growth take a lot longer than most conventional wisdom reported in business literature. Halfway through the product journey, cumulative market penetration will only have reached about 10% of the potential number of customers, which is widely divergent from the 50% market penetration figure claimed

traditionally. This can present a challenge to companies attracting investments and leading the prolonged journey of scale-up and return on investment.

We host scale-up academy programmes to help innovators at this vital development stage, which employ a new structured approach. Key to this approach is for innovators to understand how the commercialisation journey is interrupted by three discontinuities or chasms where cumulative customer growth could stall. This Triple Chasm Model is shared with innovators at our scale-up academy programmes, alongside a modified technology readiness level and a

corresponding commercialisation readiness level – which, together, help companies quickly obtain a robust measure of the maturity of their product or service. During this process, we also help senior teams from companies address any gaps or commercialisation challenges that have been identified. The third critical

element we introduce at these workshops are the 12 drivers – the meso-economic vectors – that shape the commercialisation trajectory. All elements are brought together in an easy-to-understand commercialisation canvas, which the companies can use to support decision-making, including resource allocation, during their commercialisation journey.

Each company graduating from the programme will have access to its own private data via the platform, so it can use the insights internally, on an ongoing basis. The platform also enables companies to generate reports based on their input and analysis, which means strategic and tactical decisions acquire a new dynamic character: the idea is to provide a real-time collaboration and decision-support tool for use in the long-term.

Key components:

- The Triple Chasm Model: unique online collaboration platform that brings to life the tools and insights set out in Cartezia's scale-up manual
- World-class coaches and mentors with deep domain expertise in markets including the NHS, technologies and products, coupled with knowledge of the tools and mentoring skills
- Ongoing support, enabling continued dialogue to develop, test and implement robust growth strategies

Who can benefit?

The programme is designed for senior leadership teams of companies that are committed to growing their business. These teams could come from established corporations, start-ups or innovation agencies:

- Established corporations can tackle their innovation challenges in a structured way, rather than embracing generalised approaches exhorting them to harness entrepreneurial thinking, more innovative leadership and increasing R&D spend
- Start-up firms can understand their commercialisation journeys and allocate the right resources at the right time to increase the chances of success
- Public innovation agencies, technology transfer firms, incubators and accelerators can design and execute the best intervention strategies

Get involved

If you would like to take part in a future scale-up academy, please contact louise.jopling@eahsn.org. Please note, this programme is aimed at leadership teams.

From prototype to market

Innovating to improve patients' sense of dignity and self-esteem

Elderly people and those living with disability can struggle with using the toilet and cleaning themselves afterwards, which can impact their sense of dignity and self-esteem. At an Eastern AHSN event, Andy Speechley shared his idea to develop a raised toilet seat with a washing facility which fits over an existing toilet to enable the user to manage their own hygiene. He needed support from Eastern AHSN to develop a prototype, access funding and set up a pilot in a care setting.

We arranged a consultation with Clinical Engineering Innovation (CEI) at Addenbrooke's Hospital later that day. The following day Andy was invited to a pitching event with our partners at Provide CIC, where the panel were impressed and immediately saw the difference the Washseat could make.

Following an introduction, he has also been in contact with the local Director of Social Care at NHS England.

Through our partners at Health Enterprise East, Andy received expert advice on intellectual property and patenting and we funded a continued refinement of the prototype with CEI. We are working with the Washseat to explore how the innovation could help other patient groups.

Eastern AHSN supported Andy in presenting the Washseat at The Occupational Therapy Show and the innovation was runner-up at the event's innovation awards.



Andy Speechley,
Washseat inventor

Washseat
Visit washseat.co.uk

We also highlighted the Washseat on an innovation-sharing trip arranged by the British Embassy Life Science Department to a technology business incubator in Shanghai.

We have entered into a revenue share with the Washseat and are facilitating a clinical trial in more than 50 care homes in the region to evidence how the product impacts patients, with a view to access and uptake in the NHS.

Innovators

We help innovators overcome barriers to turn great ideas into positive health impact. Find out more EasternAHSN.org/innovators

“The difficulty with a new innovation is it is also unprecedented. We quickly learnt that it isn’t just about having a great product, it is also about knowing how to navigate the NHS”

– Prof Roman Hovorka, prof of metabolic technology at the University of Cambridge

A view from academia

Turning research and expertise into reality is important to keep healthcare moving forward

We connect academics with citizens, health services and industry to ensure research programmes have the right insight and expertise represented. We can help navigate the innovation cycle, offer support in understanding where an idea fits into the market and can deliver the most impact.

We can also help with applying for funding, facilitate partnerships with commercial organisations or investors and link academics with appropriate entrepreneurship schemes.

Read more in the following two pages about some of the many ways we supported academia in our region in 2019/20.

The challenge of new

Prof Roman Hovorka, prof of metabolic technology at the University of Cambridge, shares his experience navigating the innovation journey

Making living with type 1 diabetes less complicated

Type 1 diabetes is a serious lifelong condition that can strike at any age where an individual's blood glucose level is too high because their pancreas cannot make the hormone insulin. New technologies can reduce the resulting high disease burden, offering people with type 1 diabetes and their families the chance to think less about the condition. In March 2020, after 13 years of research, we launched CamAPS FX for people with type 1 diabetes with this aim.

The CamAPS FX app uses glucose levels provided by a continuous glucose monitor and automatically adjusts the delivery of insulin via a pump, mimicking the key functions of a healthy pancreas to stabilise glucose levels. The user also has the option of easing off or boosting therapy as physiological demands require, such as during exercise. The app runs on a standard Android smartphone and feeds data to the cloud so that healthcare professionals and loved ones, including parents, can see their children's levels at any time on their phones.

Flexible approach

Our original aim was to develop, protect and ultimately sell the Intellectual Property (IP), before commercialisation. However, the digital revolution gave us the opportunity to develop the new technology, commercialise the IP ourselves and realise our vision of the artificial pancreas as we had imagined it.

Prof Hovorka's tips to academics

- Be flexible and adjust to change
- Immerse yourself in the space
- Rely on others and accept support
- Be patient



This meant instead of just being responsible for the IP, we also had to fully educate ourselves in all aspects of product development including setting up a business, regulation and development of the app.

Navigating NHS pathways

The difficulty with any innovation is that it is also unprecedented. We quickly learnt that it isn't just about having a great product, it is also about knowing how to navigate the NHS.

Key to our success was the relationship we built with Louise Jopling and the team at Eastern AHSN. They were a breath of fresh air and quickly identified several gaps we needed to fill before we introduced our product to the NHS.

Central was their financial and practical support in commissioning both a health economic assessment and an infographic to summarise the benefits. We knew we needed a health economic assessment but needed the expertise of the team at Eastern AHSN to guide us through the practicalities of how to do it and – importantly – how to present the results. The materials were delivered in a timely and efficient manner and

“The Eastern AHSN team were a breath of fresh air and quickly identified several gaps we needed to fill before we introduced our product to the NHS”

have been key in outlining the efficacy and cost benefit of our app to NHS Trusts and Clinical Commissioning Groups. We have already secured reimbursement for the app from the Manchester University NHS Foundation Trust and have submitted the assessment data to several other trusts with the hope it will be adopted wider across the NHS.

Overcoming the hurdles

Reflecting on my experiences, I would say to be patient. There are many different facets to the NHS and there are many hurdles to overcome, but with a trusted network of people around you who you can rely on, launching an innovation is certainly achievable.

● Find out more about CamDiab and CamAPS FX at camdiab.com

Supporting you

There are a wide range of resources on our website tailored to support academics in the innovation journey. Visit EasternAHSN.org/academics/resources

MedTechBOOST an innovation gateway to the NHS

In 2019, Eastern AHSN, Cambridge Judge Business School (CJBS), Central Working and Studio Zao launched MedTechBOOST to tackle healthcare's biggest challenges, bringing together the brightest minds in healthtech, academia and medicine to collaborate and explore novel ideas drawing on artificial intelligence (AI).

Based on the NHS Long Term Plan and in partnership with the Cambridgeshire and Peterborough Foundation Trust and VOICE, health care challenges with a focus on mental health and healthy ageing

were set and successful applicants convened during a five-day event to turn their early stage idea into a clear business proposition.

MedTechBOOST participants received expert mentoring from sponsors AstraZeneca, ARM, Guy's and St Thomas' NHS Foundation Trust and Johnson & Johnson Innovation. On the fifth and final day, participants pitched their ideas as new ventures for investment to a panel of judges.

Participation in the programme marked the initiation of an on-going relationship with the teams and Eastern AHSN is still supporting several of these new ventures to further their innovations and attract funding.

Cambridge catalyst

There is a special culture in Cambridge and the wider Eastern region for combining research, innovation and entrepreneurship and initiatives like MedTechBOOST can be instrumental in supporting a new generation of innovators and entrepreneurs to translate their best ideas into practice.

A sprint from idea to prototype

Discover more about MedTechBOOST on our website EasternAHSN.org/medtechboost

Cambridge MemTech uses machine learning to improve diagnosis and stratification of patients with Alzheimer's Disease. Since the event, Eastern AHSN has supported the Cambridge MemTech team in a number of funding applications, particularly those focused on AI innovations.



"Our health system is complex. Eastern AHSN know where the problems lie and how to turn great ideas into positive health impact. As a mentor I immediately saw the value of MedTechBOOST. Judge Business School run similar venture creation days and bootcamps and we find it is a good way to encourage innovation.

The audience differed from other similar events I have attended because it was hosted at The Bradfield Centre. Being on Cambridge Science Park meant that there was a real mix of experienced professionals across industry and research which offered a variety of viewpoints.

Cambridge MemTech stood out for me as winners for the best impact in healthy ageing award. It's rare to find a research team with such a blend of characteristics that can drive a successful venture, which made for a compelling case."

Shiri Gold, mentor



"As one of several judges on the panel it was my role to help identify the most promising individuals, teams and ventures.

Having Eastern AHSN as a partner was instrumental. It helped to attract people and ideas from a wide network to bring diverse expertise into the week.

All the innovations were impressive, but Equilibrium certainly deserved their award for the best impact in mental health. They understood their client's need, a crucial and often overlooked step and translated it into a predictive and preventive care solution."

Bruno Cotta, Executive Director at the Entrepreneurship Centre

Equilibrium uses wearable technology to predict mood changes in bipolar patients. The Equilibrium team formed at the event and has since gone on to develop a study proposal and are being supported by Eastern AHSN to seek funding and identify clinical champions for this pilot study.



How opening doors and fixing lightbulbs enables patient care

Ash Kalraiya, CEO of MediShout, discusses how unresolved facilities issues can impact patient care and staff morale and how MediShout is helping

As a junior doctor I witnessed hospital infrastructure and logistical problems that prevented the best patient care. In one instance, a broken theatre light bulb forced me to cancel an operation. In another case, a faulty printer meant I had to pause an operation on an anaesthetised patient. Without a centralised system to report problems with facilities or equipment, people who log an issue might not know their request has been received, if it was previously reported and, importantly, when it is likely to be fixed.

MediShout is an easy-to-use app with cloud-based technology that enables hospital staff to report issues quickly and flag any logistical problems that would otherwise delay them. An algorithm ensures the correct person, or group, gets the information needed so they can fix the issue as soon as possible. We also use artificial intelligence to help predict future problems in hospitals. All this helps improve efficiencies and prevents delays, enabling better care and cost savings.

From local innovation to national need

I was one of a handful of innovators at an Eastern AHSN estates and facilities innovation exchange event, which showcased promising innovations to local providers and commissioners. Hearing other people pitch their ideas and advice from the Eastern AHSN team helped me further recognise where the issues lie and how MediShout fits into the ecosystem.

Eastern AHSN also introduced me to their contacts at Clinical Engineering Innovation (CEI) based at Addenbrooke's Hospital for feedback, support and refinement of the product.

One-third of NHS nurses waste two hours per shift finding missing equipment, which **equates to £900m of wages annually**.¹

Using MediShout, West Hertfordshire Hospitals NHS Trust **saved 15 mins per staff member daily**

Additionally, Eastern AHSN supported the completion of a health economic assessment to evaluate how MediShout would benefit local services. This assessment found that MediShout could improve staff morale by giving them greater control over their environment and preventing wasted time. In addition, it also estimated that through improved time efficiencies, reduced delays and avoided cancellations, MediShout could annually save NHS Trusts £1 million in efficiency savings and £135,670 in direct cash savings. If MediShout were to reduce 10% of cancelled operations, the assessment estimated it could save the NHS approximately £30 million a year. The assessment was used as evidence to secure MediShout one of only 11 places on the NHS Innovation Accelerator programme – a NHS England initiative delivered in partnership with the AHSN Network.

The NHS Innovation Accelerator was instrumental for two reasons. First, the exposure helped demonstrate the effectiveness and impact of MediShout. Second, the mentorship programme provided an opportunity to discuss our ideas with other innovators in a similar position.

Finding the right partnerships

As an innovator, the multiplier effect is particularly important. It is clear the medical industry, trusts, innovators and Eastern AHSN are all well connected and tapping into that is a huge advantage.

Knowing the right people is crucial too. Senior

stakeholders and the executive board are integral in creating organisational improvements. The effect of the health economic assessment was huge and enabled doors to open for us. This demonstrates the importance of working with organisations like Eastern AHSN that understand the healthcare system and how to push your innovation forward.

Get in touch

Do you have a great idea that could make a positive health impact? Discover how we could support you at EasternAHSN.org/innovators

The risky business of reporting risks and benefits



Charlotte James, Director of Marketing, Communications and Engagement at Eastern AHSN explores how to report the risks and benefits of medical research responsibly

Last January, Dr Alex Freeman from The Winton Centre for Risk and Evidence Communication led a session at our regional leader's innovation forum exploring ways to report the risks and benefits from medical research. What follows covers a glimpse of what Alex talked about and my personal experience to help innovators communicate research responsibly.

The wonders of modern medicine are endless. IVF can enable a woman to have a longed-for baby. My dad's ageing hip could be replaced so he can walk with ease again. But for every breakthrough that cures a disease (or makes it easier to live with) there are many more treatments that only help a little, or worse, may cause a person more harm than good. So, it's important to approach any decision that affects your health, or the health of someone you love, with eyes wide open.

In 1995, there was a major scare over the safety of the contraceptive pill. The UK Committee on the Safety of Medicines announced research findings that the pill doubled the risk of potentially fatal blood clots. Widespread media coverage



prompted panic and thousands of women stopped taking the pill. In the following year, the number of pregnancies and abortions spiked. This scare alone has been credited with 13,000 additional abortions.¹

So, was the panic justified? According to the research, around one in 7,000 women not taking the pill were likely to develop blood clots, doubling to two in every 7,000 women taking the pill. Illustrated as percentages, around 0.014% of women were likely to develop a blood clot without taking the pill, jumping to a whopping 0.028% for those taking it. So, while the reported doubling of risk was accurate it was also wildly misleading. For an individual deciding whether to take the pill or not. The increased risk of 0.014% certainly wouldn't have concerned me.

There are two key take-aways from this reporting of risk. First, by using relative risks, you can grossly distort and amplify the perception of a risk. A TRIPLING of risks or benefits might make you gasp (especially if written in caps), but a change from 1 in 100,000 people to 3 in 100,000 people developing breast cancer/suffering a stroke/surviving bird flu (or whatever) is much less knee-shakingly terrifying or motivating respectively.

Second, to make meaningful decisions about healthcare, you need to present the audience with the absolute risks to put the risk of an action in context. Absolute risk is the size of your own

the Pill doomed?

U-turn over pill scare

BBC

U-turn over pill scare

Why the numbers matter

Absolute risk

“New wonder drug reduced heart attacks from 2 in 100 to 1 in 100”

Relative risk

“New wonder drug reduces risk of heart attack risk by 50%”

1995 pill scare and its aftermath: lessons learnt

Journal of Obstetrics and Gynaecology

risk and absolute risk reduction is the number of percentage points your own risk goes down if you do take an action. Only the absolute risk gives you a grasp of the real magnitude and helps you decide if you need to act.

I hadn't even left secondary school when the pill scare of 1995 was published but when I was learning my craft as a communications professional, I was not shown this story as an example of what not to do, nor did the guidelines for communications and marketing address this important issue. Instead, I quickly learnt that the way you communicate statistics would influence how the data was perceived. Why describe a positive impact as affecting 25 people in 100, when I could write that it helped 25%? Or, even more persuasively, 1 in 4 people benefitted from the latest innovation I was supporting. Sadly, I didn't always use my new superpower for good. In my defence, I was not in a position of power or influence then. I now believe strongly that the key to good communications is not to be satisfied with being understood but, instead, to communicate in a way that cannot be misunderstood.

The bottom line

Absolute risk vs relative risk: each may be accurate. But one may be terribly misleading. If your job is marketing manager

for a new innovation, please don't be tempted only to use the relative risk reduction. If you're a journalist, you would serve your readers or viewers best by pointing out the absolute risk reduction and making sure you don't echo any mismatched framing by naughtier marketing people. Finally, if you are a patient, it is wise for you to be sceptical and ask "of what?" anytime you hear an effect size of 20-30-40-50% or more. 50% of what? That's how you get to the absolute truth and can make an informed decision.

My team and I hope that we can contribute to a more responsible style of communications and we work hard to ensure that we present product and service benefits in a clear and motivating way for the ultimate benefit of patients.

To support communications professionals or journalists who want to provide absolute risks, Alex's group at the Winton Centre for Risk and Evidence Communication has developed an online calculator called RealRisk (wintoncentre.maths.cam.ac.uk/projects/press-alert/).

Get in touch

If you would like more advice on how to communicate the risks and benefits responsibly in your communications, please get in touch charlotte.james@eahsn.org

“If there were any tears, it was when I tried to take the virtual reality headset off him!”

Every year, more than 500,000 children in the UK undergo surgery.¹ Higher levels of preoperative anxiety have been associated with an increased risk of postoperative delirium, anxiety-related negative behaviour changes, postoperative pain and increased analgesia use.²

Children undergoing anaesthesia and surgery often develop intense anxiety and fear in the preoperative holding area and during induction of anaesthesia.² Studies involving inpatients suggested hospitalisation and surgery were traumatic to children, leading to behavioural problems such as separation anxiety, eating disturbances, bed-wetting and nightmares.³

This can have negative socio-economic effects with an increased number of days of school missed and reduced quality of life. Further to this, children can develop healthcare avoidance behaviour leading to delays in presentation later in life, meaning later diagnosis and initiation of treatment.

Leaflets were traditionally used to help prepare children for surgery, but they often didn't engage children as much as an app with gamification techniques employed.

A little journey one year on

Little Journey is a virtual reality smartphone app and optional headset that is revolutionising the way children (3-12 years old) and their families are prepared for hospital medical procedures including dental services, radiotherapy and paediatric day unit and day-case surgery. It enables children to visit the day case ward, anaesthetic and recovery rooms and interact with staff and equipment they'll see on the day of their procedure. It provides information for family members as well.

The app can be tailored to any hospital and is being developed in multiple languages, so wherever the child is having an operation, they can explore the actual rooms they'll see on the day of surgery. Little Journey offers a cardboard virtual reality headset alongside the smartphone app to create an immersive experience without the need for an expensive device.

In 2019/20 we have supported the company to conduct an independent health economic evaluation to understand the benefits achieved using the Little Journey app to inform the potential return on investment and opportunities for a wider rollout. Using these data, we have developed materials to readily articulate the cost-benefit analysis.

Since September 2019, our commercial team has been working in close partnership with Little Sparks Hospital to inform the business strategy, develop and broker international relations including showcasing the Little Journey app during a Department of Investment and Trade visit to China (December 2019) and as co-applicants for grant submissions to support organisational scalability and wider rollout.

Currently, 46 hospitals are using Little Journey across the UK and Republic of Ireland. The app has been used more than 22,000 times in the UK and is on average used seven times per user for a total of 49 minutes. The app is being developed in multiple languages and is already being used internationally in 41 countries and the company is in discussions with several networked hospitals to provide the app to children worldwide.

According to the cost-benefit analysis, every £1 invested in

Little Journey is estimated to deliver between £3.03 and £3.50 of benefit within the health and care system and a further £5.12 to £6 in social benefits.


“Not only did this make his experience infinitely better, but it made our experience as parents that much better seeing him happy. If there were any tears, it was when I tried to take the virtual reality headset off him,” said Matt, dad of three-year-old Alexander.

Supporting you

There are a wide range of resources on our website tailored to support clinicians in the innovation journey. Visit EasternAHSN.org/HCP-resources

● Find out more about Little Sparks Hospital and Little Journey at littlesparkshospital.com





Enabling continuity of care across the system

More than 3,400 patients supported through community pharmacy programme – EMOP

EMOP in action

A female in her mid-70s was referred to her chosen community pharmacy on discharge from hospital. Upon comparing the discharge information with the repeat prescription, the pharmacy noted that the patient's dose of allopurinol (a medicine often used to treat gout) had been reduced due to reduced kidney function. The pharmacist contacted the GP and asked for a repeat prescription with the correct dose, to avoid the patient taking a potentially harmful dose.

The transition of patients from one healthcare setting to another increases the risk of miscommunication – leaving patients and their families at risk of errors that can have a detrimental effect on their health and recovery.

One in five patients has reportedly experienced adverse events within three weeks of discharge, 60% of which could have been less severe or avoided.¹ Evidence suggests that only one in 10 elderly patients will be discharged on the same medication as they were admitted to hospital on. During their hospital stay, 60% of patients will have three or more medicines changed, 28-40% of medications are stopped and 45% of medicines prescribed at discharge are new.¹

Optimising lines of communication

Transfer of Care around Medicines (TCAM) is a national AHSN programme, which is implemented locally as the Electronic Medicines Optimisation Pathway (EMOP). EMOP aims to improve continuity of care and reduce the risk of unintentional changes

to patient treatment when they are discharged from an acute provider to primary care. It enables hospital pharmacy teams to send discharge information electronically to a patient's community pharmacist, enabling timely follow-up for patients who have had medication changes, including starting new medications, during their hospital stay.

With support from NHS providers, Local Pharmaceutical Committees (LPCs), and Sustainability and Transformation Partnerships (STPs), Eastern AHSN has facilitated implementation of technology and supported pathway change in NHS providers and community pharmacies. This has included funding licence costs, helping to engage and train community pharmacists, supporting programme management and communications, and ongoing monitoring and data analysis.

In addition, we have facilitated shared learning through EMOP steering groups, bringing together all stakeholders to review progress and share best practice.

In 2019/20, a further four NHS providers launched the EMOP programme in their hospitals, making a total of seven providers across eight sites. The programme has enabled community pharmacists to support 3,485 patients with their prescriptions after a hospital stay during this period, ensuring they take their medication safely.

We have met our target of 70% of acute providers adopting the innovation, with active plans for another two to come online in the remainder of 2020, through which we will continue to support and share best practice.

Driving behaviour change

Rolling out tools across multiple sites can be complicated. We can help you find innovations to meet your healthcare challenges.

EasternAHSN.org/HCP-get-involved

● Read more about the national AHSN Network programmes we have implemented on p10-11.

Innovation² – the multiplier effect of diversity



Charlotte James, Director of Communications, Engagement and Marketing, Eastern AHSN, discusses the multiplier effect of diversity



As well as being the right thing to do, the presence of diversity and the practice of inclusion allows us to look at problems differently and consider a wider range of solutions. During a time of crisis and constantly moving targets, what could be more valuable than fresh and different perspectives?

Over the 71 years since the NHS was created, the patient population it serves has grown in diversity in the fullest sense of the word and the business case for diversity is increasingly clear. We also take very seriously our role in serving the needs of all our population, to ensure that the transformation of our health service reduces health inequalities.

We have, therefore, recognised that we have a leadership role in championing and developing diversity within our own organisations and our work. That is why we published our pledges in September 2019, to demonstrate our commitment and hold ourselves to account for the way we identify and nurture innovation and the innovators behind them, inside and outside the NHS.

As always, we will work with partners to achieve these ambitions. This year, I am delighted to have helped launch and co-curate the Cambridge hub for One Health Tech, which is a grassroots community that supports and promotes women and other under-represented groups to be future leaders in health innovation. The AHSN Network is also a proud sponsor of the NHS Confederation's BAME Leaders Network, and supports the development of the NHS People Plan through the Leadership Development workstream, in addition to working with the Shuri Network, the first NHS network of BAME women in health tech and digital health.

Celebrating success and promoting role models are important aspects of this agenda. It is vital that aspirant innovators starting out on their journey can see the success of people with whom they identify. In our Diversity and Innovation publication, published in 2019, we championed some of our BAME innovators who are making a difference. We hope that by telling their stories, loudly and proudly, they will inspire others to follow in their wake.

Our commitment

Find out more about our diversity pledges here:
EasternAHSN.org/diversity-pledges

The value of different voices

Jasmin Gupta, pictured above, The Hair Loss Coach and founder of the Cancer Hair Care charity, spoke at our cancer innovation exchange in March 2019. We asked her to share her top tips to help innovators from diverse backgrounds.

- 1** Have courage to work on something different, cultivate your diversity and think of your audience.
- 2** Don't underestimate the power of one; the value of one person is powerful and it creates a more compassionate product.
- 3** Get out of the space you're in. An innovator's role is to learn about the environment surrounding their immediate circle; go out and learn about other people's experience, then bring that back into your innovation.

Supporting grassroots innovation



Prof Phillip Smith, visiting prof at the University of Hertfordshire school of health and social work, Associate Director Research and

Development East and North Hertfordshire NHS Trust talks about his role as Innovation Ambassador on behalf of Eastern AHSN

Innovation ambassadors are embedded into local systems to promote and support innovative activities from within and work part time for both the NHS and the AHSN. They are tasked with developing local infrastructure and capability to adopt best practice and new technologies. They also encourage colleagues to come forward with innovative ideas and activities and communicate innovation needs back out to the AHSN Network.

My background is in research and the NHS. I joined Eastern AHSN on secondment in March 2019 as the first innovation ambassador, alongside my existing position at East and North Hertfordshire NHS Trust. Having insight into local needs meant I could see where Eastern AHSN could help identify appropriate solutions but also meant I could see what could be done to ensure innovations could be successfully embedded and sustained for patient benefit.

Identifying ideas

Eastern AHSN's role isn't just about spreading national innovations in our region – it's about turning great ideas into positive health impact wherever the idea has come from. As an

innovation ambassador embedded within the Trust, as of March 2020, I supported eight innovators from Hertfordshire to submit 13 projects to Eastern AHSN's review panels. These ranged from an app for carers to a silicone cover to protect expensive syringe drivers. We also laid the foundations to speed up the decision-making pathway so that patients in Hertfordshire and beyond have faster access to the latest local and or national innovations.

Being innovation ready

Culture change involves everybody, of course, and this is made easier with support from senior management. It is vital that leaders see the value of the pockets of innovation that are already showing benefits. I gathered examples of local improvements to evidence the benefit of making the identification and adoption of innovation an everyday part of patient care.

An innovation culture needs to also be underpinned by organisational policies, pathways and a strategy. Having clear policies on topics like intellectual property ensures transparency with innovators. Developing a strategy to support innovation ensures that risks can be accounted for, resources allocated and processes agreed to enable quick decision making. I'm proud to have helped coordinate this approach across the Trust on behalf of Eastern AHSN to help provide a pipeline of innovations from the area.

Potential innovators need to be supported to help develop their ideas. By strengthening the links between the Trust and Eastern AHSN, I could signpost them to

the right resources and toolkits or make an introduction to the commercial team.

Finally, there's no point in having a strategy and resources if they aren't publicised internally and incentivised. It's essential that we reinforce our innovation culture through training and communication, as well as measuring and celebrating success.

Following the successful pilot of the innovation ambassador role, Eastern AHSN has recruited ambassadors in Cambridgeshire and Suffolk to support the identification, development and uptake of innovation in the region for the benefit of patients.

Turning great ideas into positive health impact

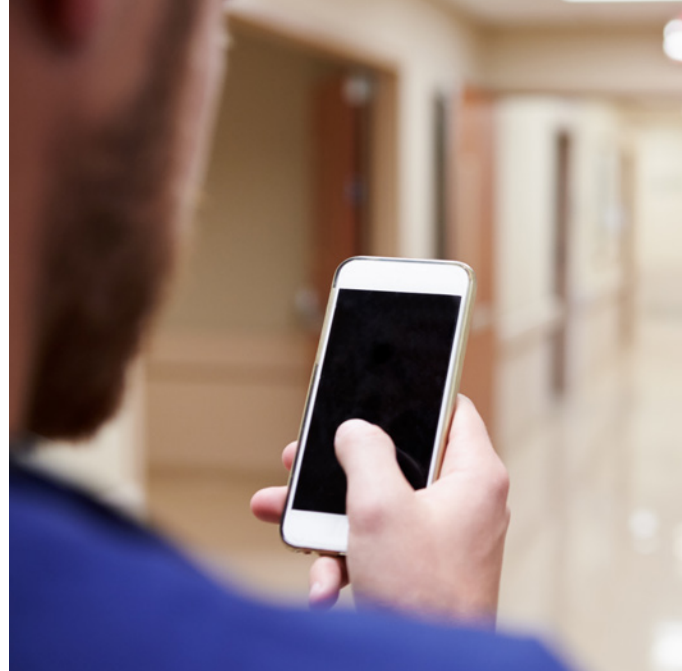
There are a wide range of resources on our website tailored to support clinicians in the innovation journey.

Visit EasternAHSN.org/HCP-resources

Scaling innovation across a whole hospital



Founder and CEO of Medic Creations Dr Sandeep Bansal shares what makes a great partnership and how it is critical to successfully scale-up an innovation



Shared aims and values

At the centre of a good partnership is establishing your shared aims for the project and what success looks like for all parties. With the help of Eastern AHSN, we wanted to help the Trust build on the pilot and provide staff with a tool that could help free up time and improve care. Ultimately, clinical safety was our biggest priority.

West Suffolk Hospital is a Global Digital Exemplar Trust, recognised by NHS England as a provider delivering improvements in the quality of care through the world-class use of digital technologies and information – an ideal partner for the first whole-trust rollout of Medic Bleep.

Change is everyone's responsibility

We couldn't have embedded Medic Bleep across the hospital without each partner being fully engaged. We worked with Eastern AHSN and staff at the Trust to understand how our solution fitted into the clinical pathways and governance processes and ran workshops with staff to understand and answer any questions. The Topol Review highlighted digital literacy as one of the NHS's biggest challenges,

Medic Bleep is an app, developed by Medic Creations, that enables hospital and community staff to communicate and collaborate within and across organisations, sharing vital information about patients accurately and safely. After a successful pilot at West Suffolk NHS Foundation Trust, which was supported by Eastern AHSN, Medic Bleep was rolled out across the hospital to replace the non-emergency pager, as some pagers are still required for emergencies such as cardiac arrest.

Medic Bleep adoption by West Suffolk NHS Foundation Trust:

- 4,250 users
- On average, 7,500 messages sent each week day
- On average, 1.5 hours of calls per day

so we worked with the Trust to tailor training and support to help improve staff's digital literacy and confidence levels.

We also established and utilised buy-in from the Trust's leadership team, who freed up staff time to support the project and upgraded IT to the levels needed across the hospital.

Eastern AHSN supported with the development of the logic model and evaluation, while all partners collaborated to understand the resource requirements, standard operating procedures and business continuity implications of embedding Medic Bleep.

A long-term partnership

The project didn't end when Medic Bleep went live. We are always improving our product and West Suffolk NHS Foundation Trust remains a key development partner. For example, we are now working with the Trust to explore how we can use the app with clinicians in primary and community care to cover more of the patient journey.

We are also in conversation with NHSX about developing a framework for trusts to procure Medic Bleep and have agreed a partnership with BT to include the app in their smart messaging offering to trusts across the country.

Being shortlisted for the HSJ Partnership Awards was fantastic. I'm really grateful to Eastern AHSN for brokering a successful partnership with the Trust that has benefitted all parties, with patients at the heart of it. It has provided blueprints, both for us to use with Medic Bleep at other sites and for the Trust when rolling out future digital solutions.

Impact story

Find out more about the Medic Bleep pilot at EasternAHSN.org/Medic-Bleep

Social media as a power for good



Rifah Ahsan, Digital Engagement Officer at Eastern AHSN discusses the opportunity social media presents for better patient engagement

Since the early 2000s, a growing number of people have been using social media as a medium for talking about healthcare-related issues.¹ Research has found that to date, the most effective way to reach a large pool of patients is through social media and that 78% of all internet users in the UK have access to Facebook.²

Over time, the traditional patient-GP relationship has changed. Patients are now forming online groups to share health concerns and are seeking advice from their GPs based on information found on social media platforms. While there are obvious concerns about misinformation, at Eastern AHSN, we believe social media can also be used as a power for good, particularly in driving awareness of healthcare.

Awareness through social sharing

Recently, we harnessed the reach of Facebook to directly benefit patients with osteoarthritis through ESCAPE-pain, a national AHSN programme that offers patients the reassurance and support they need to exercise safely over a six-week exercise and education course.

Using Facebook's ability to run targeted advertising, we created a campaign to drive awareness of



ESCAPE-pain and encourage people in the region to sign up for classes. We targeted people who had engaged with osteoarthritis pain management pages on Facebook, as well as those people over 35 years old who were likely to have older relatives or friends with the condition.

The positive outcomes are clear. As a result of the campaign, 963 people were directed to the ESCAPE-pain website – a threefold increase, achieved at a highly cost-effective £0.19p per click. These figures highlight how important social media can be in connecting patients to helpful information which, in the case of ESCAPE-pain participants, is the first step to managing their pain and regaining control of their lives.

● Find out more about ESCAPE-pain on p18.

Changing times

Today, unlimited medical information, online pages and promotional material provide people with the opportunity to manage their healthcare from their device and so healthcare communication has irreversibly shifted.

While there are concerns around social media and its impact on health, there is also undoubtedly great potential in these technologies and healthcare organisations must adapt to meet the needs and expectations of patients.

“You don’t start communities, they already exist. They’re already doing what they want to do. The question you should ask is how you can help them do that better”

– Mark Zuckerberg, Facebook founder, speaking in 2012

Work with us

If you'd like to explore how you could use social media to support your innovation, get in touch with us – rifah.ahsan@eahsn.org

“Creating solutions alongside and never on behalf of patients”

Empowering people with lived experiences across each area of our work, to create lasting change in the development of health services

Published in 2017, the Patient and Public Participation Policy sets out how the NHS plans to put the patient and the public at the heart of everything it does. Critical to the policy's success is ensuring the public and patients' views are heard at all levels and across all parts of the healthcare system.

Patient and public involvement (PPI) is key to the work of Eastern AHSN, ensuring the innovations we support reflect what matters to the people who will use them. Our aim is for people with lived experience (patients and carers or other relevant individuals) to be involved in each area of our work. This starts with the selection process, during which we ensure patient representation on our monthly innovation review panels to help shape consultations on which innovators we support and how best we can do so.

Over the past year, we focused our PPI on the empowerment of patients through our self-care programme of initiatives (find out more on p18-19). These included:

- **ESCAPE-pain**, a national AHSN programme that supports patients to exercise, safely keep mobile and take back control of their lives.
- **Active+me**, an integrated health-monitoring programme to guide people with heart disease through safe and appropriate exercise, alongside a monitor to record health metrics at home, so individuals can take an active role in managing their condition.

Self-care

Find out more about the impact we have had in self-care in the Eastern region over the past year, including ESCAPE-pain and Active+me, on p18-19.



Citizens' Senate

The East of England Citizens' Senate is looking for patients and carers, or those with other relevant experience, to become members. Find out more at eoecitizenssenate.org

In 2019, we also supported the East of England Citizens' Senate to recruit new members that represent the diversity of our region and have worked collaboratively to bring about lasting change in the development of health services.



A patient's view

Rod Earp, a member of the East of England Citizens' Senate shared his thoughts on 20 years of PPI.

“Simple but effective is a fine way to describe the best examples of PPI. I remember a wonderful lady who single-handedly changed the quality and

perception of the food at Ipswich Hospital. By listening to patients, encouraging the hospital to let patients' families taste samples and by being generally lovely, she found an exquisite solution to a real challenge. Good PPI is about more than helping others, it is about creating solutions alongside and never on behalf of patients.”

Discover more about our work with patients and the public here EasternAHSN.org/patients-public

A year of success

Our priority is to deliver patient impact and help healthcare services quickly realise the value of innovations, but we realise that it is also important to celebrate when a project is recognised by an award. Here is a flavour of some of our work that has been recognised this year.

Lea Valley Health online bookings

We partnered with Lea Valley Health GP Federation to shift unnecessary calls and face to face appointments to online services, to improve quality of care through enhancing patient experience and convenience and help realise efficiency benefits such as reduced administrative burden and fewer missed appointments. Core to the success of this initiative was enabling greater digital literacy and engagement with the appointment of a digital engagement officer funded by Eastern AHSN.

Online engagement quadrupled in just one year and notably more than half of those who switched to using online services (55%) reported that they would have previously called the clinic and one in 10 (10%) would have made unnecessary face to face appointments. This is estimated to have resulted in the reduction of 3,781 phone calls and 652 appointments.

Winner – Primary Care Innovation of the Year at the Health Tech Awards



The West Norfolk Atrial Fibrillation Service

Eastern AHSN supported West Norfolk Clinical Commissioning Group (CCG) in developing a new atrial fibrillation (AF) fast-track service co-led by primary and secondary care. The service was developed to provide screening and diagnosis of AF, advice on treatment options, anticoagulation and counselling.

Winner – AF Association Healthcare Pioneers 2020

● Learn how we implemented the national AHSN AF programme locally on p10-11

Screening and Optimising Stroke Prevention in Atrial Fibrillation (SOS-AF) service

We supported Cambridge University Hospitals NHS Foundation Trust to establish the SOS-AF service. The service screens all inpatients admitted to medical wards for atrial fibrillation (AF) using their admission 12-lead electrocardiogram and electronic medical notes. Patients are holistically risk assessed and those who would benefit from stroke preventative anticoagulation medication are identified. Patients and families are supported through this process and where appropriate, treatment is started before patients return home from hospital.

Finalist – Stroke and Cardiovascular Team of the Year at the BMJ Awards (the awards attracted 291 entries across 14 categories)

Medic Bleep

Medic Bleep enables hospital and community staff to communicate and collaborate within and across organisations, sharing vital information about patients accurately and safely while also saving time. We supported the evaluation of both a pilot and wider roll out across West Suffolk NHS Foundation Trust.

- Highly commended – Best Healthcare Technology Solution of the Year at the Health Tech Awards
- Highly commended – HealthTech Partnership of the Year at the HSJ partnership awards (The programme was one of only two finalists that were highly commended from the ten projects shortlisted)

● Find out more about Medic Bleep on p38



Just One Norfolk

JustOneNorfolk.nhs.uk is a trusted multimedia educational initiative (e-learning/website, community forum, helpline, confidential chat service for children) available 24/7, empowering Norfolk parents to achieve the optimum health and wellbeing of their children (0-19 years). We provided funding for development, commissioned an evaluation of the service and are continuing to support roll out in other regions, where appropriate.

- Highly commended – Excellence in Engagement and Communications at the Health Tech Awards
- Shortlisted – Staff and Patient Experience at the Leading Healthcare Awards 2019
- Highly commended – Innovation of the Year at the Leading Healthcare Awards 2019
- Highly commended – National Self Care Awards
- Finalist and Highly commended – Excellence in Communications and Engagement at the Forward Healthcare Awards 2019



References

Local insight to address national priorities: p10-11

1 – British Heart Foundation., (2020). *UK Factsheet January 2020* [online]. British Heart Foundation. [Viewed 2nd June 2020]. Available from <https://www.bhf.org.uk/what-we-do/our-research/heart-statistics>

2 - NHS Long Term Plan., (2019). Cardiovascular disease [online]. *NHS Long Term Plan*.

[Viewed 2nd June 2020]. Available from <https://www.longtermplan.nhs.uk/online-version/chapter-3-further-progress-on-care-quality-and-outcomes/better-care-for-major-health-conditions/cardiovascular-disease/>

3 – NHS., (2020). Overview: Atrial fibrillation [online]. *NHS*. [Viewed 2nd June 2020]. Available from <https://www.nhs.uk/conditions/atrial-fibrillation/>

4 – NICE., (2014). Thousands of strokes and deaths from silent killer [online]. *NICE*. [Viewed 2nd June 2020]. Available from <https://www.nice.org.uk/news/article/thousands-of-strokes-and-deaths-preventable-from-silent-killer>

5 – Avery A. J. et al., (2013). The prevalence and nature of prescribing and monitoring errors in English general practice: a retrospective case note review. *British journal of general practice* [online]. **63**(613), e543-e553. Viewed 2nd June 2020. Available from <https://doi.org/10.3399/bjgp13X670679>

6 – Avery A. J. et al., (2012). A pharmacist-led information technology intervention for medication errors (PINCER): a multicentre, cluster randomised, controlled trial and cost-effectiveness analysis. *The Lancet* [online]. **379**(9823), p1310 –

p1319. Viewed 2nd June 2020. Available from [https://doi.org/10.1016/S0140-6736\(11\)61817-5](https://doi.org/10.1016/S0140-6736(11)61817-5)

Rapid uptake of national products: p14

1 – Carpenter A., (2016). Rapid rule out of MI in the emergency department [online]. *British Cardiovascular Society*. [Viewed 5th June 2020]. Available from https://www.bcs.com/pages/news_full.asp?NewsID=19792536

Driving safe behaviour change across the system: p15-17

1 – NHS England and NHS Improvement., (2019). *The NHS Patient Safety Strategy: Safer culture, safer systems, safer patients*. [online]. [Viewed 7th May 2020]. Available from https://improvement.nhs.uk/documents/5472/190708_Patient_Safety_Strategy_for_website_v4.pdf

2 – The Kings Fund., (2012). *Older people and emergency bed use: Exploring variation*. [online]. [Viewed 7th May 2020]. Available from https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/older-people-and-emergency-bed-use-aug-2012.pdf

3 – National Audit Office., (2016). *Discharging older patients from hospital*. [online]. [Viewed 7th May 2020]. Available from <https://www.nao.org.uk/wp-content/uploads/2015/12/Discharging-older-patients-from-hospital-Summary.pdf>

4 – Healthcare Quality Improvement Partnership. National Emergency Laparotomy Audit (NELA) [online]. *Healthcare Quality Improvement Partnership*. [Viewed 26th May 2020]. Available from: <https://www.hqip.org.uk/a-z-of-nca/emergency-laparotomy>

5 - Saunders D.I. et al., (2012). Variations in

mortality after emergency laparotomy: the first report of the UK Emergency Laparotomy Network. *British Journal of Anaesthesia* [online]. **109**(3). [Viewed 26th May 2020]. Available from: <https://doi.org/10.1093/bja/aes165>

“I usually walk with a stick, but today I have come here without it.”: p18-19

1 – Public Health England., (©2020). Public Health Profiles [online]. *Public Health England*. [Viewed 24th April 2020]. Available from <https://fingertips.phe.org.uk>

2 – Bricca, A. et al., (2019). Therapeutic exercise relieves pain and does not harm knee cartilage nor trigger inflammation. *British Journal of Sports Medicine* [online]. **54**(2), 118. [Viewed 24th April 2020]. Available from doi <http://dx.doi.org/10.1136/bjsports-2019-100727>

3 – British Heart Foundation., (2018). *The National Audit of Cardiac Rehabilitation: Annual Statistical Report 2017* [online]. [Viewed 24th April 2020]. Available from <https://www.bhf.org.uk/informationsupport/publications/statistics/national-audit-of-cardiac-rehabilitation-annual-statistical-report-2017>

4 – NHS Cambridgeshire and Peterborough Clinical Commissioning Group and Cambridgeshire County Council., (2015). *Cardiovascular disease in Cambridgeshire and Peterborough CCG* [online]. Cambridge Insight. [Viewed 24th April 2020]. Available from <https://cambridgeshireinsight.org.uk/wp-content/uploads/2018/07/CCG-LTC-Data-Supplement-2015.pdf>

Transforming our understanding of inflammatory bowel disease: p20-21

1 - Hamilton et al., (2008). Prevalence and phenotype of IBD across primary and secondary care: implications for colorectal cancer surveillance. *BMJ: Gut* [online]. **67**: A67. [https://doi.org/10.1016/S0016-5085\(18\)32221-2](https://doi.org/10.1016/S0016-5085(18)32221-2)

2 – NHS Health Research Authority., (2019). Sharing anonymised patient-level data where there is a mixed public and private benefit - a new report [online]. *NHS Health Research Authority*. [Viewed 19th June 2020]. Available from <https://www.hra.nhs.uk/about-us/news-updates/sharing-anonymised-patient-level-data-where-there-mixed-public-and-private-benefit-new-report/>

Surviving cancer through early diagnosis: p22-23

1 – NHS Long Term Plan., (2019). Cancer [online]. *NHS Long Term Plan*. [Viewed 30th April 2020]. Available from <https://www.longtermplan.nhs.uk/areas-of-work/cancer/>

2 – NHS., (2019). *NHS Long Term Plan*. Chapter 3.51 [online]. [Viewed 30th April 2020]. Available from <https://www.longtermplan.nhs.uk/online-version/chapter-3-further-progress-on-care-quality-and-outcomes/better-care-for-major-health-conditions/cancer/>

3 – The Royal Marsden NHS Foundation Trust. Skin Cancer: Incidence and risk factors. [online]. *The Royal Marsden NHS Foundation Trust*. [Viewed 30th April 2020]. Available from <https://www.royalmarsden.nhs.uk/information-gps/gp-resources/skin-cancer/skin-cancer-incidence-and-risk-factors>

4 – Office for National Statistics, (2019). *One-year and five-year net survival for adults (15-99) in England diagnosed with one of 29 common cancers, by age and sex*. [Data set]. Office of National Statistics. [Accessed 30th April 2020]. Available from <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/cancersurvivalratescancer/survivalinenglandadultsdiagnosed>

5 – Phillips, M., et al. (2019) Assessment of Accuracy of an Artificial Intelligence Algorithm to Detect Melanoma in Images of Skin Lesions. *Journal of the American Medical Association Netw Open* [online]. **2**(10). [Viewed 30th April 2020]. Available from doi.org/10.1001/jamanetworkopen.2019.13436

Cancer Research UK., (2019). What is oesophageal cancer? [online]. *Cancer Research 6 – UK*. [Viewed 30th April 2020]. Available from <https://www.cancerresearchuk.org/about-cancer/oesophageal-cancer/about>

7 – National Institute for Health and Care Excellence., (2019). Lung cancer: diagnosis and management NICE guideline [NG122] [online]. *National Institute for Health and Care Excellence*. [Viewed 3rd April 2020]. Available from <https://www.nice.org.uk/guidance/ng122/informationforpublic>

How opening doors and fixing lightbulbs enables patient care: p31

1 – Nursing Times., (2009). Nurses waste 'an hour a shift' finding equipment. *Nursing Times*.

[Viewed 18th June 2020]. Available from <https://www.nursingtimes.net/archive/nurses-waste-an-hour-a-shift-finding-equipment-10-02-2009/>

The risky business of reporting risks and benefits: p32-33

1 – Furedi, A., (1999). The public health implications of the 1995 pill scare. *Human Reproduction Update* [online]. **5**(6), 621-626. [Viewed 18th June 2020]. Available from <https://doi.org/10.1093/humupd/5.6.621>

"If there were any tears, it was when I tried to take the virtual reality headset off him!": p34

1 – Tanner, S., (2007). Trends in children's surgery in England. *Archives of disease in childhood*. **92**(8), 651-658.

2 – Kain, Z. et al., (2006). Preoperative anxiety, postoperative pain, and behavioral recovery in young children undergoing surgery. *Pediatrics*. **118**, 651-658.

3 – Kain, Z., et al., (1996). Preoperative anxiety in children. Predictors and outcomes. *Archives of Pediatrics and Adolescent Medicine*. **150**, 1238-1245.

Enabling continuity of care across the system: p35

1 – Nazar, H., et al., (2015). A systematic review of the role of community pharmacies

in improving the transition from secondary to primary care. *British journal of clinical pharmacology* [online]. **80**(5), 936 – 948. Viewed online 29th May 2020. Available from <https://doi.org/10.1111/bcp.12718>

Social media as a power for good: p39

1 – Smailhodzic, E., et al., (2016). Social media use in healthcare: A systematic review of effects on patients and on their relationship with healthcare professionals. *BMC Health Services Research*. **16**(442). Viewed 28th May 2020. Available from <https://doi.org/10.1186/s12913-016-1691-0>

2 – Avocado Social. The latest UK social media statistics for 2019 [online]. *Avocado Social*. [Viewed 28th May 2020]. Available from <https://avocadosocial.com/latest-social-media-statistics-and-demographics-for-the-uk-in-2019/>

"Creating solutions alongside and never on behalf of patients": p40

1 – NHS England., (2017). *Patient and public participation policy* [online]. [Viewed 11th May 2020]. Available from <https://www.england.nhs.uk/wp-content/uploads/2017/04/ppp-policy.pdf>

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