The AHSN Network

Patient safety in partnership

Our plan for a safer future 2019-2025

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Introduction

The Academic Health Science Network's (AHSN) plan for patient safety demonstrates our commitment to working in partnership to support the delivery of the *NHS Patient Safety Strategy: Safer culture, safer systems, safer patients* (improvement.nhs.uk/resources/patient-safety-strategy) published in 2019.

We highlight some of our successes at bringing together innovators and improvers in the work we have delivered so far; describing how we have achieved this, and the lessons we learned along the way. As an AHSN Network, we will continue to contribute to the delivery of the national strategy and here we outline how we will achieve this.

The National Patient Safety Collaborative Programme was established by NHS Improvement in April 2014 in response to findings from the Berwick review: *A promise to learn – a commitment to act* (www.gov.uk/government/publications/berwick-review-into-patient-safety). The aim was to build a culture of safety, continuous learning and improvement to achieve a continual reduction of harm, so patients and the public can be confident that care is safer.

Even before the Patient Safety Collaboratives (PSCs) were launched, The AHSN Network had identified the safety of service delivery as a key priority in many of the early workstreams in AHSN business plans. This resulted in a number of AHSN evidence-based improvement initiatives which have since been adopted as PSC programmes for national roll-out as well as providing foundations for new PSC work.

The NHS Patient Safety Strategy acknowledges the work of the PSCs: 'Building on the work of the last five years, the revised national patient safety improvement programme (NPSIP, previously referred to as NPSCP), supported by the Patient Safety Collaboratives (PSCs) across England that are commissioned through and hosted by the 15 Academic Health Science Networks (AHSNs), will be a key improvement and delivery arm of the NHS Patient Safety Strategy.'

Patient safety is a central priority and guiding principle for all AHSNs. It is the lens through which we look and is embedded in all we do across an inter-connected landscape that aims to improve the safety of services for all users of the health and care system. To do this successfully we must actively involve patients, carers and the public in all aspects of patient safety work.

Patient Safety Collaboratives are embedded within The AHSN Network and therefore part of our overall patient safety work. Our main premise is that PSCs themselves benefit from being part of a larger whole, having access to parts of the nationwide safety system that would not be possible if PSCs were disconnected from AHSNs. →

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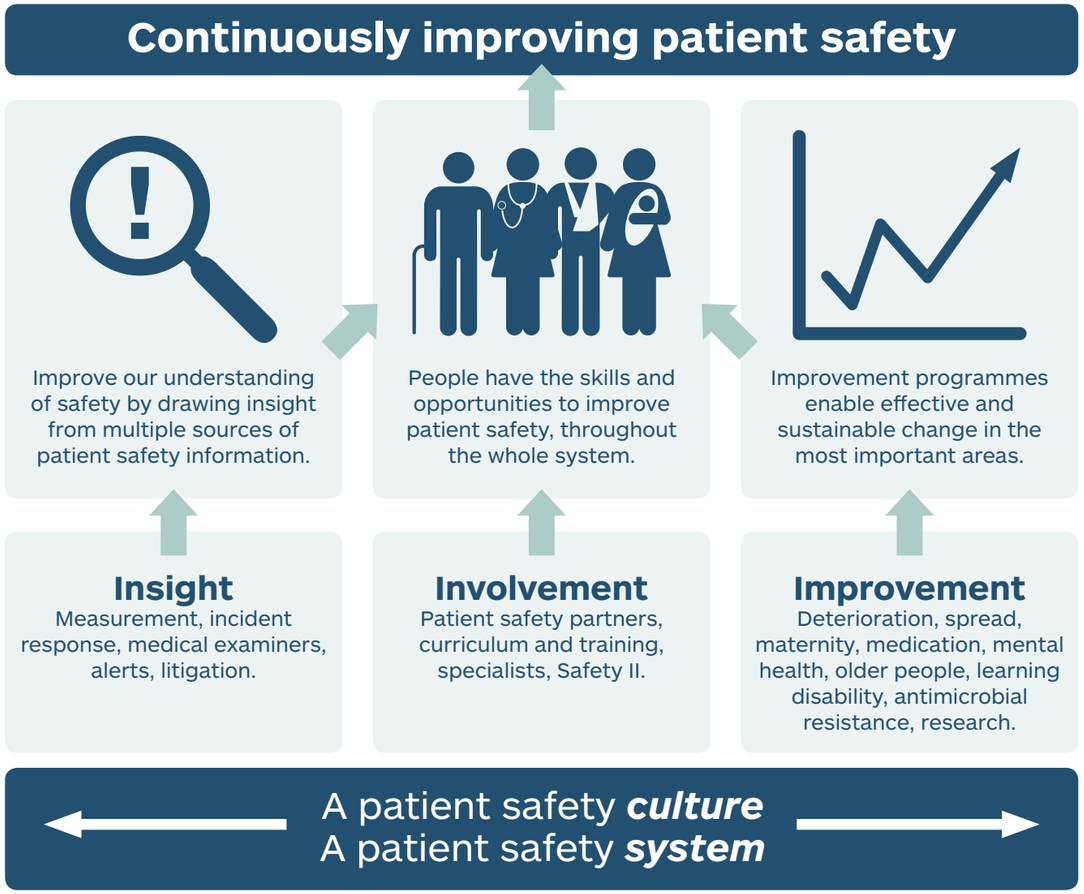

A summary of the NHS patient safety strategy (page 18)

The AHSN Network is the only system partner that brings together NHS providers and commissioners with academic and industry sector partners, all with an interest and desire to improve quality, safety and reduce harm. By doing so, we maximise the opportunities and benefits to incorporate innovation, work across sectors to develop and test out new solutions to improve safety of services for patients and are then able to identify successful initiatives for future scaling up.

AHSNs are system orchestrators, connecting parts of the system that would otherwise not connect; we are neutral brokers that span boundaries. Our track-record of delivering programmes that make a real difference has earned the respect and engagement of our local stakeholders. This is central to our success and continues to underpin the improvements in patient safety and quality of services we are committed to delivering.

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Natasha Swinscoe
Chief Officer Lead Patient Safety

Piers Ricketts
Chair of The AHSN Network

Our vision

Our ambition is to support the delivery of the NHS Patient Safety Strategy and therefore our vision is aligned to the national strategy: 'for the NHS to continuously improve patient safety.' The national strategy does not set a target, rather looks for opportunities to be safer and estimates that there is potential for a minimum of 928 extra lives saved and £98.5 million in treatment costs saved.

The NHS Patient Safety Strategy aims to save

1,000 extra lives and £100 million

every year from 2023/24
excluding litigation costs

The AHSN Network will make a significant contribution to this.

What we will do

1. **We will support the foundations of the national strategy:** a patient safety culture and a patient safety system, across all settings of care.

2. **The PSCs will deliver the patient safety strategy improvements** and seek the next tranche of national programmes for national adoption and spread.

3. **We will work with our members, Sustainability and Transformation Partnerships (STPs) and Integrated Care Systems (ICSs)** to roll out and embed these national initiatives in the local areas, ensuring ownership and sustainability.

4. **We will work alongside the Regional Patient Safety Teams** focusing on their system-wide objectives to support STPs and ICSs to identify and implement transformational change. Each region will have differing local needs depending on their starting point, but there will be cross-cutting themes that every PSC can support in a standardised way. Following the adoption and spread of the national initiatives, The AHSN network can support the seven regions with the national programme of capacity and capability building, utilising our local academies and delivery mechanisms for integrated quality improvement, Health Foundation training and innovation training.

5. **We will support the capacity and capability and leadership development programmes** particularly helping our local system leaders and partners to build knowledge and understanding of the innovation landscape and the opportunities this affords their own organisation's and wider system's safety agendas.

6. **We will build on the operational and strategic relationships we have with other national bodies** also interested and engaged in the world of patient safety. In particular, we will strengthen our partnership with:

    - **The Health Foundation** (HF), which has supported the development of the early phases of a number of projects that have developed into national patient safety initiatives.
    - **Health Education England** (HEE) to deliver the safety mandate, building on our existing relationship which sees us working together on joint programmes of work such as learning from deaths and the response to the Topol Review, focusing on the opportunities for safety from genomics, artificial intelligence (AI) and the digital revolution.

Insight

Improving the understanding of safety by drawing intelligence from multiple sources of patient safety information.

In this section, we identify how as an AHSN Network we have gathered intelligence of safety across complex systems and demonstrate examples of our ability to learn, share and spread.

The initial years following the establishment of AHSNs and PSCs included a period of significant 'building and learning'. Both constructs were new, experimental and demonstrated the bold and innovative approach that both NHS England and NHS Improvement had taken towards making real changes in how the NHS benefits from working with academic and industry partners to improve safety.

Our learning from region-wide programmes has been adopted nationwide as the following examples demonstrate.

PReCePT

The learning from the spread of PReCePT (Prevention of Cerebral Palsy in PreTerm Labour) to all maternity units in the West of England has now been adopted as part of a national programme, scaling this up across England. The PReCePT programme is reducing the incidence of cerebral palsy by offering magnesium sulphate to all eligible women in England during preterm labour. The PReCePT programme has successfully raised awareness of the importance of administering magnesium sulphate in pre-term labour giving it the same profile as steroids. It has now been incorporated within the new Saving Babies' Lives Care Bundle.

By the fourth quarter of our two-year programme, we had already achieved 79.5% uptake nationally from a starting point of 60.0%.

Antenatal magnesium sulphate given prior to birth reduces the risk of a pre-term baby developing cerebral palsy by 50%.

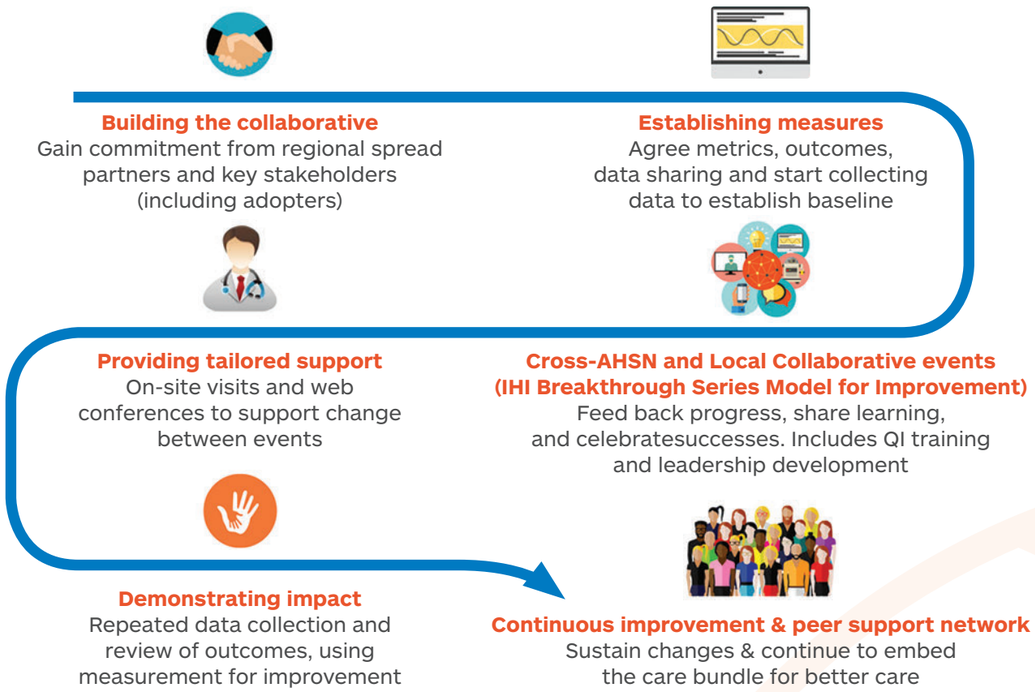
In the UK, 1% of live births are 10+ weeks premature. Of these babies, 10% will develop cerebral palsy.

During the two-year programme (2018-2020), we will:

- Treat a minimum of 1,048 additional women in pre-term labour
- Work with 152 maternity units in England
- Increase uptake to 85% from the 2017 baseline of 60%
- Achieve potential lifetime savings of £5.1 million through reducing the costs of continuing care

Emergency Laparotomy Collaborative (ELC)

Using a breakthrough series collaborative methodology the ELC care bundle (six elements) was rolled out across three AHSNs, demonstrated reduced mortality and lives saved**.** The impact of the original work showed **a reduction in crude 30-day mortality from 9.8 per cent to 8.2 per cent** and a **length of stay reduction of 1.3 days, from 20.2 days to 18.9 days**. Based on data from the Kent Surrey and Sussex area, we estimate that national spread between 2018 and 2020 could result in **85,000 fewer bed days** representing a net **benefit to the NHS of £9.8m**.



(Modified from International Consortium for Health Outcomes, 2017)

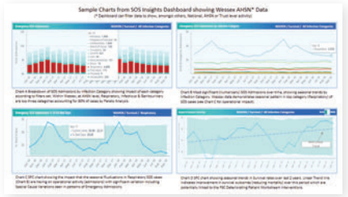
Other national programmes

Our experience and achievement of successful spread can be demonstrated through a number of other programmes developed through AHSNs and PSCs such as the **Emergency Department (ED) checklist**, **National Early Warning Score (NEWS and NEWS2)** and the **Suspicion of Sepsis (SoS) insights dashboard**.

These have all been adopted as national programmes for roll-out across NHS sites in England.

ED checklist: developed in the West of England to improve recognition and treatment of serious illness such as stroke, heart attack and sepsis. Now recommended for national use across the NHS.

NEWS: an example of the many patient safety improvements supported by the 15 Patient Safety Collaboratives. NEWS is a well-established tool to assess risk of deterioration, making handovers quicker and more effective. It has now been taken up by 96 per cent of acute hospital trusts and all ambulance service trusts in England, with work now focussing on using NEWS in non-acute settings.



SoS insights dashboard: developed by Imperial College Health Partners, the dashboard enables NHS staff for the first time ever to use reliable data to monitor and assess the impact of interventions on deteriorating patients with a suspicion of sepsis. The dashboard is already starting to show the power and importance of the use of data in the right context.

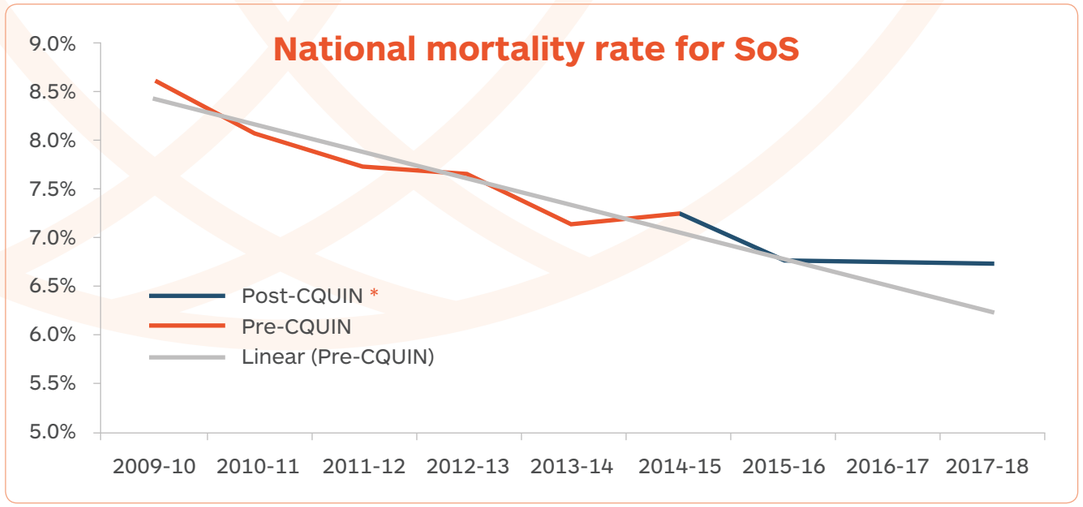
Sepsis

Sepsis is a serious complication of an infection. Although treatable, it kills 37,000 people a year in the UK. Patients who have a suspicion of sepsis (SoS) can be identified in routine administrative data.

Developments in data management like this will support the identification and testing of new programmes of work for early detection, management and prevention of physical deterioration.

We connect and try out different approaches, building stakeholder relationships whilst maintaining objectivity.

Our AHSNs have relationships with all key stakeholders in their regional footprints enabling access and links to all those working in the patient safety arena, as well as with colleagues who have ideas on how to improve safety in their local organisations and geographical patches.



* Commissioning for Quality and Innovation

Learning from deaths

The AHSN Network has been involved in supporting organisations to implement the Royal College of Physicians' Structured Judgement Reviews and the Learning Disabilities Mortality Review programme (LeDeR) and have brought organisations together to share their work and learn together, as well as supporting the development of the Medical Examiner role.

Working with Health Education England as funding partners, The AHSN Network has taken a novel approach by employing Patient Safety Fellows to gather learning following hospital deaths in Gosport. This will identify best practice and gaps in the support offered to bereaved families and support the development of a national curriculum (www.england.nhs.uk/wp-content/uploads/2018/08/learning-from-deaths-working-with-families-v2.pdf).

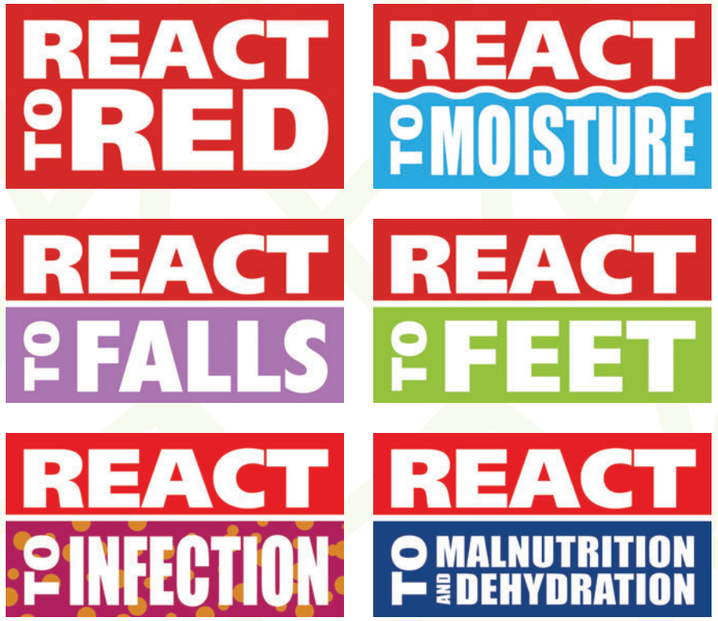
We have experience of using tools to learn from incidents such as the Human Factors Analysis Classification tool (HFAC) across mental health providers to understand root causes of suicide and Peer Review of Serious Incident reporting, which brought organisations together to learn from each other.

Involvement

Equipping patients, staff and partners with the skills and opportunities to improve patient safety throughout the whole system.

In this section, we describe how as an AHSN Network we have engaged, collaborated with, supported and developed local systems. We describe our achievements and our ability to work across boundaries and with partners in the system.

Over the last five years, we have built deep and trusting relationships with our local system partners. These systems take time to grow and we have invested in establishing a critical mass of 'improvers' who speak the same language and now work well together to co-deliver the national initiatives as well as local programmes of work.



AHSNs have developed a number of resources and products which support **multi-disciplinary (MDT)** training such as the **REACT TO** series of training resources for care homes. These are now available free of charge at www.reactto.co.uk.

The South of England Mental Health Collaborative has developed the 'three Ls' model around quality improvement: **Learn, Live and Lead**. The purpose of the model is to improve the knowledge and skills of those working in mental health care and to create a sustainable quality improvement structure for organisations. This has empowered and enabled members to achieve QI Leader status and subsequently coach people in their own organisation or complement local quality improvement programmes that are aligned.

AHSNs have the ability to achieve economies of scale. We already have many examples of cost-effective training programmes using simulation such as **EPIFFANY** (Effective Performance Insight for the Future education programme). Working in collaboration with industry and Health Education England, this programme has demonstrated a **50 per cent reduction in prescription errors** by junior doctors. We are well-placed to work in partnership to design and deliver training across the multi-disciplinary team and measure impact.

> For us (HEE) the strengths of the AHSNs lie in their network of Patient Safety Collaboratives, their cross-over with industry, links to academia, and their work and tools around just culture.
>
> **Pauline Brown,** SRO Patient Safety, HEE

We have a track record of partnership working and acknowledge we are stronger when we work together with our system partners. We have worked with academia to develop educational programmes at Masters level that integrates **quality improvement and human factors**, offering bursaries to local stakeholders.

In partnership with **Health Education England (HEE)** we have raised awareness of the importance of **human factors** in both understanding how harm occurs, but also how harm can be prevented when attention is focused on human factors.

Examples are: jointly funded awareness roadshows delivered to over 200 senior leaders in one region, 12 people were supported to complete a new Post-Graduate Certificate in Human Factors, and several jointly funded specialist posts or fellowships across The AHSN Network.

Our local networks have provided opportunities to come together with partners to support local stakeholders, as the following examples demonstrate:

- A Community of Safety and Improvement Practice (CSIP) with **over 700 members**.
- **Three AHSNs** developed a Human Factors Exchange Group.
- Created Community Education Provider Networks (CEPNs), partnerships of primary care organisations that coordinate education and workforce planning.
- A human factors project that supported five community providers, with 41 facilitators trained. Cascade training has been delivered to **2,884 staff working in the community**.
- An Obstetric Human Factors Educational Intervention Project is to be integrated into Royal College of Obstetricians and Gynaecologists' e-training materials.
- The development of **bespoke training materials**, including hydration in care homes, a new online education tool for the prevention and management of pressure ulcers, aimed at informal carers.

We look forward to working with **Patient Safety Learning**, a charity and independent voice for improving patient safety. **Together** we will harness the knowledge, enthusiasm and commitment of health and social care organisations, professionals and patients for system-wide change. In their 2019 report, *The Patient-Safe Future: A Blueprint for Action* (www.patientsafetylearning.org/resources/blueprint), patient safety is acknowledged as a system-wide challenge and six evidence based foundations for action are identified to address the causes of unsafe care:

1. Shared learning for patient safety
2. Leadership for patient safety
3. Professionalising patient safety
4. Patient engagement for patient safety
5. Data and insight for patient safety
6. Just culture

The AHSN Network supports this and is well-placed to work in a collaborative way supporting all endeavours to improve the safety of care.

> Patient Safety Learning welcomes The AHSN Network plan for patient safety. We believe that it will make a difference for patient safety and represents a step forward from the good work that AHSNs are already doing. We believe that there is opportunity for even more to be achieved with the resources, scale and capability within the AHSN networks.
>
> We absolutely applaud the statement that patient safety is a central priority and guiding principle for all AHSNs, and we recognise the AHSNs' distinct role as orchestrators across the healthcare system. We think that AHSNs, with PSCs, can reinforce this position by taking a powerful role in bringing, enabling and supporting systems thinking for patient safety across healthcare.
>
> **Helen Hughes,** CEO, Patient Safety Learning

Just culture and workforce

The AHSNs have appreciated the importance of supporting staff and the relationship between a just culture and workforce wellbeing and productivity. Every PSC has been working developing tools and resources to support **cultural change** from diagnostic tools such as safety climate surveys, safety huddles, learning from excellence and the use of appreciative inquiry methods. Impacts are seen through the way staff use these methods to improve care, for example in sepsis management, supporting staff following harm events (the development of second victimhood support) and reducing harm through safety huddles.

Second victimhood: supporting healthcare staff involved in harm

East Midlands developed a model of support using a three-tiered approach for second victims, which has been spread across the East Midlands region, Healthcare Safety Investigation Branch and Lancashire Police, with expressions of interest from two other AHSNs.

Involving patients and the public as partners in patient safety

National policy is clear that personalisation of care requires patients* to be actively involved in the design, delivery and evaluation of health services, as well as being actively involved in their own healthcare. This includes being able to access information about the risks and benefits of care in such a way that they can make informed decisions, taking into account what matters to them. Understanding the preferences and trade-offs that people are comfortable with making should be a key component of the insights needed to promote patient safety.

Working with patients as part of improvement teams can take many forms and is part of the shift from doing 'to' patients, through doing 'for' patients, towards doing 'with' patients. Patients and the public can bring expertise to all aspects of improvement work from prioritisation, through design to dissemination and evaluation. In some cases they may become integral to the team and co-produce the work with professionals as partners.

Hearing the experience of patients and their families who have been harmed by the system is an essential component of patient safety. These narratives must be set in a context of action, learning and change. They should not be used in isolation to provide a moment of intense emotional content.

Patients and families often need support to contribute and be effectively involved, particularly when their motivation to help others is born out of their traumatic experience. Creating an environment that supports effective involvement requires expertise from the staff working with patients and their families.

Patient Safety Collaboratives and AHSN patient and public involvement leads are working together to embed, and further develop, expertise in working with patients and the public. There are already great examples of patient safety co-production. The ongoing work to create a safety culture of openness and listening, provides the ideal context for understanding the value patients and the public can bring and the difference they can make.

Specific, joint work will focus on providing practical advice on:

- how to involve patients and the public in patient safety;
- how to provide support for patients, their families and staff; and
- how patients can contribute to investigations, review safety data and contribute to insight development.

There are also plans to develop a patient perspective on the COPD checklist and support involvement in emergency laparotomy, medicines safety, and women's experiences in maternity and neonatal services.

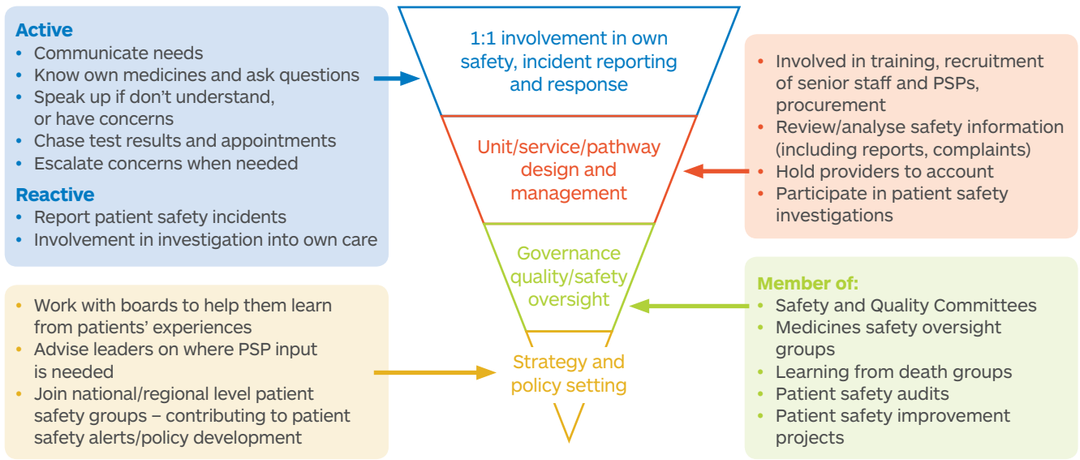
Patient Reported Experiences and Outcomes of Safety (PREOS)

Patient Safety Collaboratives have supported the development of safety climate tools for patients for use in Primary Care: **The Patient Reported Experiences and Outcomes of Safety in Primary Care (PREOS-PC)**. This questionnaire was developed and piloted as part of the work undertaken to develop the Royal College of General Practitioners' (RCGP) Patient Safety Toolkit for Primary Care (www.rcgp.org.uk/clinical-and-research/resources/toolkits/patient-safety.aspx)

This is the first large-scale survey to evaluate the safety of general practices in England as experienced by the patients themselves. The results of this study identified potential areas for improving patient safety. The development of the tool has been funded and validated by East Midlands and South West AHSNs (and a collaboration between Exeter and Nottingham Universities).

The AHSN Network supports the NHS Patient Safety Strategy approach to supporting and involving patients, service users, carers and lay people as seen in the model below.

Potential roles for Patient Safety Partners



Potential roles of patient safety partners (NHS patient safety strategy, page 35)

* Patients and the public refers to people in receipt of health or social care, their families and carers, and the broader population.

Improving patient safety

Academic Health Science Networks and the Patient Safety Collaboratives they host are important delivery agents of the NHS Patient Safety Strategy, linking frontline staff, system leaders, commissioners, researchers and innovators. By sharing methodologies and ways of working, AHSNs and PSCs and able to amplify impact through collaboration.

Examples of impact

Through many partnership projects around the country, we have tested new ideas and ways of working with potential to make a big impact on patient safety and reduced costs.

Standardised benchmarking tool for care homes:
predicted
£4.5 million savings
by reducing pressure sores over three years (500 care homes), saving £3,440 per home

SoS dashboard:
Recorded a drop in length of stay for sepsis from 11.6 to 11.0 days, with
404 fewer cardiac arrests and sepsis mortality down from 16.9% to 13.7%
between April 2015 and September 2018 across England

Safety huddles aimed at falls:
107% return on investment
giving £2 back for every £1 spent

Catheter Associated Urinary Tract Infection Collaborative:
achieved a
30% reduction
across the participating trusts

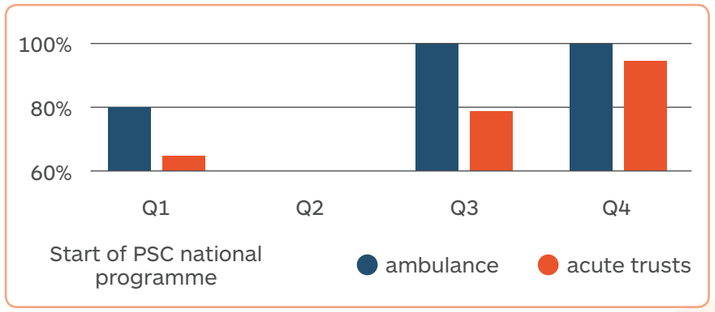
Hydration project:
reduction in hospital admissions, falls and AKI projects resulted in
30-day mortality reduction by 47%

Mental health:
Potential cost savings from improving the quality of health checks for people with a serious mental illness estimated at
£11.3 million in 10 years
in one area alone

Emergency Laparotomy Collaborative:
The impact of the original work showed a reduction in
30-day mortality from 9.8% to 8.2%
and a
length of stay reduction from 20.2 days to 18.9 days

NHS patient safety strategy themes

Managing deterioration



A graph showing the uptake of the National Early Warning Score (NEWS2) across England in 2018, led by Patient Safety Collaboratives.

96%
of acute trusts in England are using NEWS2 in all or part of the organisation

100%
of ambulance trusts in England are using NEWS2 in all or part of the organisation

A chart showing the planned spread of deterioration tools by AHSNs across non-acute health and care sectors

Maternity and neonatal safety

Around 13 cases of cerebral palsy were avoided in 2018–19, representing a saving of approximately
£10.4 million
in lifetime health and social care costs.

Medicines safety

Transfers of Care Around Medicine (TCAM)

It is estimated that
60%
of patients have three or more changes made to their medicines during a hospital stay, associated with an increased risk of adverse effects.

PINCER
(Pharmacist-led information technology intervention for reducing clinically important errors)

Identified
21,636
instances of potentially hazardous prescribing across
2.9 million
patients.

Research and innovation

The Innovation and Technology Tariff/Payment (ITT/ITP) programme is fast-tracking the roll-out of latest technology across the country, with AHSNs responsible for accelerating uptake locally.

At least

4,381

instances of clinical teams actively using innovations through AHSN adoption and spread programmes

More than

230,000 people

have benefitted from innovations on the Innovation and Technology Tariff and Payment programmes (ITT and ITP)

Adoption and spread of innovation

Commissioned by NHS England, the AHSNs are delivering seven national programmes, developed regionally and selected for adoption and spread nationally during 2018-20. These include patient safety-related innovations including Emergency Laparotomy Collaborative, PReCePT, PINCER and TCAM.

Transfer of Care Around Medicines:

£54 million potential savings

to the NHS through the programme

PReCePT:

Increasing uptake of magnesium sulphate to 85% from the 2017 baseline of 60% would provide

potential lifetime savings of £5.1 million

Emergency Laparotomy Collaborative care bundle:

We estimate that national spread between 2018 and 2020 could result in

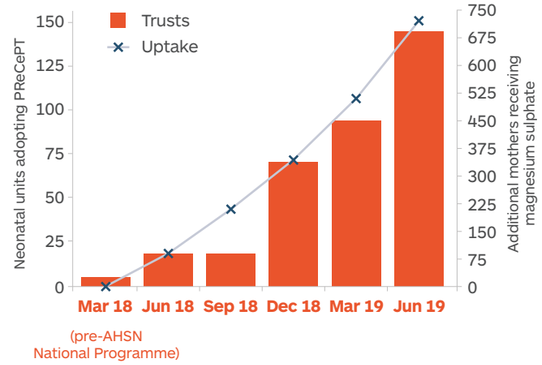
85,000 fewer bed days

representing a net

benefit to the NHS of £9.8 million

Our spread journey

PReCePT

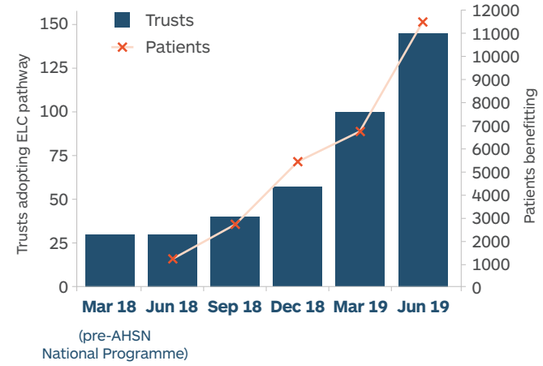


79.5% uptake of magnesium sulphate for eligible mothers

An estimated **13** cases of cerebral palsy avoided by PReCePT

£10.4 million savings in lifetime health & social care costs

Emergency laparotomy

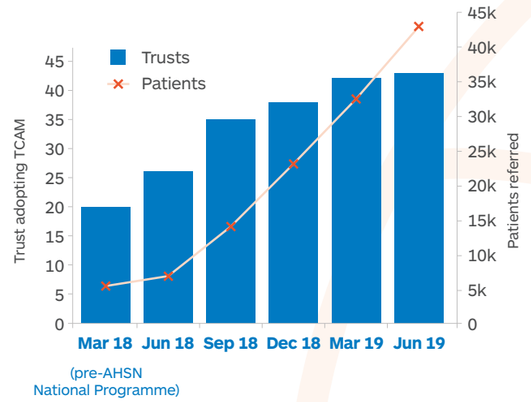


268% increase in NHS trusts adopting

552% increase in patients benefiting

Every £1 spent = **£4.50** benefit to health economy

Transfer of Care Around Medicines

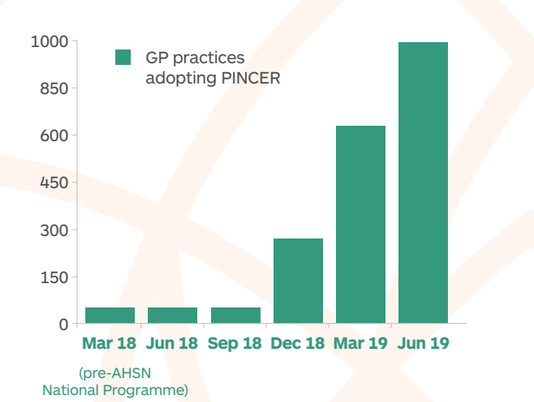


32,758 patients referred

Spread from **20 to 42** trusts

498% increase in patients benefiting

PINCER



1,156% increase in first year

Improvement

In this section we describe some of the work we have been involved in, and identify areas were we have expertise and would like to contribute.

Our premise is that Patient Safety Collaboratives achieve more by being fully integrated with AHSNs.

1. National Patient Safety Improvement Programme (NPSIP)

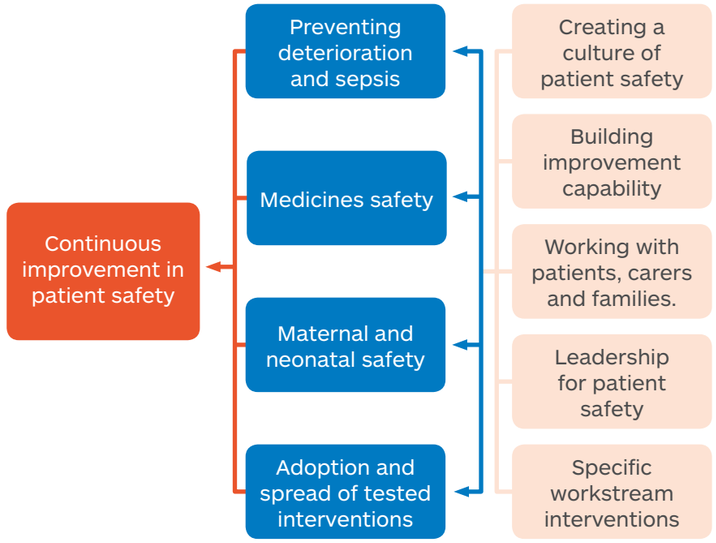
It is clear the PSCs have collectively risen to the challenges set out in the Berwick Report. Through networks, use of evidence, sharing of best practice and most of all, by engaging and involving staff and patients, they have delivered service, quality and safety improvements and avoidance of harm.

We can demonstrate that there is strong alignment of purpose and integration of PSCs within the AHSNs; manifesting itself in the successful delivery of the national programmes. We also recognise this integration could be further strengthened and improved. There is always room for improvement in learning organisations and the '*Patient Safety Collaboratives – a retrospective review*' (NHS Improvement, 2018, improvement.nhs.uk/resources/patient-safety-strategy) and the *'Improving patient safety through collaboration'* report by the Kings Fund (2019, www.kingsfund.org.uk/blog/2019/03/quality-improvement-patient-safety) suggested some ways to achieve this.

Our 'matrix' approach to patient safety, where we see it cutting across our two key themes of improvement and innovation and seeing all our work through the lens of safety, ensures our agendas cross over and that we are able to make the connections between these different agendas. This is of particular relevance to the AHSN workstreams of medicines optimisation, digital, genomics and artificial intelligence, where opportunities for safety and reduction of harm are key elements. By 'docking' these into the PSCs at the opportune moment, we can make the most of the inter-relationships and inter-connections only the AHSNs can make.

The AHSN Network's approach to patient safety is that it should not be vested in the PSCs alone, but that it will be woven throughout our wider improvement and innovation agenda. Full integration with The AHSN Network programmes, supported by good quality improvement methodology, research and evaluation and an innovative and underpinning philosophy of experiment will succeed and be sustained when the conditions are right to receive them. These conditions are cultural readiness, effective leadership and quality improvement capability. The AHSN Network provides the wrap-around functions for all of these that in turn underpin the PSC and wider patient safety delivery.

We will continue to deliver on the current national workstreams as set out below:



Driver diagram for the NPSIP (NHS patient safety strategy, page 46)

We are also working to develop a **pipeline for the future**, enabling future work programmes to be selected and deployed across the network. The AHSN Network has already described a prioritisation process, tested and evaluated in 2017/18, which culminated in the identification of seven national programmes. The AHSN Network has designed, and is now implementing, a needs-based approach to prioritising future programmes of innovation and service improvement. The aim is to identify the right opportunities for large-scale programme change that are well-evidenced and deliver both improvement in patient outcomes alongside cost-effectiveness.

Emerging opportunities that show promise can also be selected for further evaluation in a real-world environment supported by AHSNs. This approach seeks to make an early assessment of barriers to rapid uptake and how these might be overcome, taking the learning from the adoption and spread programmes that AHSNs have delivered to date.

We are agile and can scale up to meet additional future challenges. This responsiveness has been evidenced in the change of focus from local to national activity. Under the recommissioned National Patient Safety Improvement Programme and with development of further national quality improvement work prioritised to areas with significant harm, variation, litigation costs, evidence-base and the potential for wider impact, **The AHSN Network can make a significant contribution to the NHS Patient Safety Strategy.**

2. Maternity and Neonatal Safety Improvement Programme

Patient Safety Collaboratives hosted within Academic Health Science Networks have been supporting the national Maternal and Neonatal Safety Improvement Programme (MNSIP) since it began in 2016.

Local Learning Systems

The MNSIP is the first collaborative of its kind on such a wide scale in Europe. It brings together all the maternal and neonatal services across England to focus on continuous improvement, in line with the national ambition to reduce stillbirths, neonatal deaths, maternal deaths and brain injury by 50 per cent by 2025 to bring about system-level change that leads to safer care for mothers and babies. With the MNSIP entering its third year, maternity and neonatal services across England will receive continued support on their continuous improvement journey through the Local Learning Systems organised by PSCs.

Local Learning Systems (LLS) bring together the organisations and networks involved in providing and commissioning maternal and neonatal care to ensure continued focus on the aims of the MNSIP. The LLS identifies system-level opportunities to build on the improvement projects undertaken by individual trusts, using the five primary drivers identified by the advisory faculty.

The AHSNs and PSCs have a key role to ensure the sustainability of the improvement work, supporting maternal and neonatal services in continuous improvement through the use of evidenced quality improvement methodology.

One of the examples of outputs from the Local Learning Systems is reducing smoking in pregnancy, learning from existing work in the South West with a view to connecting with others projects across the country.

A Maternal Early Warning Score (MEWS) to spot deterioration will be developed by the Royal College of Obstetricians and Gynaecologists, with a potential focus on post-natal care. Post-natal care is frequently seen as an area where women are least satisfied and is a sometimes an unidentified area of risk for mothers.

The Birmingham Symptom-specific Obstetric Triage System (BSOTS)

Other system-wide programmes of work include The Birmingham Symptom-specific Obstetric Triage System (BSOTS). Unlike mainstream emergency medicine, there is currently no standardised triage system within maternity for unscheduled appointments.

BSOTS was co-produced in 2013 by midwives and obstetricians from Birmingham Women's and Children's NHS Foundation Trust and the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (CLAHRC).

The system is based on established triage systems in emergency medicine and uses an assessment based on clinical prioritisation of the common reasons that women present within maternity triage.

B	Birmingham
S	Symptom-specific
O	Obstetric
T	Triage
S	System

Evaluation by NIHR CLAHRC West Midlands demonstrated that BSOTS:

- Significantly improved number of women assessed within 15 minutes of arrival (particularly red/amber)
- Is likely to improve safety for women and babies
- The system has strong inter-rater reliability suggesting it offers a reliable method of triaging women
- All the midwives reported that BSOTS training had improved their knowledge and confidence

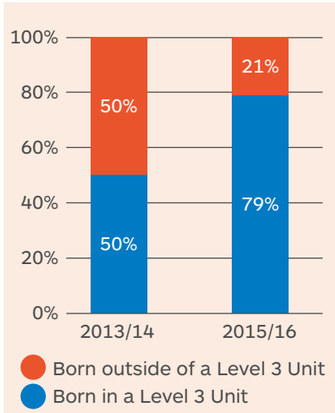
This maternity triage system has now spread from West Midlands to other AHSNs *demonstrating the potential to scale up evidence-based innovations through our networks.*

Improving regional referral pathway saves lives of premature babies

The Oxford AHSN Maternity Network brought together stakeholders from across the region to work together so that more extremely premature babies are born in a Level 3 unit with a region-wide package of improvements put in place. This required a significant shift in working practices from making decisions based on availability of beds/staff to focus on the risks for the mother and baby.

Using these opportunities for system level learning, AHSNs and PSCs are in the driving seat to support organisations to take forward improvement work to improve safety for mothers and babies and develop new initiatives.

Other improvement programmes include **supporting women who have had miscarriage**. Rainbow Clinic, a specialist antenatal service for women who have had a late miscarriage, stillbirth or perinatal death, can be a key component in helping to deliver the national strategy 'Saving Babies' Lives', in providing a recommended management pathway for subsequent pregnancies. Prior stillbirth (or late miscarriage) is the strongest single risk factor for stillbirth in a subsequent pregnancy, placing the mother at five-times greater risk compared to women who have had a live birth (Lamont, 2015).



The initiative led to an increase in extremely preterm babies born in a Level 3 unit **(up from 50% to 75-80%)**. It is estimated that the lives of four more extremely premature babies are being saved every year **(a 5% increase)**.

3. Medicines Safety Improvement Programme

The AHSN Medicines Optimisation programme has identified a number of innovative and impactful programmes of work such as **Transfer of Care Around Medicines (TCAM)**, to prevent harm at transitions of care.

It is estimated that 60 per cent of patients have three or more changes made to their medicines during a hospital stay. The transfer of care process is associated with an increased risk of adverse effects (AEDs).

We have a great opportunity to think differently about medicines safety. The impactful programmes The AHSN Network has already delivered is testament to this. **TCAM in mental health** organisations is already being tested and the principle of TCAM is being explored in **primary care**. With our networked organisation we have the ability to test an initiative in one area and quickly scale up to others by pooling resources and capitalising on the infrastructure, connections and skills we already have. In this way we can be more successful in achieving impact.

Figures modelled from PharmOutcomes suggest that based on referrals of 2,600:

A hospital trust could save **£623,116**

A clinical commissioning group could save **£734,802**

The local health economy could save **£1,357,917**

> A patient was discharged on seretide and tiotrpium inhalers. The community pharmacist identified that the patient thought that they were both for the same thing, so was only using one inhaler and only using it once a day rather than twice a day.
>
> A patient had warfarin discontinued whilst in hospital and dabigatran prescribed instead. The patient went home and started taking the warfarin they had left at home together with dabigatran. The community pharmacy cancelled repeat prescriptions for warfarin and actually went to the patient's home to remove their warfarin stock piles.

Working with industry through our innovation exchange teams, AHSNs have developed robotic systems to improve medication safety as well as reduce waste and improve productivity. For example, the introduction of a unit dose, closed loop medicines management system has led to:

- 25 per cent reduction in medicines consumption
- 71 per cent reduction of waste
- 55 per cent reduction in stock levels
- Reduction of missed doses from 10 to 1.2 per cent
- Medicines-related cost savings of £4.1 million per year, based on rolling out the system across all in-patient beds (1,790 beds)

Work continues in supporting the whole-system implementation of early warning systems, including in primary care, as well as supporting medicines safety through national programmes of work such as **PINCER**, a pharmacist-led IT intervention for medication errors in general practice.

Scaling up a pharmacist-led IT intervention for medication errors in general practice (PINCER)

- Reduced error rates by up to 50 per cent. An economic analysis showed introducing PINCER was cost effective
- Scaled up to general practices in the East Midlands using a large-scale Quality Improvement Collaborative (QIC), with Health Foundation and East Midlands AHSN funding and support
- Scale-up so far has identified an estimated 21,636 instances of potentially dangerous prescriptions across 11 prescribing indicators – enabling action to be taken

General practice prescribing error rates are estimated to be 5 per cent, with serious errors affecting 1 in 500 of a prescription items

Identified **21,636** instances of potentially hazardous prescribing across **2.9 million** patients

In addition the PSC will support the **NHS Medicines Safety Strategy** (awaiting publication), beginning with a programme to support the reduction of administration errors in care homes.

4. Mental Health Safety Improvement Programme

AHSNs are already working to support improvements in mental health. The South of England Mental Health Collaborative, supported by the AHSNs has been active for a number of years supporting local improvements. Elsewhere a number of AHSNs are developing innovative programmes to prevent people with mental health problems dying prematurely from physical conditions.

Improving the Physical Health of People with Serious Mental Illness

- The Bradford Physical Health Review Template improves the quality of health checks for people with a serious mental illness (SMI) who are at risk of dying prematurely due to preventable physical conditions.
- Supports healthcare professionals to identify patients with conditions including high blood pressure, diabetes and cardiovascular problems.
- With 47,713 health checks, potential cost savings in the Yorkshire and Humber region alone are estimated to be £11.3 million over the next 10 years.

Yorkshire & Humber **potential savings** of **£11.3 million** in **10 years**

5. Safety of older people

Patient safety issues such as falls, pressure damage, infections and problems related to nutrition and hydration affect older people more than any other population group. Specific safety initiatives to address the complex factors behind these issues are an important and enduring feature of the NHS's work and you will find many examples in our report *Improving safety in care homes*.
www.ahsnnetwork.com/care-homes-report

We can maximise the opportunities and benefits to incorporate innovation into care home settings, work across sectors to develop and test new safety solutions, and identify successful initiatives for future scaling up.

By bringing the work of AHSNs and the Patient Safety Collaboratives closer together, we know we can achieve more. The AHSN Network is the only system partner that brings together NHS providers and commissioners with academic and industry sector partners – all with an interest and desire to improve quality, safety and reduce harm. Our intelligence across the AHSNs shows we have many potential programmes of work we could mobilise to support the care homes sector.

Previous work includes the development of nutrition toolkits, hydration resources, training and dementia screening to name a few. The number of programmes of work in the care home sector show our ability to understand and connect with this sector and respond to the growing need for support and programmes of work that result in system-wide impact.

The AHSN Network has multiple examples of impactful work to reduce pressure ulcers and infections in care homes and the wider health and care system as the following examples demonstrate.

Improving hydration to reduce UTIs in care homes resulted in **36% reduction of UTIs**

UTIs requiring antibiotics **fell by 58%**

The frequency of UTIs dropped from **1 in 9 days to 1 in 80 days**

Whole system falls and fracture prevention

We have many examples of work to reduce falls across the system. Our partnership working with care homes has helped us to make progress in this sector by reducing and preventing falls. There is significant potential for us to capitalise on this nationally by aligning activity and resources with the wider AHSN Network and the frailty programmes AHSNs are invested in.

As part of its pipeline initiatives, Health Innovation Manchester is supporting development and evaluation of Safe Steps to enable wider adoption and spread across the system. Safe Steps is a digital falls risk assessment tool designed to reduce the number of falls in care homes, including early identification of high risk residents. The tool measures 12 key risk factors based on NICE guidelines and provides a personalised action plan with evidence-based recommendations to reduce falls risks. In addition, the tool creates a digital audit trail for reporting and CQC inspections, providing real-time area and care home level dashboards. Initial evaluations suggest Safe Steps can reduce the risk of preventable falls by up to 28 per cent.

Reducing harm through safety huddles

The problem:
208,720 falls in NHS hospitals in England in the year ending October 2012. Falls are a common and serious problem estimated to cost the NHS more than **£2.3 billion per year**. Over 200,000 falls in hospital in England (2012). The human cost of falling includes distress, pain, injury, loss of confidence, loss of independence and mortality.

What we did:
Implemented **safety huddles** – we are now actively working with more than 66 front line teams across 18 organisations in Yorkshire and Humber, including two private nursing care homes and two general practice teams.

Impact:
- To date **1,600** patients who could have fallen have not done so
- The intervention has **avoided 13 fractures** forecast including #NOF
- **£1.1 million** was saved from direct care costs to date
- We have extended our programme to include pressure ulcers, care of deteriorating patients and reducing delayed discharges.

6. Research and innovation

Our **connections to academia** including Patient Safety Translational Research centres (PSTRCs) and the Applied Research Collaboratives (ARCs) are important, both for identifying evidence and research that can lead to new programmes of work for piloting and testing, and then evaluations of those programmes of work in small 'test of change' areas before they are ready for wider adoption.

The interrelation between research-active organisations and The AHSN Network is a complex structure but one the network navigates with ease of experience. Our local entrepreneurs and innovators have ideas for how to improve pathways or devices and med tech and digital solutions that are ready for adoption or need additional work to test and evaluate.

Our PSCs and AHSNs have the relationships to find local test beds or demonstrator sites to support this real-world evaluation. This means we can advance the uptake of new patient safety solutions in a systematic and safe way, delivered through local partnerships underpinned by strong methodologies of continuous quality improvement.

Because we know our local footprints so well, we understand how to capitalise on the local context and where local variation is acceptable. This adds depth and breadth to the evidence base, allowing innovations to be considered for scale-up through various accelerator programmes for nationwide adoption and spread. Without the real-world evaluation, new innovations would not get supported and the realm of patient safety would not move forwards.

7. Never Events

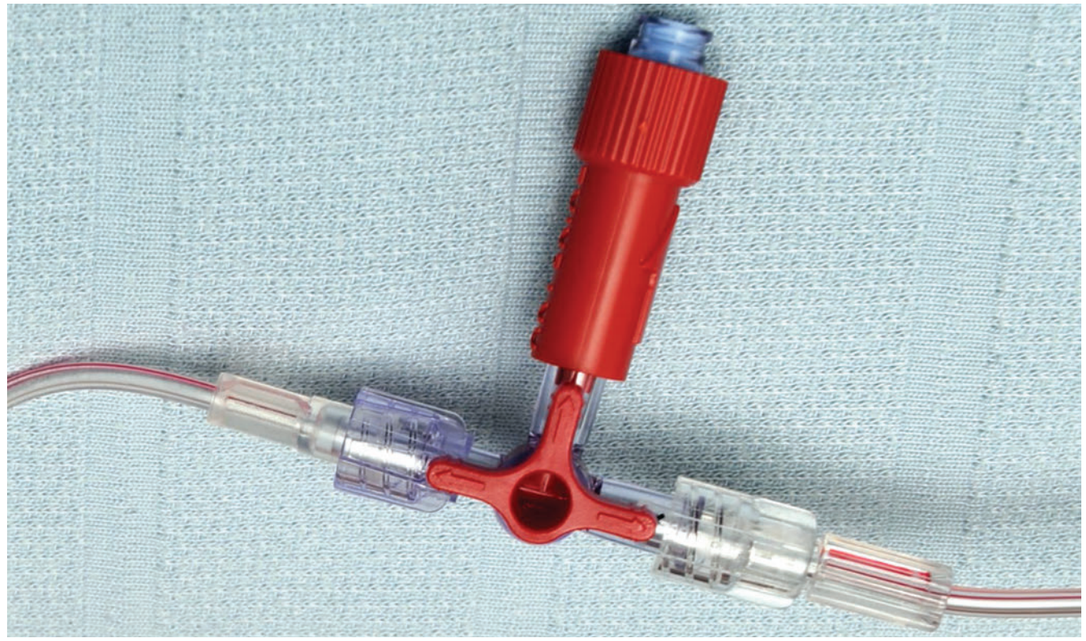
Safety improvement relies on innovation, be that incremental or disruptive, and innovation relies on research to generate and test new ideas. The NHS Patient Safety Strategy provides Never Events as an example – incidents that are considered wholly preventable because national safety recommendations that provide strong systemic protective barriers should have been implemented by all local systems.

Never Events that are prevented by a one-off technical solution are much rarer. Technical innovations that act as barriers to people getting things wrong can have a greater impact on Never Event prevention. Adoption of evidence-based tools to support safety priorities as well as developing innovative solutions to pre-empt emerging threats is seen as a priority in the strategy.

We capitalise on the opportunities afforded by innovation and accessible to us through the AHSNs' network of Innovation Exchanges to bring innovation from the life sciences industry to life and into the Patient Safety Collaboratives. We bring innovation and patient safety together in practical ways. AHSNs supported the adoption of a number of ITP products which have the potential to improve safety.

Published reports (*Surgical Never Events*, NHS Improvement, September 2018; *Learning from Never Events*, Care Quality Commission, October 2018; and *Opening the Door to Change*, Care Quality Commission, December 2018) highlight the continued challenges relating to the reduction of Never Events.

> "We capitalise on the opportunities afforded by innovation and accessible to us through the AHSNs' network of Innovation Exchanges to bring innovation from the life sciences industry to life and into the Patient Safety Collaboratives."



The Non-Injectable Arterial Connector (NIC), which prevents accidental injection of IV medication into arterial lines.

AHSNs are best-placed to tackle these important areas, based on their previous experience and successes. They can support the integration of human factors and share learning across the NHS. In addition, our work with industry and clinical entrepreneurs has already demonstrated a number of innovations being rolled out such as Wiresafe (to prevent retained guide wires), Non-Injectable Arterial Connectors (NIC) (to prevent wrong route administration), with a number of other innovations in the pipeline, for example innovations to address wrongly placed naso-gastric tubes.

There is clearly a need for more effective ways of sharing problems and solutions across trusts, for example when issues relating to medical devices are identified. Also, sharing lessons would help trusts determine whether similar activities locally would work for them. Through our local networks, AHSNs and their partners can support the development of solutions to prevent Never Events and to ensure we are working with NHS Regional Teams to ensure learning is shared widely across England.

WireSafe, which avoids the Never Event of a guide wire being left in the patient.

UCLPartners, for instance, has already established a network to support the effective implementation of Local Safety Standards for Invasive Procedures (LocSSIPs) to drive improvements and reduce serious incidents and Never Events: uclpartners.com/what-we-do/patient-safety/invasive-procedures-safety-network.

Conclusion:
delivering patient safety together

AHSNs are effective agencies to support the NHS Patient Safety Strategy.

We are 'the who and the how' of the national strategy as part of the interconnected system. We have a strong USP as neutral brokers and bring together systems and the people within them to stimulate and nurture improvement.

All of this is delivered through local partnerships, underpinned by strong methodologies of continuous quality improvement. And because we know our local footprints so well, we understand how to capitalise on the local context and where local variation is acceptable.

As trusted, system-change partners we will continue to identify opportunities for new safety programmes to feed the future innovation pipeline. We will do this by identifying solutions to meet local organisations' needs, which can then be evaluated and potentially scaled up across England in the future whilst recognising what is possible within the resources we have and what could be possible if we were able to grow our income streams.

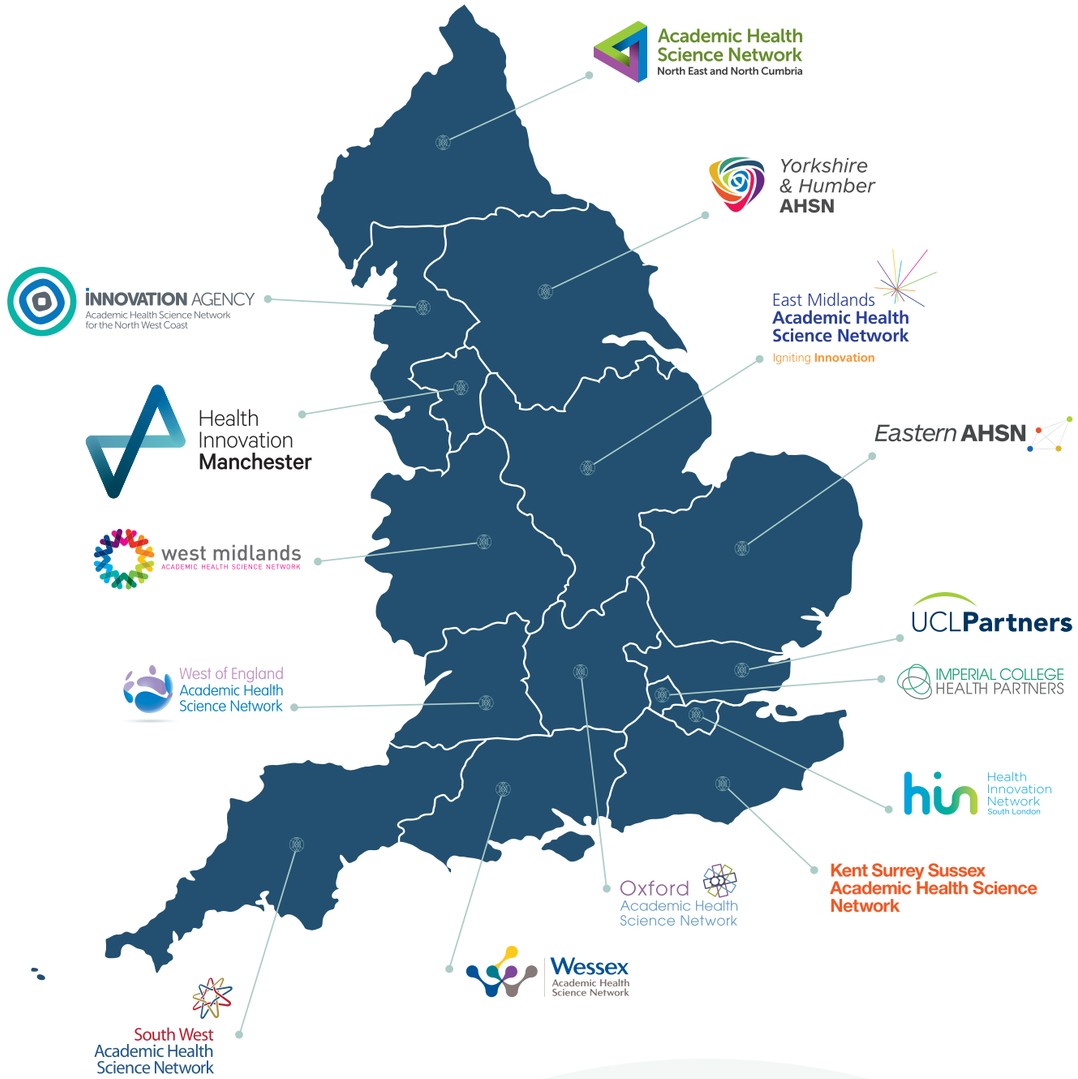
Our unique place in the improvement and innovation systems within each AHSN region ensures we link together key people with great ideas and enthusiasm, all of whom are determined to improve our local systems and in doing so build relationships that create opportunities for further developmental and progressive work in the future.

We have also developed an operational action plan to deliver our ambitions set out in this document. To find out more and get involved, contact your local Academic Health Science Network.

Acknowledgements

This plan has been written following consultation with many internal and external stakeholders. It represents the ambition of all 15 AHSNs as a national AHSN Network. We would like to thank everyone who commented and advised us through this process.

The AHSN Network



Find details for your regional AHSN at **www.ahsnnetwork.com**
For case studies on innovations supported by the AHSNs visit our Atlas of Solutions in Healthcare at **atlas.ahsnnetwork.com**

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