

Artificial Intelligence (AI) image decision support software use in stroke care

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The NHS Long Term Plan will increase the range of digital health tools and services



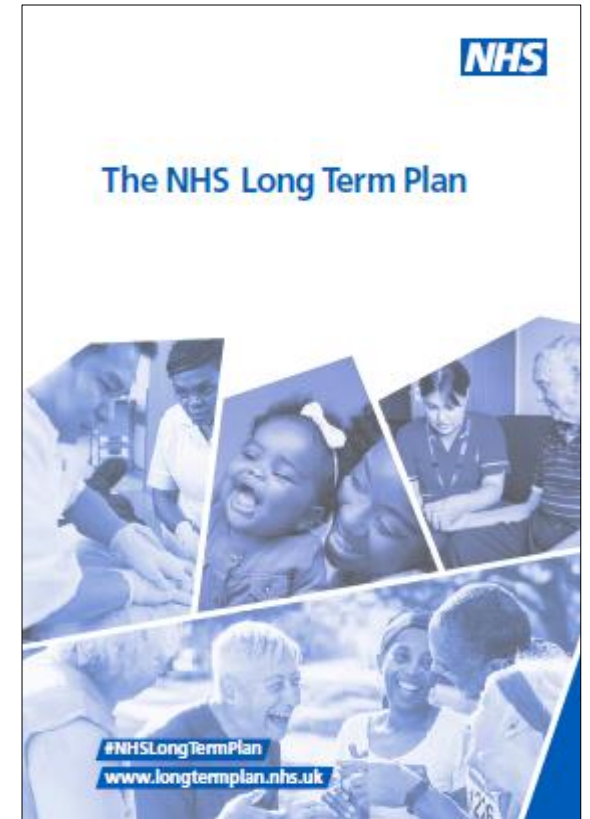
“Digitally enabled care will go mainstream across the NHS. Virtually every aspect of modern life has been, and will continue to be, radically reshaped by innovation and technology – and healthcare is no exception. Technology is continually opening up new possibilities for prevention, care and treatment.”

“We are also investing in improving NHS IT systems and in developing new technology.”

3.78. **National support for the scaling of technology will assist the expansion of life-changing treatments to more patients.** This includes the use of CT perfusion scans to assess the reversibility of brain damage, improved access to MRI scanning and the potential use of artificial intelligence interpretation of CT and MRI scans to support clinical decisions regarding suitability for thrombolysis and thrombectomy. Interoperable information systems supported by telehealth will aid more timely transfer of information between providers, enabling more effective hyper-acute pathways and improving access to and intensity of rehabilitation.

Milestones for stroke care

- In 2019 we will, working with the Royal Colleges, pilot a new credentialing programme for hospital consultants to be trained to offer mechanical thrombectomy.
- By 2020 we will begin improved post-hospital stroke rehabilitation models, with full roll-out over the period of this Long Term Plan.
- By 2022 we will deliver a ten-fold increase in the proportion of patients who receive a thrombectomy after a stroke so that each year 1,600 more people will be independent after their stroke.
- By 2025 we will have amongst the best performance in Europe for delivering thrombolysis to all patients who could benefit.



National Stroke Service Model

Integrated Stroke Delivery Networks

May 2021



The National Stroke Service Model (NSSM) was published in May 2021, outlining best practice stroke care for the NHS.

- Since April 2021, 20 Integrated Stroke Delivery Networks have been established with accountable governance structures in place.
- These are the key vehicles for transforming stroke care across the country.
- **One of the main functions of ISDNs is to identify, coordinate and sustain change for their local population.**
- The model details the overarching objectives and governance of an ISDN as well as outlining the optimal pathway for joined-up stroke care.
- **Best practice personalised stroke pathways should be configured and managed**
- **Image sharing between centres within and external to each ISDN should be optimised to provide timely patient-centred decisions**

AI Timeline



January 2019

NHS Long Term Plan

Digital “will go mainstream across the NHS”

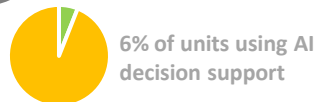


COVID-19
March 2020

Unprecedented pressure on stroke and TIA services

Improved identification of acute ischaemic stroke and treatment decision-making

Adopting AI software to support Covid response
April 2020



£140m fund run AI technologies that support the aims of the Long Term Plan

AI Award
September 2020



Richards Review of NHS diagnostic services

October 2020

“AI is likely to be of significant benefit in improving access to treatment, but requires national guidance, funding and implementation support.”



Create guidance that provides rapid, sustainable decision-making

Provides leadership and accountability for increasing access to thrombectomy services



Thrombectomy Implementation Group convenes
December 2020

Evaluation commences
November 2020



Second wave
October 2020



May 2021

National Stroke Service Model (NSSM) and National Optimal Stroke Imaging Pathway (NOSIP) published

- The NOSIP recommends AI to augment, not substitute, expert interpretation
- The pathway is patient-centred rather than resource-centred

The NSSM outlines best practice stroke care for the NHS, including the objectives, governance and optimal pathway for joined-up care.

Integrated Stroke Delivery Networks established
April 2021



ISDNs are considered the key vehicle for transforming stroke care. They will prevent thousands of patients suffering a stroke, through improved diagnosis and access to treatment.

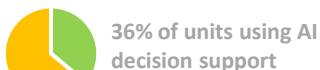


Integrated Care White Paper
February 2021



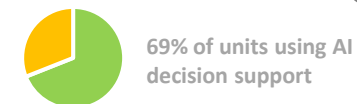
Proposes reforms to health and care, building on Long Term Plan, aimed at:

- Not just treating particular conditions, but lifestyles, behaviours and prevention
- Overcoming needless bureaucracy and harnessing data to deliver care using innovative solutions



A framework agreement has been produced, offering a simple and compliant course for trusts or networks to purchase AI software.

- Engagement events held with network leads and software suppliers
- Prestigious fringe session held at UK Stroke Forum to debate NOSIP impact



Providing expertise and direction with accountability for:

- Delivery of AI systems across all providers
- Development of Standing Operating Procedures
- Assurance that procurement of AI systems is compatible with legislation

May 2021

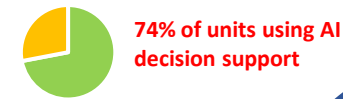
National Stroke Digital and AI Lead introduced



NHSX AI Away Day / UK Stroke Forum session on AI and NOSIP
November 2021










Procurement framework awarded
February 2022

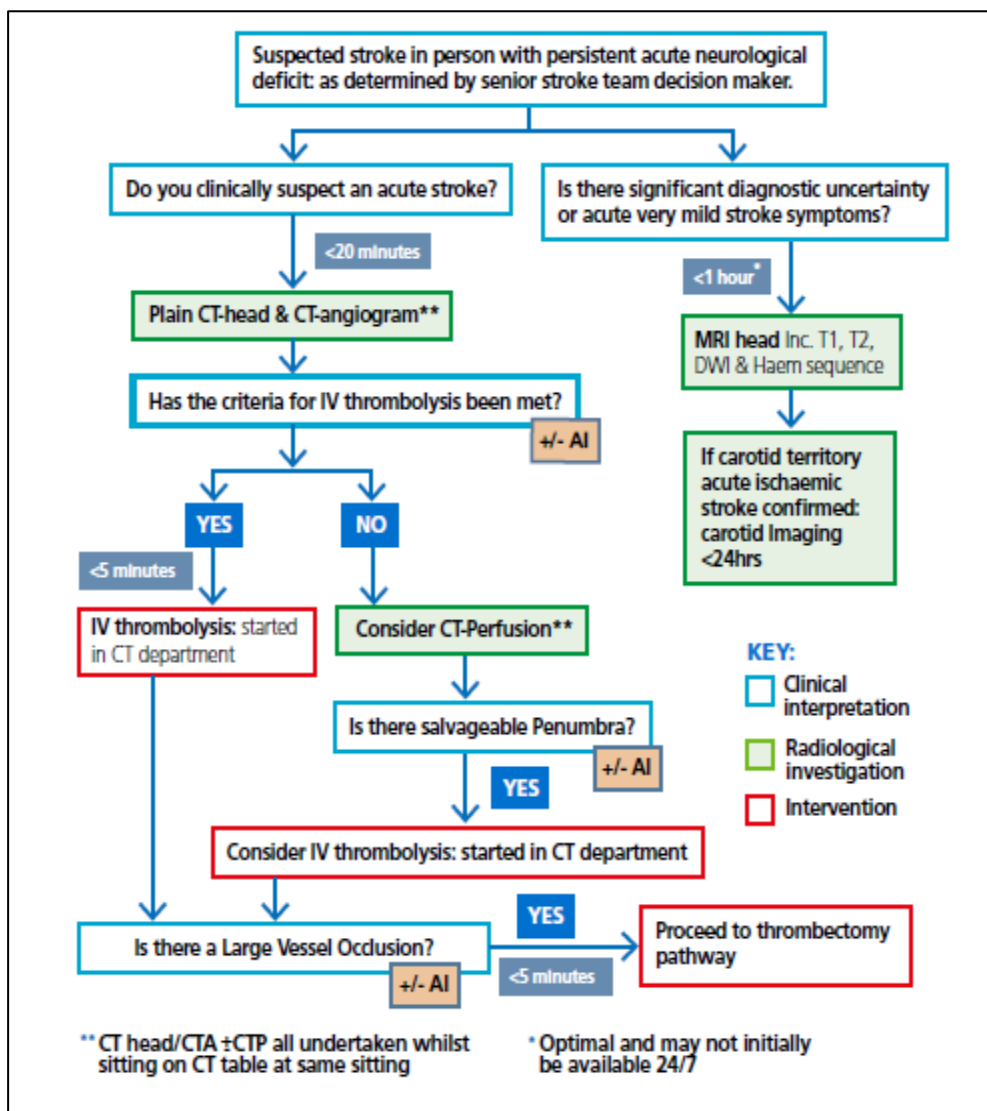


Key lessons from implementation

The challenges faced during the adoption and installation of AI software over the past year are summarised below. Many of these were exacerbated by the pandemic, in terms of stretched resources, restrictions on certain ways of working and conflicting priorities.

Hot topics for consideration	Lessons learned and support in place
 Embryonic technology	<ul style="list-style-type: none">• Peer support from other sites – sharing of materials and processes• Training from suppliers• Support from regional digital teams
 Information governance	<ul style="list-style-type: none">• Nationally endorsed and standardised documentation• Online guidance – e.g. NHSX Digital Technology Assessment Criteria• Early engagement at ISDN level with nominated IG leads
 Clinical safety requirements	<ul style="list-style-type: none">• Close collaboration with suppliers and sharing of information at initiation stage• Ensure effective application of standards during deployment, use or maintenance of IT Systems• Not to be conflated with information governance requirements
 Workforce engagement	<ul style="list-style-type: none">• Engagement with radiology, PACS and CT leads pre-deployment• Assign operational lead for project coordination• Development of webinars and case studies
 Digital maturity	<ul style="list-style-type: none">• Task and finish group format to review resourcing upfront• Collaboration across ISDNs• Alignment with local digital strategies
 Workflows	<ul style="list-style-type: none">• ISDN discussions at outset to optimise regional approval process• Engagement with wider stroke and radiology communities• Review of activity across networks
 Sustainability	<ul style="list-style-type: none">• Procurement support• Long-term strategy for ISDN planning – locally tailored optimisation• Evaluation – technical assessment, quality improvement and economic review

National Optimal Stroke Imaging Pathway



- Our recommendations include:**
- Implement the National Optimal Stroke Imaging Pathway
 - Perform a gap analysis of current imaging practice against NOSIP, agree local plans and actively monitor progress towards implementation.
 - Consider community diagnostic hubs for the delivery of TIA imaging.
 - Provide infrastructure, training and technology to share images between hospitals and clinicians to support image interpretation

Perform a gap analysis of current imaging practice against NOSIP

- Conduct a benchmark exercise at ISDN level
- Self-assessment process to derive locally agreed view of the current position
- Propose a local delivery plan
- Work with national team towards full implementation

Provide infrastructure, training and technology to share images between hospitals and clinicians to support image interpretation

- Ensure rapid inter-hospital sharing of imaging is available
- Provide training / workshops to support stroke clinicians to interpret imaging
- Achieve full roll-out of AI decision support software (with training)

Deploying e-Stroke in Sussex

Benefits to patients



Benefits to users

