NOCA National Office of Clinical Audit | INAS Irish National Audit of Stroke

IRISH NATIONAL AUDIT OF STROKE

NATIONAL REPORT 2025



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ABOUT THE NATIONAL OFFICE OF CLINICAL AUDIT

The National Office of Clinical Audit (NOCA) was established in 2012 to create sustainable clinical audit programmes at national level. NOCA is funded by the Health Service Executive's (HSE) office of the Chief Clinical Officer (CCO), Dr Colm Henry, and is managed by HSE Quality and Patient Safety via the HSE National Centre of Clinical Audit (NCCA). Audits are commissioned by the NCCA via the CCO. NOCA is based in and operationally supported by the Royal College of Surgeons in Ireland (RCSI), and is independently governed by a voluntary board.

"Clinical audit is a clinically-led quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit specific clinical standards or clinical guidelines and acting to improve care when clinical standards or clinical guidelines are not met. The process involves the selection of aspects of the structure, processes and outcomes of care which are then systematically evaluated against explicit specific clinical standards or clinical guidelines" (Patient Safety (Notifiable Incidents and Open Disclosure) Act, 2023). Following clinical audit, improvements, if required, should be implemented at an individual, team or organisation level and the care then be re-evaluated to confirm improvements (Department of Health and Children, 2008).

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This work uses data provided by patients and collected by their healthcare providers as part of their care. NOCA would like to thank all participating hospitals for their valuable contributions, in particular the clinical leads and all Irish National Audit of Stroke (INAS) audit coordinators, all of whom are clinical nurse specialists or advanced nurse practitioners in stroke care. Without their continued support and input, this audit would not be able to continue to produce meaningful analysis of stroke care in Ireland.

NOCA greatly appreciates the ongoing commitment and support received from the HSE; in particular, we would like to thank Dr Colm Henry, Chief Clinical Officer; Dr Orla Healy, National Clinical Lead, HSE National Quality and Patient Safety; and Dr Patricia Kearney, Consultant in Public Health Medicine, HSE National Quality and Patient Safety.

NOCA would also like to acknowledge the work of the National Clinical Programme for Stroke and its close collaborative relationship with the INAS in driving improvements in stroke care in Ireland. We would also like to thank Philip Dunne, IT Systems Support, Healthcare Pricing Office, who provides ongoing support for the stroke audit portal.





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17th November 2026

Dear Professor Harbison,

On behalf of the NOCA Governance Board, I wish to acknowledge receipt of the *Irish National Audit of Stroke National Report 2025*.

We extend our sincere congratulations to you and the entire team, including Cardiovascular Programme Audit Manager Joan McCormack, Assistant Audit Manager Ursula Kelleher, the data analysts, Governance Committee and Patient and Public Interest Representatives, for their continued commitment to this important audit.

This report provides valuable insights into stroke care across Ireland, highlighting the growing demand on services, with stroke admissions increasing by 45% since 2013. While improvements in early supported discharge and access to stroke units are encouraging, the findings reinforce the importance of fully implementing the National Stroke Strategy 2022–2027, particularly to address ongoing challenges in stroke unit capacity, access to specialist care and variation between hospitals.

We commend the dedication of audit coordinators and clinical teams across participating hospitals, whose commitment to high-quality data collection provides the evidence needed to monitor performance and support continued improvement in stroke care.

This letter serves as the formal endorsement of the NOCA Governance Board for the *Irish National Audit of Stroke National Report 2025*. We trust that its findings will continue to inform service planning and support equitable access to high-quality stroke care nationally.

Yours sincerely,



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FOREWORD

On behalf of the Irish Heart Foundation, I would like to wholeheartedly welcome the *Irish National Audit of Stroke National Report 2025*. As the national cardiovascular charity, the Irish National Audit of Stroke (INAS) is invaluable in providing accurate, trustworthy and up-to-date data on the nature of stroke in Ireland.

A stroke is a life-changing and often traumatic event for patients. The annual national report provides a snapshot of the care and treatment that these patients experience when they have a stroke.

This allows us to better understand the continuing national trends, the areas of clinical strength, and where there might be opportunities to improve in terms of survivability and the quality of life for a patient post-stroke. With these important aims in mind, we must ensure that the patient experience and voice remain at the centre of the stroke pathway.

Although the findings of the audit have not changed significantly since 2024, they reveal a number of positive improvements while highlighting some developments that were expected. Although there was a slight increase in the proportion of patients discharged with Early Supported Discharge, which is to be welcomed, the number of stroke cases rose by 4%, illustrating the impact of a growing ageing population.

These developments strengthen the need to continue the implementation of the *National Stroke Strategy 2022-2027*, particularly as Minister for Health Jennifer Carroll MacNeill signed the Stroke Action Plan for Europe in 2026 and has announced plans to develop Ireland's next National Stroke Strategy.

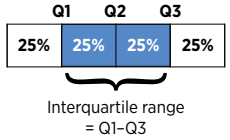
I would like to sincerely thank and acknowledge the countless hours and hard work that have been invested by the team and committee behind this report in order to bring it to fruition. We look forward to continuing to work with them, and patients with lived experience of stroke, in order to advance stroke prevention, care and treatment in Ireland.

Mr Mark Murphy,
Interim Director of Advocacy at the Irish Heart Foundation



GLOSSARY OF TERMS AND DEFINITIONS

ACRONYM	FULL TERM
AF	atrial fibrillation
aphasia	Aphasia is a disorder that affects the ability to speak, read, write and understand language.
carotid endarterectomy	Carotid endarterectomy is surgery that removes plaque build-up from inside a carotid artery in the neck.
carotid stenosis	Carotid stenosis is a narrowing of the carotid arteries, the two major arteries that carry oxygen-rich blood from the heart to the brain.
carotid stenting	Carotid stenting is a procedure in which a vascular surgeon or neuroradiologist inserts a stent, which expands inside the carotid artery in order to increase blood flow in areas blocked by plaque.
DOAC	direct oral anticoagulant
DTN	'door to needle' – this is a term used to indicate the time between the arrival of the patient at the hospital and the time of thrombolysis treatment.
ESD	Early Supported Discharge
ESO	European Stroke Organisation
EVT	endovascular thrombectomy
EVT stroke centre	An EVT stroke centre is a hospital that can provide a thrombectomy service.
HADx	hospital acquired diagnosis
haemorrhagic stroke	Haemorrhagic stroke occurs when a blood vessel in the brain leaks or ruptures.
HIPE	Hospital In-Patient Enquiry

ACRONYM	FULL TERM
HPO	Healthcare Pricing Office
HSCP	health and social care professional
HSE	Health Service Executive
ICD-10-AM	International Classification of Diseases, Tenth Revision, Australian Modification
IHF	Irish Heart Foundation
IHI	individual health identifier
INAS	Irish National Audit of Stroke
INR	international normalised ratio
IQR	 interquartile range – this is a measure of variability, based on dividing a dataset into quartiles. It represents the spread of the middle 50%
ischaemic stroke	Ischaemic stroke is the most common type of stroke. It happens when the brain's blood vessels become narrowed or blocked, causing severely reduced blood flow (ischaemia).
KQI	key quality indicator
LOS	length of stay
median	The median is the middle number in a sorted (ascending or descending) list of numbers.
MRI	magnetic resonance imaging
mRS	modified Rankin Scale
NaAHP	Nurse and Allied Health Professions

ACRONYM	FULL TERM
NCP	National Clinical Programme
NIHSS	National Institutes of Health Stroke Scale
NOCA	National Office of Clinical Audit
NTS	National Thrombectomy Service
OT	occupational therapist
PT	physiotherapist
p-value	The probability under the assumption of no effect or no difference (null hypothesis) of obtaining a result equal to or more extreme than what was actually observed. For the purpose of this report, if the *p*-value is less than 0.05, it is judged as 'statistically significant', and if the *p*-value is greater than 0.05, it is judged as 'not statistically significant'.
QI	quality improvement
SAH	subarachnoid haemorrhage
SLT	speech and language therapist
stroke unit	A stroke unit is a geographically discrete area in a ward where patients with a stroke are cared for by a multidisciplinary team that has specialist knowledge, protocols, training and skills in stroke care and the ability to monitor and regulate basic physiological function.
thrombectomy	A thrombectomy is the mechanical removal of a blood clot in the brain.
thrombolysis	Thrombolysis is the breakdown of blood clots formed in blood vessels using medication.
TIA	transient ischaemic attack

EXECUTIVE SUMMARY

In 2025, the Hospital In-Patient Enquiry (HIPE) system recorded 6,848 stroke admissions across 24 hospitals providing acute stroke care. This represents a 4% increase from the 6,581 admissions recorded in 2024. The increase continues a long-term upward trend in stroke admissions, which rose from 4,727 cases in 2013 to 6,848 in 2025, representing an overall increase of 45% over this period. Out of all HIPE admissions, 97% (n=6970) had additional stroke audit data submitted. After applying inclusion and exclusion criteria, this report presents its findings based on 6,563 cases.

KEY FINDINGS

EMERGENCY CARE



The majority of patients (86%) had an ischaemic stroke. The median age was 74 years. Males were more likely to experience stroke at a younger age than females.

For cases where the time from stroke symptom onset to hospital arrival was recorded (n=3776; 58%), the median time from symptom onset to hospital arrival was 3 hours and 26 minutes. Although the median time from hospital arrival to medical review remained low, at 9 minutes, only 52% of patients were reviewed within 10 minutes of hospital arrival. Similarly, 51% of patients received brain imaging within 60 minutes of arrival. Significant variation in performance was observed between hospitals.

The proportion of patients with ischaemic stroke who received thrombolysis was 10% (n=556), below the national target of 12%. While the median door to needle time of 58 minutes achieved the national target, only 50% of thrombolysed patients received treatment within 60 minutes of arrival.

STROKE UNIT CARE



Admission to a stroke unit increased slightly to 74% of patients, but remained below the national target of 90%. Lack of available stroke unit beds accounted for 59% of non-admissions. Patients spent 68% of their hospital stay in a stroke unit, well below the national target of 90%.

Swallow screening rates declined from 81% in 2024 to 75% in 2025. Only 39% of patients who received a swallow screening were screened within 4 hours of arrival.

REHABILITATION AND HEALTH AND SOCIAL CARE PROFESSIONAL CARE



Ninety-one percent of patients were assessed by at least one health and social care professional (HSCP). Additional HSCP data from physiotherapists, occupational therapists, and speech and language therapists were submitted by 21 hospitals. However, dataset coverage remains below the level required for hospital-level reporting. To address this, the Irish National Audit of Stroke (INAS) established a national HSCP working group in 2025 in order to improve the visibility, quality and utilisation of rehabilitation data.

OUTCOMES



The median hospital length of stay was 8 days. Sixty percent of patients were discharged home, including 13% with Early Supported Discharge (ESD), an increase from 11% in 2024. The proportion of patients discharged to long-term care also declined to 5%, down from 7% in the preceding 3 years. The unadjusted in-hospital mortality rate was 10%, including 6% for ischaemic stroke (the lowest reported rate since 2013) and 30% for haemorrhagic stroke.

KEY FINDINGS 2025

Stroke in Ireland in 2025

45%

6,848 people were admitted to hospital with a stroke in 2025, a **45% increase** in stroke admissions since 2013.

86%

Most strokes (**86%**) were caused by a blockage of blood flow to the brain (ischaemic stroke).

57% of cases were male and **43%** were female.

70 75

The mean age was **75 years** for female patients, and **70 years** for male patients.

Emergency stroke care in 2025

Getting treatment quickly is one of the most important factors in reducing the effects of stroke.

46%

46% of patients arrived at the hospital within 3 hours after their stroke symptoms began.

52%

52% of patients with a stroke were seen by a medical team within 10 minutes of hospital arrival.

51%

51% of patients received brain imaging within 1 hour of hospital arrival.

Thrombolysis

Thrombolysis is a clot-busting treatment that can reduce the impact of a stroke when given quickly to suitable patients.

10% **10% of patients with ischaemic stroke** received thrombolysis. This remains below the national target of **12%**.

50% **50%** of patients with ischaemic stroke received thrombolysis within 1 hour of hospital arrival.

Stroke unit care in 2025

Specialist stroke units improve survival and recovery after stroke.

74%

74% of patients were admitted to a stroke unit, which is below the national target of **90%**.

The main reason patients were not admitted to a stroke unit was a lack of available beds.

68%

Patients spent **68% of their hospital stay** in a stroke unit, which is also below the national target of 90%.

Swallow screening

Many people experience swallowing difficulties after a stroke, which can increase the risk of serious complications such as pneumonia.

75% **75% of patients** received a swallow screening

39% Only **39% of patients** received a swallow screening within 4 hours of arriving at hospital.

Rehabilitation and recovery

Recovery from stroke often requires support from physiotherapists, occupational therapists, speech and language therapists, and other healthcare professionals.

91% **91% of patients** were assessed by at least one health and social care professional (HSCP) during their hospital stay.

21 Additional HSCP data were submitted by **21** hospitals, helping to improve understanding of patients' rehabilitation needs.

Outcomes

Length of stay

The median hospital stay for patients with a stroke was **8 days**. 8

Going home after stroke

60% of patients were discharged home. 60%

13%

This included **13%** who received support from an Early Supported Discharge (ESD) team, allowing them to continue rehabilitation at home

5% of patients were discharged to long-term care facilities. 5%

Survival

The in-hospital death rate for all patients with a stroke was **10%**. 10%

For patients with ischaemic stroke, the death rate was **6%**, the lowest reported over the past 5 years. 6%

RECOMMENDATIONS

RECOMMENDATION 1

Continue the implementation of the *National Stroke Strategy 2022-2027* to support equity of access to high-quality on-call stroke services in the emergency departments twenty-four hours per day, seven days per week.

Regional executive officers should monitor and address variation in performance between hospitals.



RECOMMENDATION 2

Continue the implementation of the *National Stroke Strategy 2022-2027* to improve equity of access to stroke unit care.

Regional executive officers should review stroke unit capacity, increase designated stroke unit beds where required, and ensure that patients spend the majority of their hospital stay in specialist stroke units.



UPDATE ON PREVIOUS RECOMMENDATIONS

Progress on recommendations remains mixed.

Key national initiatives led by NOCA are progressing, including work to increase HSCP dataset participation, secure access to the Individual Health Identifier (IHI) to support patient tracking across hospitals, and to develop a best practice tariff for acute stroke care.

The National Clinical Programme for Stroke has advanced several quality improvement initiatives, including a national swallow screening education programme, development of an accredited stroke nursing qualification, and implementation of AI-supported imaging interpretation software. However, significant challenges remain, particularly regarding stroke unit capacity, staffing shortages, access to specialist rehabilitation, neuropsychology services, and the expansion of Early Supported Discharge (ESD) services. Progress varies across HSE regions, with ongoing recruitment difficulties and the absence of dedicated funding for the National Stroke Strategy continuing to limit implementation of several recommendations. Access to routine imaging is generally available nationally, but timely access to advanced imaging remains inconsistent. Overall, while important developments have been achieved, sustained investment in workforce, stroke unit infrastructure, rehabilitation services and diagnostic capacity is required to fully realise national stroke care standards.

CONCLUSION

The findings demonstrate continued pressure on stroke services as the number of patients presenting with a stroke continues to rise. Progress is evident in areas such as ESD and stroke unit admission rates; however, significant variation remains between hospitals, and national targets for thrombolysis rates, stroke unit care and swallow screening have not yet been achieved. Continued implementation of the *National Stroke Strategy 2022-2027*, together with targeted investment in workforce and infrastructure, will be critical to improving outcomes and ensuring equitable access to high-quality stroke care across Ireland.

PUBLIC AND PATIENT INTEREST PERSPECTIVE

DAVID'S STORY

"The difference between me sitting here today and having the majority of my faculties is time."

Time matters

My name is David Bollard, and I am a 57-year-old husband and father from Westmeath. Before my stroke, I was a Global Sales Director, managing a team of 23 people worldwide. I travelled extensively and worked with the same company for nearly 29 years. I considered myself relatively healthy, with normal blood pressure, no diabetes and below-average cholesterol. Although work was stressful and I exercised less than I should have, I never imagined I was at risk of stroke.

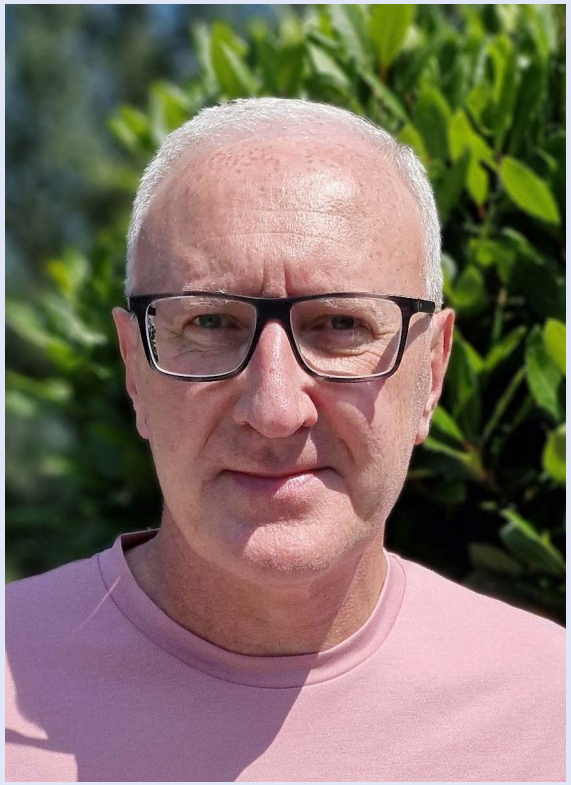
I was only months away from retirement and convinced myself I could push through the pressure until then. Looking back, I wish I had prioritised my well-being and stayed more physically active.

On 16 April 2026, while on a work trip to Southampton, everything changed. As I returned to my hotel room after finishing emails and Teams calls, I suddenly became disorientated. Within seconds, I felt what I can only describe as a very hot liquid pouring through my head and body. As it passed through me, parts of my body stopped working and I collapsed to the floor. Somehow, I immediately knew I was having a stroke and genuinely thought I was dying.

Realising I was still conscious, I dragged myself to the bathroom, afraid I would vomit and choke, and then made my way back across the room to the hotel phone. By this stage, my vision was starting to go. Although I remembered where the phone was, I couldn't see the dial or any of the shortcut buttons, so I had to feel my way around the keypad to make the call. Eventually, I got through to Reception and told them I believed I had suffered a stroke. I also asked them to alert my colleagues who were waiting downstairs. Looking back, that decision probably changed the course of my recovery.

Within minutes, three colleagues, who were trained first aiders, arrived. They placed me in the recovery position, monitored me and stayed with me during the hour-long wait for an ambulance. I firmly believe their actions reduced the risks I faced during those critical moments.

At Southampton General Hospital, I was diagnosed with an ischaemic cerebellar stroke. I received medical management, antiplatelet treatment and a series of assessments. The following day, staff encouraged me to stand and walk. When my left leg would not respond properly, the reality of what had happened hit me. Although my stroke was classified as mild, it certainly did not feel mild.



"Within minutes, three colleagues, who were trained first aiders, arrived. They placed me in the recovery position, monitored me and stayed with me during the hour-long wait for an ambulance."

People matter

My wife arrived in Southampton the day after my stroke. Her presence brought enormous comfort during a frightening and uncertain time.

Once I was stable, plans were made to transfer me home to Ireland. Thanks to my employer, International SOS, the NHS, Lifeline Ambulance Service, and the Health Service Executive, I was transferred to Regional Hospital Mullingar. The journey took around 13 hours by ambulance and ferry. While communication between hospitals worked well overall, and a bed was available for me, I believe future transfers would benefit from confirmation that a receiving bed is available before such long journeys begin.

From the moment I arrived in Regional Hospital Mullingar's stroke unit, the care I received was exceptional. Having experienced two healthcare systems, I can honestly say the care in Regional Hospital Mullingar matched, and in some respects exceeded, anything I experienced elsewhere. What stood out was the warmth, compassion and personal approach of staff.

One of the most important interactions I had was with the stroke specialist nurse, who took the time to explain what had happened in a non-medical way. That conversation helped me begin processing the experience.

What I remember most is not the investigations but the people. Doctors, nurses, healthcare assistants, therapists, attendants, catering staff and cleaners all worked together and contributed to my recovery. Everyone knew who I was and treated me as a person. Sometimes a simple conversation or kindness had the greatest impact on a difficult day. This multidisciplinary teamwork demonstrated a culture where patient care came first and every team member was valued.

Finding the cause

In Regional Hospital Mullingar, the team decided not only to continue previous investigations but to look again at why a relatively healthy 57-year-old had suffered a stroke.

After repeated tests and scans, a bubble study revealed a patent foramen ovale (PFO), a hole in the heart. This explained how a clot could travel to my brain and cause the stroke. Further investigations at St James's Hospital confirmed the diagnosis, with a specialised scan showing that the PFO measured approximately 2.25 centimetres. I was surprised by that because I had imagined something much smaller.

Finding an explanation gave me reassurance and allowed me to move forward. I am now awaiting a procedure to close the PFO and reduce the risk of future strokes. In the meantime, I take clopidogrel, atorvastatin and pantoprazole daily.

Recovery is more than physical

My cerebellar stroke affected my vision, balance, mobility and coordination. Over time, I also noticed difficulties with dexterity. What surprised me most, however, was the psychological impact.

Stroke changes lives instantly. During my hospital stay, I saw people struggling with fear, frustration and loss of independence. Those experiences reinforced my belief that the emotional impact of stroke is every bit as important as the physical effects.

I faced those challenges myself after returning home. For years, my life revolved around work and travel. Suddenly, I was unable to do many everyday tasks. The greatest challenge has been fatigue. Some days are good; others are more difficult. Recovery is not linear.

One of the most valuable lessons I learned is that recovery is a marathon, not a sprint. The brain needs time to heal and adapt. Support from Acquired Brain Injury Ireland has also been invaluable in helping me adjust physically and emotionally.

Reflection

Although my stroke was classified as mild, I found the experience traumatic. It changed my perception of who can have a stroke. Before it happened, I considered myself an ordinary, healthy person. My experience has shown me that stroke can affect anyone.

I have also become a strong advocate for public awareness. During treatment, I met people who ignored symptoms or underestimated the seriousness of transient ischaemic attacks (TIAs). The more people understand stroke, the more lives can be saved.

One important lesson I learned is that patients absorb information differently. Many people are frightened and overwhelmed. That is why communication, reassurance, and helping patients understand their condition are just as important as physical rehabilitation.

My message for healthcare professionals is simple: never underestimate the value of communication, compassion, and helping people understand what is happening to them.

My message for patients and families is equally simple: time matters. Every minute counts in stroke care. Do not ignore symptoms or hope they will pass. Seek medical help immediately.

The difference between me sitting here today and facing a very different future is that I recognised what was happening and sought help quickly. From the colleagues who found me on a hotel floor to the ambulance crews and healthcare teams in Southampton General Hospital, Regional Hospital Mullingar and St James's Hospital, people acted fast. Their skill, professionalism and kindness made an extraordinary difference to my life.



1. INTRODUCTION, METHODS AND DATA QUALITY

1. INTRODUCTION, METHODS AND DATA QUALITY

INTRODUCTION

This is the seventh annual report published by the Irish National Audit of Stroke (INAS), presenting data on patients with a stroke admitted to hospitals that provided acute stroke care in 2025. The INAS is now at a level of maturity where key findings and trends are presented in a condensed report, and all results are published online by hospital in the INAS National Reporting Table 2025. From 2026, data on thrombectomy will be reported as a standalone report, and data for 2025 are expected to be published in 2026.

The Irish National Audit of Stroke

The INAS is a clinically led, web-based audit that measures the care provided in hospital to patients with a stroke against the recommendations in the following publications:

1. *National Clinical Guideline for Stroke for the United Kingdom and Ireland* (Intercollegiate Stroke Working Party, 2023)
2. *National Stroke Strategy 2022-2027* (Health Service Executive, 2022)
3. *Stroke Clinical Care Programme: Model of Care* (Health Service Executive, 2012)
4. European Stroke Organisation recommendations to establish a stroke unit and stroke center (Ringelstein *et al*., 2013).

The INAS Governance Committee (Appendix 1) developed the aim and objectives (Appendix 2) of the audit and continues to oversee the audit. Its membership comprises clinical experts, public and patient interest representatives, the Healthcare Pricing Office (HPO), senior accountable healthcare management, and research and specialist bodies. The INAS Governance Committee also ensures that all relevant stakeholders are represented in order to verify that audit findings are interpreted appropriately. The Clinical Lead, supported by the National Office of Clinical Audit (NOCA) Executive Team, has operational responsibility for implementation of the INAS.

Purpose of this report

The purpose of this report is to present the key findings and recommendations arising from the analysis of INAS clinical audit data. These findings are also summarised in a patient summary report.

METHODS

All patients with ischaemic and haemorrhagic stroke who were treated in public hospitals that provide acute stroke care, that have 80% or more coverage, and that admitted more than 25 patients with a stroke annually over the reporting period are included in this report.[1] Further information on the inclusion and exclusion criteria and methodology can be found in Appendix 2.

Reporting period



Patients with a stroke who were discharged between 1 January 2025 and 31 December 2025 are included in the INAS clinical audit.

Data analysis



NOCA received the full stroke audit portal data extract for 2025 from the HPO in May 2026. The NOCA Data Analyst completed the analysis following data checks with the HPO. The analysis was conducted using Statistical Package for the Social Sciences (SPSS) V30. Frequency tables for figures within the report are available in Appendix 3.

[1] Patients who had a stroke while already an inpatient with another condition are not included.

DATA QUALITY STATEMENT

Tables 1.1, 1.2 and 1.3 provide an assessment of the quality of the INAS Clinical Audit 2025 in this report using internationally agreed dimensions of data quality (Health Information and Quality Authority, 2018). A full data quality assessment of the INAS is available in Appendix 4.

TABLE 1.1: CONTEXT OF THE DATA IN THIS REPORT

SCOPE	This data quality statement assesses the INAS data released for this report in 2025. This statement focuses solely on the data quality dimension of 'accuracy and reliability', and specifically on the characteristics of: • coverage of data release • completeness of data release • accuracy of data release.
PURPOSE	This will help the reader decide whether the data are fit for the user's specific purpose.
DATA SOURCE	Data for this report have been extracted from the Hospital In-Patient Enquiry (HIPE) system, which includes data submitted to the stroke audit portal within HIPE. Additional data to support the provision of information on subarachnoid haemorrhage (SAH) and transient ischaemic attack (TIA) (Table 2.1) were sourced from HIPE.
TIME FRAME OF DATA RELEASE	The data released in this report are based on data reported between 1 January 2025 and 31 December 2025.
TYPE OF DATA	Final

TABLE 1.2: CHARACTERISTICS OF DATA QUALITY

COVERAGE OF DATA RELEASE	The stroke audit portal has three distinct datasets: 1. core clinical dataset 2. thrombectomy dataset[2] 3. health and social care professional (HSCP) dataset. The core clinical dataset and the HSCP dataset were assessed for coverage and completeness. The final annual coverage is reported by the HPO at the close of the HIPE file. **CORE CLINICAL DATASET** Coverage was defined as the proportion of cases with a principal diagnosis, or a hospital acquired diagnosis (HADx),[3] of stroke that had additional clinical data submitted to the stroke audit portal. HADx cases are included in the coverage report, but only those cases with a principal diagnosis of stroke that meet the inclusion and exclusion criteria as defined in the methods section are reported in this report (Table 1.4). The total national coverage for 2025 was 97%, representing an improvement from 95% in 2024. **HSCP DATASET** The HSCP dataset remains in the implementation phase. In 2025, 21 hospitals submitted data from 1 or all of the 3 participating disciplines: physiotherapy, occupational therapy, and speech and language therapy. This is improved from 20 hospitals in 2024 (NOCA, 2025). In the core clinical dataset, it is recorded whether a patient was assessed by a physiotherapist, occupational therapist, or speech and language therapist. To estimate discipline-specific data coverage, the number of patients recorded as having been assessed by each discipline in the core clinical dataset was compared with the number of patients for whom additional discipline-specific data were submitted through the HSCP dataset. Overall, additional physiotherapy data were submitted for 45% (n=2443) of cases assessed by a physiotherapist, additional occupational therapy data was submitted for 47% (n=2538) of cases assessed by an occupational therapist, and additional speech and language therapy data was submitted for 45% (n=1810) of cases assessed by a speech and language therapist. These proportions represent cases with both a documented therapy assessment in the core clinical dataset and corresponding HSCP data. Figure 3.3 shows how these proportions varied across hospitals. A total of 2,557 physiotherapy cases, 2,681 occupational therapy cases and 1,979 speech and language therapy cases were submitted to the HSCP dataset and form the denominators for reporting discipline-specific findings in this report.
COMPLETENESS OF DATA RELEASE	Within the INAS Clinical Audit, 55 variables were analysed for completeness, and 46 had a completeness rate of more than 90% (INAS National Reporting Table 2025) for completeness of all variables, by hospital. Variables related to the onset of stroke symptoms have the highest level of missing data.
ACCURACY OF DATA RELEASE	All data were reported, including missing or unknown data.

[2] The thrombectomy dataset is not included in this analysis and will be assessed in the data quality statement in the *INAS* Thrombectomy Report 2025.
[3] HADx is defined within HIPE as a condition that arises during the episode of admitted patient care which would not have been present or suspected on admission (HPO, 2023).

TABLE 1.3: OVERALL ASSESSMENT OF DATA IN THIS REPORT

STRENGTHS OF DATA IN THIS REPORT	This report is a condensed report highlighting key findings; all analysis is available in the National Reporting Table 2025 by hospital in order to allow for further detail at local level. This report provides additional information on SAH and TIA. While both conditions fall under the broader category of cerebrovascular disease and may be considered within the spectrum of stroke-related diagnoses, they follow distinct clinical pathways. Consequently, they are not included within the scope of the INAS.
LIMITATIONS OF DATA IN THIS REPORT	As with previous reports, the INAS data reflect care in the acute hospital and do not follow the patient along their complete pathway to recovery. Reporting on the time from onset of stroke symptoms to arrival at the hospital is only available in 58% (n=3776) of cases, limiting the interpretation of the time from symptom onset to hospital arrival.

TABLE 1.4: COVERAGE OF PRINCIPAL DIAGNOSIS AND HOSPITAL ACQUIRED DIAGNOSIS FOR HOSPITAL IN-PATIENT ENQUIRY SYSTEM STROKE CASES WITH IRISH NATIONAL AUDIT OF STROKE DATA

Health Service Executive (HSE) health region	Hospital	Number of HIPE cases	Number of INAS cases	Coverage	Number of cases after considering inclusion/ exclusion criteria
HSE Dublin and Midlands	Naas General Hospital	232	192	83%	189
	Regional Hospital Mullingar	270	247	91%	241
	St James's Hospital	305	290	95%	266
	Tallaght University Hospital	404	403	100%	375
HSE Dublin and North East	Connolly Hospital	334	334	100%	311
	Cavan General Hospital	158	150	95%	149
	Mater Misericordiae University Hospital	383	366	96%	338
	Our Lady of Lourdes Hospital Drogheda	312	310	99%	294
	Beaumont Hospital	638[4]	638	100%	617
HSE Dublin and South East	University Hospital Waterford	229	219	96%	202
	St Luke's General Hospital, Carlow/Kilkenny	195	194	99%	192
	Wexford General Hospital	183	183	100%	182
	Tipperary University Hospital	127	127	100%	123
	St Vincent's University Hospital	535	505	94%	501
HSE Mid West	University Hospital Limerick	484	484	100%	465
HSE South West	Bantry General Hospital	85	85	100%	79
	Cork University Hospital	760[5]	760	100%	650
	University Hospital Kerry	313	292	93%	271
	Mercy University Hospital	95	87	92%	82
HSE West and North West	Letterkenny University Hospital	240	240	100%	226
	Sligo University Hospital	236	227	96%	210
	University Hospital Galway	373	370	99%	342
	Mayo University Hospital	234	189	81%	184
	Portiuncula University Hospital	78	78	100%	74
Total		**7203**	**6970**	**97%**	**6563**

[4] Excluding cases who were treated in Beaumont Hospital with thrombectomy and repatriated immediately back to the referring hospital. These are identified using HIPE DISWARD = RAD.
[5] Excluding cases who were treated in Cork University Hospital with thrombectomy and repatriated immediately back to the referring hospital. These are identified using HIPE DISWARD = XBAY.



2. CASE MIX AND EMERGENCY CARE

2. CASE MIX AND EMERGENCY CARE

CASE MIX

Stroke rates in Europe have steadily declined since the 1990s. due to better prevention and care. However, due to the ageing of the European population and the strong association between stroke risk and age, the number of people having a stroke continues to rise (King's College London for the Stroke Alliance for Europe (SAFE), 2017). *The Burden of Stroke in Europe* predicts a 34% increase in the total number of stroke events in the European Union between 2015 and 2035 (King's College London for the Stroke Alliance for Europe (SAFE), 2017). Figure 2.1 presents the annual number of HIPE stroke admissions for all hospitals participating in the INAS for the years 2013–2025[6]. There was a 4% increase in cases admitted to hospital with a stroke between 2024 and 2025. This continues an upward trend, with admissions increasing from 4,727 in 2013 to 6,848 in 2025, representing an overall increase of 45%.

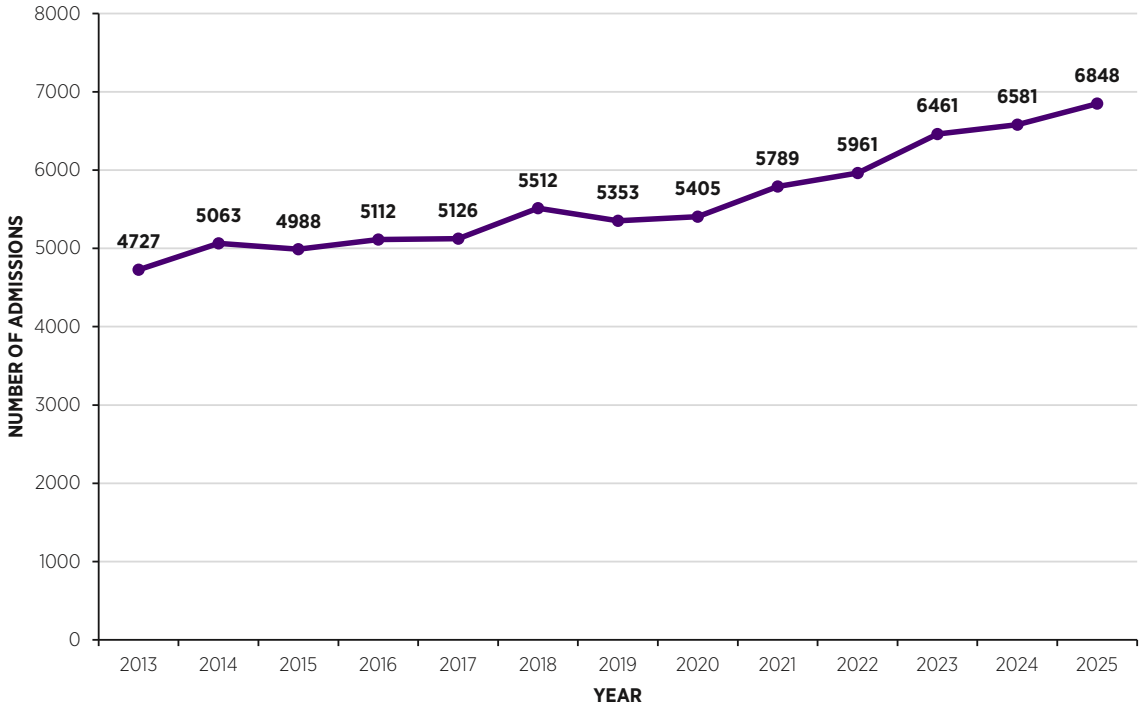


FIGURE 2.1: ANNUAL NUMBER OF HOSPITAL IN-PATIENT ENQUIRY STROKE ADMISSIONS IN ALL HOSPITALS PARTICIPATING IN THE IRISH NATIONAL AUDIT OF STROKE, 2013–2025

[6] From 2013 to 2017, neither Connolly Hospital nor University Hospital Kerry was participating in the INAS, although they were providing acute stroke care. As such, the HIPE cases for those hospitals were not included in Figure 2.1 for the years 2013–2017. From 2018 onwards, Connolly Hospital and University Hospital Kerry did participate in the INAS, and this explains the resulting sharp rise in stroke cases in 2018.

DEMOGRAPHICS

In 2025, 6,848 cases with a principal diagnosis of stroke were admitted to the 24 hospitals providing acute stroke care in Ireland. This report presents information on the care provided to 6,563 patients with a stroke who were admitted to all 24 hospitals and had additional INAS data submitted.

As expected, the majority (86%; n=5676) of cases had a principal diagnosis of ischaemic stroke, and 14% (n=887) had a principal diagnosis of haemorrhagic stroke. Fifty-seven percent (n=3709) of cases were male and 43% (n=2854) were female. The median age of patients with a stroke was 74 years (interquartile range (IQR): 63–82 years), and the mean age was 72 years. The mean age was 75 years for female patients, and 70 years for male patients. Males were more likely to have a stroke at a younger age: approximately one in three males (34%; n=1278) had a stroke when they were aged 65 years and under, compared with 24% (n=674) of females.

NOTE ON SUBARACHNOID HAEMORRHAGE AND TRANSIENT ISCAHEMIC ATTACK

Background

Subarachnoid haemorrhage (SAH) and Transient Ischemic Attack (TIA) are subsets of stroke for which, to date, data have not been collected by the INAS or by many other similar national stroke registers and audits. Table 2.1 presents the national HIPE data for principal diagnosis of SAH and TIA from 2022 to 2025 in order to provide a more complete picture of the entire spectrum of stroke disease presenting to hospitals, and to show the contribution of these conditions to overall stroke numbers.

Subarachnoid haemorrhage

SAH occurs where there is bleeding from a blood vessel onto the surface of the brain. This can cause direct damage to the brain or can trigger secondary arterial spasm, which can impair blood flow and damage the brain in that fashion.

Organisation of care for patients with SAH has typically been coordinated in collaboration between neurosurgeons and interventional neuroradiologists in specialist centres in Cork University Hospital and Beaumont Hospital. This typically occurs following direct referral from emergency departments, and patients do not regularly come under the care of stroke services. This makes data collection difficult, and differences in practices between hospitals when people with SAH present can result in quite different rates of admission being recorded by HIPE.

Transient ischaemic attack

TIAs, or 'mini-strokes', are brief neurological events that occur due to a transient blockage of an artery to the brain. They can often precede or act as a warning of a subsequent stroke, and up to one-fifth of people with an untreated TIA will progress to a full stroke within 90 days. Accordingly, they need to be investigated rapidly in order to find the source and for treatment to be started. Urgent treatment can reduce the risk of future stroke by around 80%.

The challenge is that TIAs can be difficult to diagnose for non-specialist services, and some larger hospitals may run clinics or rapid assessment protocols that reduce the need for admission in some patients. These factors lead to some hospitals having proportionately very different numbers of TIA admissions than others. For the 2025 National Report, we have agreed to publish the total number of TIAs diagnosed in participating hospitals over a 4-year period and recorded by HIPE in order to indicate the extent of the issue for stroke services nationally.

TABLE 2.1: DISTRIBUTION OF SUBARACHNOID HAEMORRHAGE AND TRANSIENT ISCHAEMIC ATTACK EPISODES OF CARE RECORDED BY THE HOSPITAL IN-PATIENT ENQUIRY SYSTEM, 2022–2025

	2022	2023	2024	2025
Subarachnoid haemorrhage	538	508	558	552
Transient Ischaemic Attack	2709	2777	3092	3417

EMERGENCY CARE

SUMMARY OF EMERGENCY CARE TRENDS

A rapid emergency response is critical when a patient presents with a stroke, ensuring timely diagnosis and treatment in order to maximise the likelihood of survival and improve clinical outcomes. Table 2.2 displays summary trends over time for four key time-sensitive metrics in the emergency phase of care. The proportions of cases assessed by a medical team within 10 minutes and receiving brain imaging within 60 minutes of hospital arrival have remained stable. While the overall rate of thrombolysis has also remained static at 10–11% since 2013, the data indicate a deterioration in the timeliness of thrombolysis delivery. Further detail on each of these metrics is presented later in this chapter.

TABLE 2.2: EMERGENCY CARE QUALITY INDICATORS, 2022–2025

EMERGENCY CARE QUALITY INDICATORS, BY YEAR	GOAL	2022	2023	2024	2025
Time between hospital arrival and review by medical team	Within 10 minutes	48%	52%	53%	52%
Time from hospital arrival to brain imaging	Within 60 minutes	49%	51%	50%	51%
Proportion of ischaemic stroke cases that received thrombolysis	12%	11% (n=468)	11% (n=550)	11% (n=531)	10% (n=556)
Time from hospital arrival to thrombolysis	Within 60 minutes	54%	57%	52%	50%

ONSET OF STROKE SYMPTOMS

In total, 60% (n=3967) of cases had the date and time of stroke symptom onset recorded (witnessed stroke). A further 22% (n=1465) had the date and time the patient was last known to be well recorded, while 17% (n=1131) had no date or time of symptom onset documented. For those cases where the time from onset of stroke symptoms to hospital arrival was available (n=3776; 58%)[7], the median time interval from symptom onset to hospital arrival was 3 hours and 26 minutes (IQR: 1 hour and 42 minutes to 12 hours and 21 minutes). This was similar to the 3 hours and 28 minutes reported in 2024. Figure 2.2 shows the proportion of patients who arrived at the hospital within 3 hours of the onset of stroke symptoms. This proportion has decreased from 47% (n=1625) in 2024 to 46% (n=1745) in 2025 and varies between hospitals.

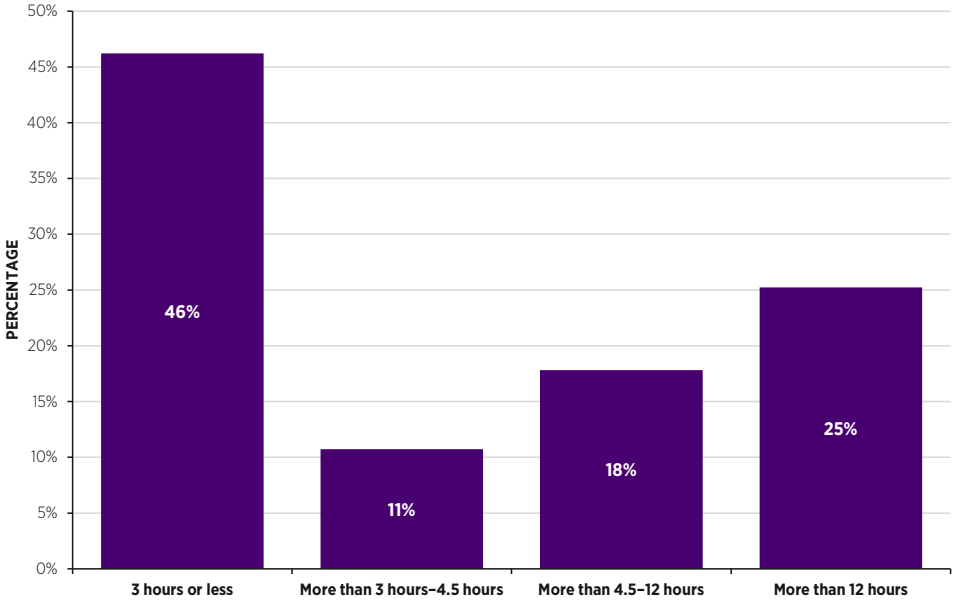


FIGURE 2.2: DISTRIBUTION OF TIME FROM WITNESSED STROKE SYMPTOM ONSET TO HOSPITAL ARRIVAL (n=3776)

[7] Includes cases where data were completed for both onset of symptoms and hospital arrival.

TIME BETWEEN HOSPITAL ARRIVAL AND REVIEW BY MEDICAL TEAM

The median time between hospital arrival and review by a medical team was 9 minutes (IQR: 0–75 minutes) in 2025, increased from 8 minutes in 2024 (NOCA, 2025) (Figure 2.3). Fifty-two percent (n=2975) of patients with a stroke were seen by a medical team within 10 minutes of hospital arrival. This result varied between hospitals, ranging from 94% (n=73) in Bantry General Hospital to 13% (n=8) in Portiuncula University Hospital.[8]

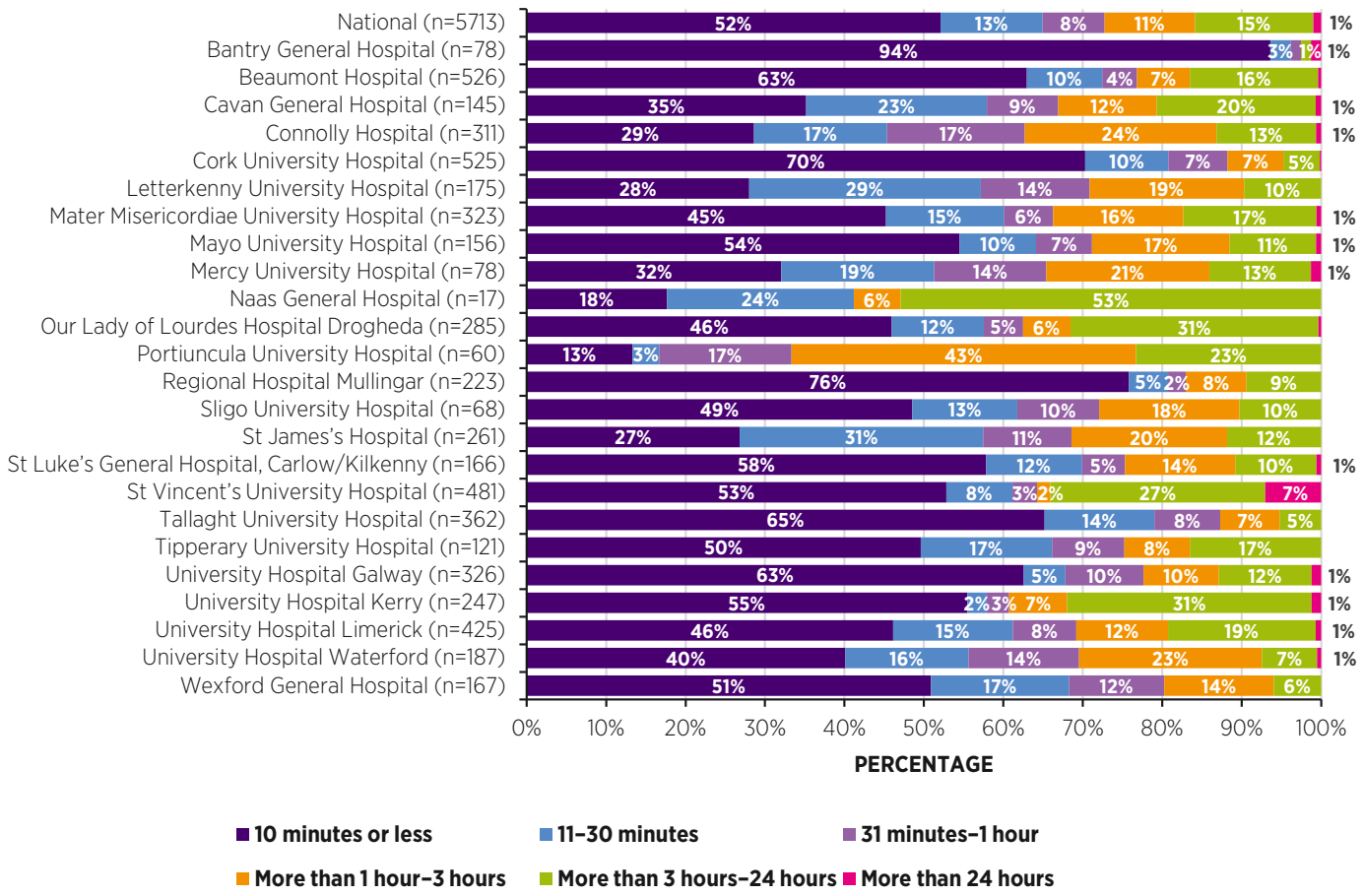


FIGURE 2.3: TIME INTERVALS BETWEEN HOSPITAL ARRIVAL TIME AND TIME OF MEDICAL REVIEW, BY HOSPITAL (n=5713)

[8] Portiuncula University Hospital and Naas General Hospital only provides an acute stroke service to those who self-present to the hospital or are already an inpatient

TIME BETWEEN HOSPITAL ARRIVAL AND BRAIN IMAGING TIME

The median time between hospital arrival time and brain imaging time is a key quality indicator (KQI) that is reported quarterly in all hospitals. The median time between hospital arrival and brain imaging in 2025 was 52 minutes (IQR: 25–225 minutes), achieving the target of 60 minutes. The proportion of cases who received brain imaging within 1 hour of hospital arrival was 51% (n=2984), which is similar to 2024 (Figure 2.4). Variance is observed between hospitals, ranging from 69% (n=156) in Regional Hospital Mullingar to 1% (n=≤5) in Portiuncula University Hospital.[9]

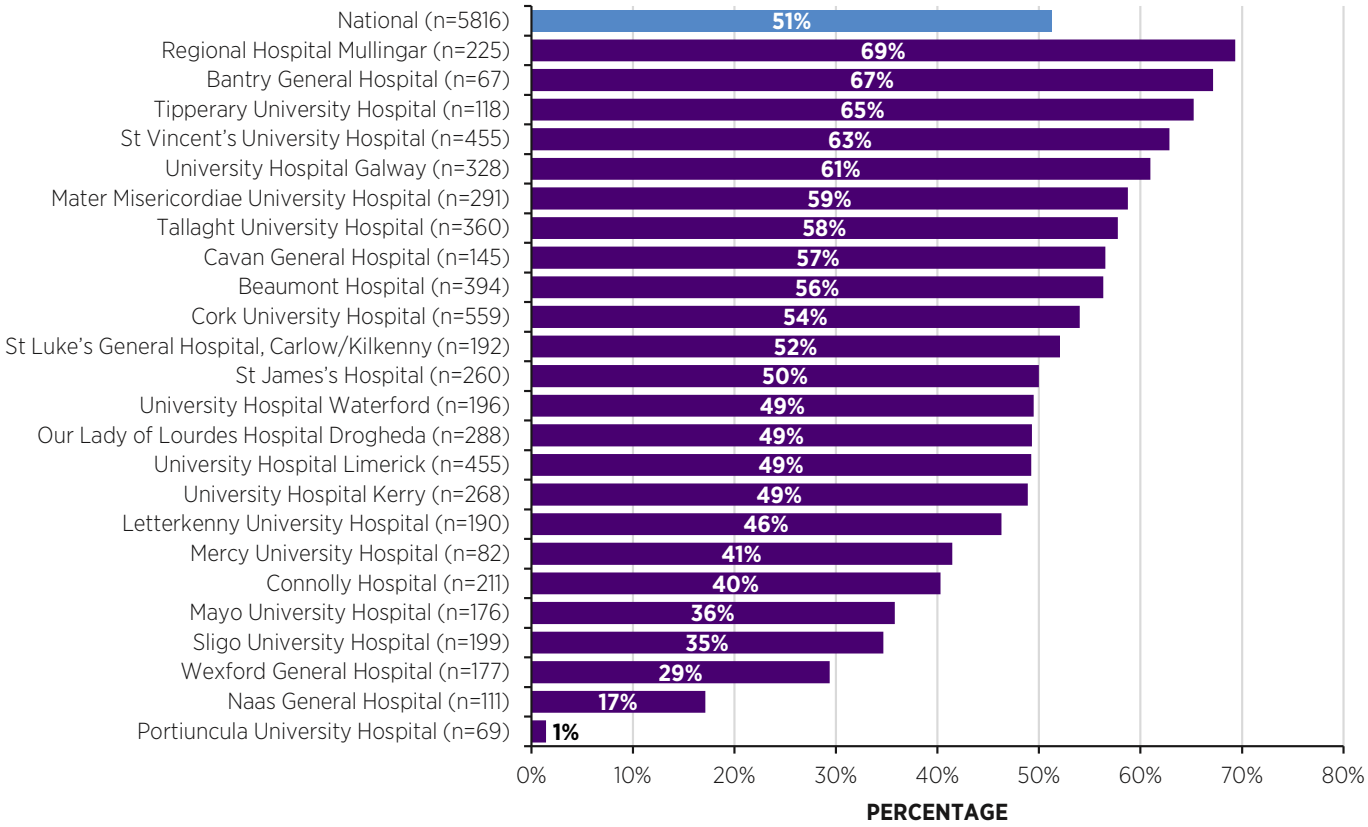


FIGURE 2.4: THE PROPORTION OF PATIENTS WITH A STROKE WHO RECEIVED BRAIN IMAGING WITHIN 1 HOUR OF HOSPITAL ARRIVAL, BY HOSPITAL (n=5816)

KQI 4

THE MEDIAN TIME BETWEEN HOSPITAL ARRIVAL TIME AND BRAIN IMAGING TIME

TARGET: 60 MINS RESULT: 52 MINS

[9] Portiuncula University Hospital only provides an acute stroke service to those who self-present to the hospital or are already an inpatient.

THROMBOLYSIS IN ISCHAEMIC STROKE

Both the rate and timeliness of thrombolysis are KQIs that are reported quarterly in all hospitals. The rate of thrombolysis (KQI 3) in patients with ischaemic stroke was 10% (n=556), below the 12% target and consistent with previous years. Variation is observed between hospitals, from 19% in Bantry General Hospital to 5% in Naas General Hospital (National Reporting Table 2025). The median time to thrombolysis was 58 minutes (IQR: 41–83 minutes), achieving the national target of 60 minutes. Figure 2.5 shows the distribution of time intervals between hospital arrival time and time of thrombolysis, by hospital. In total, 50% (n=276) of patients with ischaemic stroke received thrombolysis within 1 hour of hospital arrival, and variation between hospitals is observed, from 85% in Bantry General Hospital to 17% in University Hospital Limerick.

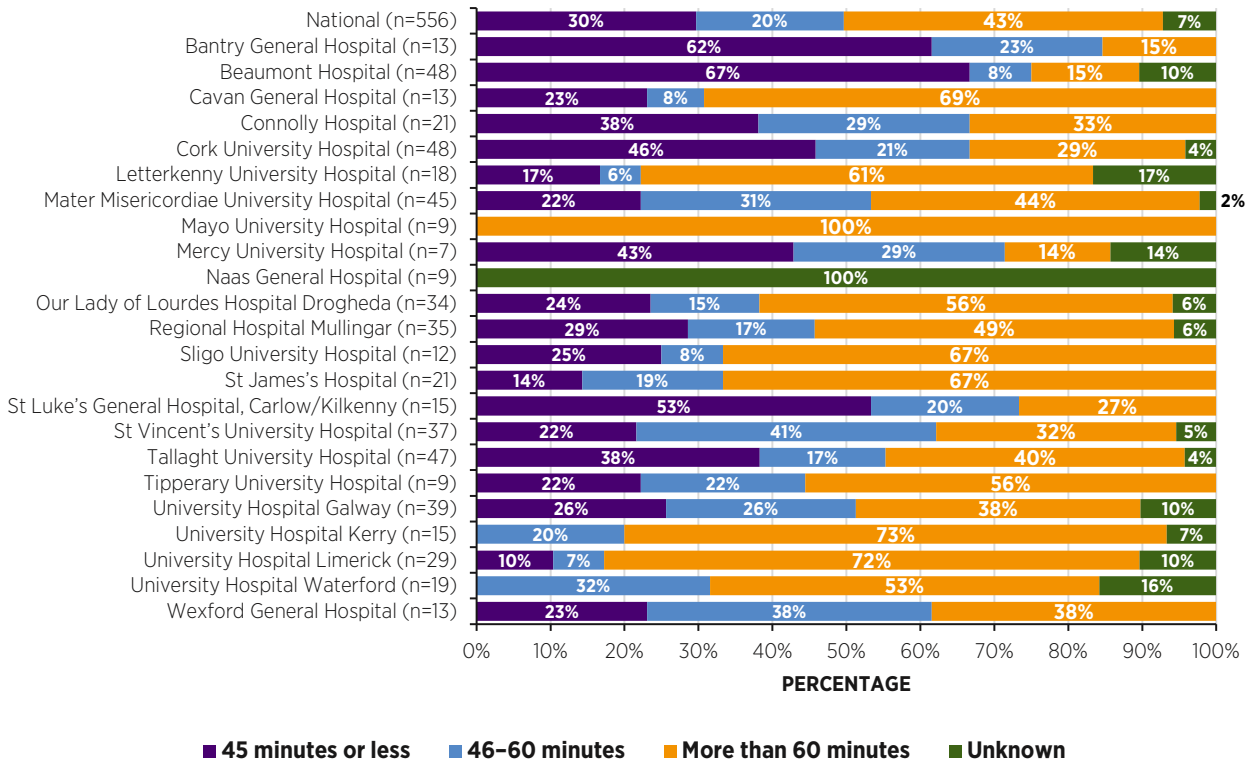


FIGURE 2.5: TIME INTERVALS BETWEEN HOSPITAL ARRIVAL TIME AND TIME OF THROMBOLYSIS, BY HOSPITAL (n=556)

KQI 3

THE PERCENTAGE OF PATIENTS WITH ISCHAEMIC STROKE WHO RECEIVE THROMBOLYSIS

TARGET: 12% | **RESULT: 10%**

KQI 5

THE MEDIAN TIME BETWEEN HOSPITAL ARRIVAL TIME AND TIME OF THROMBOLYSIS

TARGET: 1 HOUR | **RESULT: 58 MINS**

[10] Naas General Hospital only provides an acute stroke service to those who self-present to the hospital or are already an inpatient.

Figure 2.6 displays the distribution of time intervals between the onset of stroke symptoms and arrival at hospital among patients who received thrombolysis, by hospital. In 23% of cases (n=129), this interval was unknown. The primary reason for missing time interval data was the absence of a recorded stroke symptom onset time (19%; n=103). However, in most of these cases (88%; n=91), the time the patient was last known to be well was documented, facilitating clinical decision-making regarding the administration of thrombolysis. In total, 75% (n=416) of patients with ischaemic stroke who received thrombolysis had arrived within the 4.5-hour window. Variation is observed between hospitals, ranging from 100% in Mayo University Hospital, Sligo University Hospital and Wexford General Hospital to 48% (n=23) in Beaumont Hospital. Very few cases (1%; n=6) received thrombolysis within the 4.5 hours–9hours extended time period available in the context of advanced brain imaging (Intercollegiate Stroke Working Party, 2023).

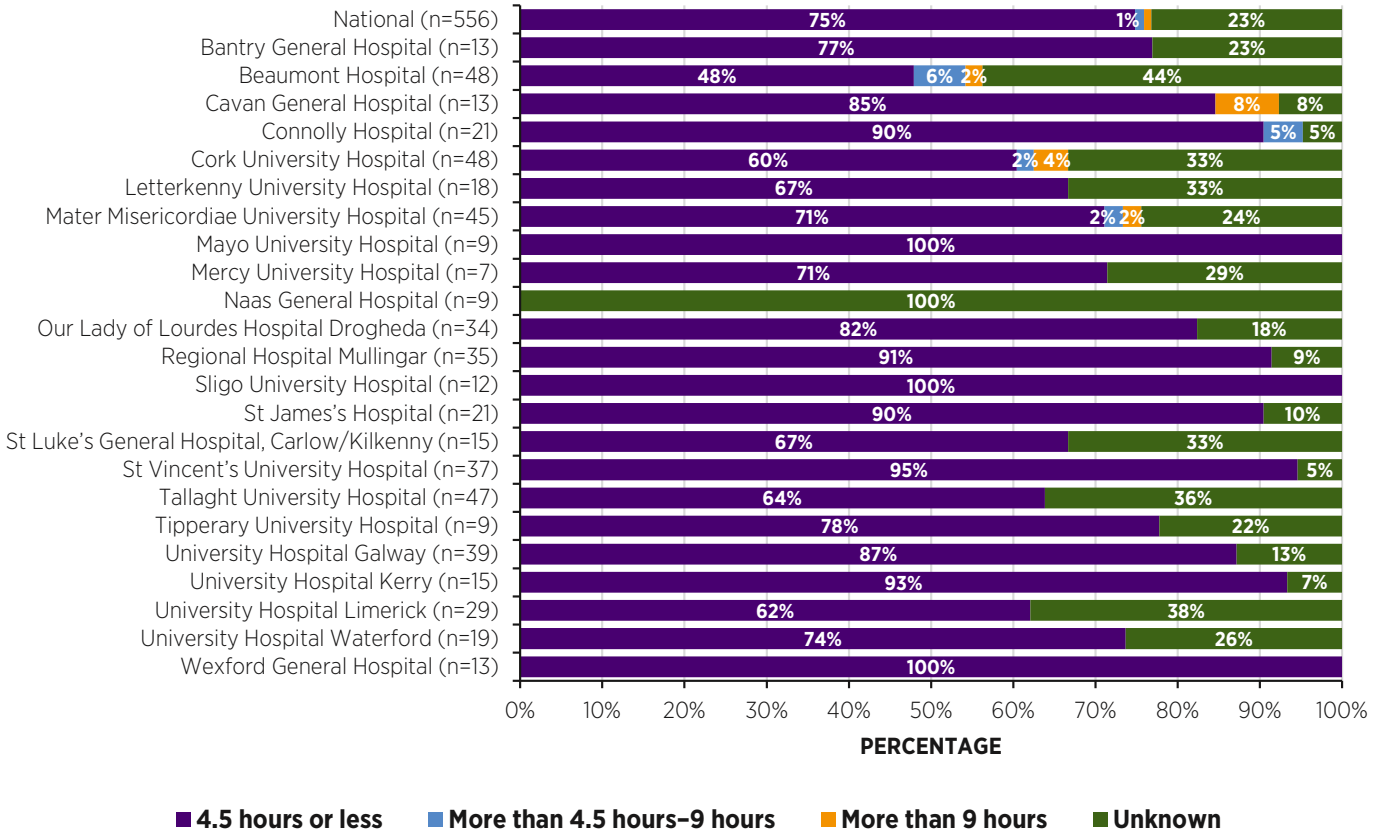


FIGURE 2.6: TIME INTERVALS FROM WITNESSED STROKE SYMPTOM ONSET TO HOSPITAL ARRIVAL FOR THROMBOLYSED CASES, BY HOSPITAL (n=556)

OPPORTUNITY FOR IMPROVEMENT

This chapter demonstrates that, although national targets were achieved for two of the three KQIs, there remains variation in performance between hospitals. It is recommended that all hospitals review their individual results as set out in this report and in the National Reporting Table 2025 in order to identify opportunities for quality improvement (QI) and reduce unwarranted variation.

KEY FINDINGS FROM CHAPTER 2

- There was a 4% increase in cases admitted to hospital with a stroke between 2024 (n=6581) and 2025 (n=6848). This report presents results on 6,563 cases.
- The majority of strokes (86%) are ischaemic, with a median patient age of 74 years. Males tend to experience stroke at a younger age than females.
- The median interval between onset of symptoms and arrival at hospital was 3 hours and 26 minutes (IQR: 1 hour and 42 minutes to 12 hours and 21 minutes).
- The median time between hospital arrival and review by a medical team was 9 minutes (IQR: 0–75 minutes).
- The median time between hospital arrival and brain imaging was 52 minutes (IQR: 25–225 minutes), achieving the target of 60 minutes.
- The rate of thrombolysis (KQI 3) in patients with ischaemic stroke was 10% (n=556), not achieving the national target of 12%.
- The median time to thrombolysis (KQI 5) was 58 minutes (IQR: 41–83 minutes), achieving the national target of 60 minutes.



3. STROKE UNIT CARE

3. STROKE UNIT CARE

Patients with a stroke who receive stroke unit care are more likely to be alive, living at home and capable of looking after themselves independently 1 year after their stroke than those who do not receive stroke unit care (Langhorne and Ramachandra, 2020). Admission to a stroke unit and length of stay in a stroke unit are both national key performance indicators that are reported annually in the Health Service Executive (HSE) National Service Plan (HSE, 2025), and are also KQIs for the INAS. Table 3.1 shows a summary of trends related to stroke unit care from 2022 to 2025.

TABLE 3.1: STROKE UNIT CARE QUALITY INDICATOR TRENDS, 2022–2025

STROKE UNIT CARE QUALITY INDICATORS	GOAL	2022	2023	2024	2025
Proportion of patients admitted to a stroke unit	90%	68%	70%	73%	74%
Proportion of hospital stay spent in a stroke unit	90%	67%	69%	69%	68%
Proportion of patients who received a swallow screening	90%	70%	75%	81%	75%
Proportion of patients who received a swallow screening within 4 hours	90%	43%	44%	23%[11]	39%
Proportion of patients who were prescribed new or altered antithrombotic therapy on the same day or the next day	N/A	84%	86%	83%	86%
Proportion of patients with atrial fibrillation who were prescribed anticoagulants for secondary prevention of stroke	N/A	84%	85%	91%	90%

[11] A change to the data element used for calculating swallow screening within 4 hours was implemented in 2024, which contributed to the observed decline in results.

ADMISSION TO A STROKE UNIT

In 2025, 74% (n=4868) of patients were admitted to a stroke unit; this is a slight improvement from 73% (n=4494) in 2024, but is still well below the target of 90%. Variation between hospitals is observed, from 95% in Sligo University Hospital to 22% in Portiuncula University Hospital (Figure 3.1). The main reason that patients were not admitted to a stroke unit (n=1695) was the lack of available stroke unit beds, accounting for 59% (n=1001) of cases. An additional 28% (n=413) were recorded under the free text category of 'other reasons' for non-admission. These reasons were multifactorial and included the need for intensive care or palliative care (27%; n=113), symptoms considered too mild to warrant stroke unit admission (14%; n=56), and patients not being under the care of a stroke team (9%; n=36). In 43% of cases within the 'other reasons' category (n=179), the reason for non-admission remained unknown. The breakdown of reasons why a patient was not admitted to a stroke unit is available in Appendix 3.

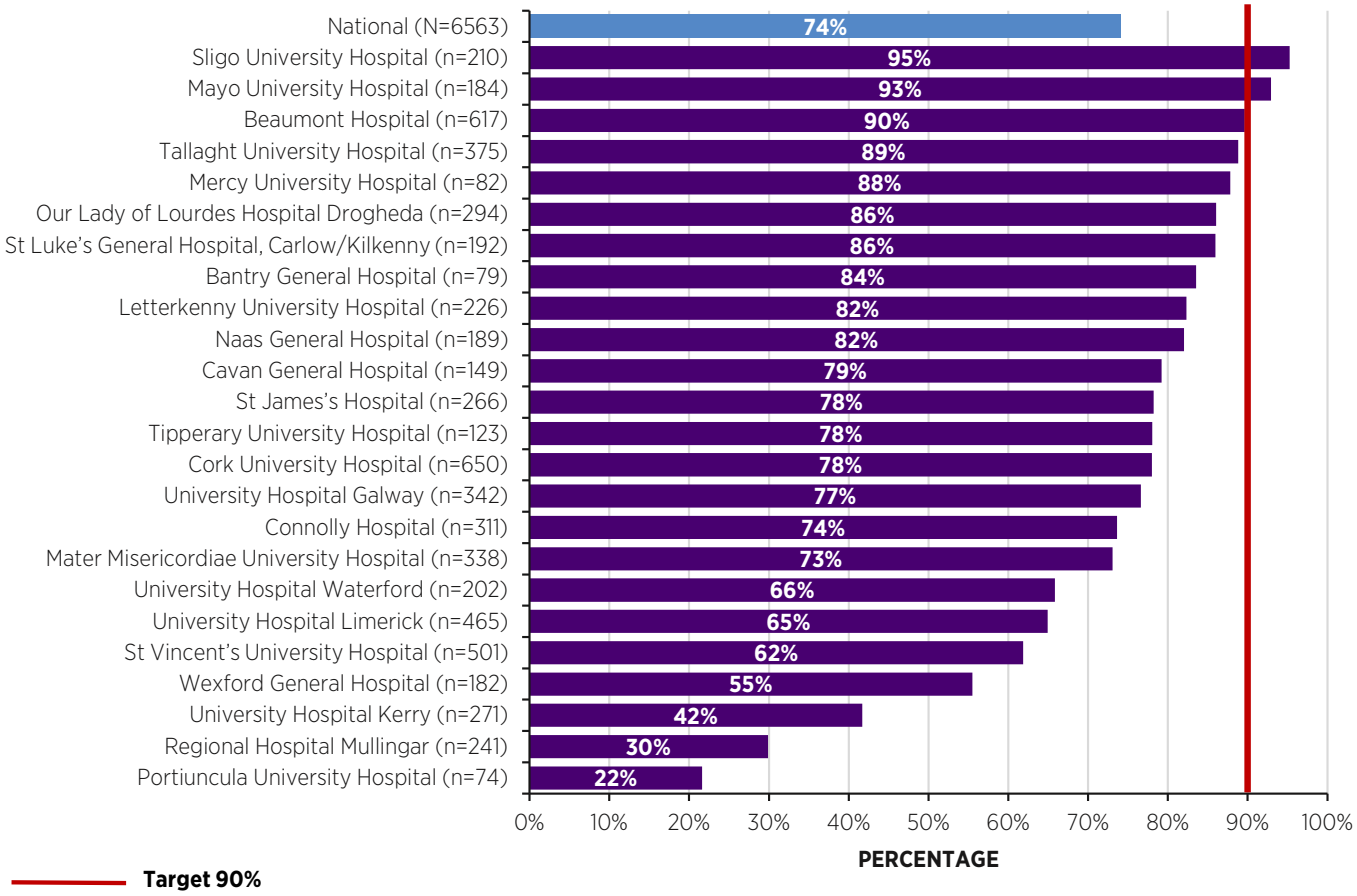


FIGURE 3.1: ADMISSION TO A STROKE UNIT, BY HOSPITAL (N=6563)

KQI 1

THE PERCENTAGE OF CASES ADMITTED TO A STROKE UNIT

TARGET: 90% | **RESULT: 74%**

SWALLOW SCREENING

KQIs 6 and 7 measure the rate and timeliness, respectively, of swallow screening. In 2025, 75% (n=4892) of patients with a stroke received a swallow screening, representing a decrease from 81% in 2024. The rate of swallow screening varied between hospitals, from 100% (n=79) in Bantry General Hospital to 22% (n=42) in Naas General Hospital (National Reporting Table 2025).

KQI 6

PERCENTAGE OF CASES WHO HAVE A SWALLOW SCREENING COMPLETED

TARGET: 90% | **RESULT: 75%**

Swallow screening should be completed as soon as possible and within 4 hours (240 minutes) of hospital arrival. In 2025, the median time to swallow screening was 345 minutes (IQR: 92–1,228 minutes), and only 39% (n=1889) of those who received a swallow screening received it within 4 hours of hospital arrival (Figure 3.2).

In 2022, the National Clinical Programme (NCP) for Stroke implemented a national QI project to improve rates of swallow screening in all hospitals, and an education programme is available via the HSE's HSeLanD online portal. The second phase of the QI project was intended to focus specifically on reducing time to swallow screening, but this was not implemented due to resource limitations within the NCP for Stroke.

KQI 7

THE MEDIAN TIME BETWEEN HOSPITAL ARRIVAL TIME AND SWALLOW SCREENING (MINUTES)

TARGET: 240 | **RESULT: 345**

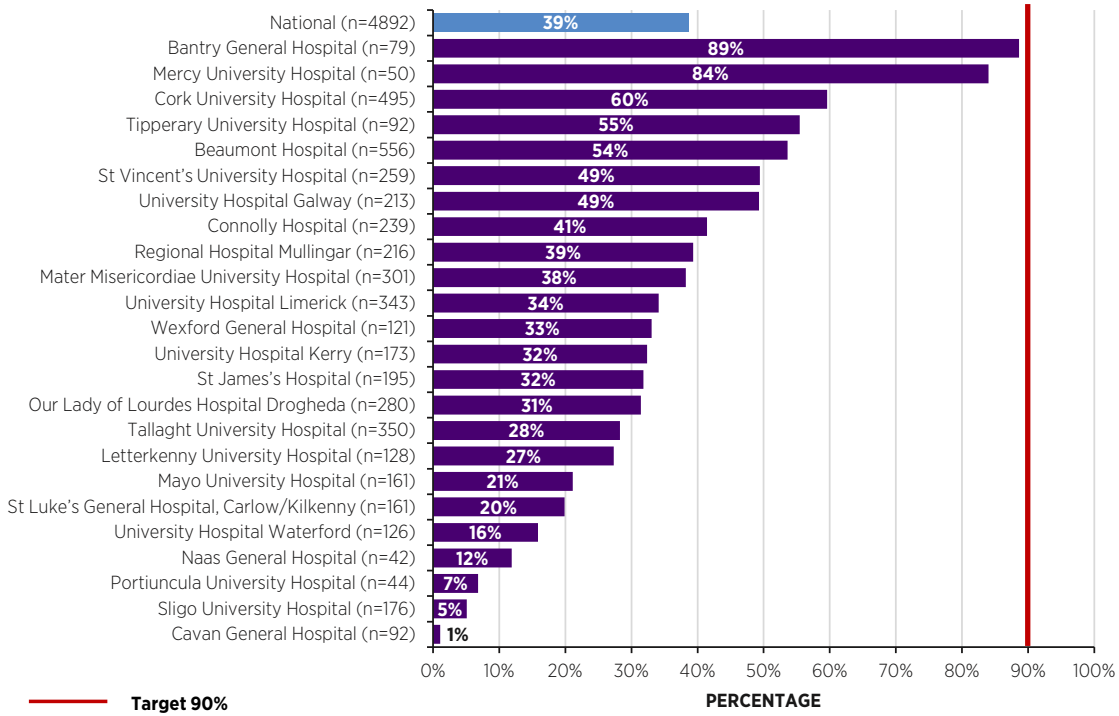


FIGURE 3.2: PATIENTS WHO RECEIVED A SWALLOW SCREENING WITHIN 4 HOURS OF HOSPITAL ARRIVAL, BY HOSPITAL (n=4892)

OPPORTUNITY FOR QI

HOSPITALS SHOULD REVIEW THEIR OWN SWALLOW SCREENING RESULTS AND INITIATE QI PROJECTS IN ORDER TO INCREASE THE RATE AND TIMELINESS OF SWALLOW SCREENING FOR ALL PATIENTS WITH A STROKE.

ADVANCED NURSE PRACTITIONER/CLINICAL NURSE SPECIALIST ASSESSMENT

Eighty-six percent (n=5669) of patients with a stroke were assessed by an advanced nurse practitioner or a clinical nurse specialist during their hospital stay; this represents a slight decrease from 88% in 2024.

MULTIDISCIPLINARY TEAM MEETING ASSESSMENTS

Multidisciplinary team meeting assessments were conducted for 81% (n=5325) of patients with a stroke in 2025.

OPPORTUNITY FOR QI

MULTIDISCIPLINARY TEAM MEETINGS ARE AN OPPORTUNITY TO IDENTIFY CASES THAT SHOULD BE RECORDED IN THE INAS.

HEALTH AND SOCIAL CARE PROFESSIONALS' ASSESSMENTS

In total, as recorded in the core clinical dataset, 91% (n=5957) of patients with a stroke were assessed by a health and social care professional (HSCP); 92% (n=5477) were assessed by a physiotherapist (PT); 92% (n=5455) were assessed by an occupational therapist (OT); 67% (n=4011) were assessed by a speech and language therapist (SLT); 29% (n=1716) were assessed by a dietitian; 23% (n=1374) were assessed by a medical social worker; and 7% (n=410) were assessed by a psychologist.

Additional HSCP data were submitted by 21 hospitals, an increase from 20 in 2024. As stated in the data quality statement, only national results are available due to difficulties in achieving acceptable coverage. Other relevant HSCPs; Dietetics, Medical Social Work, and Psychology do not yet contribute to the INAS, and therefore no additional information is available. Each item collected is reported within the National Reporting Table 2025.

Overall, 45% (n=2443) of patients who were reported to have been assessed by a PT had additional physiotherapy HSCP data submitted, 47% (n=2538) of patients who were reported to have been assessed by an OT had additional occupational therapy HSCP data submitted, and 45% (n=1810) of patients who were reported to have been assessed by an SLT had additional speech and language therapy HSCP data submitted. Figure 3.3 shows the proportion of cases reported to have been assessed by either a PT, an OT or an SLT, with additional discipline-specific HSCP data recorded by hospital. A total of 2,557 physiotherapy cases, 2,681 occupational therapy cases and 1,979 speech and language therapy cases were submitted to the HSCP dataset and form the denominators for reporting discipline-specific findings in this report.

Out of those cases with additional HSCP data, 54% (n=1371) of patients seen by a PT were seen on the same day of admission or the next day, while 42% (n=1122) of patients who were seen by an OT and 54% (n=1076) of patients who were seen by an SLT were seen on the same day of admission or the next day. Twenty-eight percent (n=721) of patients required the assistance of more than one PT/therapy assistant for more than one-half of their treatment sessions, and this figure was 19% (n=521) for patients working with OTs. PTs reported that 53% (n=1362) of patients received a sufficient amount of physiotherapy, while this proportion was reported as 48% (n=1284) by OTs and 59% (n=1158) by SLTs for patients receiving occupational therapy and speech and language therapy, respectively.

Fifty-eight percent (n=932) of patients with a stroke who were seen by an SLT had difficulties with swallowing. Only 7% (n=136) had a video fluoroscopy and 5% (n=101) had a fiberoptic endoscopic evaluation of swallowing (FEES) completed, while 37% (n=592) had aphasia.

Forty-five percent (n=1202) of patients with a stroke were driving prior to the stroke, and 91% (n=1088) of those were given advice by an OT about driving limitations after stroke. Twenty-two percent (n=602) of patients with a stroke were in paid employment prior to the stroke, and 71% (n=428) of those were given advice about returning to work prior to discharge.

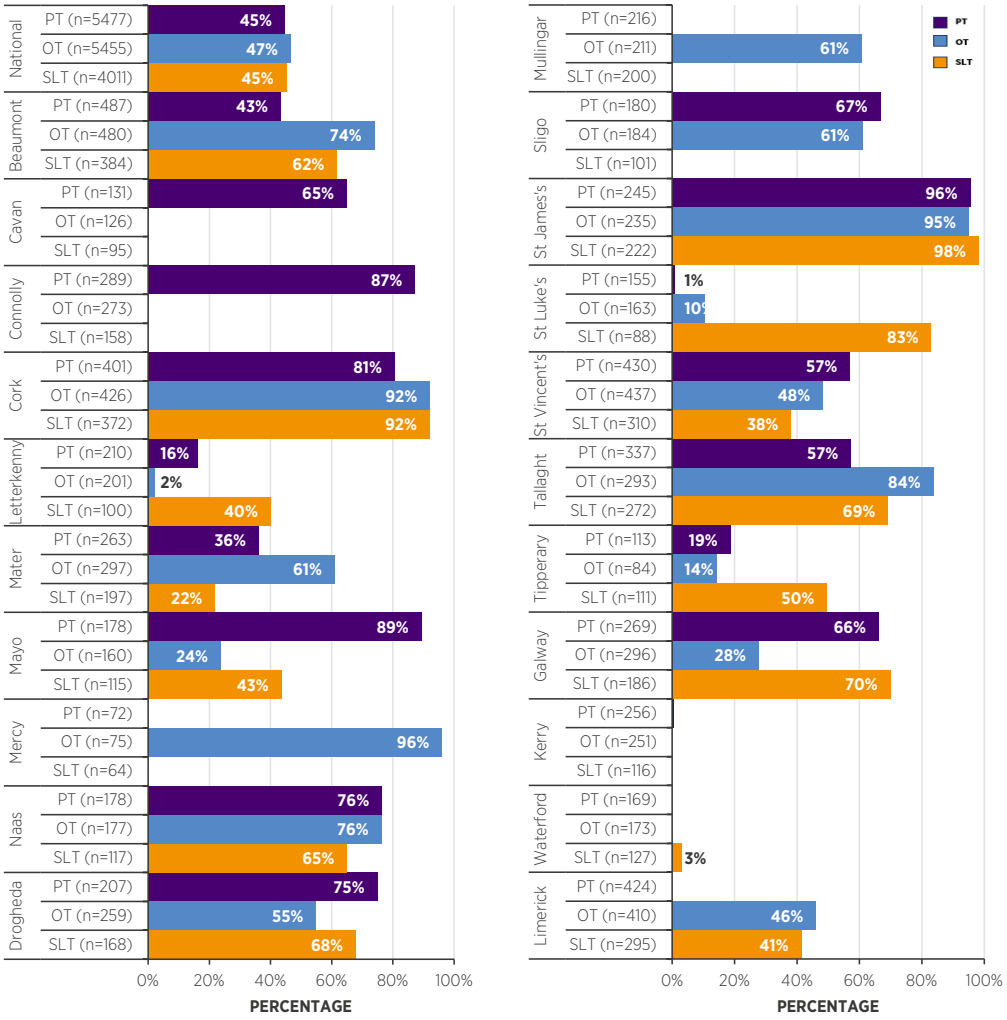


FIGURE 3.3: PROPORTION OF CASES ASSESSED BY A PHYSIOTHERAPIST, OCCUPATIONAL THERAPIST, AND/OR SPEECH AND LANGUAGE THERAPIST WITH ADDITIONAL HEALTH AND SOCIAL CARE PROFESSIONAL DATA SUBMITTED, BY HOSPITAL[12]

[12] Hospitals that had no additional HSCP data recorded (Bantry General Hospital, Portiuncula University Hospital, and Wexford General Hospital) were excluded from Figure 3.3.

SECONDARY PREVENTION

ANTITHROMBOTIC THERAPY

New or altered antithrombotic therapy was prescribed for 87% (n=4948) of patients with ischaemic stroke in 2025, and the therapy was commenced on the same day as the patient's arrival at hospital or the next day in 86% (n=4244) of these cases, representing an increase from 83% in 2024.

CAROTID STENOSIS

Symptomatic carotid artery stenosis was reported in 9% (n=488) of patients with ischaemic stroke, which was similar to the 9% reported in 2024. Of those cases, 44% (n=215) were referred for carotid endarterectomy (a decrease from 47% in 2024) and 38% (n=183) were referred for carotid stenting (an increase from 34% in 2024). Thirteen percent (n=65) were referred for both carotid endarterectomy and carotid stenting. Twenty-three percent (n=114) of patients referred for treatment of carotid artery stenosis were aged 81 years and over (median age: 73 years; IQR: 65–80 years), and the majority were male (72%; n=351). Eighty-two percent (n=402) of patients referred for treatment of carotid artery stenosis were admitted to a stroke unit. Further detail by individual hospital can be found in the National Reporting Table 2025.

ATRIAL FIBRILLATION

Atrial fibrillation (AF) is the rapid, irregular beating of the heart, affecting the flow of blood through the heart and making it more likely to clot. If a clot leaves the heart and travels to the brain, it can cause a stroke by blocking the flow of blood through the cerebral arteries. AF is the most common arrhythmia seen in general practice and is associated with a fivefold increase in the risk of stroke. Strokes related to AF are also more severe, with twice the death rate of non-AF-related strokes and greater functional deficits for those who do survive (Health Information and Quality Authority, 2015). AF is treated with anticoagulant medications that prevent the formation of blood clots in the heart.

In 2025, the prevalence of AF among patients with a stroke was 25% (n=1613), similar to 24% in 2024. AF was known prior to stroke in 17% (n=1139) of all cases. Treatment with anticoagulant medication pre-stroke was reported in 87% (n=995) of these cases: direct oral anticoagulant (DOAC) treatment was reported in 89% (n=885) of cases, warfarin treatment was reported in 5% (n=49) of cases, and another antiplatelet and/or anticoagulant medication was prescribed in 6% (n=58) of cases. Figure 3.4 displays AF data by stroke type.

ATRIAL FIBRILLATION IN PATIENTS WITH A STROKE

ALL PATIENTS WITH A STROKE (N=6563)

Ischaemic stroke Number of patients with ischaemic stroke (n=5676)	Haemorrhagic stroke Number of patients with haemorrhagic stroke (n=887)
25% (n=1428) of patients with ischaemic stroke had AF	**21%** (n=185) of patients with haemorrhagic stroke had AF
AF was known prior to stroke in **68%** (n=966) of patients with ischaemic stroke.	AF was known prior to stroke in **94%** (n=173) of patients with haemorrhagic stroke.
87% (n=845) of patients with ischaemic stroke and AF known prior to stroke were prescribed anticoagulant medication.	**87%** (n=150) of patients with haemorrhagic stroke and AF known prior to stroke were prescribed anticoagulant medication.
89% (n=754) of patients with ischaemic stroke were prescribed DOACs for AF prior to stroke.	**5%** (n=39) of patients with ischaemic stroke were prescribed warfarin for AF prior to stroke.
87% (n=131) of patients with haemorrhagic stroke were prescribed DOACs for AF prior to stroke.	**7%** (n=10) of patients with haemorrhagic stroke were prescribed warfarin for AF prior to stroke.
49% (n=19) of patients with ischaemic stroke who were prescribed warfarin for AF prior to stroke had an INR of between 2 and 3 on admission to hospital	**30%** (n≤5) of patients with haemorrhagic stroke who were prescribed warfarin for AF prior to stroke had an INR of between 2 and 3 on admission to hospital

FIGURE 3.4: BREAKDOWN OF PRE-STROKE ATRIAL FIBRILLATION DATA FOR PATIENTS WITH ISCHAEMIC AND HAEMORRHAGIC STROKE (N=6563)

KEY FINDINGS FROM CHAPTER 3

- The proportion of patients admitted to a stroke unit increased from 68% in 2022 to 74% in 2025. However, this remains below the 90% national target.
- Lack of available stroke unit beds was the main reason for non-admission to a stroke unit, accounting for 59% of cases where patients were not admitted.
- The proportion of patients receiving a swallow screening improved steadily from 70% in 2022 to 81% in 2024, but fell to 75% in 2025.
- Timely swallow screening within 4 hours of hospital arrival increased from 23% in 2024 to 39% in 2025; however, this was still well below the 90% target.
- Anticoagulant prescribing for patients with AF before stroke showed sustained strong performance, increasing from 84% in 2022 to 87% in 2025, and helping to reduce the risk of recurrent stroke.



4. OUTCOMES

4. OUTCOMES

SUMMARY OF OUTCOME TRENDS

Table 4.1 presents a summary of outcome trends from 2022 to 2025. Further detail on each metric is presented within this chapter.

TABLE 4.1: OUTCOME QUALITY INDICATORS, 2022-2025

OUTCOME QUALITY INDICATORS	2022	2023	2024	2025
Length of stay in acute hospital (average number of days)	19	18	17	17
Length of stay in a stroke unit (average number of days)	14	14	13	13
Proportion of patients discharged home[13]	50%	48%	46%	47%
Proportion of patients discharged home with Early Supported Discharge (ESD)[14]	10%	9%	11%	13%
Proportion of patients discharged to long-term care	7%	7%	7%	5%
Unadjusted in-hospital mortality – all stroke types[15]	11%	10%	11%	10%
Unadjusted in-hospital mortality – ischaemic stroke[15]	8%	7%	8%	6%
Unadjusted in-hospital mortality – haemorrhagic stroke[15]	30%	29%	31%	30%

[13] This may not reflect deterioration, but rather an impact from the increase in the number of patients discharged home with Early Supported Discharge (ESD).
[14] These are in addition to those who were discharged home.
[15] Based on modified Rankin Scale (mRS) scores.

LENGTH OF STAY

In 2025, the median total length of stay (LOS) in hospital was 8 days (IQR: 5–17 days), unchanged from 2024 (NOCA, 2025). The LOS can vary between hospitals due to different service provision for stroke work-up and rehabilitation. Differences in service delivery models across hospitals should be considered when interpreting these results. Some hospitals provide diagnostic investigations in an outpatient setting, while others retain patients as inpatients until all investigations have been completed. Similarly, rehabilitation services may be provided either on-site or through off-site facilities. Hospitals with on-site rehabilitation services are likely to report a longer LOS for patients with a stroke, as rehabilitation is included within the acute hospital episode. In contrast, hospitals that discharge patients to off-site rehabilitation services may report a shorter acute hospital LOS.

In 2025, the median LOS in a stroke unit was 7 days. The proportion of bed days that a patient spends in stroke units is a national KQI with a target of 90% (HSE, 2012). Sixty-eight percent of the total time that patients spent in hospital in 2025 was in a stroke unit; this was similar to the 69% reported in 2024 (NOCA, 2025), but remains well off target (Figure 4.1).

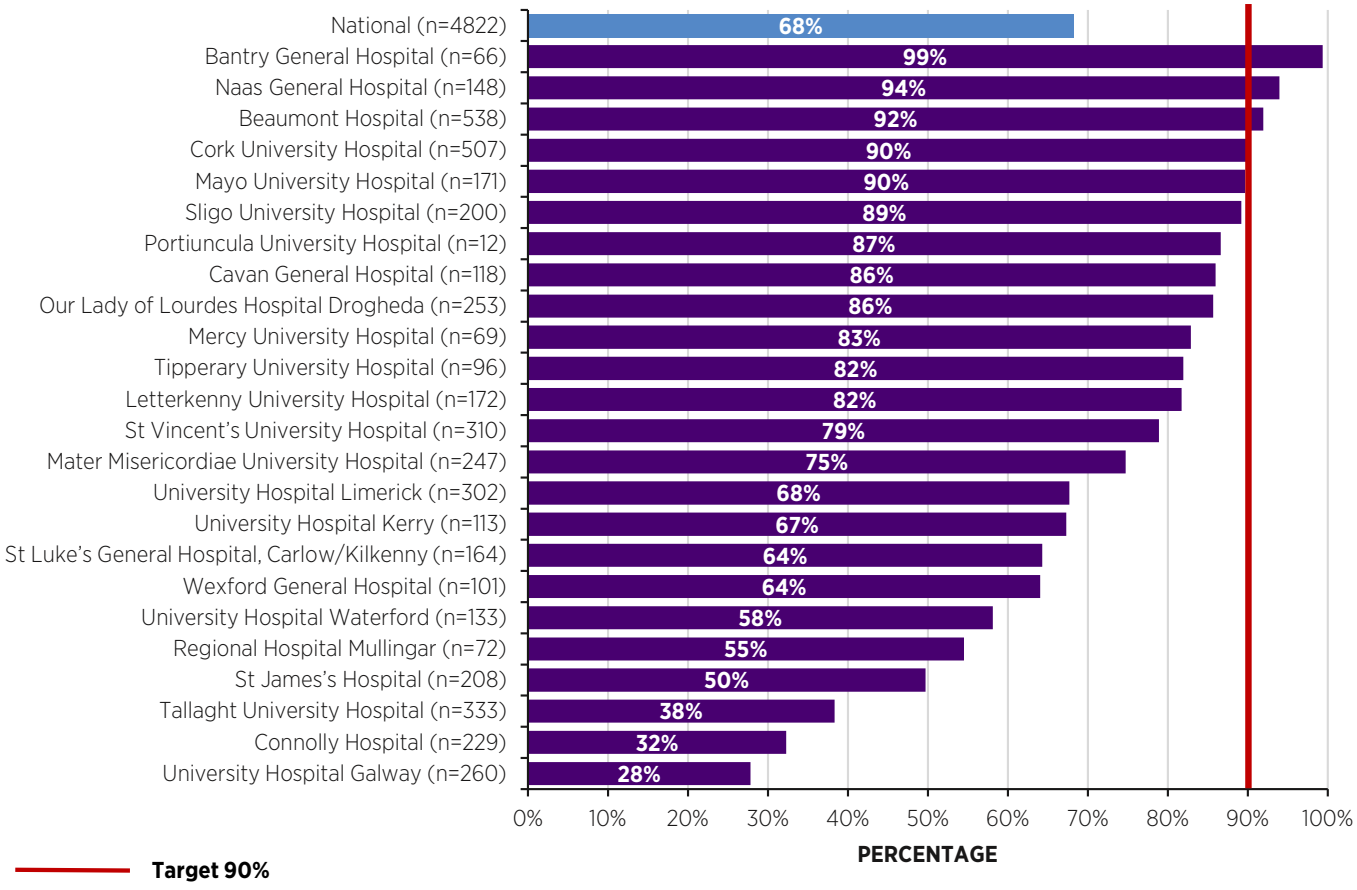


FIGURE 4.1: PERCENTAGE OF BED DAYS SPENT IN A STROKE UNIT FOR PATIENTS WHO SPENT ALL OR SOME OF THEIR HOSPITAL STAY IN A STROKE UNIT (N=90185)[16]

KQI 2

THE PERCENTAGE OF TIME PATIENTS SPEND IN A STROKE UNIT

TARGET: 90% | **RESULT: 68%**

[16] The numbers next to each hospital in Figure 4.1 represent the number of patients in each hospital.

MODIFIED RANKIN SCALE SCORES

Prior to admission, most patients with a stroke (61%; n=3985) had no disability, and 38% (n=2473) had some form of disability. On discharge from acute services, 68% (n=4463) had either a mild disability or a moderate to severe disability. Figures 4.2 and 4.3 indicate the changes in the modified Rankin Scale (mRS) scores among patients by stroke type.

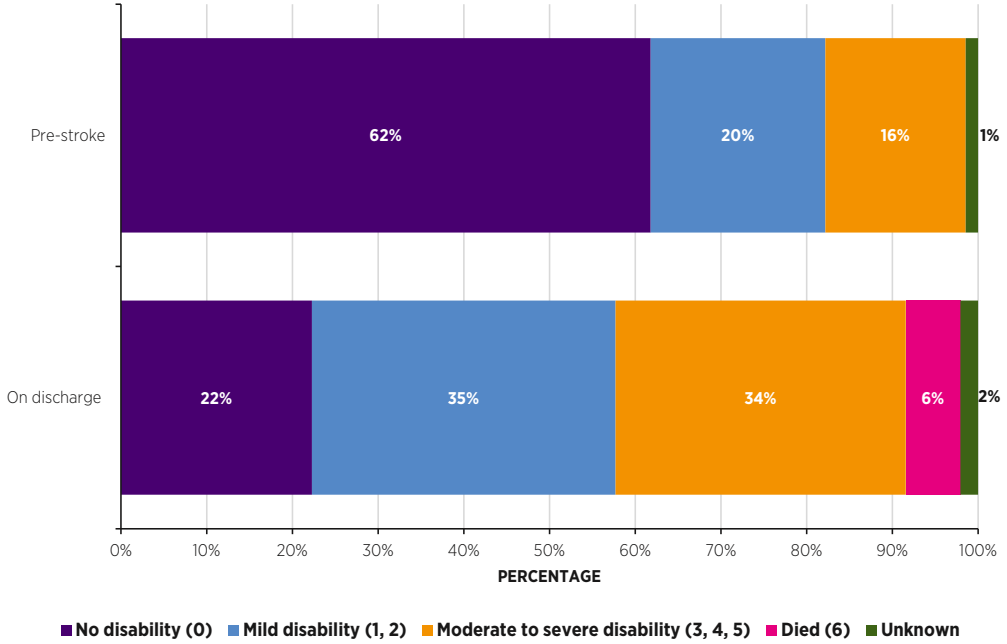


FIGURE 4.2: MODIFIED RANKIN SCALE SCORES IN PATIENTS WITH ISCHAEMIC STROKE, PRE-STROKE AND ON DISCHARGE FROM ACUTE HOSPITAL (n=5676)

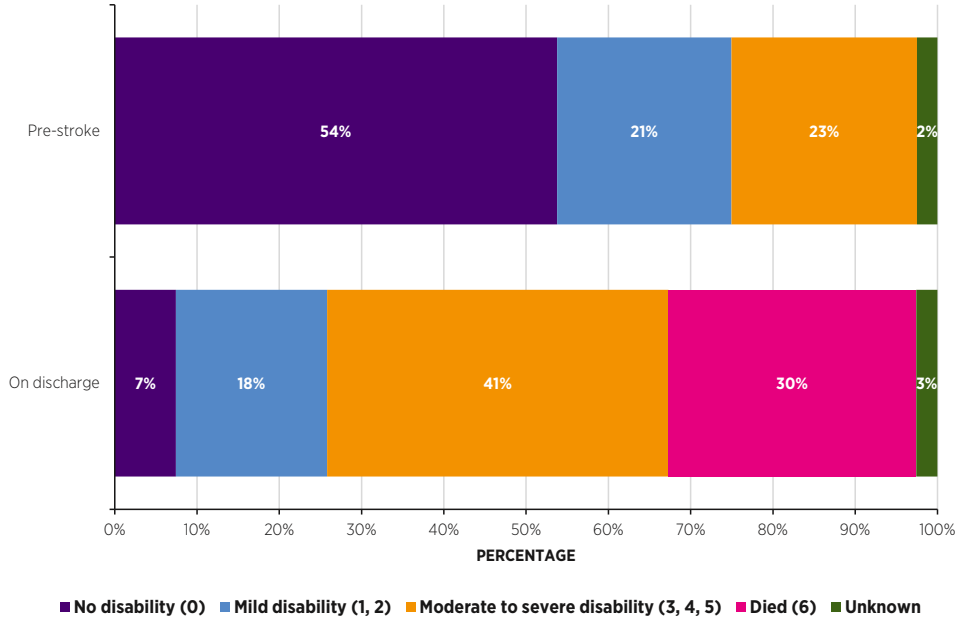


FIGURE 4.3: MODIFIED RANKIN SCALE SCORES IN PATIENTS WITH HAEMORRHAGIC STROKE, PRE-STROKE AND ON DISCHARGE FROM ACUTE HOSPITAL (n=887)

DISCHARGE DESTINATION

In total, 60% (n=3932) of patients were discharged home from an acute stroke service. Of those, 47% of patients with a stroke were discharged home (n=3084), with an additional 13% (n=848) discharged home with ESD. The proportion of cases discharged home with ESD is calculated using all patient discharges from each hospital as the denominator. In hospitals with higher than average rates of transfer to another hospital for ongoing acute stroke care, this may influence the proportion of patients discharged home with ESD. For example, Beaumont Hospital, an endovascular thrombectomy centre, reported that 30% of patients with a stroke were transferred to another hospital for ongoing acute care (National Reporting Table 2025). As these transferred patients are included in the denominator but are not eligible for discharge home with ESD from the transferring hospital, the reported proportion may be lower. Hospitals should therefore review their own results in the context of local service delivery arrangements and monitor trends over time in order to identify and understand changes in performance. Overall, 5% of patients (n=355) were discharged to long-term care. However, 20% of these patients (n=72) had also been admitted from long-term care. Excluding these patients, the adjusted proportion discharged to long-term care was 4% (n=283). Figure 4.4 shows the discharge destination from the acute hospital for all patients with a stroke in 2025.

The unadjusted in-hospital mortality rate for all patients with a stroke in 2025 was 10% (n=635).[17] The unadjusted in-hospital mortality rate was 6% (n=361) for patients with ischaemic stroke, compared with 30% (n=267) for patients with haemorrhagic stroke.[18]

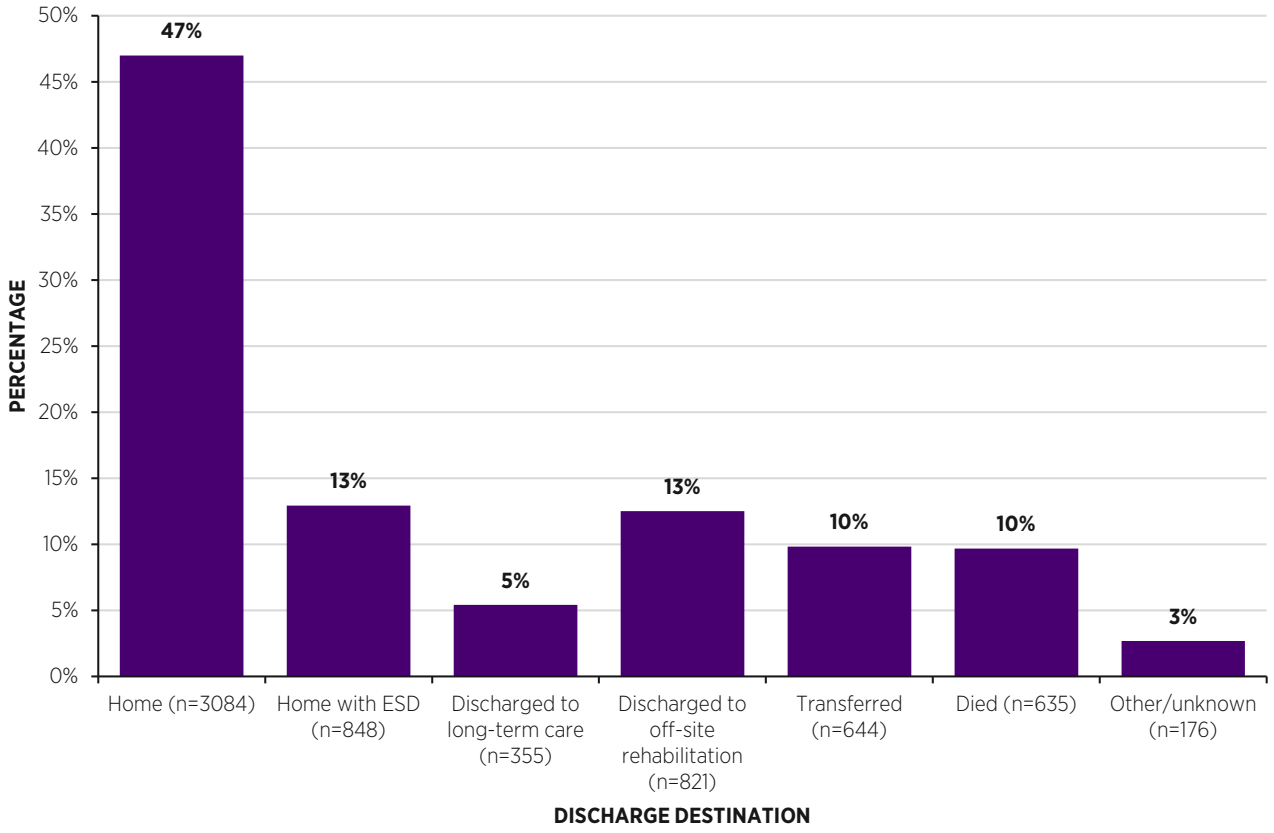


FIGURE 4.4: DISCHARGE DESTINATION FROM ACUTE HOSPITAL FOR ALL PATIENTS WITH A STROKE (N=6563)

KQI 8

THE PERCENTAGE OF PATIENTS DISCHARGED HOME WITH ESD

RESULT: 13%

[17] This result is based on the discharge destination variable (Figure 4.4).
[18] Unadjusted mortality by stroke type is based on mRS scores at discharge.

OUTCOMES FROM THE HSCP DATASET

PHYSIOTHERAPY

Figure 4.5 shows that 76% (n=1947) of patients seen by a PT and had additional HSCP data submitted were independent in terms of mobility prior to their stroke, compared with 44% (n=1136) of these patients on discharge from hospital. Standardised outcome measures were used in 66% (n=1683) of cases.

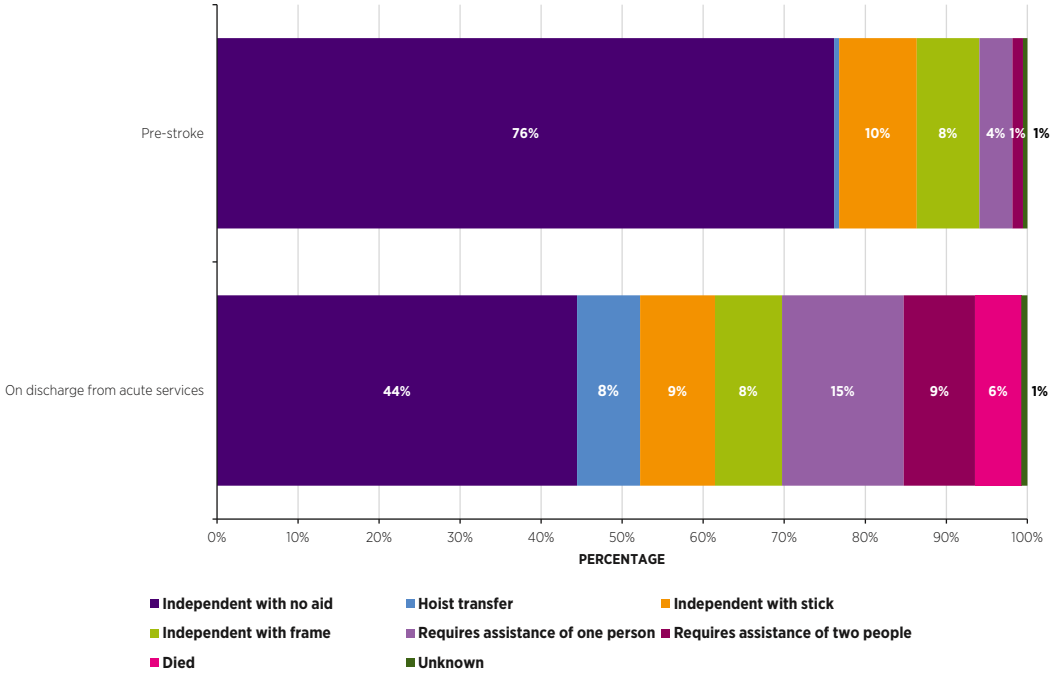


FIGURE 4.5: PHYSIOTHERAPY MOBILITY OUTCOMES (n=2557)[19]

ONWARD REFERRAL FROM PHYSIOTHERAPY

Among patients who were seen by PTs and had additional HSCP data submitted and were discharged alive from acute hospital services (n=2361), 48% (n=1142) were referred onwards, 50% (n=1174) were not referred onwards, 1% (n=31) were not referred as there was no appropriate service available, and the circumstances of 1% (n=14) were unknown. Of those who were referred onwards, patients with higher dependency were more likely to be referred for ongoing inpatient rehabilitation, and those with less dependency were more likely to be referred to ESD (Figure 4.6).

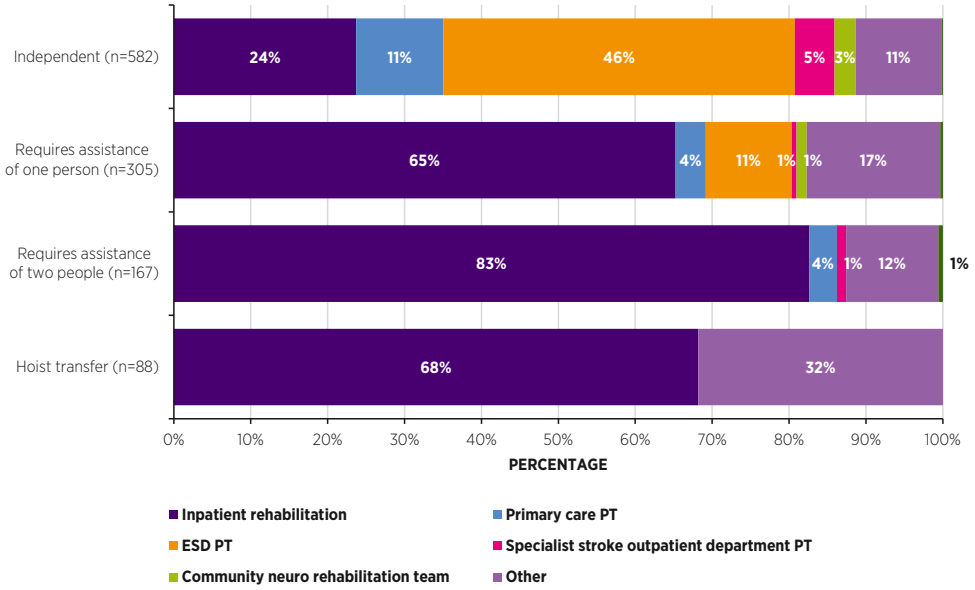


FIGURE 4.6: PROPORTION OF ONWARD REFERRAL SERVICE BY INDOOR MOBILITY ON DISCHARGE (n=1142)

[19] Percentages may not add up to 100% due to rounding.

OCCUPATIONAL THERAPY

OTs record outcomes based on a patient's ability to perform activities of daily living pre-stroke and on discharge from the acute hospital. The term 'activities of daily living' collectively describes the fundamental skills that are required in order for an individual to independently care for themselves, such as eating, bathing and mobilising.

Figure 4.7 shows the distribution of assistance requirements for activities of daily living among patients with a stroke both pre-admission and on discharge from acute services. Prior to admission, 75% (n=2024) of patients with a stroke who were seen by an OT and had additional HSCP data submitted were independent in their ability to attend to their personal activities of daily living. On discharge, this fell to 42% (n=1138).

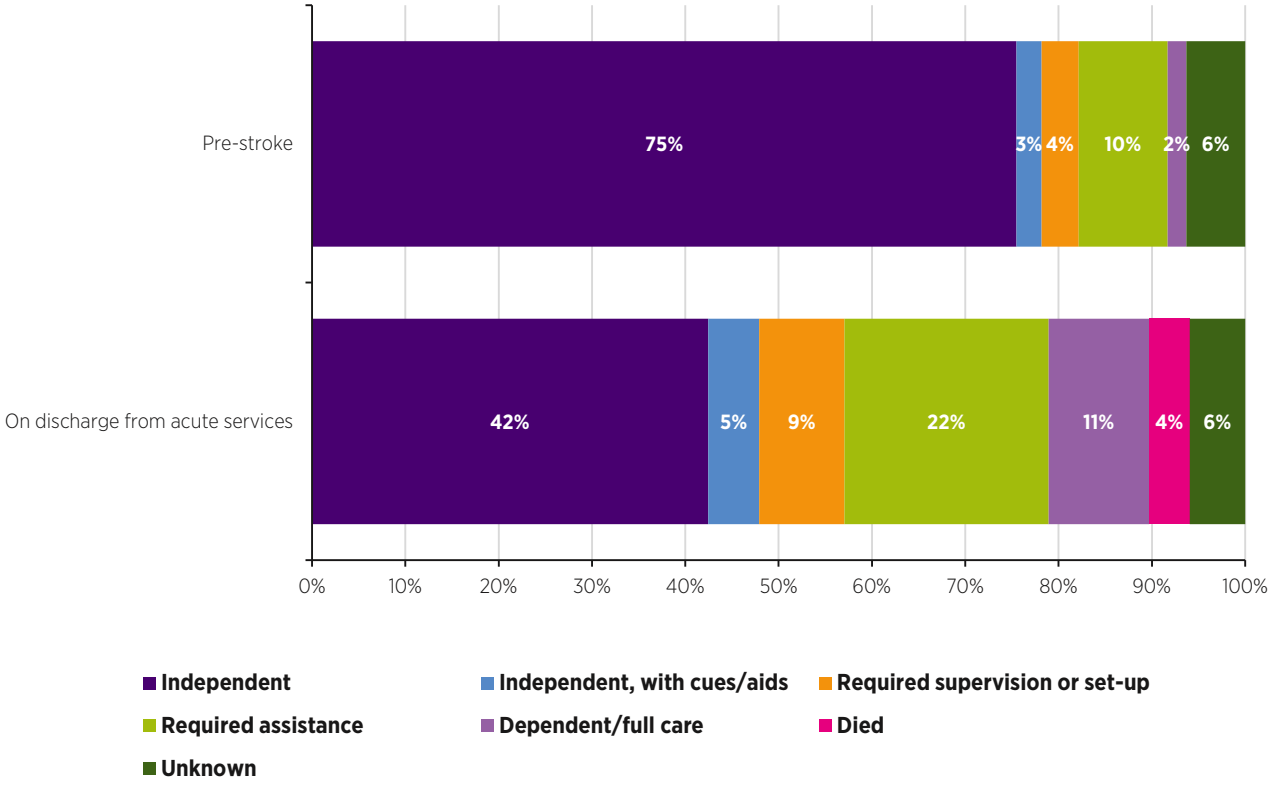


FIGURE 4.7: OCCUPATIONAL THERAPY ACTIVITIES OF DAILY LIVING OUTCOMES (n=2681)[20]

[20] Percentages may not add up to 100% due to rounding.

SPEECH AND LANGUAGE THERAPY

COMMUNICATION OUTCOMES

Figure 4.8 shows the pre- and post-stroke communication ability of patients who were seen by an SLT and had additional HSCP data submitted. Prior to admission, the majority (78%; n=1551) of patients with a stroke who were assessed by an SLT had no difficulties in their ability to speak and communicate. On discharge, there was an increase in the percentage of patients who were reported to have communication difficulties; 35% (n=696) of patients had mild communication difficulties, 14% (n=282) had moderate communication difficulties, 7% (n=139) had severe communication difficulties, and 2% (n=41) had profound communication difficulties.

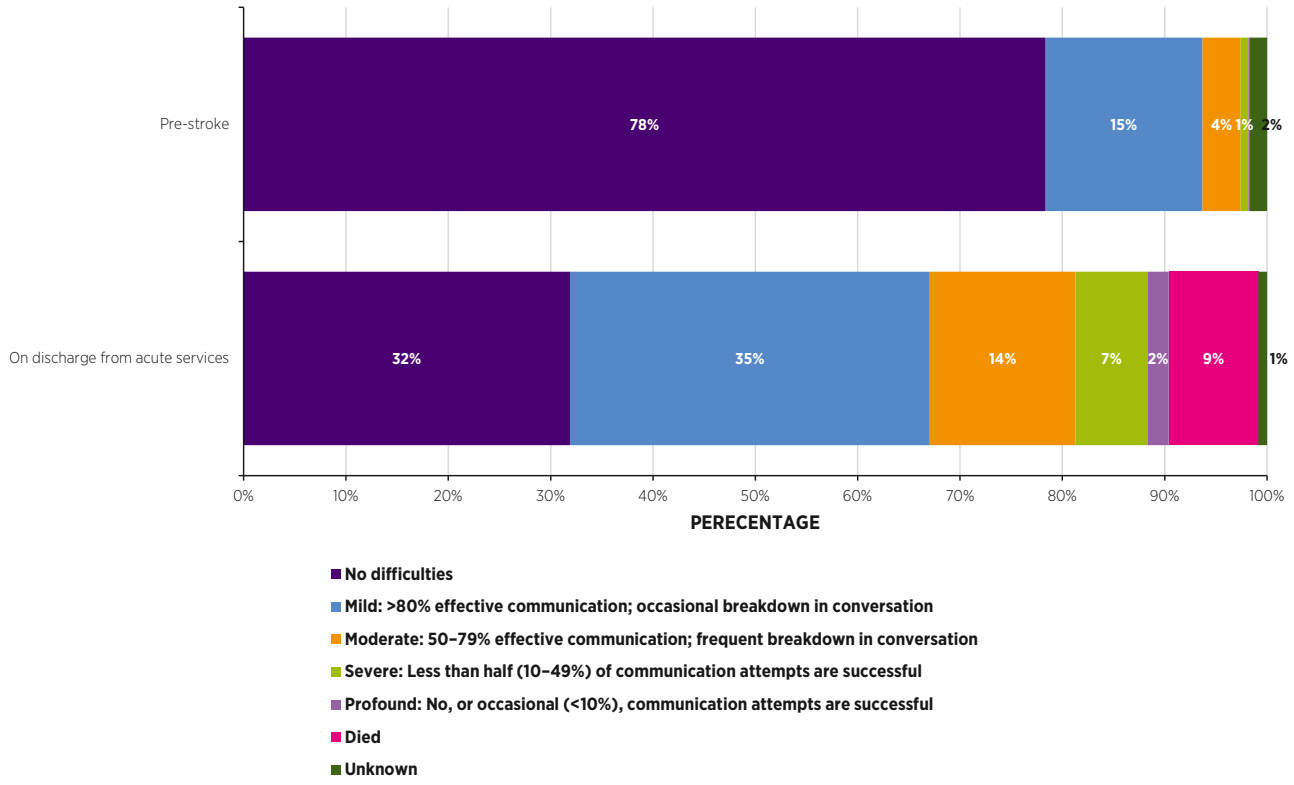


FIGURE 4.8: SPEECH AND LANGUAGE THERAPY COMMUNICATION ABILITY OUTCOMES, PRE- AND POST-STROKE (n=1979)[21]

[21] Percentages may not add up to 100% due to rounding.

ONWARD REFERRAL FROM SLT FOR THOSE REQUIRING MODIFIED DIET OR FLUIDS

Of those patients who were seen by an SLT and discharged alive, 84% (n=363) required a modified diet and 89% (n=200) required modified fluids on discharge from hospital. Almost one-half of those who required a modified diet (44%) or modified fluids (45%) were referred on for inpatient rehabilitation, and a further 34% were referred to other services. Figure 4.9 displays the onward referral destination for patients requiring a modified diet, modified fluids, or both. Patients were most commonly referred for inpatient rehabilitation, while approximately one-third were referred to other, unspecified services.

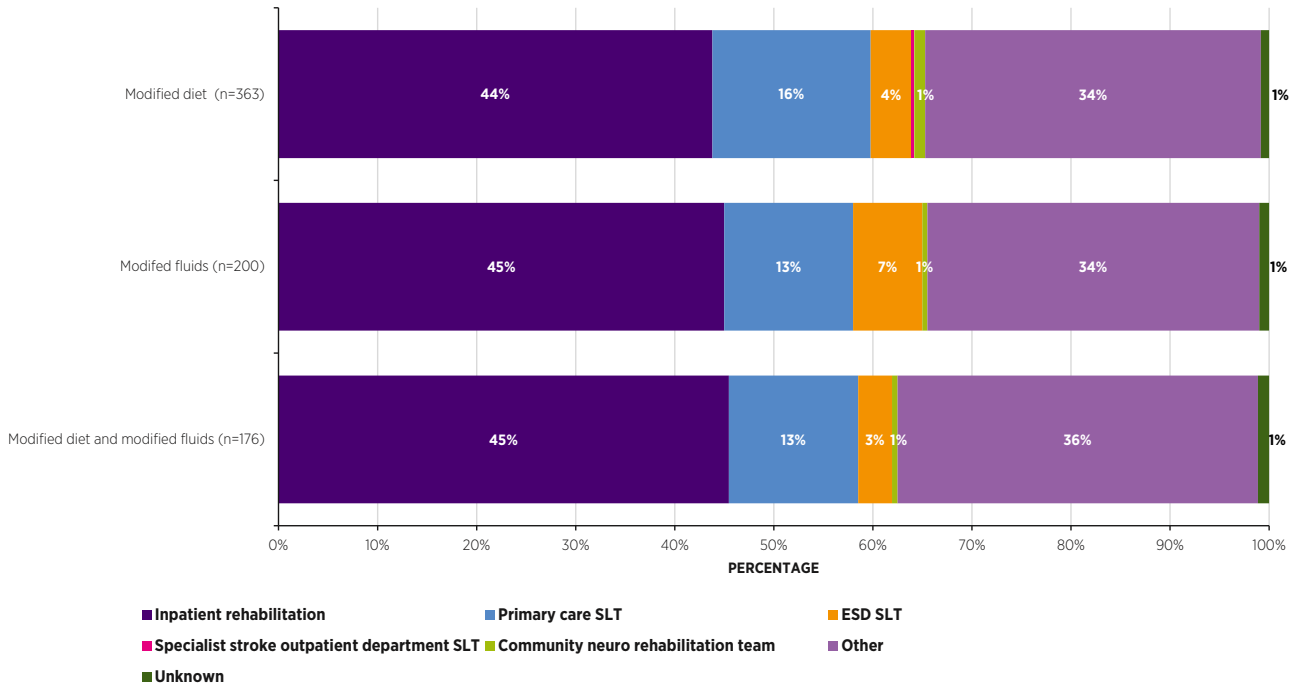


FIGURE 4.9: PROPORTION BY ONWARD REFERRAL SERVICE FOR MODIFIED DIET, MODIFIED FLUIDS, OR BOTH

HSCP DATASET ONWARD REFERRAL

Onward referral refers to the hospital or community service that a patient with a stroke is referred to following discharge from the acute hospital. Figure 4.10 reflects data from the HSCP dataset and shows the distribution of onward referral destinations for each discipline.

In 2025, on discharge from acute hospital services, 45% of physiotherapy cases (n=1151) were referred onwards. Of those, 47% (n=538) were referred for inpatient rehabilitation and 26% (n=301) were referred to ESD.

Of those patients who were seen by an OT, 53% (n=1428) were referred onwards. Inpatient rehabilitation (37%; n=524) and ESD (31%; n=437) were the most common places for onward referral.

Similarly, for those seen by an SLT, 48% (n=944) were referred onwards. Again, inpatient rehabilitation was the most common service for onward referral (36%; n=337), but 24% (n=226) of cases were referred to primary care services.

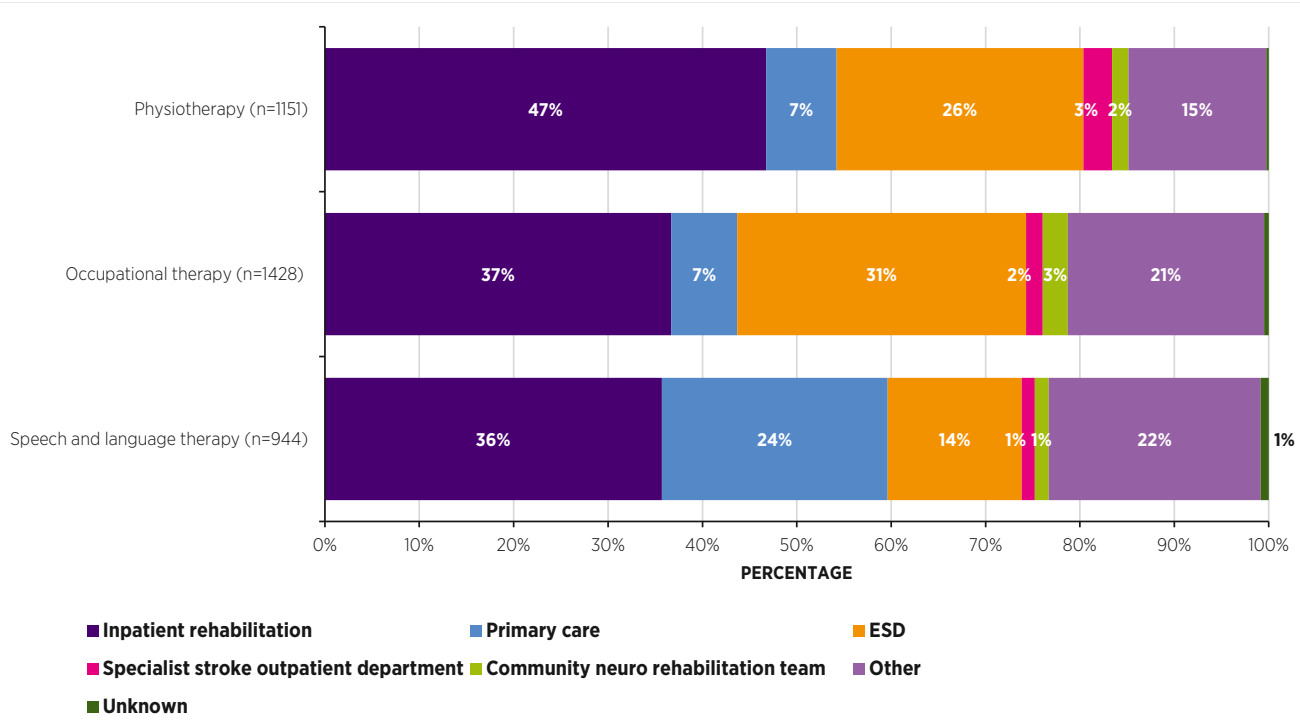


FIGURE 4.10: ONWARD REFERRAL, BY DISCIPLINE (n=2393)[22]

[22] Figure 4.10 shows the number of referrals (i.e. a patient could have been referred by one or more HSCPs).

KEY FINDINGS FROM CHAPTER 4

- The median total LOS in hospital was 8 days (IQR: 5–17 days).
- The proportion of bed days spent in a stroke unit was 68%; this was a small decrease from 2024 (69%) (NOCA, 2025), but remains well below the 90% target (Figure 4.1).
- More patients were discharged home with ESD in 2025 (13%) than in 2024 (11%).
- The unadjusted in-hospital mortality rate for all stroke types fell to 10% in 2025 from 11% in 2024.
- Mortality among patients with ischaemic stroke decreased to 6%, the lowest reported rate since 2013.
- The proportion of patients who were discharged to long-term care declined to 5%, down from 7% since 2022.



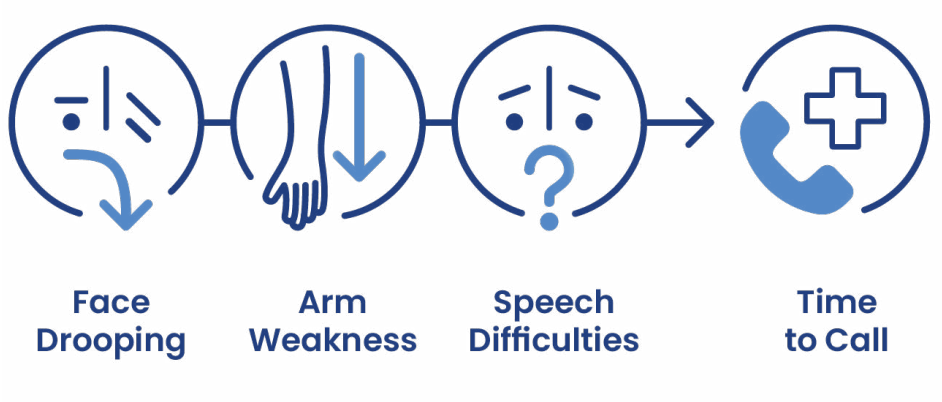
5. QUALITY IMPROVEMENT

5. QUALITY IMPROVEMENT

THE HEALTH SERVICE EXECUTIVE ACT F.A.S.T. CAMPAIGN

Findings from the Irish National Audit of Stroke (INAS) have consistently highlighted the need for greater public awareness of stroke symptoms and the importance of early hospital presentation. These findings have supported national stroke awareness initiatives, including Act F.A.S.T. (face, arm, speech, time) campaigns aimed at improving recognition of stroke and encouraging rapid activation of emergency medical services.

In 2025, the Health Service Executive (HSE) launched the Every Second Counts national stroke awareness campaign across Ireland in order to reinforce the Act F.A.S.T. message and encourage people to seek emergency medical assistance immediately when stroke symptoms occur.



In this and future reports, the INAS aims to provide an opportunity to assess the impact of the Every Second Counts campaign over its duration by presenting data on several key indicators: the number of stroke admissions, the time from symptom onset to hospital arrival, and the number of patients receiving thrombolysis.

Commentary from HSE Communications and the National Clinical Programme for Stroke

The HSE's Every Second Counts stroke awareness campaign was launched in 2025 to increase public recognition of stroke symptoms and reinforce the importance of acting quickly by calling emergency services when stroke is suspected. The campaign represents a close collaboration between HSE Communications, the National Clinical Programme for Stroke and clinical partners, and is supported by evidence demonstrating that rapid recognition and treatment are critical to improving stroke outcomes.

The INAS provides a valuable opportunity to monitor key indicators over the lifetime of the campaign and to assess whether increased public awareness is associated with changes in healthcare-seeking behaviour and access to time-critical stroke treatments. While the findings presented in this report are descriptive and early in the campaign life cycle, they provide important baseline evidence and highlight the value of continued monitoring.

We welcome the collaboration with NOCA and the INAS in evaluating the campaign's impact over the coming years. Ongoing analysis will help strengthen our understanding of how public awareness initiatives can support earlier presentation, improve access to acute stroke treatment and, ultimately, contribute to better outcomes for people affected by stroke.

STROKE ADMISSION ACTIVITY, 2024 AND 2025

Figure 5.1 displays the number of monthly admissions between 1 January 2024 and 31 December 2025, which includes the first Act F.A.S.T. campaign period (which ran from 9 September to 31 December 2025). The baseline median monthly admission count from January 2024 to August 2025 was 524, and the median monthly admission count for the intervention period (September to December 2025) was 518.[23] Of the 4 months within the intervention period, 2 months (September and October 2025) recorded admission counts above the baseline median.

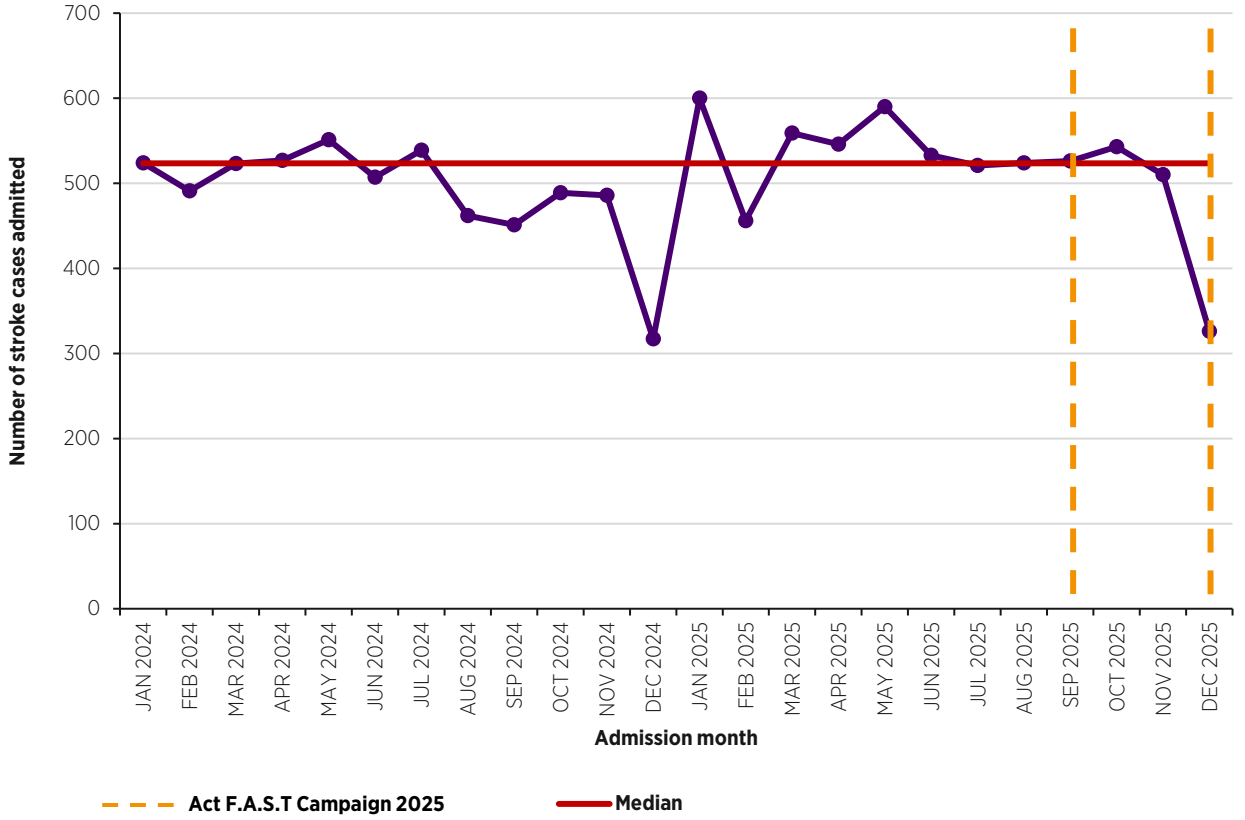


FIGURE 5.1: NUMBER OF STROKE ADMISSIONS, BY MONTH, 2024–2025 (n=12101)[24]

[23] No shift or trend was observed during the Act F.A.S.T. campaign period. Therefore, the baseline median was retained.
[24] The number of admissions (n) for 2024 and 2025 was calculated based on the admission date.

TIME INTERVAL BETWEEN ONSET OF STROKE SYMPTOMS AND HOSPITAL ARRIVAL

The Act F.A.S.T. campaign aims to increase awareness among members of the public of the need to seek help urgently when stroke symptoms occur. Figure 5.2 indicates the median interval between the time of onset of stroke symptoms and hospital arrival time, by month, from January 2024 to December 2025.

During the Act F.A.S.T. campaign period (September to December 2025), onset-to-arrival times were broadly consistent with those observed during the preceding months, with no clear change in the median time interval.

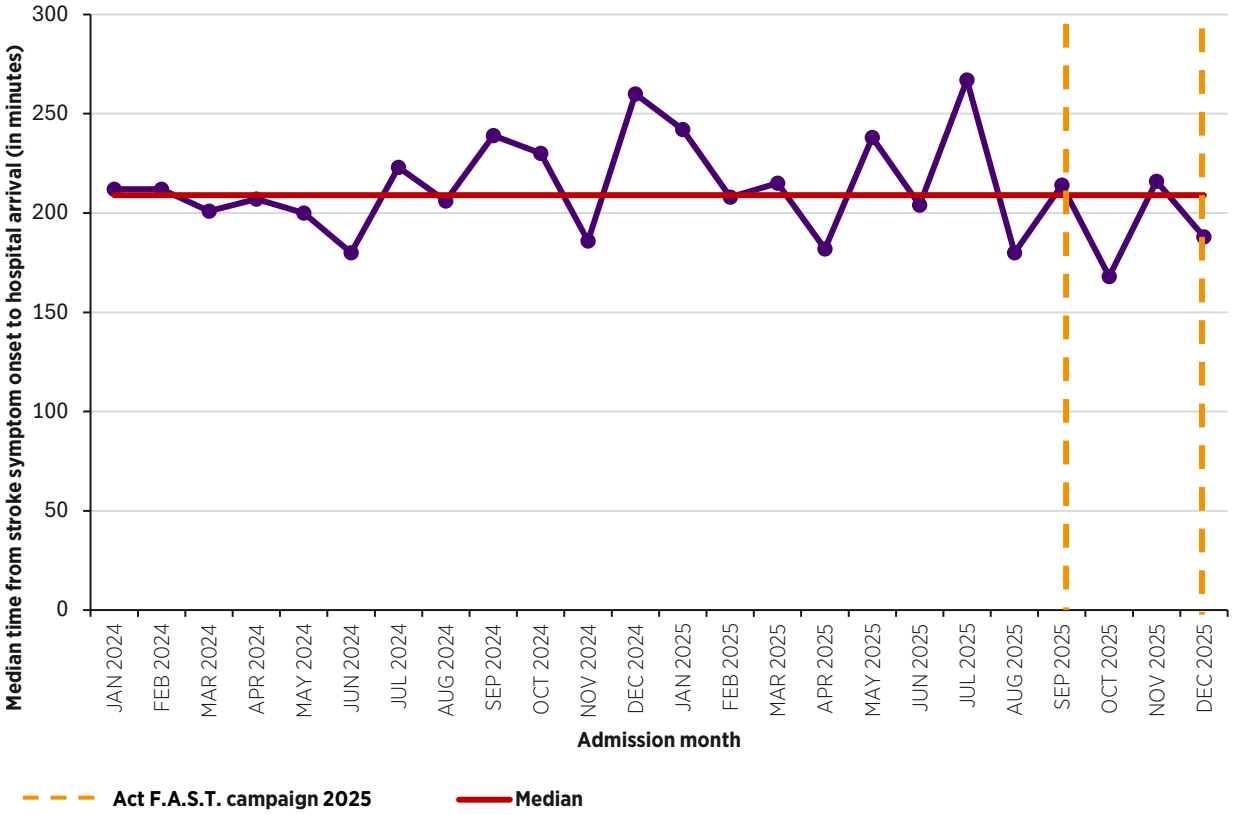


FIGURE 5.2: TIME INTERVAL BETWEEN THE ONSET OF STROKE SYMPTOMS AND HOSPITAL ARRIVAL, BY MONTH, 2024–2025 (n=6937)[25]

[25] The number of admissions (n) for 2024 and 2025 was calculated using the admission date and excludes cases with unknown or missing stroke onset times or hospital arrival times.

THROMBOLYSIS

Treatment with thrombolysis can be provided safely within 4.5 hours of symptom onset. As seen in Chapter 3, the main reason for not receiving thrombolysis is delayed presentation to hospital. If more patients arrive in time for treatment with thrombolysis, an increase in the number of patients treated with thrombolysis should be observed. The median number of cases who received thrombolysis from January 2024 to August 2025 was 45 cases per month, and the median number of cases who received thrombolysis during the Act F.A.S.T. campaign period was 39 cases per month.[26] However, during the period of the campaign, there was an increase in the number of cases who received thrombolysis. In September 2025, 46 cases received thrombolysis, and this increased to 64 in October, which was higher than the baseline median of 45 per month (Figure 5.3). However, this improvement was not sustained throughout the entire Act F.A.S.T. campaign period.

CONCLUSION

It is important to note that these are descriptive findings, and they do not indicate any causal relationship.

At present, there are insufficient post-campaign data to determine whether the Act F.A.S.T. campaign has had a sustained impact. Further monitoring and analysis of post-campaign data will be required in order to evaluate the effectiveness of the campaign in influencing healthcare-seeking behaviour and improving access to timely stroke care.

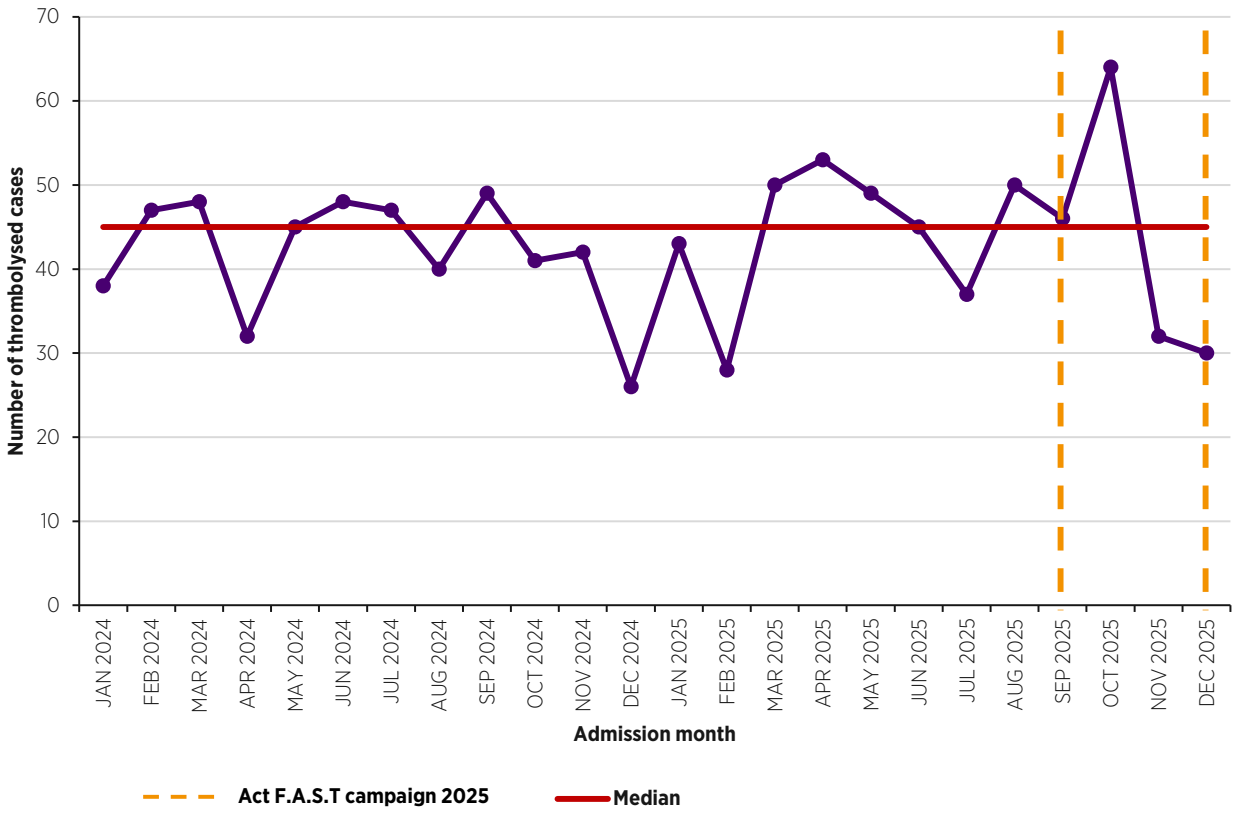


FIGURE 5.3: NUMBER OF THROMBOLYSED CASES, BY MONTH, 2024–2025 (n=1030)[27]

[26] No shift or trend was observed during the Act F.A.S.T. campaign period. Therefore, the baseline median was retained.

[27] Figure 5.3 displays the monthly number of patients with ischaemic stroke who received thrombolysis, excluding transfers to Beaumont Hospital and Cork University Hospital. The number of admissions (n) for 2024 and 2025 was calculated based on the admission date.

QUALITY IMPROVEMENT PROJECT:
CORK UNIVERSITY HOSPITAL

REDUCING TIME TO TREATMENT FOR ACUTE STROKE PATIENTS IN CORK UNIVERSITY HOSPITAL

Karena Hayes, Clinical Nurse Specialist in Stroke and Dr Kirstyn James

INTRODUCTION

Evidence shows that every minute saved in stroke treatment improves patient outcomes and quality of life. In order to address treatment delays, Cork University Hospital Stroke Services and the National Ambulance Service collaborated on a quality improvement (QI) initiative focused on improving the acute stroke pathway.

AIM

The project aimed to reduce treatment delays for patients presenting with suspected acute stroke by improving:

- time spent on scene by ambulance crews
- door to computed tomography (CT) scan time
- door to treatment (thrombolysis) time.

The initiative was informed by the internationally recognised Helsinki Model for reducing delays in acute stroke care.

KEY INTERVENTIONS

Using QI methodology and Plan-Do-Study-Act cycles, several interventions were introduced:

- the development of a pre-registration process known as the Code Stroke Passport to facilitate early communication and information sharing
- the pre-booking of F.A.S.T CT scans prior to patient arrival
- the establishment of a dedicated National Ambulance Service to stroke team communication line
- education and awareness programmes for paramedics
- hospital-wide education involving the emergency department, radiology and administrative staff
- enhanced pre-hospital notification and coordination between ambulance crews and the stroke team.

RESULTS

Analysis of data collected from July to December 2025 demonstrated significant improvements in hospital treatment times without increasing ambulance on-scene times.

Ambulance on-scene time remained unchanged (29 minutes pre-intervention versus 30 minutes post-intervention), indicating no adverse impact on patient assessment or care.

Door to CT scan time was reduced from 33 minutes to 21 minutes, a 12-minute improvement and a 36% reduction in time to imaging.

Door to thrombolysis time was reduced from 50 minutes to 37 minutes, representing a 26% reduction in treatment delay.

Cork University Hospital's post-intervention performance was reported as 59% faster than the national average for door to CT scan time and 30% faster than the national average for door to thrombolysis time.

The project demonstrated that a cost-neutral, resource-neutral approach centred on improved communication, streamlined processes and multidisciplinary collaboration can achieve substantial improvements in acute stroke care delivery.

WHAT'S NEXT?

Future work will focus on identifying further opportunities to reduce pre-hospital and in-hospital delays, such as:

- exploring whether paramedic on-scene times can be safely reduced
- examining whether blood sampling can be undertaken en route to hospital
- agreeing plans to investigate enhanced pre-hospital identification of large vessel occlusion strokes and direct transfer of suitable patients from the ambulance to the CT suite
- developing an electronic version of the Code Stroke Passport in order to further streamline the acute stroke pathway.

QUALITY IMPROVEMENT PROJECT:
OUR LADY OF LOURDES HOSPITAL DROGHEDA

DEVELOPING A NOVEL PATHWAY FOR LOW-RISK TRANSIENT ISCHAEMIC ATTACK PATIENTS AT OUR LADY OF LOURDES HOSPITAL DROGHEDA

Stroke Service Team, Our Lady of Lourdes Hospital Drogheda

INTRODUCTION

Traditionally, patients presenting with suspected transient ischaemic attack (TIA) have required hospital admission for investigation and management. In order to improve patient flow, reduce unnecessary admissions and ensure timely investigations, Our Lady of Lourdes Hospital Drogheda developed a dedicated low-risk TIA pathway and rapid-access TIA clinic.

AIM

The project aimed to::

- Reduce unnecessary hospital admissions for patients with suspected low-risk TIA.
- Provide rapid specialist assessment and investigation.
- Expedite access to diagnostic imaging and treatment.
- Improve patient outcomes through early stroke prevention interventions.

KEY INTERVENTIONS

Using QI methodology, a structured TIA pathway was developed that included the following:

- the referral of suitable patients directly from the emergency department to the TIA clinic
- specialist triage to determine clinic suitability
- the completion of pre-clinic investigations, including performing a CT brain and CT angiogram (arch to vertex)
- the performance of an magnetic resonance imaging brain on the day of clinic attendance
- the establishment of a consultant-led rapid-access TIA clinic operating daily on weekdays
- comprehensive assessment, risk factor modification, access to specialist services, and provision of stroke prevention education.

RESULTS

In the first 6 months of the TIA pathway, an evaluation demonstrated significant benefits for patients and the hospital service:

- Seventy-seven patients were reviewed in the TIA clinic.
- Ten patients had an infarct on neuroimaging and were subsequently diagnosed with a minor stroke rather than a TIA.
- Twenty percent of patients were diagnosed with a probable TIA.
- Seventeen percent of patients were diagnosed with a possible TIA.
- FIfty-one percent of patients were found unlikely to have experienced a TIA. The most common alternative diagnosis was migraine, accounting for 41% of these cases.
- The average inpatient LOS was reduced to 1.56 days, compared with a previous average pathway LOS of 5.74 days.
- Thirty-nine percent of patients avoided hospital admission.
- The median time from referral to review in clinic was 3 days.



6. AUDIT UPDATE

6: AUDIT UPDATE

Federating European REgistries for Stroke

The INAS continues to work on the Federating European REgistries for Stroke (FERES) project (Salerno *et al.*, 2026). The INAS has completed data harmonisation with FERES and has shared 2024 data. Ireland is one of five countries with access to the system, facilitating:

- a ready-to-use platform
- mapping and support from the core FERES team
- joint publications, visibility and leadership.



European Stroke Organisation Nurse and Allied Health Professions Committee Committee



The INAS would like to acknowledge the work of Nora Cunningham, Advanced Nurse Practitioner at University Hospital Limerick, who serves as a member of the European Stroke Organisation (ESO) Nurse and Allied Health Professions (NaAHP) Committee, contributing to the development of stroke nursing and allied health practice at a European level.

The ESO NaAHP Committee, which was established in July 2025, provides strategic leadership and representation for nurses and allied health professionals within the ESO. Recognising that high-quality stroke care depends on multidisciplinary teamwork, the NaAHP Committee supports excellence across the entire stroke pathway, from prevention and acute care to rehabilitation and long-term recovery.

The NaAHP Committee promotes evidence-based practice, innovation and the sharing of best practice across Europe in order to improve the quality, consistency and accessibility of stroke care. It also prioritises education and professional development through ESO and ESO Conference educational programmes, while encouraging leadership, mentorship and networking opportunities for the stroke workforce.

In addition, the NaAHP Committee supports multidisciplinary research and QI initiatives, helping translate research into clinical practice through international collaboration. It advocates for nursing and allied health professions within the ESO, ensuring that their contribution is represented in strategic, policy and guideline development activities. Through its leadership, education, research and advocacy work, the NaAHP Committee aims to strengthen person-centred, evidence-based stroke care across Europe.

AUDIT DEVELOPMENT

Maximising the quality of stroke care in Ireland: Development of a national stroke audit

In 2020, the Health Research Board awarded Professor Anne Hickey and a research team from the Royal College of Surgeons in Ireland an Applied Partnership Award to develop an updated core dataset for acute stroke care in Ireland. Using a structured, consensus-based approach, the team developed an internationally benchmarked and stakeholder-informed dataset to strengthen standardised stroke audit practices nationally (Moran *et al.*, 2025).

The 2020 INAS dataset contained 49 questions covering emergency care, acute treatment, stroke unit care and secondary prevention. The revised dataset proposed the addition of 30 new questions and the removal of 12 existing questions. The INAS Governance Committee agreed that further evaluation was required before implementing these changes.

In order to support this process, a dataset revision group was established with representatives from nursing, the National Clinical Programme for Stroke, the Hospital In-Patient Enquiry (HIPE) system, and the INAS. The group reviewed the proposed amendments and agreed on a final set of data elements for inclusion.

Following review, 12 new questions were approved for incorporation into the INAS dataset. Five of these included sub-questions, resulting in 21 new data items overall. Three questions were removed. Implementation was supported through the NOCA change management process.

The new data items cover the following themes:

- pre-hospital information
- risk factors
- primary prevention
- secondary prevention
- intracerebral haemorrhage
- complications
- stroke severity (based on the National Institutes of Health Stroke Scale).

The Healthcare Pricing Office (HPO) introduced the new questions in two volunteer pilot hospitals in November 2025. While no technical issues were identified, feedback highlighted an increased data collection burden. In response, the INAS Governance Committee agreed that no further additions would be made to the dataset for at least 2 years.

Following the pilot, the HPO rolled out the revised dataset to participating hospitals in January 2026. A review of data completeness for the new items will be undertaken after 6 months of collection, with any questions that prove difficult to capture being subject to further consideration by the INAS Governance Committee.

Increase the visibility, quality and utilisation of the health and social care professional dataset

The health and social care professional (HSCP) data provide valuable information on access to specialist rehabilitation and multidisciplinary stroke care. In 2025, 21 hospitals submitted data from one or all of the 3 participating disciplines: physiotherapy, occupational therapy, and speech and language therapy. This is improved from 20 hospitals in 2024 (NOCA, 2025). Overall, 45% (n=2443) of patients who were reported to have been assessed by a physiotherapist had additional physiotherapy HSCP data submitted, 47% (n=2538) of patients who were reported to have been assessed by an occupational therapist had additional occupational therapy HSCP data submitted, and 45% (n=1810) of patients who were reported to have been assessed by a speech and language therapist had additional speech and language therapy HSCP data submitted (Figure 3.3). As coverage remains low, HSCP data are reported in aggregate in both the National Report and in the National Reporting Table 2025. Once data coverage reaches 80%, these data could be used to support service planning and QI activities.

In 2025, the INAS established a dedicated working group to increase the visibility, quality and utilisation of the HSCP dataset. Over the next 2 years, the working group will focus on expanding HSCP data coverage to support hospital-level reporting, enhance data-driven decision-making, and identify opportunities for QI across services. This work involves:

- supporting stroke teams working collaboratively in order to capture accurate audit data for all datasets
- improving communication and training pathways between the INAS and participating HSCPs
- developing a data validation reporting process for the HSCP dataset
- completing a study to explore barriers to data capture and the feasibility of incorporating additional disciplines, such as dietetics and psychology
- publishing a spotlight report on trends within the HSCP dataset as part of the INAS National Report
- identifying and agreeing evidence-based national key quality indicators (KQIs) for rehabilitation.

Once this work is completed, consideration will be given to the addition of other disciplines, such as dietetics and psychology.

The INAS would like to acknowledge and thank Claire Prendergast, Clinical Specialist Physiotherapist, who has served as the HSCP representative on the INAS Governance Committee since 2019. Claire played a pivotal role in the design and implementation of the HSCP dataset from 2018 and has made a significant contribution to its development and integration within the INAS.

We are also delighted to welcome Anna Hourihane, Clinical Specialist Dietitian, who has succeeded Claire as the HSCP representative on the INAS Governance Committee.

We are pleased that Claire will continue to provide expertise and support in the development of the HSCP dataset. Julie Keane, Clinical Specialist Speech and Language Therapist, and Amy Daly, Clinical Specialist Occupational Therapist, will also support Anna in her role and are part of the HSCP working group.

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7. RECOMMENDATIONS

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RECOMMENDATION 1

CONTINUE THE IMPLEMENTATION OF THE *NATIONAL STROKE STRATEGY 2022-2027* TO SUPPORT EQUITY OF ACCESS TO HIGH-QUALITY ON-CALL STROKE SERVICES IN THE EMERGENCY DEPARTMENTS 24 HOURS PER DAY, 7 DAYS PER WEEK.

Rationale

In 2025, the *Irish National Audit of Stroke National Report 2024 and Organisational Audit Report 2025* (NOCA, 2025) made several recommendations related to the implementation of the *National Stroke Strategy 2022-2027*. In areas where elements of the *National Stroke Strategy 2022-2027* have been implemented, such as investment in Early Supported Discharge (ESD) services, improvements are evident. Access to ESD increased from 9% in 2023 to 13% in 2025. Fourteen hospitals had access to an ESD team in 2025 (NOCA, 2025), and the establishment of additional ESD teams in 2026 is expected to support further improvements in access to this service.

In contrast, where increases in resources and service capacity have not occurred, improvements in key aspects of acute stroke care have not been observed. This is particularly important in the context of a 4% increase in stroke admissions between 2024 and 2025. More broadly, the number of stroke admissions has risen from 4,727 in 2013 to 6,848 in 2025, representing an overall increase of 45%. Given this sustained growth in demand, it is essential that hospitals are resourced with the recommended complement of medical, nursing and multidisciplinary staff required to deliver high-quality stroke care.

The availability of on-call stroke teams 24 hours per day remains limited in some hospitals (NOCA, 2025). Correspondingly, performance against several KQIs has remained static or declined. The proportion of patients receiving a medical review within 10 minutes of hospital arrival remained unchanged, at 52% in both 2023 and 2025, and the proportion receiving brain imaging within 60 minutes remained at 51% over the same period. The thrombolysis rate decreased slightly, from 11% in 2024 to 10% in 2025, and the proportion of patients receiving thrombolysis within 60 minutes of hospital arrival fell from 57% to 50%. Variation between hospitals is seen within all these reporting metrics.

What actions should be taken	Who is responsible for implementation?	When should this be implemented?
All HSE health regions should assess access to 24/7 specialist stroke services, including: • adequately resourced on-call stroke cover, which should ensure access to consultants and designated non-consultant hospital doctors with appropriate training in acute stroke management • current rapid assessment and management pathways in order to improve timely medical review and treatment for all patients presenting with acute stroke • the strengthening of performance monitoring and targeted QI initiatives using NOCA audit findings to address underperformance, reduce variation between hospitals, and improve achievement of KQIs such as rapid imaging and timely thrombolysis.	Regional executive officers	Q4 2027

Evidence that the action will be effective
These findings suggest that targeted investment in stroke services can lead to measurable improvements in patient access and outcomes, whereas a lack of investment may limit progress in achieving national quality standards.
Who will benefit from this recommendation?
All patients with a stroke accessing acute stroke services.

RECOMMENDATION 2

CONTINUE THE IMPLEMENTATION OF THE *NATIONAL STROKE STRATEGY 2022-2027* TO IMPROVE EQUITY OF ACCESS TO STROKE UNIT CARE.

Rationale
Admission to a dedicated stroke unit is the only intervention known to improve outcomes for all stroke patients, regardless of stroke type or severity. In 2025, 74% (n=4868) of patients were admitted to a stroke unit; this is a slight improvement from 73% (n=4494) in 2024, but is still well below the target of 90%. Variation between hospitals is observed, from 95% in Sligo University Hospital to 22% in Portiuncula University Hospital. The main reason for patients not being admitted to a stroke unit (n=1695) was because there were no available beds (59%; n=1001). The total proportion of the hospital stay spent in a stroke unit was 68%, which is similar to the 69% reported in 2024 (NOCA, 2025) but remains well off the 90% target (Figure 4.1). Again, variation was observed between hospitals, from 99% in Bantry General Hospital to 28% in University Hospital Galway.

What actions should be taken	Who is responsible for implementation?	When should this be implemented?
All HSE health regions should: • assess access to stroke units within their hospitals. Bed designation should be reorganised in order to increase stroke unit bed capacity where lack of bed availability is the primary barrier to stroke unit admission. • develop and implement targeted action plans for hospitals with stroke unit admission rates below the national target, with regular monitoring and reporting of performance against national standards. • enhance patient flow and bed management processes in order to ensure that patients with a stroke are prioritised for admission to stroke units and remain in stroke units for the majority of their hospital stay. • reduce variation between hospitals through strengthened governance and performance oversight, including the sharing of best practices from high-performing hospitals and regular review of stroke unit admission and occupancy data at regional and national levels.	Regional executive officers	Q4 2027

Evidence that the action will be effective
Patients with a stroke who receive stroke unit care are more likely to be alive, living at home and capable of looking after themselves independently 1 year after their stroke (Langhorne and Ramachandra, 2020).

Who will benefit from this recommendation?
All patients with a stroke will benefit from stroke unit care.

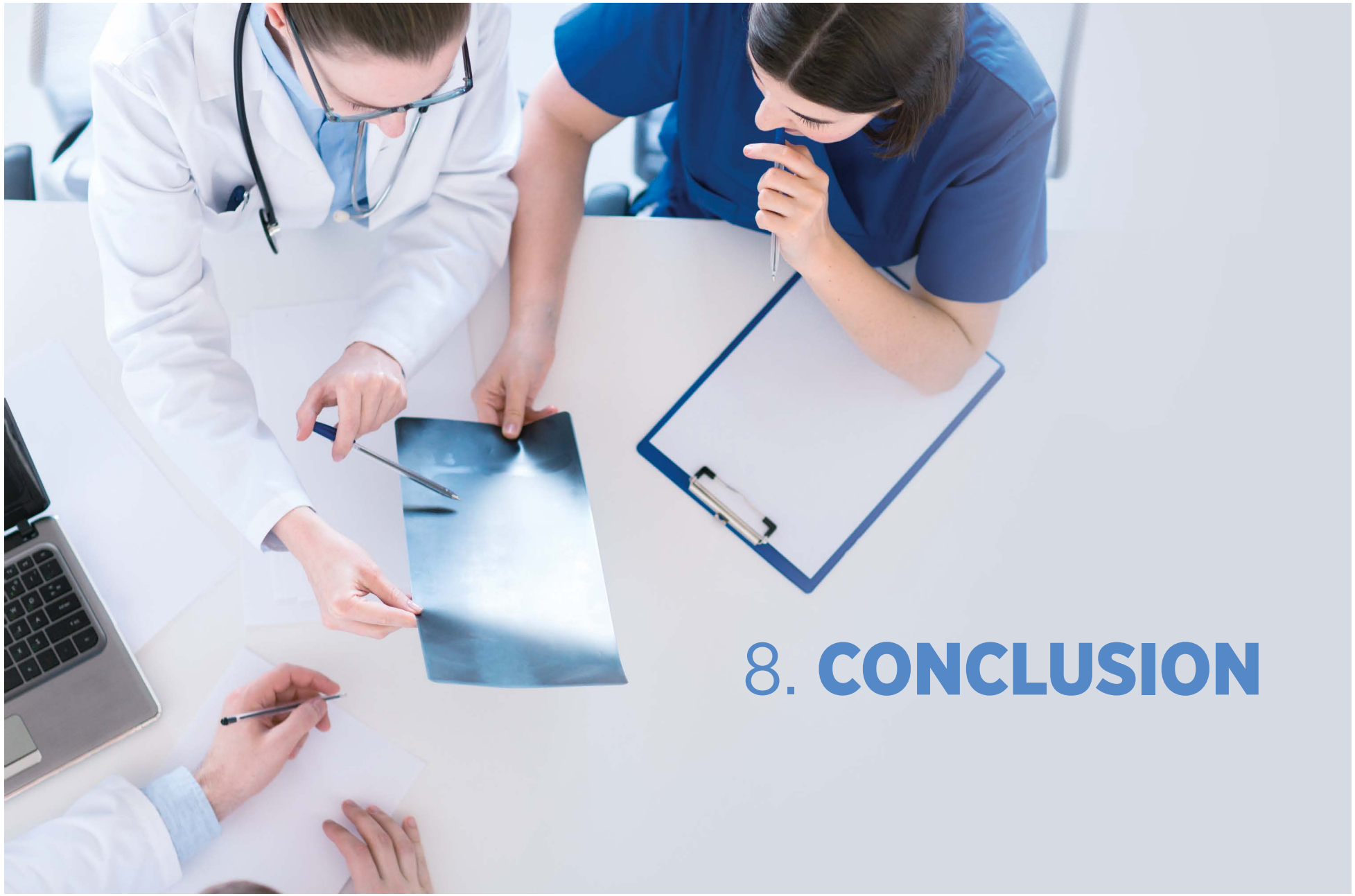
UPDATE ON PREVIOUS RECOMMENDATIONS

RECOMMENDATIONS FOR NOCA	STATUS	UPDATE
Increase the participation of health and social care professionals (HSCPs) in the HSCP dataset within the INAS (NOCA, 2022).	In progress	**Action on this recommendation is in progress and detail presented in Chapter 6 Audit Update.**
NOCA should engage with the Healthcare Pricing Office (HPO) to assess how access to the individual health identifier (IHI) as part of the Hospital In-Patient Enquiry (HIPE) case/stroke audit portal could assist in tracking patients with stroke as they access care in different hospitals (NOCA, 2023).	In progress	**NOCA is engaging with the HPO, the HSE Health Identifiers Programme, and the Department of Health in order to gain permission for NOCA to use the IHI.**
Develop a best practice tariff for acute stroke care (NOCA, 2023).	In progress	**The National Clinical Programme (NCP) for Stroke and the Irish National Audit of Stroke have drafted items for inclusion in a best practice tariff. NOCA will continue to work with the NCP for Stroke and the HPO to develop the methodology for a best practice tariff for all participating hospitals.**

RECOMMENDATIONS FOR THE NCP FOR STROKE	STATUS	UPDATE
Improve the level of swallow screening for patients with a stroke (NOCA, 2022).	In progress	**Phase one of the national QI swallow screening project aimed to increase the proportion of patients receiving a swallow screen is complete. A central output was the development of a two-part HSeLanD education programme comprising the Swallow Screening in Acute Stroke E-Learning Theory Module and a practical competency assessment which is available to all staff. The second phase of the QI project was intended to focus specifically on reducing time to screening but was not implemented due to resource limitations within the National Clinical Programme for Stroke.**
All stroke services should have access to a clinical neuropsychologist/psychologist as part of a specialist multidisciplinary team providing care to patients with a stroke (NOCA, 2022).	In progress	**Stroke units still have significant gaps in HSCP posts. The HSE National Stroke Strategy 2022 - 2027 (HSE, 2022) has not been funded nor received any funding again from our 2026 health estimates submission made in 2025 to address this.**
The number of stroke unit beds should be increased so that at least 90% of patients with a stroke are cared for in a stroke unit (NOCA, 2023).	Closed	**This recommendation was repeated in the *Irish National Audit of Stroke National Report 2024* and *National Organisational Audit Report 2025* (NOCA 2026), and an update is provided below.**
Increase the number of Early Supported Discharge (ESD) teams (NOCA, 2023).	Closed	**This recommendation was repeated in the *Irish National Audit of Stroke National Report 2024* and *National Organisational Audit Report 2025* (NOCA 2026), and an update is provided below.**

RECOMMENDATIONS FOR THE NCP FOR STROKE	STATUS	UPDATE
All stroke units should have continuous access to a consultant physician with expertise in stroke medicine, with consultant review 5 days per week (NOCA, 2025).	In progress	**All acute stroke units have a stroke specialist lead, however, recruitment difficulties at a few sites can limit the desired continuous access.**
Hospitals that admit patients with acute stroke should ensure that a sufficient number of designated stroke unit beds are available in order to provide high-quality stroke care (NOCA, 2025).	In progress	**Feedback from the HSE health regions via the HSE National Centre for Clinical Audit report varied progress. The Regional Executive Officer (REO) for HSE Dublin and North East (DNE) reports designated stroke beds are available, although bed and staffing shortfalls remain under ongoing review. The REO for HSE Dublin and South East (DSE) reports that they have achieved the recommendation at Tipperary University Hospital, while St Luke's Hospital Carlow Kilkenny continue to operate below its identified bed requirement. Updates from the REOs in HSE Dublin Midlands (DM)and HSE South West (SW) are awaited. Significant challenges remain in the HSE Mid West (MW) and HSE West and North West (WNW) regions where stroke unit capacity is insufficient to meet demand and national targets. Both regions report low rates of stroke unit admission and time spent on stroke units compared with the 90% national standard, highlighting the need for additional stroke beds and associated staffing to improve access to specialist stroke care and patient outcomes.**
All stroke units should be resourced to provide stroke specialist rehabilitation.	In progress	**Stroke units still have significant gaps in HSCP posts. The *HSE National Stroke Strategy 2022 - 2027* (HSE, 2022) has not been funded nor received any funding again from our 2026 health estimates submission made in 2025 to address this.**
Stroke units must be staffed with nurses with special interest, training and expertise in stroke care (NOCA, 2025).	In progress	**The NCP for Stroke has developed a Quality and Qualification Level 8 accredited certificate in adult stroke nursing. National implementation is being facilitated through the Consortium of Centres of Nursing and Midwifery Education and will commence in September 2026.**
Hospitals should increase the number of appropriately resourced ESD teams in order to improve access (NOCA, 2025).	In progress	**The NCP for Stroke report that ESD teams are in place but are under resourced at present due to recruitment issues. Implementation remains variable within the HSE Health Regions. HSE DSE East, report that Tipperary University Hospital ESD does not have an ESD team due to resource requirements, while St Luke's Hospital Carlow Kilkenny has secured funding to establish an ESD team by the end of 2026. The REO from HSE MW reports that service expansion is limited by staffing vacancies and are focused on sustaining existing capacity. The HSE WNW West remains constrained due to significant catchment and capacity constraints, with further service development required to improve access to ESD for eligible patients.**
All hospitals that provide acute stroke services should ensure that there is a stroke service governance committee (NOCA, 2025).	In progress	**The NCP for Stroke report that this is functioning now in most of our hospitals providing acute stroke services. The REOs from HSE DSE, HSE DNE, HSE MW and HSE WNW all report that stroke governance committees are in place.**

RECOMMENDATIONS FOR THE NCP FOR STROKE	STATUS	UPDATE
All patients with a stroke should have access to routine and advanced imaging at all times (NOCA, 2025).	In progress	**The NCP for Stroke report that the national door to CT time is under 60 minutes (median). A national tender for artificial intelligence (AI)-supported decision-making software for the interpretation of urgent imaging has been completed and contracts have been signed. The programme has now progressed to the implementation phase.** **Access to routine imaging is available across regions; however, challenges remain regarding timely access to advanced imaging. The REO for HSE DNE reports that access is available, with capacity-related delays monitored through performance management processes. In HSE DSE, the recommendation has been achieved, with 24/7 urgent brain imaging available for suspected stroke patients. HSE MW reports that advanced imaging, CT perfusion, is only available during weekday working hours, limiting access to advanced imaging outside these hours. The REO from HSE WNW reports the absence of CT perfusion capability and limited out-of-hours MRI access, which constrains timely patient assessment, treatment eligibility decisions, and service development. Updates from REOs in HSE DM and HSE SW are awaited.**
National agreement on how the definition of stroke should be classified should be prioritised.	In progress	**This decision remains to be finalised by the clinical advisory group of the stroke programme.**



8. CONCLUSION

8. CONCLUSION

The findings of the *Irish National Audit of Stroke National Report 2025* highlight both the progress achieved and the significant challenges that remain in delivering equitable, high-quality stroke care across Ireland. During 2025, stroke admissions increased by 4%, continuing a long-term upward trend and placing additional pressure on already stretched services.

Encouraging improvements were observed in several areas. More patients were discharged home with ESD, stroke unit admission rates increased slightly, and in-hospital mortality for patients with ischaemic stroke fell to its lowest level reported in the last 6 years. The continued development of ESD services demonstrates that targeted investment and implementation of the *National Stroke Strategy 2022-2027* can deliver measurable improvements in patient care and outcomes.

However, important national targets remain unmet. Admission to a stroke unit remains below the 90% target, with lack of bed capacity continuing to be the principal barrier. Thrombolysis rates remain below target, considerable variation persists between hospitals in key emergency care metrics, and swallow screening performance declined in 2025. Rehabilitation data collection has improved, but further work is required in order to maximise the value of the HSCP dataset and to support service planning and QI.

"The continued development of ESD services demonstrates that targeted investment and implementation of the *National Stroke Strategy 2022-2027* can deliver measurable improvements in patient care and outcomes."

The findings of this report demonstrate that implementation of the *National Stroke Strategy 2022-2027* must remain a national priority. Continued investment in stroke unit capacity, specialist staffing, rehabilitation services, clinical governance, and QI initiatives will be essential to meet increasing demand and reduce variation in care. Through sustained collaboration between hospitals, the NCP for Stroke, the HSE, and NOCA, Ireland can continue to improve outcomes and ensure that all patients with a stroke have equitable access to high-quality, evidence-based stroke care.



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ACCESSING REPORT APPENDICES

National Office of Clinical Audit (2026)
Irish National Audit of Stroke National Report 2025 - Appendices.
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APPENDIX 1	IRISH NATIONAL AUDIT OF STROKE GOVERNANCE COMMITTEE MEMBERS AND MEETING ATTENDANCE 2025	**CLICK HERE**
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