Stroke FOUNDATION

National Stroke Audit

Acute Services Report 2021
Supplementary Report

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Contents

Matched Data Analysis for “year effect”

Year effect = significant result from multivariable regression models including age, sex, independence prior to admission, stroke type, and severity measures, with hospital as level.
For methods:

- Multivariable logistic regression models were used to assess the association of year (reflective of the year the audit cycle was conducted) and adherence to clinical indicators.
- Models were multi-level to account for hospital-level variation and included patient variables including age, sex, independence prior to admission, stroke type, and validated severity factors

Clinical Indicators for 96 hospitals completed clinical audit in 2017, 2019 & 2021	**2017** **N=3656**	**2019** **N=3793**	**2021** **N=3642**	**Year effect**
Validated stroke screen in the emergency department	47%	51%	70%	↑
Thrombolysis in ischaemic stroke	12%	10%	12%	–
Thrombolysis in ischaemic stroke within 60 mins of hospital arrival	30%	33%	28%	–
Median (Q1, Q3) time from onset to thrombolysis (hours:minutes)	2:33 (1.57, 3:25)	2:43 (2:07, 3:30)	2:50 (2:15, 3:45)	↓
Received stroke unit care (All patients)	72%	70%	76%	↑
Received stroke unit care if hospital has a stroke unit	81%	81%	84%	↑
Received 90%+ of acute care on a stroke unit (All patients)	46%	43%	49%	↑
Received 90%+ of acute care on a stroke unit if hospital has a stroke unit	52%	49%	54%	–
Assessment by a physiotherapist within 24-48 hours of arrival to ED	69%	74%	82%	↑
Assessment for ongoing rehabilitation completed using a structured assessment tool prior to discharge	60%	62%	68%	↑
Carer received relevant training	57%	65%	64%	–
Carer received support needs assessment	63%	66%	66%	–
Patient received education about behaviour change for modifiable risk factors	71%	73%	79%	↑
Antihypertensives on discharge (all stroke types)	78%	77%	78%	–
Lipid-lowering treatment on discharge (ischaemic stroke)	87%	88%	92%	↑
Discharge on oral anticoagulants for atrial fibrillation (ischaemic stroke)	71%	74%	79%	↑
Antithrombotic on discharge (ischaemic stroke)	98%	98%	99%	–
Care plan developed with the team and the patient (or family alone if patient has severe aphasia or cognitive impairments):	67%	70%	78%	↑

Clinical Audit Analysis – Numerator, Denominator and Exclusions

General rules:

- Only valid (yes/no) responses are included in the denominator for impairments.
- 'Only if Ischaemic stroke' includes TIA unless otherwise specified.

Rules for handling missing data:

- For process of care indicators, episodes with an unknown/not documented response or with a missing response are assumed to be negative for the provision of that process of care (i.e. they are included in the denominator).
- For all other variables, any missing responses are excluded from the denominator.

Rules for handling missing dates or times:

- Date of onset, arrival, and admission: If a date is recorded but time is missing, the start of the day (00:00:01) is imputed, with the exception of the calculation of the 'Time from stroke onset to arrival in ED' variable where only actual stroke onset times are included.
- Time-based processes of care (see table below for details): if date is recorded but time is missing, the end of day (23:59:59) is imputed.
- Emergency Department (ED) date/time of arrival is used as the index date for calculation of in-hospital, time-based indicators unless stated otherwise.
- If ED date/time of arrival is missing, then admission date/time is used instead.
- For patients with in-hospital stroke, stroke onset date/time is used.

Question	Numerator	Denominator
Ischaemic stroke	Ischaemic + TIA	Total cohort
History prior to admission	Yes to each option	Yes + No (for each option) Excludes Not documented
In-hospital stroke	Yes	Yes + No + Unknown
Arrive by ambulance	Yes	Yes + No Excludes Unknown
Transferred from another hospital	Yes	Yes + No
Transferred to another hospital for acute care after admission	Yes	Yes + No Excludes Unknown
Ward of admission	Admissions to specific ward: Stroke Unit; ICU/HDU; Medical ward; Other	Total cohort
Treated in a stroke unit (SU) at any time during their stay	Yes	Yes + No
Received 90%+ care on stroke unit	Yes	Yes + No + Not documented – use specific time variables: ED date & time if both available, else admission date & time if both available, stroke unit date & time if both available.
Median time (hrs) from arrival to SU	Yes	As above
Validated stroke screen in ED	Yes	Yes + No + Unknown (excludes in-hospital stroke, unconscious patients, inter-hospital transfer)
Primary intent palliative	Yes	Yes + No + Unknown
Patient in coma	Yes	Yes + No + Not documented
Brain scan done in your hospital	Yes	Yes + No Only if **Yes to having a brain scan**
Type of brain scan performed	Each option	All types of scan Only if **Yes to having a brain scan**
Was advanced imaging performed	Yes	Yes + No
Type of advanced imaging performed	Each option	All types of scan

Question	Numerator	Denominator
		Only if **Yes to advanced imaging**
Investigation of the carotid arteries	Yes	Yes + No
Transport by ambulance to hospital able to provide thrombolysis (tPA)	Yes	Yes + No + Unknown Excludes in-hospital stroke Only if **presented within 4.5 hours & hospital able to provide tPA**
Thrombolysis in ischaemic stroke	Yes	Yes + No + Unknown Only if **ischaemic stroke (includes TIA)**
Thrombolysis in ischaemic stroke - unknown	Yes	Yes + No + Unknown Only if **ischaemic stroke (includes TIA)**
Thrombolysis within 60 mins of hospital arrival	Yes	Arrival within 60 minutes + Not within 60 minutes + Unknown Only if **ischaemic stroke and thrombolysed**
Impairments on admission (sensory, cognitive, visual, perceptual, speech & communication, hydration, nutrition, arm deficit, lower limb deficit, dysphagia, continence, balance, other)	Yes	Yes + No Excludes Not documented
Impairments not documented	Not documented (for each option)	Yes + No + Not documented
Formal swallow screen performed	Yes	Yes + No + Not documented
Formal swallow screen performed – not documented	Not documented	Yes + No + Not documented
Swallow screened within 4 hours of arrival to ED	Yes	Yes + No + Not documented – use specific time variables: ED date & time if both available, else admission date & time if both available, onset date & time if in-hospital stroke. Excludes transfers from another hospital
Did patient pass screening	Yes	Yes + No Excludes Not documented Only if **Yes to formal swallow screen performed**
Did patient pass screening – not documented	Not documented	Yes + No + Not documented Only if **Yes to formal swallow screen performed**
Swallow assessment by speech pathologist	Yes	Yes + No + Not documented
Swallow assessment by speech pathologist – not documented	Not documented	Yes + No + Not documented
Swallow screened or assessed	Yes to either	Yes + No + Not documented
Swallow screened or assessed within 4 hours of arrival to ED	Yes to either within 4 hours	Yes + No + Not documented – use specific time variables: ED date & time if both available, else admission date & time if both available, onset date & time if in-hospital stroke. Excludes transfers from another hospital
Swallow screen/assessment before oral medications; Swallow screen/assessment before oral food or fluids	Yes	Yes + No + Not documented
Swallow screen/assessment before oral intake (medications, food, and fluids)	Yes to both meds and foods/fluids	Yes + No + Not documented
Malnutrition screening	Yes	Yes + No + Not documented
Malnutrition screening – not documented	Not documented	Yes + No + Not documented
Able to walk independently on admission	Yes	Yes + No Excludes Unknown

Question	Numerator	Denominator
Able to walk independently on admission - unknown	Unknown	Yes + No + Unknown
Mobilisation during admission	Yes	Yes + No + Unknown
Mobilisation during admission - unknown	Unknown	Yes + No + Unknown
Mobilisation during admission if unable to walk independently on admission	Yes	Yes + No + Unknown Only if **unable to walk independently**
Mobilisation during admission if unable to walk independently on admission - unknown	Unknown	Yes + No + Unknown Only if **unable to walk independently**
Mobilisation on same day or day after arrival to ED	Yes	Only includes patients where mobilisation occurs on or after ED date
Mobilisation within 2 days of arrival to ED	Yes	Only includes patients where mobilisation occurs on or after ED date
Mobilisation on same day or day after arrival to ED if unable to walk independently on admission	Yes	Only includes patients where mobilisation occurs on or after ED date and who are unable to walk independently on admission
Mobilisation within 2 days of arrival to ED if unable to walk independently on admission	Yes	Only includes patients where mobilisation occurs on or after ED date and who are unable to walk independently on admission
Assessed for incontinence within 72 hours of onset	Yes	Yes + No + Not documented
Incontinence present (within first 72 hours of stroke onset)	Yes	Yes + No Excludes Not documented
Incontinence present (within first 72 hours of stroke onset) – not documented	Not documented	Yes + No + Not documented
Incontinence management plan	Yes	Yes + No + Not documented
Incontinence management plan - not documented	Not documented	Yes + No + Not documented
Indwelling urinary catheter within the first week of admission	Yes	Yes + No Excludes Not documented
Indwelling urinary catheter within the first week of admission - not documented	Not documented	Yes + No + Not documented
Catheterised if not deemed to be incontinent	Yes to catheterised	Yes + No Excludes Not documented Only if **No to Incontinence present**
Reason for urinary catheterisation	Yes (for each option)	Yes + No Only if **Yes to indwelling catheter**
Mood assessed	Yes	Yes + No + Not documented
Mood assessed – not documented	Not documented	Yes + No + Not documented
Mood impairment	Yes	Yes + No Excludes Not documented Only if **Yes to mood assessed**
Mood impairment – not documented	Not documented	Yes + No + Not documented Only if **Yes to mood assessed**
Aphasia	Yes	Yes + No Excludes Not documented
Aphasia – not documented	Not documented	Yes + No + Not documented
Hyperacute antiplatelet therapy (for ischaemic stroke)	Yes	Yes + No + Unknown Excludes No, other; Contraindicated Only if **Ischaemic stroke**
Hyperacute antiplatelet therapy (for ischaemic stroke) – unknown	Unknown	Yes + No + Unknown Excludes No, other; Contraindicated Only if **Ischaemic stroke**

Question	Numerator	Denominator
Antiplatelet (Aspirin) within 24 hours if ischaemic stroke	Yes	Yes + No + Unknown – use specific time variables: ED date & time if both available, else admission date & time if both available, aspirin date & time. Includes TIA.
Fever developed in the first 72 hours following admission (>= 37.5 deg C)	Yes	Yes + No Excludes Not documented
Fever – not documented	Not documented	Yes + No + Not documented
Paracetamol within 1 hour	Yes	Yes + No + Not documented Excludes Already received regular paracetamol; Contraindicated Only if **Yes to Fever**
Paracetamol within 1 hour – contraindicated	Contraindicated	Yes + No + Not documented + Already received regular paracetamol + Contraindicated Only if **Yes to Fever**
Paracetamol within 1 hour – already received regular paracetamol	Already received regular paracetamol	Yes + No + Not documented + Already received regular paracetamol + Contraindicated Only if **Yes to Fever**
Paracetamol within 1 hour – not documented	Not documented	Yes + No + Not documented + Already received regular paracetamol + Contraindicated Only if **Yes to Fever**
Hyperglycaemia (first 48 hours of admission)	Yes	Yes + No Excludes Not documented
Hyperglycaemia (first 48 hours of admission) – not documented	Not documented	Yes + No + Not documented
Insulin	Yes	Yes + No + Not documented Only if **Yes to hyperglycaemia**
Insulin – not documented	Not documented	Yes + No + Not documented Only if **Yes to hyperglycaemia**
What type of DVT prophylaxis management did the patient receive?	Yes	Low molecular weight heparin; Intermittent pneumatic compression; Both; None; Unknown; Contraindicated Only if **unable to walk and not contraindicated**
Goals set with input from team and patient	Yes	Yes + No Excludes No, but….
If not, goals set with input from family and patient	No but met with family	Yes + No + No but met with family
Patient, family received information	Yes	Yes + No + Not documented
Received information–not documented	Not documented	Yes + No + Not documented
Patient has a carer	Yes	Yes + No Excludes Not required
Carer received relevant training	Yes	Yes + No Only if **Yes to Carer and carer didn't decline** **Excludes discharge to: acute hospital, statistical discharge, inpatient rehab**
Carer received no relevant training	Patient transferred to inpatient rehab or other acute care; Carer declined; Other	Patient transferred to inpatient rehab or other acute care + Carer declined + Other
Career received support needs assessment	Yes	Yes + No Only if **Yes to Carer and carer didn't decline** **Excludes discharge to acute hospital, statistical discharge, inpatient rehab**

Question	Numerator	Denominator
Career received no support needs assessment	Patient transferred to inpatient rehab or other acute care; Carer declined; Other	Patient transferred to inpatient rehab or other acute care + Carer declined + Other
Physiotherapist	Yes	Yes + No + Therapist not on staff Excludes Patient declined
Assessed by physiotherapist within 48 hrs	Total number of patients with stroke who received physio within 48 hours of presentation to hospital	All patients admitted to hospital with stroke Excludes Patient declined
Seen by OT, Speech pathologist, Social worker, Dietitian, Psychologist	Yes	Yes + No + Therapist not on staff Excludes Not required
Assessment for rehabilitation performed	Yes	Yes + No + Unknown
Assessment of Rehabilitation Tool used	Yes	Yes + No + Unknown Only if **Yes to Assessment for rehab**
Assessment identified need for ongoing rehab	Yes	Yes + No Excludes Unknown Only if **Yes to Assessment for rehab (built-in)**
Referral made to rehab	Yes	Yes + No + Unknown
Assessment for rehab performed or Referral made	Yes to either	Yes + No + Unknown
Referral made to rehab if assessed and need identified	Yes	Yes + No + Unknown Only if **Yes to Need for ongoing rehab**
Referral made to rehab if assessed and no need identified	Yes	Yes + No + Unknown Only if **No to Need for ongoing rehab**
Accepted for rehab	Yes	Yes + No + Unknown Only if **patient/family didn't decline**
Patient accessed further rehab	Yes	Yes + No + Unknown
Patient accessed further rehab if assessment or referral made	Yes	Yes + No + Unknown Only if **Yes to Assessment for rehab or Yes to Referral made**
Patient accessed further rehab if neither an assessment nor a referral was performed/made	Yes	Yes + No + Unknown Only if **NEITHER assessment performed nor referral made**
Patient education about behaviour change for modifiable risk factors	Yes	Yes + No Excludes **patients who refused, patients with severe cognitive impairment or severe communication impairment, or where treatment was futile** Only if **discharged from hospital**
Smoking cessation advice if patient currently smoking or recently quit	Yes	Yes + No + Unknown
Antithrombotic on discharge	Yes	Yes + No + Unknown Excludes Contraindicated, futile, or refused Only if **discharged to community/residential facility and ischaemic stroke**
Antithrombotic on discharge - contraindicated	Contraindicated	Yes + No + Contraindicated + Unknown Only if **ischaemic stroke & discharged to community/residential facility**

Question	Numerator	Denominator
Discharge on oral anticoagulants for atrial fibrillation (ischaemic stroke)	Yes to any anticoagulant	Yes + No Excludes Contraindicated, futile, or refused Only if **ischaemic stroke & atrial fibrillation & discharged to community/residential facility**
Antihypertensives on discharge (all stroke types)	Yes	Yes + No + Unknown Excludes Contraindicated, futile, or refused Only if **discharged to community/residential facility**
Not prescribed antihypertensives – contraindicated (all stroke types)	Contraindicated	Yes + No + Contraindicated + Unknown Only if **discharged to community/residential facility**
Lipid-lowering treatment (ischaemic stroke)	Yes	Yes + No + Unknown Excludes Contraindicated, futile, or refused Only if **discharged to community/residential facility & ischaemic stroke**
Lipid-lowering treatment - contraindicated (ischaemic stroke)	Contraindicated	Yes + No + Contraindicated + Unknown Only if **discharged to community/residential facility & ischaemic stroke**
Lipid lowering, antihypertensive and antithrombotic medication (ischaemic stroke)	Yes to all	Yes + No + Unknown Excludes Contraindicated, futile, or refused Only if **discharged to community/residential facility & ischaemic stroke**
Discharge destinations other than death	Yes	All options Excludes Died
Discharge destination		“Other” is included with “Private residence” when looking at discharge to community/residential facility
Care plan developed with the team and the patient (or family alone if patient has severe aphasia or cognitive impairments)	Yes	Yes + No + Unknown (if discharged alive) Excludes **Not applicable** Exclusions: **If transferred to inpatient rehab, acute care or refused plan**
Patient involvement in care plan	Yes	Yes + No Only if **Yes to Care plan**
Family involvement in care plan	Yes	Yes + No Only if **Yes to Care plan**
Patient refused developing a care plan	Yes	Yes + No + Unknown Only if **No to Care plan**
Copy of discharge summary sent to the general practitioner and/or community providers	Yes	Yes + No Excludes Not applicable Only if **discharged alive**
Patient or family received contact of someone in hospital for post-discharge questions	Yes + no but provided to family	Yes + No + No but provided to family Only if **discharged alive**

Organisational Survey Questions

Question	Answer options
Hospital details	
How many beds are there in your hospital?	
Does your hospital have a specialist stroke unit(s)?	1=Yes, 2=No
How many beds are in the stroke unit?	Enabled if Yes to previous
How many patients with acute stroke are present in the hospital today?	
How many patients with acute stroke were admitted to your hospital in the last calendar year (approx.)?	
How many of these patients with stroke were specifically coded as ischaemic strokes? (ICD-10 codes 163.0 - 163.9)	
How many patients with acute stroke are present in the stroke unit today?	
How many patients with acute stroke were admitted to the stroke unit in the last calendar year?	
Does your hospital have: a. High Dependency/Intensive Care Unit? b. Access to onsite neurosurgery? c. A consultant physician with specialist knowledge of stroke who is formally recognised as having a principal responsibility for stroke at your hospital? d. Onsite telehealth facility which has been utilised for clinical decision making within the last six months? Is this usually used to: (i) Provide support to another service? (ii) Receive support from another service? e. Access to telehealth facilities for professional education? f. Protocols for transferring patients to other hospitals? g. Co-located stroke beds within a geographically defined unit specifically for stroke? h. A dedicated, multidisciplinary team with members who have a special interest in stroke?	1=Yes, 2=No (for each)
Does your hospital have regional responsibility for specialist stroke care and support to smaller sites (e.g. hub centre for stroke care)?	1=Yes, 2=No, 9=unknown
Presentation to hospital	
Are there arrangements with the local ambulance service for emergency/rapid transfer to your hospital for stroke patients with acute stroke over and above the regular system?	1=Yes, 2=No, 3=No but, there is agreement to bypass our hospital for another stroke specific service, 4=Unsure
Do you receive pre-notification from ambulance services and prepare to rapidly accept the suspected stroke patient?	1=Yes, 2=No
Are there Emergency Department protocols for rapid triage for patients presenting with acute stroke?	1=Yes, 2=No
Which of the following does this protocol include:	Enabled if YES to previous
a. Validated screening tool	1=Yes, 2=No
b. high priority triage category (e.g. category 2)	1=Yes, 2=No
c. rapid brain imaging (e.g. with the first 30 mins)	1=Yes, 2=No
d. code stroke activation (rapid referral and involvement of stroke team)	1=Yes, 2=No
e. assessment and management of IV thrombolysis	1=Yes, 2=No
f. assessment and management or transfer for endovascular clot retrieval	1=Yes, 2=No
Does your hospital manage all strokes, including complex strokes?	1=Yes, 2=No
Which ward is a patient with acute stroke most likely to be admitted to first? (only one answer allowed)	Stroke unit; ICU/HDU; Medical ward; Other

Question	Answer options
Do you offer intravenous thrombolysis (tPA) for appropriate stroke patients at your hospital?	1=Yes, 2=No
If yes, is this offered 24 hrs 7 days a week?	1=Yes, 2=No
How many patients have you thrombolysed in your hospital during the previous calendar year?	Enabled if YES to previous
Does your hospital provide onsite endovascular stroke therapy?	1=Yes, 2=No
If yes, is it available 24/7?	1=Yes, 2=No
How many patients have received endovascular stroke therapy in your hospital during the previous calendar year?	Enabled if YES to previous
How many patients from your hospital have been referred for endovascular stroke therapy at another hospital during the past 12 months?	Enabled if NO to previous
Imaging, TIA, and Neurovascular Service	
Does your hospital have access to:	
a. Rapid brain imaging (e.g. within 30 minutes) for all patients potentially eligible for acute therapy?	1=Yes, 2=No
b. CT Scanning within 3 hours of presentation to hospital for all stroke patients (available 24/7)?	1=Yes, 2=No
c. MRI scanning within 24 hours?	1=Yes, 2=No
d. Carotid imaging within 24 hours?	1=Yes, 2=No
If No to a. or b. above, which of the following reasons apply: a. access to scanning only available during business hours b. scanning equipment and staff on call but often not available within 3 hrs c. limited access to staff to report on scans (not 24/7) d. other	Yes, No (for each)
Do you have access to, and use, non-invasive angiography (e.g. CTA or MRA) at your hospital?	1=Yes, 2=No
Do you have access to, and use, perfusion scanning (e.g. CTP) at your hospital?	1=Yes, 2=No
Is there the ability to provide telemetry monitoring for at least to 72 hours?	1=Yes, 2=No
With respect to TIA patients presenting to your hospital emergency department:	
a. Does your hospital have a defined and documented process, policy or clinical pathway for assessing TIA patients?	1=Yes, 2=No
b. At your hospital are all TIA patients admitted or are only selected patients admitted?	Options: All, Only Selected, **or** None
i. Does patient selection for admission incorporate one of the published TIA risk stratification scores (e.g. ABCD2)?	1=Yes, 2=No
ii. For TIA patients not admitted to hospital is there a rapid access TIA clinic (assessed within 48 hours)?	1=Yes, 2=No
iii. What is the average waiting time for an appointment to this clinic?	Number of days
iv. How often is the clinic run?	Number of days per week
Organisation of workforce	
Are the following health professionals actively involved with the management of stroke at your hospital?	

Question	Answer options
a. Advanced medical trainee b. Clinical psychology c. Neuropsychology d. Dietitian e. General physician f. General practitioner g. Geriatrician h. Neurologist i. Clinical nurse consultant (CNC) j. Clinical nurse specialist (CNS) k. Stroke care coordinator l. Stroke specialist research nurse m. Stroke nurse educator n. Other nurse educator o. Nurse practitioner p. Nursing unit manager (NUM) q. Occupational therapist r. Physiotherapist s. Rehabilitation physician t. Social worker u. Speech pathologist	1 = Yes, 2 = No (for each health professional)
What team usually manages acute stroke patients? (only one answer allowed)	General medical team, Stroke geriatric team, General geriatric team, Stroke neurology team, General neurology team, General practitioner/Visiting medical officers
Are there protocols for referral to the following disciplines for stroke patients? a. Physiotherapist b. Speech pathologist c. Occupational therapist d. Dietitian e. Psychologist f. Social worker	1=Yes, 2 = No
Team coordination and assessment	
Do you have a mobile in-patient stroke team?	1=Yes, 2=No
Does your stroke unit team routinely provide clinical care or advice for patients not on the stroke unit (i.e. as an 'in-reach' or 'mobile' service)? (contingent on having a stroke unit)	1=Yes, 2=No
Does the hospital have a clinical care pathway for managing stroke?	1=Yes, 2=No
Do you have regular multidisciplinary team meetings for the interchange of information about individual stroke patients?	1=Yes, 2=No
If yes, how many meetings are held per month?	Number per month
Are there locally agreed assessment protocols for the following? a. Consciousness level b. Motor Impairment c. Visual Impairment d. Sensory Impairment e. Executive Function f. Activities of Daily Living g. Mood h. Communication	1=Yes, 2=No (for each)

Question	Answer options
Are there locally agreed management (including assessment/ monitoring) protocols for the following? a. Fever b. Glucose c. Swallow dysfunction d. Incontinence of urine e. Incontinence of faeces f. Nutrition g. Hydration	1=Yes, 2=No (for each)
Access to further services	
Regarding assessing suitability for rehabilitation, who is responsible for making the decision to refer to rehabilitation services? a. Acute physician b. Post-acute physician (rehabilitation physician, geriatrician, general physician) c. Nurse d. Multidisciplinary team (acute) e. joint acute / rehabilitation team member/s f. Other team member – specify	1 = Yes, 2 = No (for each)
Is there a standardised process regarding assessing suitability for further rehabilitation at your hospital?	1=Yes, 2=No
Does your site have access to the following rehabilitation services: a. Ongoing inpatient rehabilitation b. Outpatient rehabilitation c. Day hospital d. Community-based rehabilitation provided in the home e. Stroke specialist Early Supported Discharge (ESD)	1=Yes, 2=No (for each)
Are there local protocols for routinely reviewing stroke patients discharged from hospital?	1=Yes, 2=No
Does your hospital have access to the following specialist services: a. palliative care services b. cardiology, c. vascular surgery	1=Yes, 2=No (for each)
Communication with patient and carer	
Does the team routinely inform and involve the patient and their family/carer in: a. Clinical management b. Goal setting c. Planning for discharge	1=Yes, 2=No (for each)
Does your hospital routinely provide patient information prior to discharge? If yes, which of the following are included: a. Stroke care, implications, and recovery b. Secondary prevention c. Local community care arrangements d. Community stroke support groups e. Is aphasia friendly communication available for all of the above	1=Yes, 2=No (for each)
Are patients routinely given a discharge care (personal recovery) plan on discharge from hospital?	1=Yes, 2=No
Are patients/carers given details of a hospital contact on transfer from hospital to community for post discharge queries and post discharge support?	1=Yes, 2=No
Continuing Education	
Is there a program for the continuing education of staff relating to the management of stroke?	1=Yes, 2=No
Over the last 2 years has the stroke team been involved in quality improvement activities that have included collecting and reviewing local stroke data and agreeing on strategies to improve care?	1=Yes, 2=No, 9=unknown

National Acute Stroke Services Framework Elements

2019 Framework Element (Total=20)	Organisational survey question/s
Receive pre-notification and prepare to rapidly accept potential stroke patient from pre-hospital services	Do you receive pre-notification from ambulance services and prepare to rapidly accept the suspected stroke patient? ("Yes")
Coordinated emergency department systems (includes use of validated screening tools; agreed triage categories; rapid imaging; rapid referral and involvement of stroke team; protocols for IV thrombolysis and ECR intervention/transfer)	Are there Emergency Department protocols for rapid triage for patients presenting with acute stroke? ("Yes") Which of the following does this protocol include: ("Must TICK options - c, d & e")
Stroke unit	Does your hospital have a specialist stroke unit(s)?
Rapid access to onsite CT brain (24/7) including CT perfusion and aortic arch to cerebral vertex angiography	Rapid brain imaging (e.g. within 30 minutes of presentation to hospital) for all patients potentially eligible for acute therapy? ("Yes") Do you have access to, and use, non-invasive angiography (e.g. CTA or MRA) at your hospital? ("Yes") Do you have access to, and use, perfusion scanning (e.g. CTP) at your hospital? *("Yes")*
Delivery of intravenous thrombolysis (24/7)	Do you offer intravenous thrombolysis for appropriate stroke patients at your hospital? ("Yes")
On-site endovascular stroke therapy (24/7)	Does your hospital have access to endovascular stroke therapy 24/7? ("Yes")
On-site neurosurgical services (e.g. for hemicraniectomy due to large middle cerebral artery infarcts)	Does your hospital have access to onsite neurosurgery? ("Yes")
Ability to provide acute monitoring (telemetry and other physiological monitoring) for at least 72 hours	Is there the ability to provide telemetry monitoring for at least to 72 hours? ("Yes")
Acute stroke team	Does your hospital have a dedicated, multidisciplinary team with members who have a special interest in stroke? ("Yes to Medical lead, Specialist Nurse, PT, OT, SP")
Dedicated stroke coordinator position	Stroke care coordinator is actively involved in the management of stroke? ("Yes")
Dedicated medical lead	Is there a consultant physician with specialist knowledge of stroke who is formally recognised as having a principal responsibility for stroke at your hospital? ("Yes")
Access to HDU / ICU (for complex patients)	Does your hospital have a High Dependency / Intensive Care Unit? ("Yes")
Rapid (within 48 hours) Transient Ischaemic Attack (TIA) assessment clinics/services (including early access to carotid and advanced brain imaging)	At your hospital are all TIA patients admitted or are only selected patients admitted? ("ALL") **OR** For TIA patients not admitted is there a rapid access TIA clinic (assessed within 48 hours)? *("YES", IF run three or more days per week)*
Use of telehealth services for acute assessment and treatment	Is there onsite telehealth facility which has been utilised for clinical decision making within the last six months? ("Yes")

Standardised processes that ensure ALL stroke patients are assessed for rehabilitation. This includes use of standardised tools to determine individual rehabilitation needs and goals (ideally within 48 hours of admission)	Is there a standardised process regarding assessing suitability for further rehabilitation at your hospital? ("Yes")
Coordination with rehabilitation service providers (this should include a standardised process, and/or a person, used to assess suitability for further rehabilitation).	Is there a standardised process regarding assessing suitability for further rehabilitation at your hospital? ("Yes") **OR** Regarding assessing suitability for rehabilitation, who is responsible for making the decision to refer to rehabilitation services? ("Joint acute/Rehab team")
Routine involvement of carers in the rehabilitation process	Does the team routinely inform and involve the patient and their family/carer in *(2 or more must be met)*: a) Clinical management b) Goal setting c) Planning for discharge
Routine use of guidelines, care plans and protocols	Are patients routinely given a discharge care personal recovery plan on discharge from hospital? **AND** Are there locally agreed management (including assessment/monitoring) protocols for the following? *("Yes" to all following: a. Fever, b. Glucose C. Swallowing)*
Regular data collection and stroke specific quality improvement activities	Over the last 2 years has the stroke team been involved in quality improvement activities that have included collecting and reviewing local stroke data and agreeing on strategies to improve care?
Access and collaboration with other specialist services (cardiology, palliative care, vascular)	Does your hospital have access to the following specialist services *(all three must be met)*: a) Palliative care services b) Cardiology c) Vascular surgery

Clinical Audit Questions

Question	Responses
PATIENT / DEMOGRAPHIC INFORMATION	
Patient episode ID number	(Auto generated)
Date of birth	DDMMYYYY
Age	(Auto generated)
Gender	Male; Female; Intersex or indeterminate; Not stated/inadequately described
Interpreter needed?	Yes / No
Is the patient of Aboriginal/Torres Strait Islander origin?	Aboriginal but not Torres Strait Islander origin; Torres Strait Islander but not Aboriginal origin; Both Aboriginal and Torres Strait Islander origin; Neither Aboriginal nor Torres Strait Islander origin; Indigenous not otherwise described; Missing / not stated
STROKE ONSET AND HOSPITAL STAY	
Onset date and accuracy	DDMMYYYY; unknown accurate/estimate
Onset time and accuracy	hh:mm - Known (accurate) time of onset - Estimated time of onset or time last seen normal - Wake up stroke (time last seen normal) - Time unknown
Did the stroke occur while the patient was in hospital?	Yes / No / Unknown
Date of arrival to emergency department and accuracy	DDMMYYYY accurate/estimate
Time of arrival to emergency department and accuracy;	hh:mm; accurate/estimate; unknown
Did the patient arrive by ambulance?	Yes / No / Unknown
Was the patient transferred from another hospital?	Yes / No / Unknown
Date of transfer	DDMMYYYY
Time of transfer	hh:mm; unknown
Date of admission to hospital	DDMMYYYY
Time of admission to hospital	hh:mm; unknown
What was the ward for initial admission; other	Stroke Unit; Other neuroscience ward; Medical ward; Surgical ward; Mixed med/surgical ward; Rehabilitation ward; ICU; Unknown; Other
Was the patient treated in a stroke unit at any time during their stay?	Yes / No / Unknown
What was the date of admission to stroke unit?	DDMMYYYY
Time of Admission	hh:mm, not documented
What was the date of discharge from stroke unit?	DDMMYYYY
PRIOR TO STROKE	
Any history of known risk factors prior to admission:	
Atrial fibrillation	Yes / No / Not documented
Previous stroke	Yes / No / Not documented
Previous TIA	Yes / No / Not documented
Ischaemic heart disease	Yes / No / Not documented
Dementia	Yes / No / Not documented
Dependency prior to admission	
Functional status prior to stroke? (mRS) Score 0-5	0-5 (or derived)

Question	Responses
Living arrangements prior to admission?	Home (alone); Home (with others); Supported accommodation e.g. nursing home, hostel; Other
ACUTE CLINICAL DATA	
Did the patient have a validated stroke screen in ED?	Yes / No / Unknown
Was the primary intent of treatment palliative care?	Yes / No / Unknown
If yes, when was the decision made?	DDMMYYYY
Was the patient unresponsive (or in a coma)?	Yes / No / Not documented
Did the patient have a brain scan after this stroke?	Yes / No
Was brain scan done within your hospital?	Yes / No (done elsewhere)
Date of first brain scan after the stroke	DDMMYYYY
Time of first brain scan after the stroke	hh:mm, not documented
What type of brain scan was performed?	CT; MRI; BOTH CT & MRI
Was advanced imaging performed?	
CT angiography	Yes / No
CT perfusion	Yes / No
Type of stroke	TIA; Ischaemic; Haemorrhage; Undetermined
Did the patient have an investigation of the carotid arteries while in hospital?	Yes / No
TELEMEDICINE AND REPERFUSION	
Was the patient screened for eligibility for intravenous thrombolysis?	Yes / No
Did the patient receive intravenous thrombolysis?	Yes / No / Unknown
If Yes, then what was the date of delivery?	DDMMYYYY
If Yes, then what was the time of delivery?	hh:mm
OTHER CLINICAL INFORMATION	
On admission were any of the following impairments present: Sensory deficit	Yes / No / Not documented
Cognitive deficit	Yes / No / Not documented
Visual deficit	Yes / No / Not documented
Perceptual deficit	Yes / No / Not documented
Speech/communication impairment	Yes / No / Not documented
Hydration problems	Yes / No / Not documented
Nutrition problems	Yes / No / Not documented
Arm deficit	Yes / No / Not documented
Lower limb deficit	Yes / No / Not documented
Dysphagia	Yes / No / Not documented
Continence	Yes / No / Not documented
Balance	Yes / No / Not documented
Other	Yes / No / Not documented
Swallowing	
Was a formal swallowing screen performed (i.e. not a test of gag reflex)?	Yes / No / Not documented
If yes, date of screening	DDMMYYYY
Time of screening	hh:mm; unknown
Did the patient pass the screening?	Yes / No / Not documented
Was a swallowing assessment by a speech pathologist recorded?	Yes / No / Not documented
Date of swallowing assessment	DDMMYYYY
Time of swallowing assessment	hh:mm; unknown

Question	Responses
Was the swallow screen or swallowing assessment performed before the patient was given: - Oral medications - Oral food and fluids	Yes / No / Not documented
Hydration and nutrition	
Was malnutrition screening performed	Yes / No / Not documented
Mobility	
Was the patient able to walk independently on admission? (i.e. may include walking aid, but without assistance from another person)?	Yes / No / Unknown
Was the patient mobilised in this admission?	Yes / No / Unknown
Date of first documented mobilisation	DDMMYYYY
Method of mobilisation documented	Sitting; Standing; Walking
Continence	
Was the patient assessed for urinary incontinence within 72 hours?	Yes / No / Not documented
Was the patient incontinent of urine (or required a urinary catheter) within the first 72 hours of stroke onset?	Yes / No / Not documented
Was a urinary incontinence management plan documented?	Yes / No / Not documented
Did the patient have an indwelling urinary catheter within the first week of admission?	Yes / No / Not documented
If yes which of the following have been documented as the reason/s for urinary catheterisation? (tick all that apply)	Urinary retention; Pre-existing catheter; Urinary incontinence; Need for accurate fluid balance monitoring; Critical skin care; No reason documented
Mood	
Was the patient's mood assessed?	Yes / No / Not documented
If yes, did the patient have a mood impairment (depression, emotional lability or anxiety)?	Yes / No / Not documented
Aphasia	
Did the patient have aphasia	Yes / No / Not documented
Neglect	
Did the patient have neglect/inattention	Yes / No / Not documented
Antithrombotic therapy	
Aspirin given as hyperacute therapy (for ischaemic stroke or TIA)?	Yes; No; No, other antithrombotic agent provided; Unknown; Contraindicated
If yes, Date aspirin was given	DDMMYYYY
Time aspirin was given	hh:mm; unknown
Assessment and management of fever	
In the first 72 hours following admission did the patient develop a fever ≥ 37.5ºC	Yes / No / Not documented
If yes, was paracetamol for the first elevated temperature administered within 1 hour	Yes; No; Already received regular paracetamol; Contraindicated; Not documented
Assessment and management of hyperglycaemia	
In the first 72 hours following ward admission did the patient develop a finger-prick glucose level of greater or equal 10 mmols/l?	Yes / No / Not documented
If yes, was insulin administered within 1 hour of the first elevated finger-prick glucose (>=10 mmol/L)?	Yes / No / Not documented
DVT prophylaxis	
What type of DVT prophylaxis management did the patient receive?	Low molecular weight heparin; Intermittent pneumatic compression; Both; None; Contraindicated; Unknown

Question	Responses
Allied health assessments	
Was the patient seen by? If yes, date and time?	
Physiotherapist	Yes; No; Patient declined; Therapist not on staff; If yes… DDMMYYYY (unknown); hh:mm (unknown)
Occupational therapist	Yes; No; Not required; Therapist not on staff; If yes… DDMMYYYY (unknown); hh:mm (unknown)
Speech pathologist	Yes; No; Not required; Therapist not on staff; If yes… DDMMYYYY (unknown); hh:mm (unknown)
Social worker	Yes; No; Not required; Therapist not on staff; If yes… DDMMYYYY (unknown); hh:mm (unknown)
Dietitian	Yes; No; Not required; Therapist not on staff; If yes… DDMMYYYY (unknown); hh:mm (unknown)
Psychologist	Yes; No; Not required; Therapist not on staff; If yes… DDMMYYYY (unknown); hh:mm (unknown)
Patient Information / Education	
Were goals set with input from the team and patient?	Yes; No; No, but met with family
Did the patient and/or family receive information covering stroke, hospital management, secondary prevention and recovery (e.g. 'My Stroke Journey' booklet)?	Yes / No / Not documented
Does the patient have a carer?	Yes / No / Not required
Did the carer receive relevant carer training	Yes / No / Not documented
Reason (if no)	Patient transferred to inpatient rehab or other acute care; Carer declined; Other
Did the carer receive a support needs assessment (e.g. physical, emotional and social)?	Yes / No / Not documented
Reason (if no)	Patient transferred to inpatient rehab or other acute care; Carer declined; Other
COMPLICATIONS DURING HOSPITAL ADMISSON	
Did the patient have any of the following complications during their admission:	
Aspiration pneumonia	Yes / No
Deep Vein Thrombosis (DVT)	Yes / No
Falls	Yes / No
Fever	Yes / No
Symptomatic haemorrhagic transformation	Yes / No
New onset atrial fibrillation	Yes / No
New stroke	Yes / No
Stroke progression	Yes / No
Urinary tract infection	Yes / No
Seizures	Yes / No
Were any of the above complications severe (i.e. incapacitating, life threatening and prolongs hospital admission and patient acuity)?	Yes / No / Unknown
FURTHER REHABILITATION	
Was an assessment for rehabilitation performed?	Yes / No / Unknown
If yes, did this use the Assessment of Rehabilitation Tool?	Yes / No / Unknown

Question	Responses
Who undertook this assessment	Rehabilitation specialist; Rehabilitation registrar; Rehabilitation coordinator (nurse or ALH); General physician; Neurologist; Geriatrician; Other medical not specified; Acute stroke coordinator; Other
Did the assessment identify the need for ongoing rehab	Yes / No / Unknown
If yes, was a referral made to rehabilitation?	Yes / No / Unknown
If no, why not	Return to pre-morbid function; Palliation; Coma and/or unresponsive (not just drowsy); Declined rehabilitation
Were they accepted for rehabilitation?	Yes / No / Unknown
Reason (if no)	Service full; Service cannot cope with severity; Patient/family declined; Other (specify)
Did the patient access further rehabilitation?	Yes / No / Unknown
If yes, type	Inpatient rehabilitation; Outpatient rehabilitation; Community rehabilitation home based; Community rehabilitation day hospital; Early supported discharge service; Other (specify)
SECONDARY PREVENTION	
Is there evidence of patient education about behaviour change for modifiable risk factors prior to discharge?	Yes / No
Reason (if no)	Patient refused; Severe cognitive impairment; Severe communication impairment; Treatment was futile (i.e. advance care directive is enacted/ the patient is on a palliative care pathway); Discharged to another hospital; Other
For patients who are currently smoking or recently quit, did the patient receive smoking cessation advice (or family alone if patient has severe aphasia or cognitive impairments)?	Yes; No; Not applicable (non-smoker); Not documented
On discharge was the patient prescribed:	
Antithrombotic	Yes; No; Unknown; Contraindicated
If yes, please specify	Aspirin; Clopidogrel; Dipyridamole MR; Other antiplatelet drug; Warfarin; Dabigatran; Rivaroxaban; Apixaban; Other anticoagulant
Reason (if no)	Patient refused; Under review; Treatment was futile (i.e. advance care directive is enacted/ the patient is on a palliative care pathway); No reason given
Antihypertensives	Yes; No; Unknown; Contraindicated
Reason (if no)	Patient refused; Under review; Treatment was futile (i.e. advance care directive is enacted/ the patient is on a palliative care pathway); No reason given
Lipid-lowering treatment	Yes / No
Reason (if no)	Patient refused; Under review; Treatment was futile (i.e. advance care directive is enacted/ the patient is on a palliative care pathway); No reason given
DISCHARGE AND TRANSFER OF CARE	
Patient deceased during acute care	Yes / No
If yes, Date of death	DDMMYYYY
Is the date of discharge known	Yes / No

Question	Responses
Date of discharge	DDMMYYYY
What is the discharge diagnosis ICD10 Classification Code?	14.150; I61.0 – I61.6; I61.8; I61.9; I62.9; I63.0 – I63.6; I63.8; I63.9; I64.0; G45.9; Other (specify)
What is the discharge destination/mode	Discharge/transfer to (an)other acute hospital; Discharge/transfer to a residential aged care service, unless this is the usual place of residence; Statistical discharge - type change; Left against medical advice/discharge at own risk; Died; Other; Usual residence (e.g. home) with support; Usual residence (e.g. home) without support; Inpatient rehabilitation; Transitional care service
Please specify (if residential aged care)	Low level residential care; High level residential care
Is there evidence that a care plan outlining post discharge care in the community was developed with the team and the patient (or family alone if patient has severe aphasia or cognitive impairments)?	Yes; No; Unknown; Not applicable (remains in hospital e.g. inpatient rehabilitation or other acute care)
If yes, did this include: - Patient - Family/carer	Yes / No
Did the patient refuse developing a care plan	Yes / No / Unknown
Is there evidence that the general practitioner and or community providers were provided with a copy of the discharge summary?	Yes; No; Not applicable (e.g. inpatient rehabilitation)
Reason (if no)	No GP contact documented; From overseas or travelling; Other
Did the patient receive the contact details of someone in the hospital for any post-discharge questions?	Yes; No; No but provided to family
Dependency on discharge	
Functional status at discharge? (mRS) Score 0-6	0-6 (or derived)

Interrater Reliability Study 2021 Acute Clinical Audit

An interrater reliability study was undertaken as part of the Clinical Audit in 2021. Each participating hospital was asked to audit three to five patients' notes twice using different auditors. This was to identify, when a case note is audited, whether two people both reach the same answers without any discussion about the case.

Of the 104 hospitals participating in the Clinical Audit, 30 hospitals (29%) provided reliability data for 95 cases that were audited twice using different auditors. Twenty-two hospitals audited 3 to 6 cases; the remaining 8 hospitals audited 1 or 2 cases.

There are a number of statistics that can be used to determine interrater reliability. The option used for this study was Gwet's AC1 agreement coefficient, which accounts for chance agreement between raters, and is also less influenced by the prevalence in the cohort.[1] Table 1 shows how the agreement values have been interpreted for this report.[2]

Table 1: Definitions for agreement (Landis & Koch 1977)[2]

Agreement coefficient	Agreement definition
< 0	Less than chance agreement
0.01–0.20	Slight agreement
0.21– 0.40	Fair agreement
0.41–0.60	Moderate agreement
0.61–0.80	Substantial agreement
0.81-1.00	Almost perfect agreement

The interrater reliability of important patient, clinical and process variables from the Clinical Audit are reported in Table 2 and Figure 1.

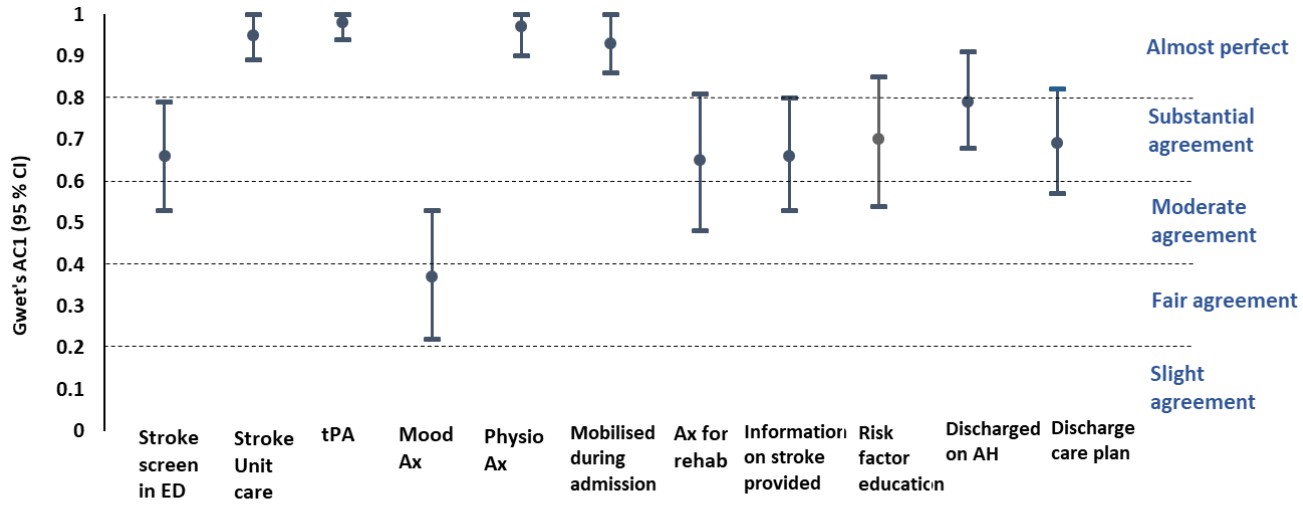
Table 2: Interrater reliability of data in the 2021 Clinical Stroke Audit (n=95 cases)

Information	Gwet's AC1 (95% CI)	Agreement
Patient data		
Sex	0.98 (0.94 – 1.00)	Almost perfect
Age	0.99 (0.96 – 1.00)	Almost perfect
Interpreter required	0.98 (0.95 – 1.00)	Almost perfect
Aboriginal or Torres Strait Islander status	0.92 (0.87 – 0.98)	Almost perfect
Living arrangements prior to stroke	0.87 (0.78 – 0.95)	Almost perfect
Atrial fibrillation	0.88 (0.79 – 0.96)	Almost perfect
Previous stroke	0.87 (0.78 – 0.96)	Almost perfect
Previous transient ischaemic attack	0.87 (0.79 – 0.95)	Almost perfect
Acute clinical data		
Stroke onset date	0.86 (0.77 – 0.95)	Almost perfect
Date of arrival to the Emergency Department	0.98 (0.93 – 1.00)	Almost perfect
Type of stroke	0.98 (0.93 – 1.00)	Almost perfect
Inhospital stroke	0.99 (0.95 – 1.00)	Almost perfect
Died	1.00 (0.95 – 1.00)	Almost perfect
Impairments		
Sensory deficit	0.49 (0.34 – 0.64)	Moderate
Cognitive deficit	0.68 (0.55 – 0.80)	Substantial
Visual deficit	0.64 (0.51 – 0.77)	Substantial

Information	Gwet's AC1 (95% CI)	Agreement
Perceptual deficit	0.59 (0.45 – 0.73)	Moderate
Speech/communication impaired on admission	0.76 (0.65 – 0.88)	Substantial
Ability to walk independently	0.66 (0.53 – 0.79)	Substantial
Hydration problems	0.72 (0.50 – 0.84)	Substantial
Nutrition problems	0.71 (0.59 – 0.84)	Substantial
Arm deficit	0.65 (0.52 – 0.78)	Substantial
Lower limb deficit	0.67 (0.55 – 0.80)	Substantial
Dysphagia	0.77 (0.66 – 0.88)	Substantial
Continence	0.70 (0.58 – 0.83)	Substantial
Balance	0.52 (0.37 – 0.66)	Moderate

CI: confidence interval

Figure 1: Interrater reliability for important process variables



ED: emergency department; tPA: received thrombolysis' Ax: assessment; AH: antihypertensives; CI: confidence interval

Of the 37 variables assessed, 33 (89%) achieved substantial or better interrater reliability (agreement coefficient > 0.6). Three of the four variables with less than substantial agreement related to the presence of impairments after stroke. Having a mood assessment only exhibited 'fair agreement' between raters and is a potential area requiring additional information and direction for abstractors.

References

1. Gwet K. Computing inter-rater reliability and its variance in the presence of high agreement. *British Journal of Statistical Psychology*. 2008;61:29-48
2. Landis J, Koch G. The measurement of observer agreement for categorical data. *Biometrics*. 1977;33:159-174

Participating Acute Services

We would like to thank all the auditors involved in data entry at each participating service for volunteering their time to complete the audit. Below is a list of the participating services and respective site coordinators:

Australian Capital Territory	
Canberra Hospital	Shahla Cowans
Calvary Bruce Hospital	Kristine Caprecho
Northern Territory	
Royal Darwin Hospital	Alvaro Cervera
Alice Springs Hospital	Anna Holwell
Victoria	
Albury and Wodonga Campus	Vanessa Crosby
Alfred Hospital	Estelle Hamson
Austin Hospital	Kristen Rowe
Bairnsdale Health Service	Alison Pearce
Ballarat Base Hospital	Shannon Walker
University Hospital Geelong	Heather Smith
Bass Coast Health	Cath Jones
Bendigo Health	Erin Ray
Box Hill Hospital	Tanya Frost
Cabrini Health	Suzy Goodman
Central Gippsland Health	Lisa Watson
Echuca Hospital	Lauren Arthurson
Epworth Richmond	Annie McFadyen
Goulburn Valley Hospital	Katie Connelly
Maroondah Hospital	Tanya Frost
Mildura Base Hospital	Ros Roberts
Monash Medical Centre	Jodi Lynch
Frankston Hospital	Kanaga Lagma
Royal Melbourne Hospital	Lauren Pesavento
St Vincent's Hospital Melbourne	Patrick Scarff
Sunshine Hospital	Jennifer Bergqvist
The Northern Hospital	Anne Rodda
Warrnambool Base Hospital	Patrick Groot
Wimmera Base Hospital	Deidre Rennick
Tasmania	
Launceston Hospital	Carolyn Harrison
North West Regional	Janell Cole
Royal Hobart Hospital	Deidre Broadby
South Australia	
Flinders Medical Centre	Michelle Hutchinson
Lyell McEwin Hospital	Angela Sayas
Mount Gambier Hospital	Jacinta Whittaker
Berri Campus (Riverland)	Anna Thomas
Royal Adelaide Hospital	Lizzie Dodd
Whyalla Hospital	Melanie Bergmann

New South Wales	
Armidale Hospital	Jaclyn Birnie
Bankstown Hospital	Tasleema Taiyab
Bathurst Hospital	Thomas Shepherd
Belmont Hospital	Kerry Boyle
Bowral & District Hospital	Angela Firtko
Calvary Mater Hospital	Sally Ormond
Campbelltown Hospital	Tasleema Taiyab
Coffs Harbour Hospital	Andrea Thatcher
Concord Hospital	Rebecca Phair
Dubbo Base Hospital	Debra Sloane
Fairfield Hospital	Angela Firtko
Gosford Hospital	Katie Ercan
	Rhonda O'Neil
Grafton Base Hospital	Marianne Taylor
John Hunter Hospital	Sally Ormond
Lismore Base Hospital	Kim Hoffman
Liverpool Hospital	Tasleema Taiyab
Maitland Hospital	Dianne Wood
Manning Hospital	Joseph Cheah
Northern Beaches Hospital	Deepa Jijo
Orange Base Hospital	Anders Gustaf Jansson
Port Macquarie Hospital	Michelle Coad
Prince of Wales Hospital	Alanah Bailey
Royal North Shore Hospital	Sheila Jala
Royal Prince Alfred Hospital	Kylie Tastula
Ryde Hospital	Simply Arora
Shoalhaven District Hospital	Donna Jay
St George Hospital	Erin Casey
St Vincent's Hospital Sydney	Kirsty Page
Sutherland Hospital	Dandan Zhao
Sydney Adventist Hospital	Evelyn Chiriseri
Tamworth Base Hospital	Rachel Peake
The Tweed Hospital	Kelly Andersen
Wagga Wagga Hospital	Katherine Mohr
Westmead Hospital	Andrew Evans
	Emily Mulquin-Finn
Wollongong Hospital	Jodi Wellfare
Wyong Hospital	Rhonda O'Neil

Participating Acute Services (continued)

Queensland	
Bundaberg Hospital	Simone Rogers
	Helen Eaves
Caboolture Hospital	Marnie Hollywood
Cairns Base Hospital	Elise Bertram
	Troy Elliott
Emerald Hospital	Louise Russell
Gold Coast University Hospital	Haylee Berrill
Gympie Hospital	Shaji Perumpuzhlyll Chacko
Hervey Bay Hospital	Donna Stubbings
Innisfail Hospital	Karen Edgerton
Ipswich Hospital	Linda Edwards
	Betzy Shaju
Logan Hospital	Nicola Hall
Mackay Base Hospital	Anne Hooper
Mater Health Brisbane Hospital	Ashley McGuire
The Prince Charles Hospital	Caitlin Kearney
Princess Alexandra Hospital	Amanda McKee
Proserpine Hospital	Vicki Grams
Queen Elizabeth II Jubilee Hospital	Jerry Wong
Redcliffe Hospital	Tanya Williams
Redland Hospital	April Enriquez
Rockhampton Hospital	Leanne Whiley
Royal Brisbane and Women's Hospital	Melissa Wood
St Andrew's War Memorial Hospital	Karen Armstrong
Sunshine Coast University Hospital	Donna Rowley
Toowoomba Hospital	Tim Richardson
Townsville Hospital	Ian Meade
	Linda Norrie
Warwick Hospital	Alethea Fraser

Western Australia	
Albany Health Campus	Michelle Backhouse
Bunbury Hospital	Renee Dehring
Busselton Health Campus	Renee Dehring
Fiona Stanley Hospital	Gill Edmonds
Geraldton Hospital	Megan Grazziadelli
Joondalup Health Campus	Michelle Young
Kalgoorlie Hospital	Graham Sheridyn
Rockingham Hospital	Joanne Hughes
Royal Perth Hospital	Kala Fernandez
St John of God Midland Hospital	Lynda Southwell
Sir Charles Gairdner Hospital	Rebecca Reynolds
Albany Health Campus	Michelle Backhouse
Bunbury Hospital	Renee Dehring
Busselton Health Campus	Renee Dehring
Fiona Stanley Hospital	Gill Edmonds
Geraldton Hospital	Megan Grazziadelli
Joondalup Health Campus	Michelle Young
Kalgoorlie Hospital	Graham Sheridyn

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- **Stay informed** – keep up-to-date and share our message.

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