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Organisational survey for acute stroke care in Vietnam: Regional Collaboration Programme

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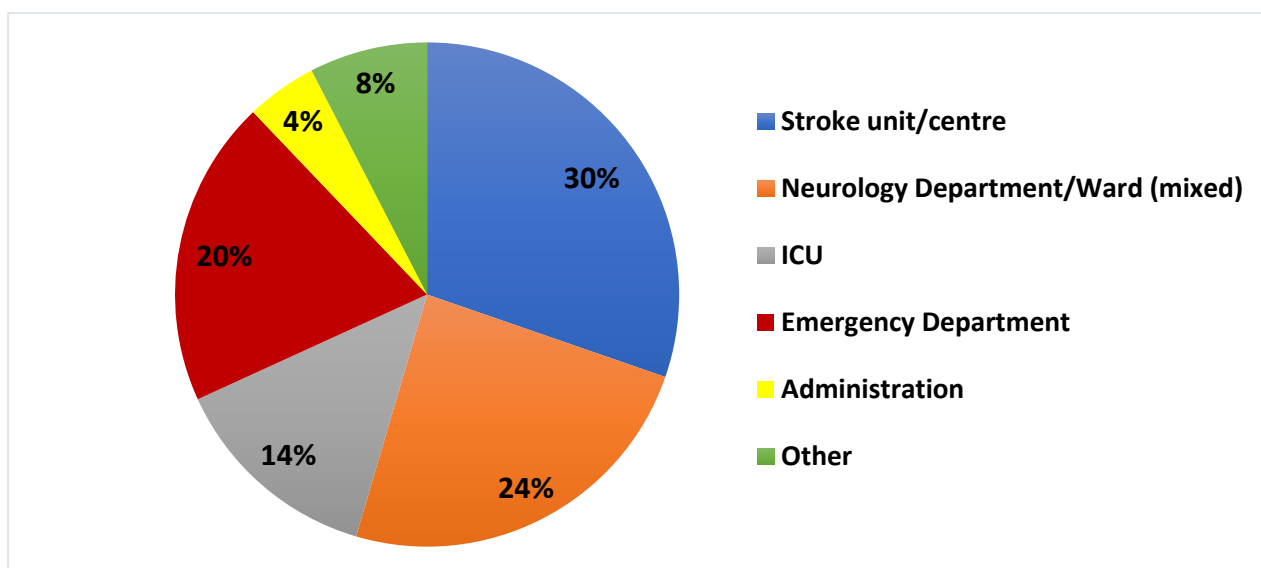
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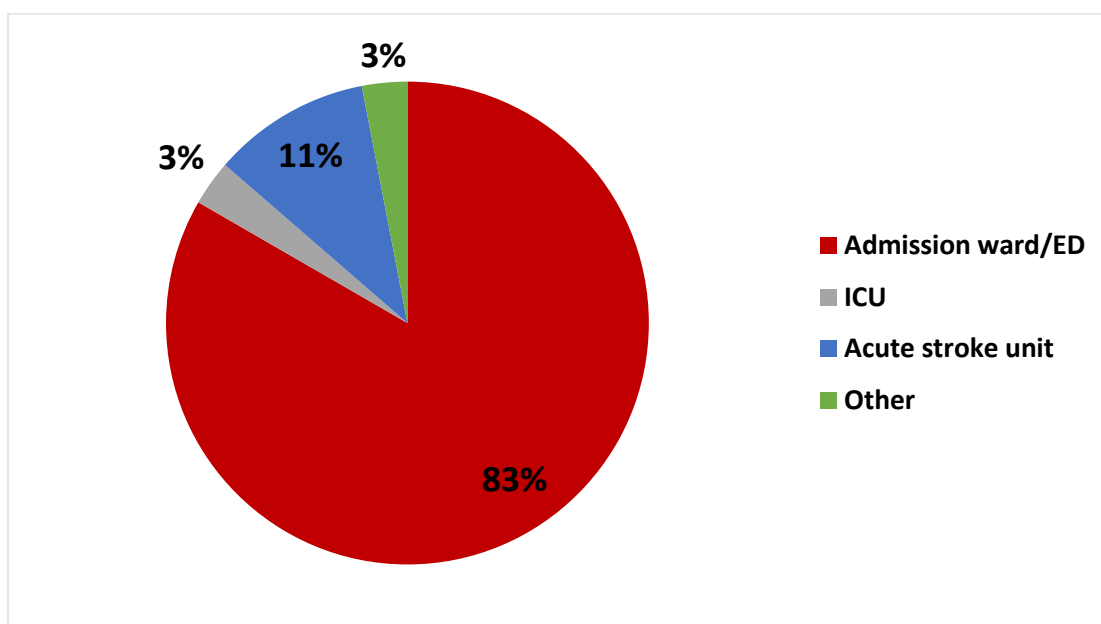
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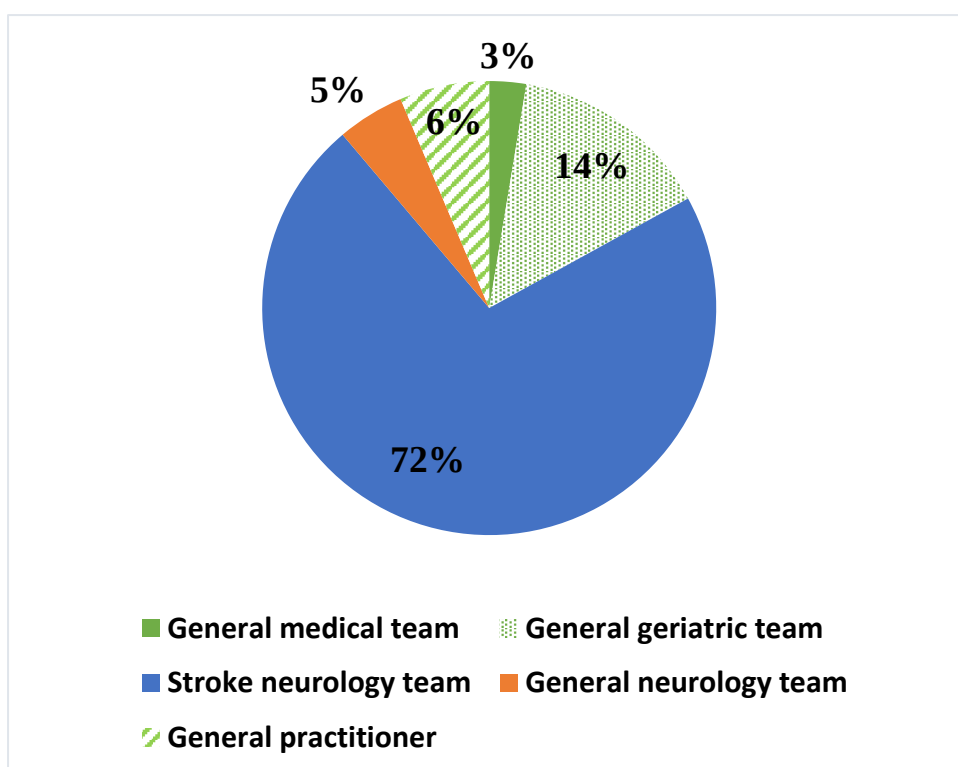
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Supplemental Figure 1. Survey respondents' place of working (N=66)



Supplemental Figure 2. First admission ward for a patient with acute stroke (N=66)



Supplemental Figure 3. What team usually manages acute stroke patients (N=64 responses)

Supplemental Table 1: Team coordination and assessment

	N (%)
Team coordination	
Do you provide a medical consultation to the patients treated in other wards of your hospital?	61 (92.4)
Does your stroke unit team routinely provide clinical care or advice for patients not in the stroke unit (i.e. as an 'in-reach' or 'mobile' service)?	56 (84.9)
Does the hospital have a clinical care pathway or protocol for managing stroke	61 (92.4)
If YES, are these based on national, or international evidence based clinical practice guidelines for Stroke e/g American Heart and Stroke Association Stroke Guidelines? (n=61)	55 (90.2)
Availability of locally agreed assessment protocols	
Consciousness level	63 (95.5)
Motor Impairment	65 (98.5)
Visual Impairment	58 (98.9)
Sensory Impairment	59 (89.4)
Executive Function	63 (95.5)
Activities of Daily Living	55 (83.3)
Mood	48 (72.7)
Communication	52 (78.8)
Fever	60 (90.9)
Sugar	64 (97.0)
Swallow	61 (92.4)
Incontinence of urine	54 (81.8)
Incontinence of faeces	52 (78.8)
Nutrition	54 (81.8)
Hydration	54 (81.8)

Supplemental Table 2: Access to further services (N=66)

	N (%)
Is there a standardised process regarding assessing suitability for further rehabilitation at your hospital?	33 (50.0)
Does your site have access to the following rehabilitation services	
Ongoing inpatient rehabilitation	61 (92.4)
Outpatient rehabilitation	51 (77.3)
Day hospital	46 (69.7)
Community-based rehabilitation provided in the home	31 (47.0)
Other (email, telephone)	5 (7.6)
Are there local protocols for routinely reviewing stroke patients discharged from hospital?	48 (72.7)
Access to the following specialist services	
Palliative care services	37 (56.1)
Cardiology	58 (87.9)
Vascular surgery	35 (53.0)
Neurosurgery	46 (69.7)
Endocrinology	52 (78.8)

Supplemental Table 3: Communication with patient and carer among 66 surveyed hospitals

	N (%)
Does the team routinely inform and involve the patient and their family/carer in:	
Clinical management	56 (84.9)
Goal setting	47 (71.2)
Planning for discharge	61 (92.4)
Training for rehabilitation to continue at home	49 (74.2)
If YES to the previous question (n=61),	
Stroke care, implications, and recovery	58 (95.1)
Secondary prevention	60 (98.4)
Local community care arrangements	34 (55.7)
Community stroke support groups	15 (24.6)
Is aphasia friendly communication available for all of the above	16 (26.2)
How do you involve patients and family/carer in care for patients with stroke?	
Provide training for rehabilitation and stroke care to continue at home	54 (81.8)
Does your hospital routinely provide patient information prior to discharge?	61 (92.4)

Supplemental Table 4: Continuing education and data collection on stroke care (N=66)

	N (%)
Is there a program for the continuing education of staff relating to the management of stroke?	43 (65.2)
Do you collect data on care provided to patients at your hospital/department?	
Yes	50 (95.8)
No	8 (12.1)
Unknown	6 (9.1)
Missing	2 (3.0)
If YES to the previous question (n=50 responses), which database you have used	
RES-Q	26 (54.2)
Local	15 (31.3)
Other (individual research, etc.)	7 (14.6)

Appendix A

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Hospital Organisational Survey

A. Participant details

1. Full name of participant: _____

2. Participant discipline:

- ☐ **Doctor** (e.g. Neurologist, General Physician, Rehabilitation Physician, Specialist in cardiology, endocrinology or other, Junior doctor/trainee)
- ☐ **Nurse** (e.g. Senior nurse in charge of ward or hospital, General ward nurse, Nurse with training in stroke)
- ☐ **Manager** (not in direct patient care role, i.e. hospital executive)
- ☐ **Allied health professionals** (e.g. Physiotherapist - Rehabilitation [assistant or technician], Clinical psychology, Neuropsychology, Dietitian, Occupational therapist, Speech pathologist, Pharmacist, Social worker)
- ☐ **Other** (e.g. Physician assistant, X-ray technician, Ultrasound technician, Other staff)

3. Where are you working in your hospital?

- ☐ Stroke unit/centre ☐ Neurology Department/ward (mixed cases)
- ☐ ICU ☐ General medical ward
- ☐ General surgical ward ☐ Emergency department
- ☐ Administration (not dedicated to one location)
- ☐ Other - please specify: _____

4. How many staff in your department/ward/stroke unit as specified in Q2?

- a. Doctor (e.g. Neurologist, General Physician, Rehabilitation Physician, Specialist in cardiology, endocrinology or other, Junior doctor/trainee) □ □ □
- b. Nursing □ □ □
- c. Allied Health (e.g. Physiotherapist - Rehabilitation assistant or technician, Clinical psychology, Neuropsychology, Dietitian, Occupational therapist, Speech pathologist, Pharmacist, Social worker) □ □ □
- d. Other (e.g. X-ray or Ultrasound technician, Manager) □ □ □

Nurse Patient

5. What is nurse patient ratio in your department/ward?

(e.g. day: 1 nurse/2-3 patients)

Day			
Night			
If patient has tPA			

B. Hospital and ward/department details

6. Hospital Name _____ City/Provinces _____

7. How many beds are there in your hospital?

--	--	--	--	--	--

8. How many patients with acute stroke are present in your hospital today?

Unknown ☐

--	--	--

9. Approximately how many patients with acute stroke were admitted to your hospital in the last year? Unknown ☐

--	--	--	--	--

10. How many beds are there in your ward/department where you admit most of your stroke patients?

--	--	--	--	--

11. Does your hospital have a specialist stroke unit(s) if applicable? ☐ Yes ☐ No

12. How many beds are in the stroke unit?

--	--	--

13. How many patients with acute stroke are in your ward/department today?

Unknown ☐

--	--	--

14. Approximately how many patients with acute stroke were admitted to your ward/department in the last year? Unknown ☐

--	--	--

15. How many patients with acute stroke are present in the stroke unit today? Unknown ☐

--	--	--

16. How many patients with acute stroke were admitted to the stroke unit in the last year? Unknown ☐

--	--	--

17. Does your hospital have:

- a. High Dependency (HDU) / Intensive Care Unit (ICU)?

☐ Yes ☐ No

- b. A consultant physician with specialist knowledge of stroke who is formally recognised as having a principal responsibility for stroke at your hospital.

☐ Yes ☐ No

- c. A dedicated, multidisciplinary team with members who have a special interest in stroke?

☐ Yes ☐ No

- d. Any nurses who have specialist training for stroke?

☐ Yes ☐ No

18. Do you have access to specialist support for clinical decision making? ☐ Yes ☐ No

If yes: ☐ Video conference/ Telehealth
☐ Phone
☐ Software e.g. Whatapps, Viber, Zalo, etc

19. Does your hospital have regional responsibility for specialist stroke care and support to smaller sites (e.g. hub centre for stroke care)? ☐ Yes ☐ No

20. **If yes to Q19**, which locations/regions? _____

C. Presentation to hospital

21. 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?

☐ Yes ☐ No
☐ No but, there is agreement to bypass our hospital for another stroke specific service
☐ Unsure

22. Do you receive pre-notification from ambulance services and prepare to rapidly accept the suspected stroke patient? ☐ Yes ☐ No

23. Are there Emergency Department protocols for rapid triage for patients presenting with acute stroke? ☐ Yes ☐ No

24. **If YES to Q23, which of the following does this protocol include:**

a. Validated screening tool ☐ Yes ☐ No

b. High priority triage category (*such as important time-critical assessment and treatment e.g assessment for thrombolysis, resuscitation, or other emergency care*) ☐ Yes ☐ No

c. Rapid brain imaging (e.g. with the first 30 mins) ☐ Yes ☐ No

d. Code stroke activation (rapid referral and involvement of stroke team) ☐ Yes ☐ No

e. Assessment and management of IV thrombolysis ☐ Yes ☐ No

f. Assessment and management or transfer for endovascular clot retrieval
☐ Yes ☐ No

25. Does your hospital manage all strokes, including complex strokes? ☐ Yes ☐ No

26. **Which ward is a patient with acute stroke most likely to be admitted to first?**
(only one answer allowed)

- ☐ Medical assessment unit/admission ward (in the ED)
- ☐ ICU (or high dependency care - HDU) ☐ General medical ward
- ☐ Geriatric ward ☐ Geriatric rehabilitation ward
- ☐ Acute stroke unit
- ☐ Other stroke unit (e.g. rehabilitation stroke unit, comprehensive stroke unit)
- ☐ Other (please specify): _____

27. Do you offer intravenous thrombolysis (tPA) for appropriate patients with ischaemic stroke at your hospital? ☐ Yes ☐ No

28. **If NO to Q27**, what are the main reasons for being unable to offer this treatment?

29. **If YES to Q27**, is this offered 24 hrs 7 days a week? ☐ Yes ☐ No

30. **If YES to Q27**, how many patients have you thrombolysed in your hospital during the past 12 months?

--	--	--

31. Does your hospital provide onsite endovascular clot retrieval stroke therapy? ☐ Yes ☐ No

32. **If YES to Q31**, is it available 24/7? ☐ Yes ☐ No

33. **If YES to Q31**, how many patients have received endovascular stroke therapy in your hospital during the past 12 months?

--	--	--

34. **If NO to Q31**, how many patients from your hospital have been referred for endovascular stroke therapy at another hospital during the past 12 months?

--	--	--

D. Imaging and Neurovascular Service

35. Does your hospital have access to Rapid brain imaging (e.g. within 30 minutes) for all patients potentially eligible for acute therapy? ☐ Yes ☐ No

36. **If NO to Q35**, which of the following reasons apply:

- ☐ access to scanning only available during business hours
- ☐ scanning equipment and staff on call but often not available within 3 hours
- ☐ limited access to staff to report on scans (not 24/7)
- ☐ other, please specify: _____

37. Does your hospital have access to: **CT Scanning** within 3 hours of presentation to hospital for all stroke patients (available 24/7)? ☐ Yes ☐ No
38. **If NO to Q37**, which of the following reasons apply:
- ☐ access to scanning only available during business hours
- ☐ scanning equipment and staff on call but often not available within 3 hours
- ☐ limited access to staff to report on scans (not 24/7)
- ☐ other, please specify: _____
39. Do **you** have access to, and use, non-invasive angiography (e.g. CTA or MRA) at your hospital? ☐ Yes ☐ No
40. Do **you** have access to, and use, perfusion scanning (e.g. CTP) at your hospital? ☐ Yes ☐ No
41. **Does your hospital have access to:**
- a. Laboratory blood test (CBC, electrolytes, urea, glucose, INR, PT) ☐ Yes ☐ No
- b. Electrocardiogram (12 lead) Echocardiography ☐ Yes ☐ No
- c. Doppler ultrasound ☐ Yes ☐ No
- d. Holter monitors ☐ Yes ☐ No
- e. MRI scanning within 24 hours? ☐ Yes ☐ No
- f. Carotid imaging within 24 hours? ☐ Yes ☐ No
42. **Is there the ability to provide telemetry monitoring** (e.g. Prolonged ECG monitoring devices) for at least to 72 hours ☐ Yes ☐ No

E. Organisation of workforce

- 43.(i) Are the following health professionals actively involved with the management of stroke at your hospital?

- a. **Advanced medical trainee** (junior, etc.)

☐ Yes ☐ No ☐ Not available ☐ Unknown

(If yes, how many full-time equivalent (FTE) for hospital: _____%,
just for stroke: _____% e.g. full time:100%; part-time: 50%)

Medical physicians

- b. **General physician** ☐ Yes ☐ No ☐ Not available ☐ Unknown

(If Yes, are they with stroke training?) ☐ Yes ☐ No

(How many FTE for hospital: _____%, just for stroke: _____%)

- c. **General practitioner** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how many (FTE) for hospital: _____%, just for stroke: _____%)
- d. **Geriatrician** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how many (FTE) for hospital: _____%, just for stroke: _____%)
- e. **Neurologist** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how many (FTE) for hospital: _____%, just for stroke: _____%)
- f. **Physiotherapist** - Rehabilitation physician (medical doctors/specialists)
☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how many (FTE) for hospital: _____%, just for stroke: _____%)
- g. **Other specialty:** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, please specify: _____ how many FTE for hospital: _____%,
just for stroke: _____%)

Nurse

- h. **Stroke 'clinical' nurse (neuroscience trained)**
☐ Yes ☐ No ☐ Not available ☐ Unknown
(If Yes, are they with stroke training? ☐ Yes ☐ No
how many FTE for hospital: _____%, just for stroke: _____%)
- i. **Nursing unit manager** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how may FTE for hospital: _____%, just for stroke: _____%)

Allied Health

- j. **Physical therapy/rehabilitation therapist**
(e.g. Kinesiology; technician or assistant)
☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how may FTE for hospital: _____%, just for stroke: _____%)
- k. **Clinical psychology** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how may FTE for hospital: _____%, just for stroke: _____%)
- l. **Neuropsychology** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how may FTE for hospital: _____%, just for stroke: _____%)
- m. **Dietitian** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how may FTE for hospital: _____%, just for stroke: _____%)

n. **Occupational therapist** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how many FTE for hospital: _____%, just for stroke: _____%)

o. **Speech pathologist** ☐ Yes ☐ No ☐ Not available ☐ Unknown
(If yes, how many FTE for hospital: _____%, just for stroke: _____%)

Other

p. **Other staff** (such as physician assistant, [X-ray or Ultrasound] technicians, etc.)
☐ Yes ☐ No ☐ Not available ☐ Unknown

(If yes, please specify: _____)

how many FTE for hospital: _____%, just for stroke: _____%)

44. 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 | |

45. Are there protocols for referral to allied health professional for assessment and treatment?

(e.g. Physiotherapist - Rehabilitation assistant or technician; Clinical psychology; Neuropsychology; Dietitian; Occupational therapist; Speech pathologist; Pharmacist; Social worker)

☐ Yes ☐ No

F. Team coordination and assessment

46. Do you provide a medical consultation to the patients treated in other wards of your hospital? ☐ Yes ☐ No

47. 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)? ☐ Yes ☐ No

48. Does the hospital have a clinical care pathway or protocol for managing stroke?
☐ Yes ☐ No

49. **If YES to Q48**, are these based on national, or international evidence based clinical practice guidelines for Stroke e/g American Heart and Stroke Association Stroke Guidelines?

☐ Yes ☐ No

50. Are there locally agreed assessment protocols for the following?

- | | | | |
|----|----------------------------|------------------------------|-----------------------------|
| a. | Consciousness level | ☐ Yes | ☐ No |
| b. | Motor Impairment | ☐ Yes | ☐ No |
| c. | Visual Impairment | ☐ Yes | ☐ No |
| d. | Sensory Impairment | ☐ Yes | ☐ No |
| e. | Executive Function | ☐ Yes | ☐ No |
| f. | Activities of Daily Living | ☐ Yes | ☐ No |
| g. | Mood | ☐ Yes | ☐ No |
| h. | Communication | ☐ Yes | ☐ No |

51. Are there locally agreed management (including assessment/monitoring) protocols for the following?

- | | | | |
|----|------------------------|------------------------------|-----------------------------|
| a. | Fever | ☐ Yes | ☐ No |
| b. | Glucose | ☐ Yes | ☐ No |
| c. | Swallow dysfunction | ☐ Yes | ☐ No |
| d. | Incontinence of urine | ☐ Yes | ☐ No |
| e. | Incontinence of faeces | ☐ Yes | ☐ No |
| f. | Nutrition | ☐ Yes | ☐ No |
| g. | Hydration | ☐ Yes | ☐ No |

G. Access to further services

52. Is there a standardised process regarding assessing suitability for further rehabilitation at your hospital? ☐ Yes ☐ No

53. Does your site have access to the following rehabilitation services

- | | | | |
|----|---|------------------------------|-----------------------------|
| a. | Ongoing inpatient rehabilitation | ☐ Yes | ☐ No |
| b. | Outpatient rehabilitation | ☐ Yes | ☐ No |
| c. | Day hospital | ☐ Yes | ☐ No |
| d. | Community-based rehabilitation provided in the home | ☐ Yes | ☐ No |
| e. | Other | ☐ Yes | ☐ No |

If yes, please specify: _____

54. Are there local protocols for routinely reviewing stroke patients discharged from hospital? ☐ Yes ☐ No

55. **If YES to Q54**, how and when?

How: _____

When: _____

56. Does your hospital have access to the following specialist services:

a. Palliative care services ☐ Yes ☐ No

b. Cardiology ☐ Yes ☐ No

c. Vascular surgery ☐ Yes ☐ No

d. Neurosurgery ☐ Yes ☐ No

e. Endocrinology ☐ Yes ☐ No

H. Communication with patient and carer

57. How do you involve patients and family/carer in care for patients with stroke?

(For example: Acute treatment decisions, Rehabilitation training for return to home e.g. meal preparation (safe swallowing and hydration), Safe transfers from bed to chair or walking, Exercises to improve motor, sensory function, communication, or Long-term stroke prevention treatment)

58. How often do your patients come back to your hospital for ongoing management?

59. Does the team routinely inform and involve the patient and their family/carer in:

a. Clinical management ☐ Yes ☐ No

b. Goal setting ☐ Yes ☐ No

c. Planning for discharge ☐ Yes ☐ No

d. Training for rehabilitation to continue at home ☐ Yes ☐ No

60. Does your hospital routinely provide patient information prior to discharge?
☐ Yes ☐ No
61. **If YES to Q60**, which of the following are included:
- | | | |
|---|------------------------------|-----------------------------|
| a. Stroke care, implications and recovery | ☐ Yes | ☐ No |
| b. Secondary prevention | ☐ Yes | ☐ No |
| c. Local community care arrangements | ☐ Yes | ☐ No |
| d. Community stroke support groups | ☐ Yes | ☐ No |
| e. Is aphasia friendly communication available for all of the above | ☐ Yes | ☐ No |
62. Are patients routinely given a discharge care (personal recovery) plan on discharge from hospital?
☐ Yes ☐ No

I. Continuing Education

63. Is there a program for the continuing education of staff relating to the management of stroke?
☐ Yes ☐ No
 If Yes, please describe: _____
64. Do you collect data on care provided to patients at your hospital/department?
☐ Yes ☐ No ☐ Unknown
65. **If YES to Q64**, which database have you used?
- ☐ RES-Q
- ☐ Local database
- ☐ Other? Please specify: _____

If you have any questions or concerns regarding the survey, please contact our workshop manager Professor Dominique Cadilhac dominique.cadilhac@monash.edu (English) or workshop coordinator Doctor Hoang Phan thi.phan@utas.edu.au (Vietnamese and/or English)