IRISH HEART FOUNDATION/HSE

NATIONAL STROKE AUDIT
Rehabilitation Units
2016

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IRISH HEART FOUNDATION

Feidhmeannacht na Seirbhíse Sláinte
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The University of Dublin

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

Report preparation

This reported was prepared on behalf of the National Stroke Programme in collaboration with the Irish Heart Foundation.

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Foreword

The care of people with stroke in Ireland has improved since the National Clinical Programme for Stroke was established in 2009-2010. Stroke deaths in Ireland have reduced by more than 15% and the emergency care for stroke patients provided in most Irish acute hospitals is now quite good and we are at the cutting edge of delivery of some new therapies such as thrombectomy.

However, quality of care has not increased as much in other areas of stroke management. The incidence of stroke is rising 4-5% per year but we still have a severe shortage of stroke unit beds to accommodate them or the specialist nursing, therapy and medical staff we need to care for them. We have only about half the acute stroke unit beds we need to meet international standards and, this report shows, an even lower proportion of specialist rehabilitation beds. Deficits in Allied health professionals range from 40% to 80% in acute hospitals and this report reveals a deficit of at least one third in most therapy areas in our Rehabilitation hospitals when compared to our neighbours in the UK, who would not be extravagantly staffed themselves from an international standpoint.

We still have only three small, under resourced Early Supported Discharge teams for stroke when these are considered a basic element of care in most Western European countries.

As a consequence in 2015 stroke outcomes apart from mortality deteriorated for the first time since the creation of the programme. This deterioration is unfortunate but not unexpected in the context of the current level of fixed and insufficient resource and an increasing number of patients.

The Stroke programme has been regarded as a success for the HSE but this does not mean that the care of stroke patients in Ireland is not deficient in many aspects and that Irish people still do not end up with unnecessary, avoidable disability because of lack of resource and facilities to give them appropriate care.

Prof. Joseph Harbison
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5th October 2016

Key Findings

The survey results from 26 of 29 eligible rehabilitation units showed:

- Bed access to rehabilitation units was age restricted for patients in almost half of sites surveyed.
- Sites did not consistently have access to accurate admission and discharge data to monitor patient flow.
- A quarter of sites had a dedicated unit or ward for stroke patients. This compares with three-quarters of units in the UK.
- Approximately 40% of sites had a stroke specialist responsible for the management of stroke patients' rehabilitation.
- Although patients had access to physiotherapy, occupational therapy and speech and language therapy on all sites, three-quarters of sites felt their patients were not to receiving the recommended levels of daily therapy.
- Psychology services were accessible in less than a third of sites, with access not available within a working week on any site.
- Half of sites felt that training was available to patients and carers to manage the consequences of stroke.
- Less than a fifth of sites had access to an early supported discharge (ESD) team.
- Rehabilitation units were heavily dependent on voluntary organisations to provide support services for stroke patients.
- Sites highlighted the lack of psychology services, community rehabilitation teams and community based health and social care professionals as particular challenges to care provision.

The findings would suggest the following **recommendations** as per guidelines:

- Dedicated stroke rehabilitations beds should be increased and age restrictions addressed in order to provide equitable access to care nationally.
- An increase in the number of Health and Social Care Professionals is required to ensure patients receive appropriate levels of therapy to achieve best recovery outcome.
- Psychology services are inadequate and need investment.
- An increase in the number of ESD/community rehabilitation teams is required to ensure appropriate patients do not remain in hospital/rehabilitation units longer than is necessary.
- Patient centred services such as vocational rehabilitation, self-management and carers' training are inadequate and need to be available on all rehabilitation sites.
- Improvements in data management of stroke patients' journey is required including adequate resourcing of the stroke register.

Background

Stroke is a leading cause of death and disability worldwide. In Ireland, approximately 10,000 people have a stroke related event annually, with 7,000 acute hospital admissions and upwards of 30,000 people living in the community with disabilities as a result of a stroke. Essential to minimising poor outcomes for people affected is the rehabilitation they receive while recovering the ill effects of their stroke.

The first phase of a new audit of stroke services in Ireland, *Irish Heart Foundation/HSE National Stroke Audit 2015*, demonstrated that acute stroke services have improved over the last ten years. However as the clock moves away from the early hours of stroke management, deficiencies in services provided become more apparent. The acute audit also highlighted that almost 20% of stroke patients discharged from acute hospitals are admitted to rehabilitation units.

In the current phase of the audit cycle, a review of post-acute stroke care was undertaken, encompassing a patient's journey from after their first week of care while remaining an inpatient receiving rehabilitation. The review primarily focuses on external sites and units with affiliations to local hospitals, or where no such external sites exist, on the inpatient rehabilitation services provided in a few select hospitals. It is important to highlight for clarity that there are different stages and models of rehabilitation for patients following stroke including the immediate (acute) phase, postacute inpatient phase, and community based rehabilitation by early supported discharge (ESD) or community rehabilitation teams (CRT) or ongoing maintenance rehabilitation in the community. This survey is restricted to reviewing postacute inpatient rehabilitation services.

The survey provided is designed based on guidelines adapted from the following sources:

- *Irish Heart Foundation: Council for Stroke, National Clinical Guidelines and Recommendations for the Care of People with Stroke and Transient Ischaemic Attack March 2010*
- *National Clinical Guideline for Stroke, Royal College of Physicians, Fourth Edition 2012*
- *British Association of Stroke Physicians (BASP), Stroke Service Standards, Clinical Standards Committee, June 2014*

As comparison with the UK is informative given the similar casemix, the survey was guided by questions included in the Sentinel Stroke National Audit Programme (SSNAP) audit of post-acute stroke services.

Methodology

Primary Objective
To survey rehabilitation units throughout the Republic of Ireland, which accept and manage the recovery phase of patients who suffered acute stroke, and assess level of organisation of services against national and international guidelines. Rehabilitation units were defined as sites accepting patients from acute hospitals services and providing inpatient rehabilitation prior to a patient being discharged home or to another facility e.g. National Rehabilitation Hospital.

Specific Objectives

- Identify number of stroke specific rehabilitation units that exist in Ireland
- Identify number of beds available to stroke patients for rehabilitation and whether they are stroke specific beds
- Estimate levels of activity as compared against HIPE discharge data
- Quantify levels of Medical/Nursing/Health and Social Care Professionals working in rehabilitation units
- Estimate quality of access to therapy
- Highlight innovation within local services

This project is the first cycle of a phase of audit of rehabilitation services for stroke patients in Ireland as part of the overall plan for the National Stroke Programme.

The intention to survey all rehabilitation units throughout Ireland was discussed with all acute service local teams including clinical directors and management as part of the communication strategy for the *Irish Heart Foundation/HSE National Stroke Audit 2015.* As part of the acute services audit, sites were asked to identify units to which they refer patients for ongoing rehabilitation.

Twenty nine sites were identified as accepting patients from acute hospitals for stroke rehabilitation through this process, primarily consisting of offsite units from the acute hospitals, or where no alternative existed, onsite in a separate unit.

Clinical leads and clinical nurse specialists were sent reminder letters of the survey process in early March 2016. Throughout March 2016, all identified sites were contacted by telephone to explain the aims and objectives of the survey and to identify a lead on each site who would be responsible for survey completion. Support for completion of forms was provided by the audit team including hotline and email support to clarify any queries.

The survey was distributed in hardcopy format to each site, with digital copies available on request. The survey (Appendix) was designed using the validated questionnaire from the Sentinel Stroke National Audit Programme (SSNAP) audit of post-acute services, with adjustments to survey for the Irish context.

Data Management

Completed surveys were requested to be returned by post to the National Stroke Audit Office, Trinity Centre for Health Sciences, Dublin. Returned surveys are stored in a swipe access building in a locked office in a secure filing cabinet. Digital data was maintained on a password secure PC within the locked office. Importantly no patient sensitive questions are included in the survey, with all questions relating to organisation of services.

Ethical Issues

This survey has no direct impact on patient care. However individual sites had the option to address any local issues with its ethics committee if required.

Figure 1: National distribution of eligible sites

Table 1: Returned surveys

Site	County	Primary hospital affiliation	Abbreviation
Bantry General Hospital	Cork	Bantry General Hospital	BGH
Dungarvan Community Hospital	Waterford	University Hospital Waterford	DCH
Hospital of the Assumption	Tipperary	University Hospital Limerick	HOA
Kerry University Hospital	Kerry	Kerry University Hospital	KUH
Letterkenny University Hospital	Donegal	Letterkenny University Hospital	LUH
Louth County Hospital	Louth	Our Ladys of Lourdes, Drogheda	LCH
Merlin Park Hospital	Galway	University College Hospital, Galway	MPH
Monaghan General Hospital	Monaghan	Cavan General Hospital	MGH
Our Lady's Hospital	Sligo	Sligo University Hospital	OLH
Peamount Hospital	Dublin	Tallaght Hospital	PH
Roscommon Hospital	Roscommon	Mayo General Hospital	RH
Royal Hospital Donnybrook	Dublin	St. Vincent's University Hospital	RHD
Sacred Heart Hospital	Carlow	St. Lukes's Hospital	SCH
St Camillus' Hospital	Limerick	University Hospital Limerick	CAM
St Columba's Hospital	Kilkenny	St. Luke's Hospital	COLUM
St Columcille's Hospital	Wicklow	St. Vincent's University Hospital	LOUGH
St Finbarr's Hospital	Cork	Cork University Hospital and Mercy University Hospital	FIN
St Ita's Community Hospital	Limerick	University Hospital Limerick	ITA
St James's Hospital	Dublin	St. James's Hospital	SJH
St John's Community Hospital	Sligo	Sligo University Hospital	SJCH
St John's Enniscorthy	Wexford	Wexford General Hospital	SJE
St Joseph's Hospital,	Dublin	Beaumont Hospital	SJR
St Mary's Hospital,	Dublin	Mater Misercordiae University Hospital	SMD
St Mary's Hospital,	Westmeath	Midlands Regional Hospital, Mullingar	SMM
St Patrick's Hospital	Tipperary	South Tipperary General Hospital	SPT
St Patrick's Hospital	Waterford	University Hospital Waterford	SPW

RESULTS

Introduction

Twenty-six surveys were returned from 29 valid sites representing organisation of services in the rehabilitations sites between March-June 2016. Near 100% completion of these surveys was achieved with little missing data. However it must be noted that results are based on self-reported responses and were not challenged for accuracy, as was the case in the first phase of the audit.

Results are presented as the survey was designed (Appendix). At the beginning of each section guidelines are presented in italicised text boxes, drawing heavily from the British Association of Physicians 2014 guidelines, which are succinct and also specific in their recommendations.

These results should be viewed as the first part of a cycle of audit on rehabilitation units, with a repeat of the cycle planned for 2019. Hopefully, the design of future audits of these vital services will have full participation and extended reach in its ability to capture useful data.

The variation in bed designation from returned surveys, the exact nature of service provided, and inconsistency in staffing numbers led to difficulties in quoting exact levels of whole time equivalent (WTE) staff for stroke patients. Notwithstanding the lack of directly applicable guidelines on appropriate staffing levels the further patients move from the acute phase of their stroke, the results attempt to give a snapshot of multiprofessional teams working with patients recovering from stroke.

Comparison with other jurisdictions is helpful, particularly in providing perspective to results achieved against the guidelines, with the caution that direct comparison between two different health services is challenging. The findings are viewed against the SSNAP UK results of post-acute services from 2015 in a separate section.

Section A – General Information

All patients with stroke have access to a designated stroke rehabilitation inpatient unit and subsequently a specialist stroke team within the community if required.

All medically stable patients with stroke are transferred from the acute stroke unit without delay. There should be no exclusion policy restricting entry to the stroke rehabilitation unit.

From the 26 (26/29) sites who responded to the survey, 46% (12/26) had bed access which was age restricted (Figure 2). This was restricted to over 65 year olds in 58% (7/12) of these sites.

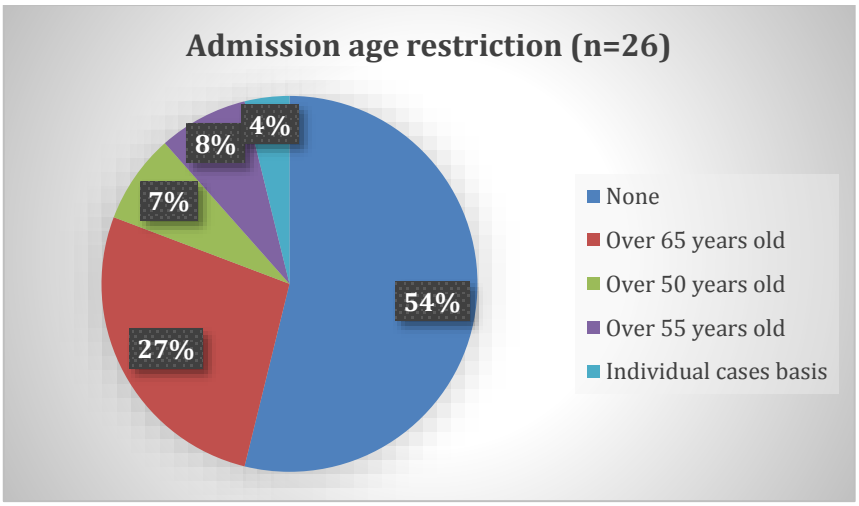

Figure 2: Bed access age restriction

Over all sites there were 559 beds available for all rehabilitation including stroke and other conditions such as orthopaedic problems although on two sites, which were level two type hospitals (local hospital with selected GP-referred medical patients), these beds were potentially available to medical admissions also and not only for rehabilitation.

In 27% (7/26) there was a dedicated unit or ward for stroke patients, with one further site having dedicated beds but no dedicated ward/unit. In total there were 104 dedicated beds identified for stroke rehabilitation patients, with one site providing 29 of those beds. Figure 3 provides an overview of the distribution of rehabilitation beds. Some sites with dedicated stroke units only quoted the dedicated stroke beds in some instances, which underrepresents the number of general rehabilitation beds on some sites.

From the responses there were 191 stroke patients across all sites who were undergoing rehabilitation, median 7 patients (range 1-29).

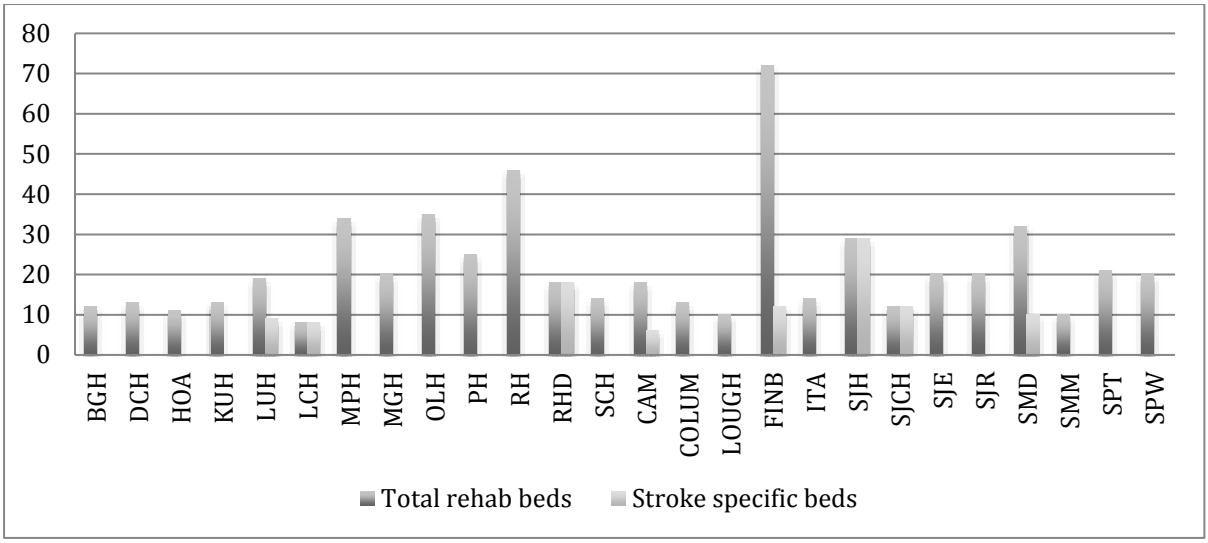

Figure 3: Numbers of stroke rehabilitation beds

Sites were asked how many admissions they had received over the previous 12 months. Thirteen of the sites provided what was felt to be an accurate number, which equated to 830 patients across these sites. The remaining thirteen sites either had to estimate numbers of admissions or the number was unknown.

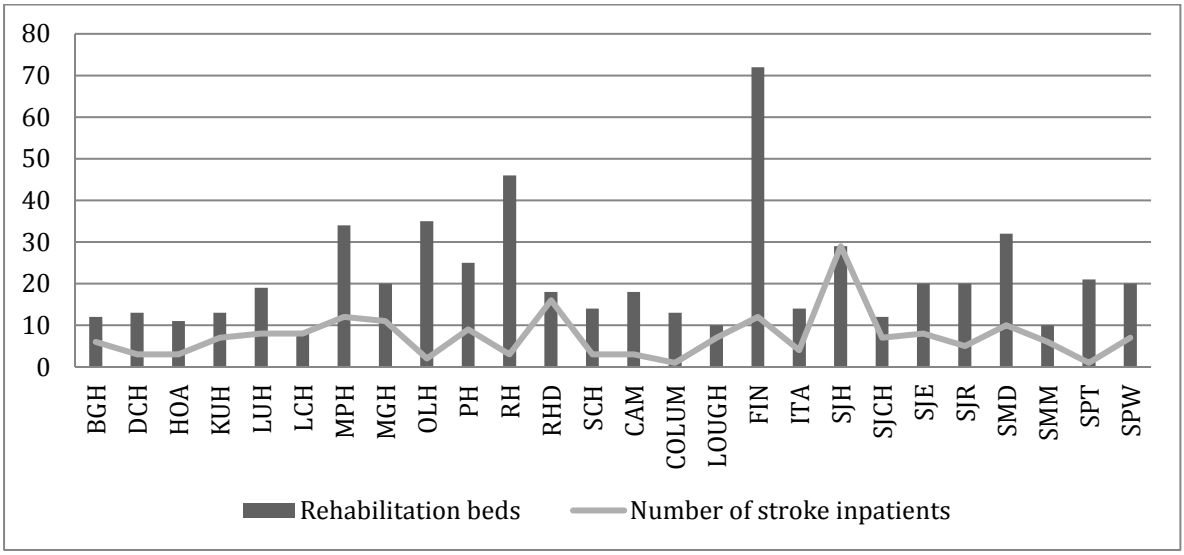

Figure 4: Rehabilitation bed occupancy by stroke patients

Section B – Medical specialty cover

The rehabilitation unit has regular stroke physician input into the review and medical management of patients.

A stroke specialist provides cover for stroke patients in 42% (11/26) of sites with a further 42% being provided by a medical consultant, most commonly a geriatrician. The degree of cover varied and was not captured in this survey.

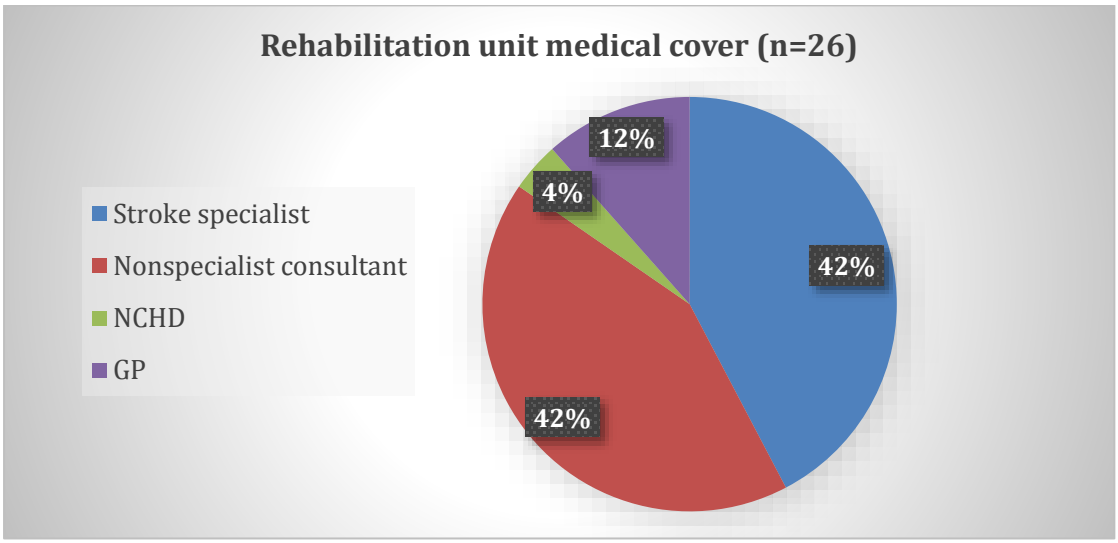

Figure 5: Medical cover provision

Out of normal working hours medical cover is provided by a Non Consultant Hospital Doctor (NCHD) in 46% (12/26) of sites with 35% being provided by out of hours General Practitioner (GP) services.

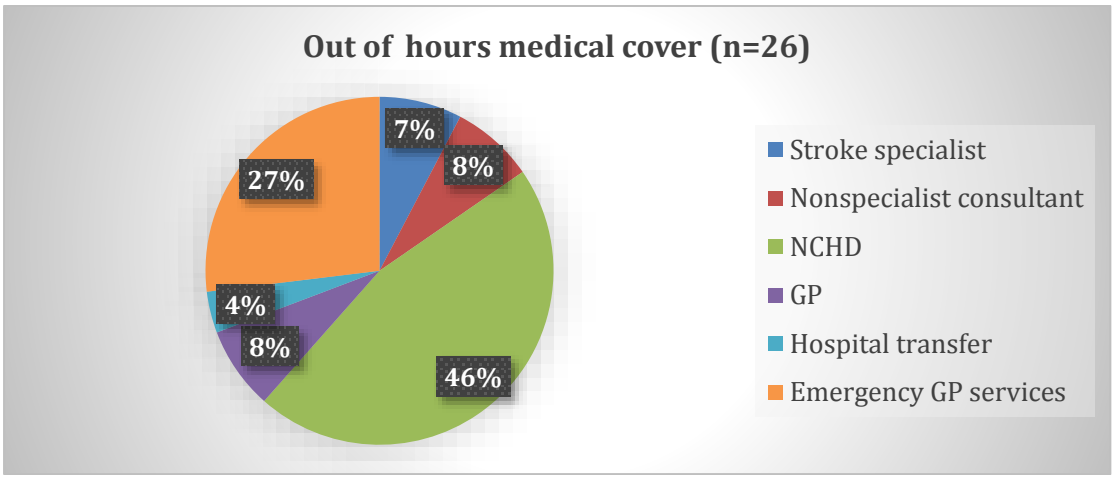

Figure 6: Out of hours medical cover

There are consultant led ward rounds at least once a week in 92% (24/26) sites, with 35% having rounds twice or more per week. Doctor led outpatient services are

available on site in 39% (10/26) of sites, the majority being on sites where the acute services are co-located. However 4 sites used their day hospital facility for medical follow up.

As a measure of neurorehabilitation specialist service access, spasticity services were accessible to 19% (5/26) of sites with at least a 2-week waiting time for review the norm.

Section C – Nursing

Each stroke rehabilitation unit and service should be organised as a single team of staff with specialist knowledge and experience of stroke and neurological rehabilitation including nursing

Nursing staffing levels were returned on 96% (25/26) sites. Numbers quoted are for all rehabilitation beds and per 10 rehabilitation beds (not stroke specific as per guidelines).

An estimated 115 nurses were normally on duty at 10 am for 547 rehabilitation beds across the 25 sites. A median of 2 nurses was estimated per 10 rehabilitation beds across all units (1.7-2.3 IQ).

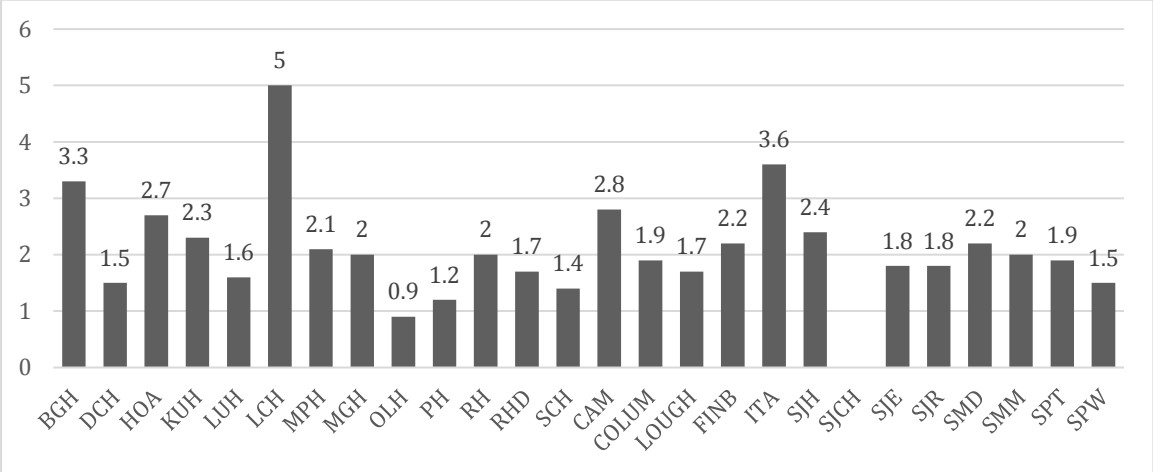

Figure 7: Number of nurses per 10 rehabilitation beds

For all 26 sites, 58% of these nurses were trained in stroke assessment and management. With 3 sites having all nurses quoted as on duty at 10 am being trained in stroke assessment, swallowing screening and continence management.

A clinical nurse specialist was accessible to 54% (14/26) of sites, 64% being offsite access.

Opportunities for nurses to attend internal and external training in courses related to stroke management was available in 89% (23/26) sites.

Section D - Health and Social Care Professionals

All appropriate patients receive a minimum of 45 minutes of physiotherapy/ occupational therapy/ speech and language therapy per day.

All patients have access to specialised neurorehabilitation services.

Patients had access to physiotherapy, occupational therapy, and speech and language therapy on each of the 26 sites.

Access five days a week to these therapies was available in 96%, 89%, and 54% of sites (physiotherapy, occupational therapy, and speech and language therapy respectively).

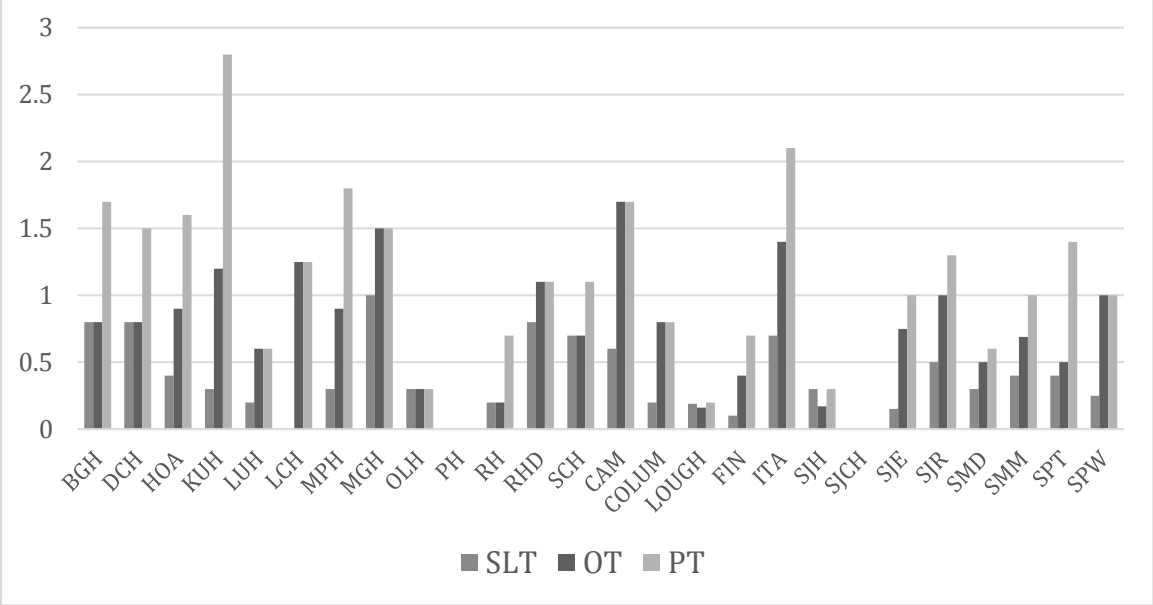

Figure 8: HSCPs per 10 rehabilitation beds

Teams were asked if **any** of their patients received the recommended 45 minutes of therapy in the required discipline daily. 15% (4/26) of sites felt none of their patients met this guideline, with 23% (6/26) stating that 100% of their patients met the required levels.

Teams were also asked about access to other disciplines required for a rehabilitation service, summarised in table 2.

31% of sites had access to clinical psychology, with no site having access within a working week. 50% of sites had access to a medical social worker, with just under two thirds of these available within a working week. All sites quoted access to dietetics with 81% available within 7 days of referral.

85% of sites responded that opportunities were in place for HSCPs to attend internal or external training courses related to stroke management.

Discipline	Accessible n (%)	Within 5 days n (%)
Clinical psychology	8 (31)	0 (0)
Medical Social work	13 (50)	8 (31)
Dietetics	26 (100)	15 (58)
Rehabilitation/ Therapy assistants	19 (73)	18 (69)
Orthotics	14 (54)	2 (8)
Orthoptics	10 (38)	3 (12)
Podiatry	19 (73)	4 (15)
Pharmacy	22 (85)	19 (73)

Table 2: Access to rehabilitation disciplines

Section E – Multiprofessional Team

Every person with stroke involved in the rehabilitation process should participate in setting goals unless they choose not to or are unable to participate because of the severity of their cognitive and linguistic impairments.

Realistic goals agreed with patient and carers should guide the use of specific treatment modalities.

All sites discussed stroke patients at a multiprofessional team meeting (MPTM), in all cases at least one per week, with 6 sites having meetings more than once per week.

The regular attenders varied from site to site and are summarised in table 3.

50% of sites use one set of patient case notes for all disciplines to contribute to. Patient goal setting is formally documented in the case notes in 77% of sites, with agreed goals between patients/carers in 69% of sites.

Discipline	Regular attender n= 26 (%)
Clinical psychology	1 (4)
Dietetics	8 (31)
Nursing/nurse manager	25 (96)
Occupational therapist	26 (100)
Physiotherapist	26 (100)
Social worker	8 (31)
Specialist doctor	20 (77)
Specialist nurse	8 (31)
Speech and language	20 (77)

Table 3: MPTM attenders

Section F – Assessment

All patients undergoing stroke rehabilitation should be screened for cognitive deficits, visual neglect, attention deficits and emotional problems and have access to specialist clinical psychology input.

Standardised assessment of patients for cognitive difficulties is performed on all patients in 89% (23/26) of sites, with mood being assessed using a standardised tool in 27% (7/26) of services. Counselling services are accessible in 27% of sites.

Formal vision and perception assessment is accessible in 77% of services, the vast majority being performed in offsite facilities such as outpatient setting in acute hospitals. 96% of sites perform a nutritional screen of all inpatients in their service.

Section G – Pre-discharge planning

The stroke rehabilitation service provides comprehensive secondary prevention advice and treatment

The stroke rehabilitation unit actively involves families and carers in day-to-day care and rehabilitation

All appropriate patients receive advice regarding a return to driving

All eligible patients receive appropriate support and treatment to enable a return to work

92% (24/26) of services responded that secondary prevention strategies are in place prior to patients' discharge. 39% (10/26) describe access for patients to self-management tools and/or courses.

Half of sites (13/26) felt that training for managing stroke consequences was available to patients and carers within their service.

Driving assessment, predominantly off-road assessment was available in 35% (9/26) sites, with a large dependence on referrals to the Irish Wheelchair Association or private companies to access on road assessment.

Only 27% (7/26) of sites felt they provided access to vocational rehabilitation to enable a return to work. Twenty-two of the services described access to the National Rehabilitation Hospital (NRH), with an estimated 114 patients referred to the NRH in previous calendar year from these 22 sites (range 0-27). This number may not include patients referred initially in the acute hospital who transferred to offsite rehabilitation as an alternative site for ongoing input.

Section H – Discharge and follow up care

The stroke rehabilitation service provides comprehensive information to community services and primary care

The stroke rehabilitation service has established links with the voluntary sector.

All eligible patients have access to an Early Supported Discharge scheme.

All patients receive follow-up six months after hospital (or ESD scheme) discharge and annually thereafter.

89% (23/26) of services responded that they contact the patient's primary care team prior to or on the day of discharge. The means of contact was not covered in this survey e.g. discharge letter versus phone call.

Just 19% (5/26) of services had access to early supported discharge (ESD) and 39% (10/26) described access to a community rehabilitation team (CRT).

77% of services provide a follow up outpatient review; with a similar number offering readmission to patients if late or new rehabilitation needs are identified at follow up.

Just under three quarters (19/26) provide regular follow up to patients discharged with feeding tubes.

Community voluntary organisations were described as accessible to patients in 92% (24/26). Common examples include the Irish Heart Foundation (IHF) Volunteer Stroke Scheme (VSS), Acquired Brain Injury Ireland (ABI), Headway, the Irish Wheelchair Association (IWA), and the National Council for the Blind of Ireland (NCBI), and the Carer's Association.

The inpatient rehabilitation services were asked what community services they felt would be the most beneficial to their service, and to list three if appropriate.

The most common response was access to psychology services, which was highlighted in 58% (15/26) services. With 27% (7/26) the next most common response for increasing access to ESD or CRT or combination of the two.

Lack of access to community therapy was highlighted for most disciplines, with speech and language being the most common response.

Section I – Examples of innovation in stroke rehabilitation

Local teams provided numerous examples of innovative projects and services aimed at providing better all-round care for stroke patients. This was in spite of the financial backdrop that has framed the last number of years within the Irish health service. The following are just a few examples of activities and programmes developed by local teams. Although not all sites provided information, it was clear that all sites aim to provide the best and most up-to-date care to their patients.

Education sessions for both patients and carers are ongoing in many sites such as the carers' information evening session for aphasia in St. James's Hospital.

Making therapy sessions more effective for patients was also commonly highlighted including the use of joint sessions or quiet therapy rooms for patients with attention deficits. Novel approaches included the 'Tasty Tales Baking Group' coordinated by OT in Bantry General Hospital and GRASP (Graded Repetitive Arm Supplementary Programme) in St. Camillus in Limerick.

St Columcille's Hospital noted the benefits of the introduction of a patient questionnaire on discharge, which led to the development of a patient garden and wellness programme. This was achieved through local fundraising.

St. Finbarr's in Cork, a HSE award-winning unit, also developed a patient garden for the purpose of outdoor exercise and gives every patient a discharge information pack on completion of their inpatient rehabilitation.

The Royal Hospital Donnybrook has a service targeting safe and efficient discharge of patients via an 'Action Van Service' which utilises a mobile technician who can expedite assessment and installation of essential equipment or minor adaptations in the home environment.

Isoldes' stroke rehabilitation unit in St. Mary's Dublin emphasised the importance of a stroke support group and promoted the IHF FAST campaign through a red t-shirt day on their unit.

The Louth County Hospital has effectively used and coordinated all available services for local patients as well as developing a patient garden.

Finally, the Community Hospital of the Assumption in Thurles had targeted engaging with local businesses and services in optimising the environment for people post stroke in the form of a 'Gold Star' status for appropriate facilities. This shows that units are not just looking at their own inpatient services but trying to effect change for people once home.

By highlighting these innovations it is hoped it may stimulate discussion and collaboration nationally to try and ensure that good ideas have an opportunity to reach the most people helping achieve best practice across all services.

SSNAP Post acute survey comparison

Background

The Intercollegiate Stroke Working Party (ICSWP) of the Royal College of Physicians UK extended the remit of SSNAP UK to audit the organisation of stroke care after patients are discharged from acute stroke unit care.

Their report, *Post-acute organisational audit December 2015*, provided the first comprehensive information about UK stroke services that were provided to support stroke survivors after the acute phase.

Results comparison

The UK results represent the post-acute inpatient care (services which provide inpatient rehabilitation) of 74% (116/157) of eligible services identified by SSNAP UK.

The clearest difference between the two jurisdictions is in the number and availability of stroke specific services/units within the rehabilitation sites surveyed, 27% versus 73%.

Service Organisation	Ireland n=26	UK n=116
Stroke specific service/unit	27%	73%
Total number of beds that may be used by stroke patients (median (IQR))*	18.5 (13-24)	16 (10-23)
Days per week there is a consultant led ward round (median (IQR))	1 (1-2)	1 (1-2)
Stroke specialist providing medical cover	42%	60%
Stroke admissions over previous 12 months (median (IQR))	55 (33-72)	76 (38-146)

* UK quote dedicated stroke beds versus general rehabilitation beds in Ireland

Table 4: Comparison of service organisation Ireland versus UK

Service Organisation	Ireland n=26	UK n=116
Number of registered nurses on duty at 10AM for rehabilitation beds within service Median (IQR)*	3.5 (3-5)	3 (2-4)
Number of registered nurses on duty at 10AM per 10 rehabilitation beds for this service Median (IQR)	2 (1.7-2.3)	1.7 (1.3-2.2)

* UK quote dedicated stroke beds versus general rehabilitation beds in Ireland

Table 5: Estimated nursing levels comparison Ireland versus UK

Access to the core members of HSCP team is similar between Ireland and the UK. Although there is a higher numbers of therapy assistants available in the UK. There are lower numbers of medical social workers available to Irish rehabilitation units. Noted as an area of concern in the UK report, access to psychology services in Ireland is at 31% versus 51% in the UK.

Access to HSCP	Ireland % (n)	UK % (n)
PT	100 (26/26)	100 (116/116)
OT	100 (26/26)	100 (116/116)
SLT	100 (26/26)	92 (107/116)
Therapy assistants	73 (19/26)	98 (114/116)
Dietetics	100 (26/26)	86 (100/116)
MSW	50 (13/26)	71 (82/116)
Psychology	31 (8/26)	51 (59/116)

Table 6: Comparison of HSCP access Ireland versus UK

In general, the median number of therapists available per 10 rehabilitation beds was lower in Ireland than the UK.

Service Organisation	Ireland n=26	UK n=116
WTE OT MEDIAN (IQR)	1.1 (1-2)	2 (1.2-2.8)
WTE OT per 10 beds MEDIAN (IQR)	0.8 (0.5-1)	1.3 (0.9-1.7)
WTE PT MEDIAN (IQR)	2 (1.15-3)	2 (1.4-3)
WTE PT per 10 beds MEDIAN (IQR)	1.1 (0.7-1.5)	1.5 (1-2.2)
WTE SLT MEDIAN (IQR)	1 (0.4-1)	0.9 (0.4-1.2)
WTE SLT per 10 beds MEDIAN (IQR)	0.3 (0.6-0.2)	0.5 (0.3-0.9)

* UK quote dedicated stroke beds versus general rehabilitation beds in Ireland

Table 7: Comparison of HSCP WTE Ireland versus UK

Differences are apparent in patient-centred services, perhaps reflective of the lower numbers of stroke specific services available.

Patient-centred services	Ireland % (n)	UK % (n)
Self-management	39 (10/26)	59 (68/116)
Carer training	50 (13/26)	73 (85/116)

Table 8: Comparison of patient-centred services Ireland versus UK

Two areas outside the remit of our survey are worth noting. Firstly, the SSNAP UK audit identified 161 and 210 eligible ESD and CRT teams respectively in the UK compared with the 3 existing ESD teams available in Ireland, highlighting a clear service gap here.

Secondly, that vocational rehabilitation was being carried out by 15% (92/599) of the post-acute services who provided data. The majority of this rehabilitation was taking place in people's homes or workplaces. Their report suggests that vocational rehabilitation is a low commissioning priority in the NHS. In the Irish service, just over a quarter of sites had access to vocational rehabilitation but this did not equate to delivery of that rehabilitation, either by quality of access or speed of access. Infrastructure appears not to exist to provide this form of rehabilitation in the home or work environment.

DISCUSSION

Discussion

This is the first national survey to specifically look at inpatient postacute rehabilitation in stroke in Ireland. When reviewing the findings of the survey, it is important to keep the results in the context of a requirement to develop an equitable and fully inclusive service for all people who suffer the consequences of stroke and that policies and guidelines should be patient and carer centred.

The survey has some important limitations to highlight. The rehabilitation units had challenges in obtaining accurate data around number of admissions and discharge destination of patients due to a lack of a system support, such as HIPE (Hospital Inpatient Enquiry). The designation of beds was answered somewhat inconsistently, with some units quoting all units beds and others where a specialist unit existed only quoting the stroke specific beds. The upshot being that the total rehabilitation bed number is an estimate over the 26 sites but the stroke specific bed numbers are more accurate. For consistency and comparison staffing levels were reported as per 10 rehabilitation beds in keeping with other reports. This can present an overestimation of staff in smaller units of for example 6-8 beds. The purpose is to provide an estimate of staffing, and given the variation in the types of units providing rehabilitation, it was always likely that some inconsistency would be evident.

From the returned surveys, 559 rehabilitation beds were identified across 26 sites. Only a quarter of sites had a dedicated stroke unit or ward. Nearly half of sites had an age restriction policy for stroke admissions. Stroke specialist cover was available in 42% of sites with at least weekly consultant physician rounds in 92% of cases. Although it could be viewed as extremely challenging to have speciality beds and physician cover in every site, in particular in smaller rehabilitation units, when viewed from a national perspective there is still large deficiencies and inequity in patient access to specialist stroke rehabilitation throughout the country. Ultimately there appears to be low levels of general rehabilitation beds throughout the country.

The lack of dedicated stroke units also can lead to barriers in developing speciality services. Access to spasticity clinics was used as a proxy of how developed specialty services were on each site. Only 19% of sites felt this service was accessible to them, which suggests that speciality services are still very much in their infancy nationally.

One such specialist service is the Brain Injury Programme in the NRH. This programme has access to inpatient beds to treat different types of brain injury including stroke. However taking into account that approximately 120 patients are discharged from the NRH annually with a diagnosis of ischaemic or haemorrhagic stroke excluding subarachnoid haemorrhage, the survey results show that a similar number were referred from the 22 rehabilitation sites alone. This suggests that capacity to accept stroke patients is restricted (National Rehabilitation Hospital, Jan 2009).

Opportunities for training for nursing staff were available in 89% of sites. However only 58% of nurses quoted as working at 10am on normal duty were trained in stroke

assessment. This lack of training was also a concern from the SSNAP UK postacute survey (T Lancet 2015). This highlights an on-going challenge in providing training to staff, particularly in sites where staffing levels are restrictive in freeing up members of the team to attend courses, both internally and externally.

The core members of the HSCP team were available on all sites. However less than a quarter of sites felt that all stroke patients were receiving the recommended levels of therapy per day, 15% stating that none of their patients were receiving the levels recommended. Coupled with the evidence that levels of HSCPs per 10 rehabilitation beds is lower than the UK, there is support that increased numbers of HSCPs may be required to achieve guidelines for stroke rehabilitation.

At the end of their inpatient journey it is clear that people face uncertainty around on-going rehabilitation access. Only 19% of sites described access to the 3 ESD teams currently available. CRT was available to only 39% of sites. This suggests deficits in both structure and volume of community services. The knock-on effect is often twofold. Firstly patients spend longer in inpatient facilities. Rehabilitation teams feel they cannot discharge patients without appropriate services being available. This has an upstream effect of slowing access for the acute services to offsite rehabilitation beds. Secondly, a sudden reduction in therapy input upon discharge home can impact the rehabilitation gains achieved. Given the strong evidence in support of ESD (Wren et al 2014), it is essential that new teams are developed nationally to address the problems outlined above.

Psychology services are clearly poorly available, with only 31% of sites describing access to these services and none having psychology available within a working week of referral. Added to the lack of counselling services (27% of sites) and the fact that large numbers of people suffer from psychological consequences of stroke (e.g. depression, anxiety), there is a need to develop better patient centred services (Hackett et al 2014).

Related to such need, only half of sites were able to provide training to patients and carers for managing stroke consequences and even less (27%) have access to vocational rehabilitation. Of note, vocational rehabilitation in the UK, although having clear deficits, was not age restricted. With the population either required or seeking to extend their working life beyond 65 years of age, a review of how vocational services are provided is necessary.

All rehabilitation units showed a reliance on the support of voluntary organisations in order to provide adequate services. This included areas such as functional assessments for example as provided by IWA and NCBI, provision of specialist neurorehabilitation services by ABI and Headway, and community support and education as covered by the Irish Heart Foundation, Volunteer Stroke Scheme and local stroke support groups. These invaluable services, and many others like them, need recognition for the excellent work they do while also acknowledging the gaps in services that exist within the structure of the general health service.

The difficulty sites encountered in accessing data again highlights the need to properly resource the stroke register, which could potentially provide real-time data on patient flow within the service and assist within planning both in the short and long term. This in turn may negate the need for larger audit projects, although the audit process in itself is helpful in asking units to take time to review their service provision. Currently, the stroke register is completed on a voluntary basis within the acute services and does not extend to include rehabilitation facilities.

There is notable heterogeneity in the organisation of services across the hospital and community services. This is largely due to the historical consequence that services grew separately in varied models of care with different governance structures in place. It is clear that in clinical care especially in stroke care, an overall national organisational structure helps improve efficiency of services, access to services and ultimately clinical outcomes patients.

What is also notable is the level of expertise, commitment and willingness to improve that is apparent within the rehabilitation units managing patients' dealing with the consequences of their stroke. Given the clear benefits of optimising stroke recovery it is essential that these health care professionals have the opportunity to continue to provide the best of care in a properly resourced and efficient rehabilitation service.

In conclusion, this survey represents an initial step in reviewing compliance with recommended guidelines in stroke rehabilitation in the postacute phase of stroke care. The report should provide stimulus for addressing deficiencies in rehabilitation services for stroke patients. It provides a baseline from which progress in improving services can be re-evaluated in tandem with the acute stroke services. Improvements will ensure all stroke patients are given an optimum opportunity to recover to independent living with appropriate supports.

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Appendix

Survey proforma

Section A – General Information

A1 From which hospitals do you normally accept patient referrals?

1)_____

2)_____

3)_____

4)_____

A2 (i) Is your bed access age restricted? Yes ☐ No ☐

(ii) If **yes**:

- Over 65 ☐
- Under 65 ☐
- Other (please specify) ☐ _____

A3 How many rehabilitation beds are available to all patients on site? _____

A4 Is there a rehabilitation unit/ward dedicated to stroke patients on site?

Yes ☐ No ☐

A5 (i) Are there dedicated beds to stroke patients on site?

Yes ☐ No ☐

(ii) If **yes** how many? _____

A6 How many patients are currently inpatients recovering from a stroke event on your rehabilitation ward/unit? _____

A7 How many stroke patients have been treated in the last 7 calendar days by your service?_____

A8 (i) How many stroke patient admissions have you received in the last 12 months (e.g. January-December 2015)?_____

(ii) This number is: accurate ☐ estimate ☐ unknown ☐

A9 How many stroke patients have been discharged to nursing home/residential care in the last 12 months (e.g. January- December 2015)?_____

(ii) This number is: accurate ☐ estimate ☐ unknown ☐

Section B – Medical specialty cover

B1 Who provides medical cover for stroke patients on this service (select one only)?

- Stroke specialist doctor (Consultant level/staff grade) ☐
- Non-specialist doctor (Consultant level/Staff grade) ☐
- Non-consultant hospital doctor (NCHD) ☐
- GP ☐
- Other (please specify) ☐

_____

B2 In case of medical problems arising out of normal working hours, who provides cover for patients?

- Stroke specialist doctor (Consultant level/staff grade) ☐
- Non-specialist doctor (Consultant level/Staff grade) ☐
- Non-consultant hospital doctor (NCHD) ☐
- GP ☐
- Other (please specify) ☐

_____

B3 How many days per week is there a consultant led ward round? _____DAYS

B4 (i) Are there doctor led outpatient services occurring on site for stroke patients?

Yes ☐ No ☐

(ii) If **yes** please specify which?

_____

_____

_____

B5 (i) Does your service have access to a spasticity service?

Yes ☐ No ☐

(ii) If **yes** please specify where?

_____

(iii) If **yes** what would be the average waiting time for review? _____DAYS

Section C – Nursing

C1 How many registered nurses are normally on duty at **10am** for rehabilitation beds as quoted in question **A3**? _____

C2 Of those nurse on duty at **10 am** how many are trained in:

(i) Swallow screening _____

(ii) Stroke assessment and management e.g. _____

(iii) Urinary and bowel continence _____

C3 How many registered nurses are normally on duty at **10pm** for the beds as quoted in question **A3**?_____

C4 What is the total establishment whole time equivalent's (WTE's) of nurses, which treat:

(i) Stroke patients _____WTEs

(ii) All rehabilitation patients _____WTEs

C5 (i) Does your service have access to a clinical nurse specialist in stroke?

Yes ☐ No ☐

(ii) If **yes**:

- Onsite ☐
- Offsite ☐
- Both ☐

C6 Is there any opportunity for nurses to attend internal or external training courses related to stroke management?

Yes ☐ No ☐

Section D - Health and Social Care Professionals

D1 Do patients have access within your service to the following therapy staff?

(i)	Occupational therapy	Yes ☐	No ☐
(ii)	Physiotherapy	Yes ☐	No ☐
(iii)	Speech and language therapy	Yes ☐	No ☐

D2 How many days per week do your patients have access to these disciplines?

(i)	Occupational therapy	_____Days per week
(ii)	Physiotherapy	_____Days per week
(iii)	Speech and language therapy	_____Days per week

D3 How many individuals does this service have?

(i)	Occupational therapy	_____
(ii)	Physiotherapy	_____
(iii)	Speech and language therapy	_____

D4 What are the total establishment whole time equivalents (WTEs)?

(i)	Occupational therapy	_____WTEs
(ii)	Physiotherapy	_____WTEs
(iii)	Speech and language therapy	_____WTES

D5 (i) Do any patients receive a recommended 45 minutes of therapy daily (Monday to Friday) from required therapies?

Yes ☐ No ☐

(ii) If **yes** what percentages (estimate) of patients receive this level of therapy daily? _____%

D6 (i) Do your patients have access to the following disciplines while inpatients on your service?

(ii) And if **yes** how soon can they be reviewed (please tick most appropriate response for each discipline where accessible?

Discipline	**Accessible**	**Within 5 days**	**Within 7 days**	**>7days**	**> 1 Month**
Clinical psychology	Yes ☐ No ☐	☐	☐	☐	☐
Medical Social work	Yes ☐ No ☐	☐	☐	☐	☐
Dietetics	Yes ☐ No ☐	☐	☐	☐	☐
Orthotics	Yes ☐ No ☐	☐	☐	☐	☐
Rehabilitation/Therapy assistants	Yes ☐ No ☐	☐	☐	☐	☐
Orthotics	Yes ☐ No ☐	☐	☐	☐	☐
Orthoptics	Yes ☐ No ☐	☐	☐	☐	☐
Podiatry	Yes ☐ No ☐	☐	☐	☐	☐
Pharmacy	Yes ☐ No ☐	☐	☐	☐	☐
Other (specify) _____	Yes ☐ No ☐	☐	☐	☐	☐

D7 Is there any opportunity for HSCPs to attend internal or external training courses related to stroke management?

Yes ☐ No ☐

Section E – Multiprofessional Team

E1 (i) Are all stroke patients discussed at a multiprofessional team meeting?

Yes ☐ No ☐

(ii) If **yes**, how often?

- Less than once a week ☐
- Once a week ☐
- Twice a week ☐
- More than twice per week ☐

E2 Which disciplines regularly attend these meetings (tick all that apply)?

- Clinical psychologist ☐
- Dietician ☐
- Occupational therapist ☐
- Physiotherapist ☐
- Social worker ☐
- Specialist doctor ☐
- Specialist nurse ☐
- Speech and language therapist ☐
- Nursing/Nursing manager ☐
- Other please specify ☐
- _____

E3 Do all disciplines contribute to one set of case notes for the patient?

Yes ☐ No ☐

E4 Does your service formally document patient goals (e.g. specified, time-bound, measurable outcomes) in the case notes?

Yes ☐ No ☐

E5 Are these goals agreed with patients/carers?

Yes ☐ No ☐

Section F – Assessment

F1 Do all patients receive cognitive screening with a standardized tool e.g. MMSE/MOCA?

Yes ☐ No ☐

F2 Do all patients have mood assessed with a standardized tool?

Yes ☐ No ☐

F3 Do patients have access to a counseling service while an inpatient?

Yes ☐ No ☐

F4 (i) Do patients have access to formal vision and perception assessment?

Yes ☐ No ☐

(ii) If **yes** where?

_____

F5 (i) Do all patients receive a nutritional screen while an inpatient in your service?

Yes ☐ No ☐

(ii) If **yes** how often:

- Weekly ☐
- Monthly ☐
- Only on admission ☐
- Other (specify) ☐

Section G – Pre-discharge planning

G1 Are secondary prevention strategies in place prior to patients' discharge?

Yes ☐ No ☐

G2 Do stroke patients/carers have access to self-management tools and/or courses?

Yes ☐ No ☐

G3 Do patients and/or carers have access to training for managing stroke consequences? Yes ☐ No ☐

G4 (i) Do all relevant patients have access to driving assessment on site?

Yes ☐ No ☐

(ii) If **yes**, is it:

- Off-road ☐
- On road ☐
- Both ☐

G5 Where do you refer patients for on road assessment?

_____

_____

G6 (i) Do all eligible patients have access to vocational rehabilitation to enable a return to work?

Yes ☐ No ☐

(ii) If **yes**, where is this available?

- Onsite ☐
- Other ☐
- (Please specify) _____

G7 (i) Do you have access to referrals to the National Rehabilitation Hospital (NRH)? Yes ☐ No ☐

(ii)If yes how many patients did you refer to the NRH in the previous calendar year (Jan 2015-Dec 2015)? _____

Section H – Discharge and follow up care

H1 Are patient's primary care team contacted prior to or on day of discharge about patient's condition?

Yes ☐ No ☐

H2 Do patients have access to an Early Supported Discharge team (ESD) if required?

Yes ☐ No ☐

H3 Do patients have access to a community rehabilitation team on discharge?

Yes ☐ No ☐

H4 Are all patients provided with a follow up outpatient review upon discharge?

Yes ☐ No ☐

H5 If patients are observed to have late or new rehabilitation needs as outpatients, do they have access to readmission for further therapy?

Yes ☐ No ☐

H6 Do all patients discharged from hospital with a feeding tube receive regular follow up?

Yes ☐ No ☐

H7 (i) Do patients have access to voluntary organisations to support them in the community?

Yes ☐ No ☐

(ii) If yes could you please list them?

_____
_____
_____
_____
_____
_____
_____

H8 Are there community services that you do not have access to or limited access to but feel would be most beneficial to your service (please list 3 if appropriate)?

1)_____

2)_____

3)_____

Section I - Innovation in Stroke Rehabilitation

This section provides the opportunity for rehabilitation teams to highlight novel approaches and ideas, including innovative ways of addressing common problems affecting stroke patients, their carers and the staff who help them rehabilitate. Through collaboration, innovation, and education, stroke rehabilitation services could improve nationally. Please provide a brief description of any such programmes, projects or policies developed or adapted in your service. Please provide any supportive documentation if available with this completed survey.

Description of project:

_____

_____

_____

_____

_____

_____

Notes