



# Association of British Neurologists

## ABN Acute Neurology services survey 2014

December 2014

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Acknowledgement: Many thanks to all the members of the Association for their many contributions to this work.

### Content

1. Summary	2
2. Introduction	3
3. Methods:	4
a. Initial data collection	4
b. First phase validation	4
c. Second phase validation	4
4. Results	5
a. Overview	5
<input type="checkbox"/> Neuroscience Centres	5
<input type="checkbox"/> Neurology Centres	6
<input type="checkbox"/> District General Hospitals	6
b. Distribution of services across countries and regions	7
5. Discussion	8
6. Conclusion	10
7. Tables	11
8. References	14
9. Quality standards	15
a. Quality Standards for Unscheduled care: Acute Neurology	15
b. Quality Standards for non-urgent neurological conditions	17
10. Appendix 1	19
Recommendations from <i>Local Adult Neurology services for the next decade</i> (2011) for acute neurology services	19

## 1. Summary

Neurological disorders account for up to 20% of acute medical admissions; stroke, epilepsy, meningoencephalitis, Guillain Barre syndrome, multiple sclerosis, subarachnoid haemorrhage, and myasthenia gravis among other conditions, may all lead to an emergency hospital admission. In 2011 a joint report from the Association of British Neurologists (ABN) and the Royal College of Physicians, *Local adult neurology services for the next decade (1)*, recommended that all such patients should be admitted to hospitals that had an acute neurology service led by consultant neurologists. Here we present the first national survey of the acute neurology services across the UK in which services were evaluated against key elements of the ABN Quality Standards for Un-Scheduled care.

All UK neurologists were asked to provide details of their local services. The results were consolidated, validated and reviewed. This approach generated information for 195 acute hospitals across the country.

Quality Standard 1 states that patients admitted to acute medical units have access to daily neurological consultation. This survey found that the likelihood of a patient with a neurological problem being seen by a neurologist varies dramatically depending on where they are admitted. Hospitals in the top quartile provide daily review on 89% of days, while in the bottom quartile this service is only available on 17% of days. Overall, a neurology review is available on 55% of days.

The availability of a neurology review varies according to the type of hospital. There was significantly better access at neuroscience centres (91%) and neurology centres (80%), than at those district general hospitals with neurologists based at them (58%). In contrast, access for patients at district general hospitals with no resident neurologists was only available on 32% of days. Some regions, notably the Northern, Northern Ireland, North West, Wales and West of Scotland had more sites with very limited service.

Quality Standard 5 indicates that patients should have access to urgent inpatient imaging (CT and MRI) where indicated. Whilst almost every hospital met the CT target, MRI was available 24/7 at only 30% of sites.

This study has identified a wide variation of access to specialist services for patients presenting with acute neurological disorders. As liaison neurology services change the diagnosis and management in a high proportion of patients, improve outcomes and reduce length of stay there is an opportunity to improve patient care and cost effectiveness.

This study highlights significant variation of provision of service. Using the ABN Quality Standards in the commissioning of Unscheduled care should lead to improvements in care for patients presenting with acute neurological disorders.

## 2. Introduction

Acute neurological problems are common and account for between 10 and 20% of acute medical admissions (1,2).

Recent national audits have revealed deficiencies in the provision of acute neurological care. The National Audit of Seizure Management in Hospitals (NASH 2 (3,4)) found only a minority of patients had adequate clinical assessments and half of patients with epilepsy attending emergency units were under specialist follow up. *Managing the flow?* (5), a national audit for the diagnosis and management of subarachnoid haemorrhage, found 25% of hospitals could not perform lumbar puncture (LP) at all times and 5% could not perform an LP at all.

In 2011 the Association of British Neurologists and the Royal College of Physicians published a joint report *Local adult neurology services for the next decade* which explored all aspects of neurological care. As part of this they made specific recommendations relating to patients with acute neurological disorders. These recommendations are included in full in the appendix. The central thrust was that patients with acute neurological problems, wherever they were admitted, should receive the same standard of care as patients with disorders affecting other organs who have ready access to specialists in those disorders. Acute neurology services in district general hospitals should mirror the services that patients with cardiac, respiratory, gastroenterological, renal, haematological or endocrinological disorders receive.

For many years there has been a shortage of neurologists in the UK (1). There has been considerable growth in numbers of consultant neurologists over the last decade largely driven by the pressure to meet the demands of out-patient services and waiting list targets. The provision of care to in-patients with acute neurological problems has not received the same attention despite studies finding that acute neurology services also provide cost savings in terms of admission avoidance, reduced length of stay, and a reduction in investigations requested (6). Involvement of a neurologist leads to a change in diagnosis and management in up to 79% of patients (7).

The most recent NHS mandate includes as objectives 'ensuring people have access to the right treatment when they need it' and 'reducing unjustified variation between hospitals in avoidable deaths so that standards in all hospitals are closer to the best' (8).

Quality Standards for Unscheduled care have been published by the ABN to contribute to these services nationally (appended below).

This survey, the first to explore the access to acute neurological services across the UK, focuses on Quality Standard 1 'Adults admitted to Acute Medical Units with an acute neurology problem should have access to daily consultation by neurology specialists' and Quality Standard 5 'Adults admitted to hospital with an acute neurological problem should have access to urgent inpatient imaging (CT and MRI) where indicated.'

### **3. Methods:**

#### **a. Initial data collection**

All ordinary members of the ABN were contacted by e-mail and asked to complete a questionnaire using SurveyMonkey® about the services available at the hospitals where they worked. They were also given the opportunity to complete the questionnaire for hospitals they knew about, but did not work in.

#### **b. First phase validation**

The responses from the first round were collated. For many hospitals more than one set of responses was received from our members. These were merged and priority was given to information from those who worked at a hospital rather than simply had knowledge of it.

The responses from the first round of completions were sent to Regional ABN Services and Standards Committee members to validate. Specific e-mails were sent to clarify where complete information was unavailable or there were significant discrepancies between submissions. Where very low levels of service provision was identified we sought clarification and confirmation.

#### **c. Second phase validation**

The draft results were presented at the Annual Meeting of the Association of British Neurologists in Cardiff in May 2014. A poster with all the data was available throughout the conference and members were asked to check and amend any inaccuracies.

## 4. Results

270 responses were received covering 393 sites. The data were reviewed to consolidate duplicate entries leaving 195 individual sites. Where there was conflicting information submissions from those who worked at a site were taken as more accurate. Where this could not be resolved contributing neurologists were contacted. Following the presentation of draft data at the Annual Meeting in May 2014 a further 20 revisions were obtained and included.

### a. Overview

Neurologists were based at 119 (61%) of the 195 sites, with neurologists visiting 65 (33%) sites and no neurological services at 11 (6%) (table 1). Neurology specialist trainees were at 75 sites (38%). There were dedicated neurology beds at 54 sites (28%)

Quality Standard Statement 5 recommends that patients should have access to urgent inpatient imaging (CT and MRI) where indicated. This requires scanning to be available 7 days a week, 24 hours a day.

CT scanning was available all day, every day in almost every hospital (table 2) but MRI was only available at all times in 59 (30%). Neurophysiological services were available at about half the sites, EEG in 109 (56%) and nerve conduction studies in 91 (47%). Access to neuroradiology opinion was available in 72 (37%).

An acute neurology clinic was available in 65 (33%) and a thrombolysis service was based at the hospital in 141 (72%), however neurologists were involved in thrombolysis in only 45 (31% of these) (table 3).

At 30 (15%) sites neurologists saw ward referrals 7 days a week. At 50 (26%) sites they have a 5 day service, 40 (21%) have 4 days, 26 (13%) have 3 days, 24 (12%) a 2 day service, 12 (6%) 1 day and 13 none (7%). Overall a neurology ward referral was available on 55% of days across all hospitals.

There was marked variation in the level of service provided to 4 different types of hospitals.

### • Neuroscience Centres

There are 31 neuroscience centres in the UK as defined by the co-localisation of neurology and neurosurgery. There are neurologists based at all these centres with specialist registrars at all sites. All have dedicated neurology beds. All these centres offered CT 24 hours a day, 7 days a week though 5 (16%) have more limited access to MRI. Neurophysiology, both EEG and nerve conduction studies, and neuroradiology opinions were available at all sites.

Neurological ward referrals were seen daily in 22 (71%), on 5 or 6 days in 8 (26%) and on 3 days in one (3%), with the service available 91% of days, the median being 7 days per week.

An acute neurology clinic was available in 100%.

All had an acute thrombolysis service. In all but 3 (10%) neurologists were involved in this service.

- **Neurology Centres**

Neurology centres are less clearly defined than neuroscience centres. Nineteen units described themselves as Neurology Centres. There were neurologists based at these hospitals with 18 (95%) also having specialist registrars. Fourteen centres had dedicated neurology beds. All had CT fully available and 9 had MRI available at all times (47%). Neurophysiology was available at all, though one only had EEG and one only nerve conduction studies. Neuroradiology opinion was available at 9 (47%).

Neurological referrals were seen daily in 8 (42%) , on every weekday in 9 (47%) and 2 days a week only in one (5%), overall this worked out as 80% availability with the median 5 days a week.

An acute neurology clinic was available in 8 (42%).

Fifteen had an acute thrombolysis service and in 6 of these neurologists were involved (40%).

- **District General Hospitals**

**With neurologists based at them**

There are neurologists based at 69 district general hospitals (DGH) (23% of the total) with additional neurologists visiting who were based elsewhere. There were specialist registrars based at 24 of these hospitals (35% of the total). Nine (13%) had dedicated neurology beds. All but one had CT available at all times, 8 (13%) had full MR availability, 36 (52%) had EEG on site and 26 (38%) had nerve conduction studies available. Neuroradiology was available in 23 (33%).

Neurological referrals were seen every weekday in 30 (43%), 4 days a week in 23 (33%), 3 days a week in 11 (16%), 2 days a week in 2 (3%) and 1 day a week in 1 (1.5%). Overall neurological ward referrals were seen on 58% of days, a median 4 days a week.

An acute neurology clinic was available in 14 (20%). Forty eight (84%) had a thrombolysis service with neurologists involved in this service in 10 (20%).

**Without neurologists based at them**

There are 69 sites that had no neurologists based there but were visited by neurologists based elsewhere. There were 7 sites where no neurologists even visited. None had dedicated neurology beds.

All but 1 had CT scan availability at all times (97%). MRI was available in 17 (22%). EEG was available in 24 (32%) and nerve conduction studies in 16 (21%). A neuroradiology opinion was available in 19 (25%).

Neurological referrals were seen on all weekdays in 3 (4%), 4 days a week in 16 (21%), 3 days in 14 (18%), 2 days in 21 (28%), 1 day in 7 (9%) and not at all in 13 (17%). Overall this service was available on 32% of days; a median 2 days each week.

An acute neurology clinic was available in 12 (16%). Forty seven had thrombolysis service (62%) and in only 1 were neurologists involved in this service (1%).

## **b. Distribution of services across countries and regions**

The access to acute neurological services varied markedly across the country. The median number of days that neurology referrals were reviewed outside neuroscience centres is 4-5 in most regions with the following exceptions: Northern (median 1), Trent (2) North West (3), West of Scotland (2), Northern Ireland (1) and Wales (3).

## 5. Discussion

This is the most extensive national survey of acute neurological services in the UK to be undertaken. While the data are imperfect it does provide the most complete current overview of acute neurology.

There are a number of limitations to the data. Firstly, our coverage is incomplete and we are aware that there may be some hospitals, particularly if there is no neurological service, or very limited service, that may have been overlooked. Secondly, the questions we asked sometimes proved hard to answer; for example in one multisite trust the consultants' offices are in a different hospital to the neurology ward so they initially indicated they were 'based' at the hospital that provided their office space. Many neurologists have jobs split between more than one trust and where they are 'based' may reflect historical contractual agreements rather than the reality of current service provision. For example they may be administered by the neuroscience centre yet spend more time at a DGH. The data will be refined with further feedback from our members. We have focused on the data that are most robust.

The acute neurology services at the neuroscience centres lead the way with almost all providing a seven day ward referral service with neurologists on site most days and good access to all the services patients might need. These centres mostly meet Quality Standard 1 in providing daily neurology specialist review and Quality Standard 5 by having CT (100%) and MRI (84%). However there are only 31 of these centres.

The modest numbers of Neurology Centres seek to emulate these services but with smaller numbers of neurologists. The data are limited but in most there are about four neurologists and only a quarter provide a seven day per week service, meeting Quality Standard 1, though 68% provide a 5 days a week service. Most have an in-patient service with dedicated neurology beds and some specialist registrars. There is lack of an exact definition of a "neurology centre" and some of the district general hospitals with resident neurologists discussed below are probably very similar.

In district general hospitals the access to neurological services is much less than in the neurology and neuroscience centres. Those DGHs that have neurologists based onsite fall some way short of meeting Quality Standard 1. None provide daily service, though a neurology opinion is available 5 days a week in 43% of these hospitals.

Those DGHs that do not have neurologists based at the hospital are a long way from meeting Quality Standard 1. The visiting service is available on less than a third of days with only 4% attaining a 5 day service and none of these hospitals attaining a 7 day service. In addition a significant number [13] had no neurology referral service at all.

This seems to be a significant variation in service, presumably of the sort that the NHS Mandate (8) wishes to rectify. The two types of DGH (with or without neurologists) do have some modest differences. Both have good access to CT scanning and are close to meeting Quality Standard 5 for this imaging modality; the DGHs with neurologists are more likely to have thrombolysis services (84% vs 62%) and neurophysiology (EEG 52% vs 32%; NCS 38% vs 21%). However



they have reduced access to MRI at all times (13% vs 22%) with all DGHs falling some way short of Quality Standard 5 in this respect. These data suggest a significant number of patients with acute neurology will be admitted to both types of DGH and that those patients with neurological disorders admitted to hospitals without resident neurologists will have significantly worse access to services which is likely to impinge on the quality of their care.

Neurological services in the UK for the most part have been based on a 'hub and spoke' model built around regional neuroscience centres. The centralisation of resources was inevitable when there were very few neurologists and very limited access to specialist investigations. However, with the increasing numbers of neurologists and the wider access to investigations, particularly to MRI, different models have developed. The focus of most of the developments has been out-patient waiting times because of the centrally driven waiting time targets.

Neurologists across the country have attempted to develop and improve services for patients with acute neurological disorders. In some centres liaison services have been developed (9). Others have developed links between one hospital and another – for example where patients with neurological problems and stroke are admitted to one site within a multisite trust. In some regions there is a strong centralisation of neurologists at a neuroscience centre; in others groups of neurologists are based at the larger DGHs in the region. All of these have grown without specific commissioning strategies. This has resulted in significant inequity of service provision.

At the moment there are no data collected on the number of ward referrals seen by neurologists and no funding directly attached to it. In England if a patient is seen in out-patients this attracts a tariff. If a patient is directly under a consultant's care that 'consultant episode' attracts a tariff. However, if a neurologist sees a patient and directs the investigation and management but does not take over their care – as will happen with most inpatients seen – this activity will neither be measured nor funded despite being an essential element of the patient's care. This is perhaps why this service has proved difficult to develop despite substantial benefits to the patients and the efficiency of the service (1,6,7).

Commissioning through CCGs provides an opportunity to rectify these inequalities and make appropriate accessible services available across the country. To address this the ABN has developed a Quality Standard for Acute Neurology services. This study has demonstrated a significant, and we believe unacceptable, variation of the delivery of services against some of these standards.

Such services could not currently be delivered at all district general hospital sites with only 750 neurology consultants (and substantially fewer whole time equivalents) across the UK to cover about 200 hospitals. Commissioning acute neurology clinics in parallel provides an opportunity to prevent admissions and is an additional service development.

The organisation of the acute neurology service needs to optimise effectiveness and efficiency. Acute neurology services should be coordinated with acute stroke services as many patients initially thought to have strokes or TIAs have alternative diagnoses and require access to an acute neurology service.

Currently a third of hospitals that provide thrombolysis do not have a neurologist based at the hospital. It is worth noting that in 90% of neuroscience centres neurologists are involved in the acute thrombolysis services. The development of accessible acute neurology/stroke hubs providing services between linked district general hospitals would seem the ideal model to pursue.

However, with any change unintended consequences should be considered. Enhancing acute neurological services in isolation will inevitably divert neurology manpower away from out-patient clinics and the care of patients with long term neurological conditions. It will also increase the demand on these services as many patients will require follow up after the acute admission.

Neurology out-patients have long waiting times and in many hospitals the national targets for seeing and treating a new patient within 18 weeks, has improved access for these patients. This has resulted in a reduction in capacity which has led to poorer access for patients with long term neurological disease in follow up clinics. Many of the commissioning services and NICE quality standards are disease specific and as a result those patients who have other neurological disorders or neurological conditions that are not yet diagnosed can be orphaned by this process and fall outside the defined services. To address this we attach a generic quality standard for neurology scheduled care.

## **6. Conclusion**

The ABN acute neurology survey has measured acute neurology services against some of the ABN Quality Standards and this has identified a significant variation in the access to acute neurology services. In Neuroscience Centres there is extensive provision of services that mostly meet these standards. In Neurology Centres the challenge will be to move from 5 day provision to a 7 day service with the modest number of neurologists available.

The services in district general hospitals vary enormously. In those with neurologists based there, access falls some way short of Quality Standard 1 with two thirds achieving 4 or 5 days a week. Most striking however, is the marked limitation in those DGHs that have no neurologist based on site. They are a long way from meeting Quality Standard 1, with an unacceptable number having little or no acute neurology service.

## 7. Tables

**Table 1: Overview of Services**

	Number of sites		
	Total	With specialist registrars at site	With dedicated neurology beds
Neuroscience Centre	31 (16%)	31 (100%)	31 (100%)
Neurology Centre	19 (10%)	18 (95%)	14 (74%)
DGH with neurologists based at them	69 (35%)	24 (35%)	9 (13%)
DGH with no neurologists based at them	76 (39%)	2 (3%)	0
Total	195	75 (38%)	54 (28%)

**Table 2: Services available**

	Number of sites				
	CT Scanning 24/7	MRI scanning 24/7	Neuro-radiology	EEG	Nerve conduction studies
Neuroscience Centre	31 (100%)	25 (84%)	31 (100%)	31 (100%)	31 (100%)
Neurology Centre	19 (100%)	9 (47%)	9 (47%)	18 (95%)	18 (95%)
DGH with neurologists based at them	68 (98%)	8 (13%)	23 (33%)	36 (52%)	26 (38%)
DGH with no neurologists based at them	75 (97%)	17 (22%)	9 (25%)	24 (32%)	16 (21%)
Total	193 (99%)	59 (30%)	72 (37%)	109 (56%)	91 (47%)

**Table 3: Services available**

	Number of sites		
	Acute neurology clinic	Thrombolysis service based at hospital	Neurologists involved in thrombolysis
Neuroscience Centre	31 (100%)	31 (100%)	28 (90%)
Neurology Centre	8 (42%)	15 (79%)	6 (40%)
DGH with neurologists based at them	14 (20%)	48 (84%)	10 (20%)
DGH with no neurologists based at them	12 (16%)	47 (62%)	1 (1%)
Total	65 (33%)	141 (72%)	45 (31%)

**Table 4: Number of days a week that neurological referrals are seen**

	Number of days per week						
	0	1	2	3	4	5	7
Neuroscience Centre	0	0	0	1 (3%)	0	8 (26%)	22 (71%)
Neurology Centre	0	0	1 (5%)	0	1 (5%)	9 (47%)	8 (42%)
DGH with neurologists based at them	0	3 (4%)	2 (3%)	11 (16%)	23 (23%)	30 (43%)	0
DGH with no neurologists based at them	13 (17%)	9 (12%)	21 (27%)	14 (18%)	16 (21%)	3 (4%)	0
Total	13 (7%)	12 (6%)	24 (12%)	26 (13%)	40 (21%)	50 (26%)	30 (15%)

**Table 5: Number of days each week when a neurologist is on site**

<b>Number of days each week when a neurologist is on site</b>							
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>7</b>
Neuroscience Centre	0	0	0	0	0	7 (23%)	24 (77%)
Neurology Centre	0	0	1 (5%)	0	1 (5%)	13 (68%)	5 (26%)
DGH with neurologists based at them	0	1 (1%)	1 (1%)	5 (7%)	29 (42%)	33 (49%)	0
DGH with no neurologists based at them	11 (14%)	12 (16%)	14 (18%)	17 (22%)	18 (24%)	3 (5%)	0
Total	11 (6%)	13 (7%)	16 (8%)	22 (11%)	48 (25%)	56 (29%)	29 (15%)

**Table 6: Percentage of days where an acute neurological service is available (for comparison 5 days out of 7 is 71%)**

<b>Percentage of days where an acute neurological service is available</b>	
Neuroscience Centre	91%
Neurology Centre	80%
DGH with neurologists based at them	58%
DGH with no neurologists based at them	32%
Total	55%

## 8. References

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## 9. Quality standards

### a. Quality Standards for Unscheduled care: Acute Neurology

**Introduction:** These quality standards cover patients with acute neurological conditions including neurological emergencies. These patients will be admitted through the acute medical take. Patients will initially be assessed by the acute medical team and then referred to neurology either for advice or for ongoing care. Some patients with neurological emergencies may need more urgent assistance.

**Statement 1** - Adults admitted to Acute Medical Units with an acute neurological problem should have access to daily consultation by neurology specialists (if necessary by telemedicine).

**Statement 2** - Adults referred to hospital with a neurological emergency should have access to care in an appropriate inpatient setting without delay. This may include transfer to neuroscience centre, neurosurgery or intensive care.

**Statement 3** - Adults admitted with a neurological emergency should be able to receive advice on their management from a neurology specialist at all times.

**Statement 4** - Adults admitted with an acute neurological problem should see a neurology specialist within 24 hours of admission to hospital.

**Statement 5** - Adults admitted to hospital with an acute neurological problem should have access to urgent inpatient imaging (CT and MRI) where indicated.

**Statement 6** - Lumbar Puncture should be available at all times.

**Statement 7** - Rapid access pathways need to be established for adults referred from Emergency Departments and Acute Medical Units to neurology outpatient services on discharge.

**Statement 8** - All patients with acute neurological problems should be discharged from a hospital setting with documentation of the neurological examination

**Statement 9** - Upon discharge, transfer of care information, including a management plan, is sent immediately to a named GP, as well as printed information for the patient.

**Statement 10** The service will be led by appropriately trained and revalidated neurologists.

**Statement 11** Patients will be treated by members of the neurology team, including junior doctors and specialist nurses who will be appropriately trained and work within an appropriate framework of supervision and clinical governance.

**Statement 12** The service will maintain expertise through training, audit, and continued professional development and will be part of the local neurological strategic clinical network with appropriate clinical governance.

**Statement 13** The service will provide, with support from charities and support groups, information about and opportunities for patients to enrol in clinical trials, where appropriate.



## **b. Quality Standards for non-urgent neurological conditions**

### **Introduction**

Patients are frequently referred to neurologists for advice on diagnosis and management of their symptoms. As a result quality standards that are written on the basis of diagnosis are not applicable. For example, patients with numbness and tingling might have carpal tunnel syndrome, a cervical disc, multiple sclerosis, or a brain tumour. Thus many patients will be referred to general neurology out-patients for which generic standards are required. These Quality Standards refer to pre-diagnosis scheduled care and care for patients for whom no disease specific quality standards exist.

**Statement 1** New patients referred to the general neurology service will be seen in a timely fashion: in keeping with NICE guidance where appropriate (eg first seizure 2 weeks) or within 13 weeks (to meet 18 week RTT standard).

**Statement 2** General practitioners will have access to advice from a neurologist either by letter, phone or email.

**Statement 3** Patients will have appropriate and timely access to follow up appointments with the neurology team, to discuss results or monitor progress, at the time interval stated in their care plan.

**Statement 4** Patients with Long Term Neurological Conditions will have a named point of contact for re-accessing the service, in keeping with appropriate Quality Standard/NICE guidance) (eg Parkinson's disease 2 weeks)

**Statement 5** Patients accessing the neurology service will have appropriate access to: neuro-imaging (MRI and CT imaging reported by a neuroradiologist or radiologist with a special interest); neuro-physiology; neuropsychological testing; further neurological testing including serology and lumbar puncture; other investigation and access to in-patient assessment

**Statement 6** The service will have appropriate access to neurological rehabilitation including physiotherapy, occupational therapy, speech and language therapy, dietetics and neuro-psychology.

**Statement 7** The service will be able to refer patients to neuro-surgical and orthopaedic spinal surgery.

**Statement 8** Provision of information/letters relating to care plan to GP and patient within 5 days following the appointment

**Statement 9** The service will be led by appropriately trained and revalidated neurologists.

**Statement 10** Patients will be treated by members of the neurology team, including General Practitioners, junior doctors and specialist nurses who will be appropriately trained and work within an appropriate framework of supervision and clinical governance.

**Statement 11** The service will maintain expertise through training, audit, and continued professional development and will be part of the local neurological strategic clinical network with appropriate clinical governance

**Statement 12** The service will provide, with support from charities and support groups, information about and opportunities for patients to enrol in clinical trials, where appropriate.

## 10. Appendix 1

Recommendations from *Local Adult Neurology services for the next decade* (2011) for acute neurology services

### Acute neurology services (unscheduled care)

R1 Patients with neurological emergencies admitted to DGHs should receive the same standard of care as that provided by other specialties. They should ideally be admitted to hospitals providing an acute neurology service led by consultant neurologists.

R2 This requires a major change in the way that local neurology services are provided with specific commissioning of neurology emergency care. There should be a change in emphasis from scheduled to unscheduled care, to allow the development of acute neurology services in the DGHs that provide inpatient services. This should be planned and agreed through a local neurosciences forum.

R3 The DGH should have an acute neurology ward area, led by a consultant neurologist with specialist staff. Consideration should be given to locating this ward next to the acute stroke unit to allow for the sharing of specialist medical staff, nurses and allied health professionals.

R4 The operational policy should include:

- daily consultant ward rounds
- local neuroradiology linked to the regional neurosciences centre
- local access to clinical neurophysiology
- access to local ITU and neurorehabilitation
- close operational links to the regional centre for rapid transfer and repatriation of appropriate patients, including surgically stable head injury and post-neurosurgical patients
- the development of on-call rotas as resources permit.

R5 Consultant neurologist management of emergency cases could be achieved immediately by modification of job plans to include ward liaison work, emergency outpatient clinics and daily ward rounds in admitting areas to prevent and shorten admissions.

R6 This acute service requires an expansion in the DGH neurology workforce with job plans which include sessions for local unscheduled care. Consideration should be given to appointing neurologists solely to provide emergency care to ensure that this is achieved.