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Attending system for acute neurology care: experience in a UK centre

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INTRODUCTION

Acute neurology makes up 10%–20% of the acute medical take in UK hospitals.[1] Despite this, almost two-thirds of patients with acute neurological problems in the UK are admitted to hospitals without any neurology inpatient beds.[2]

Getting It Right First Time (GIRFT) is a national programme designed to improve treatment and care of patients. It is no surprise that the GIRFT report for neurology in 2021 highlighted that patients admitted with an acute neurological disorder will receive benefit that is dependent on availability of an acute neurology service rather than clinical need.[2] The Association of British Neurologists' report on acute neurology services survey in 2017 identified that while regional centres almost all provided an accessible acute care service 7 days a week, there was a stark disparity in access to neurologists in district general hospitals (DGHs).[3] Within DGHs, a neurologist was available in 20% (36/183) of hospitals for no more than 3 days per week, with a large number of hospitals having no neurology referral service. This sets a clear imperative for all centres to be addressing the way they provide an acute neurology service.

Neurologists have the potential to change up to 79% of diagnoses admitted under general medicine,[4] and therefore lack of neurologists in the acute medical services does the large volume of patients a disservice through diagnostic and therapeutic delay.

The major barrier to this is the number of neurologists available to provide an acute service. There is 1 neurologist to every 15 499 neurology patients in the UK.[2] GIRFT has highlighted that the distribution and number of non-elective admissions, in terms of likelihood of benefit, across centres is the same regardless of being a major neuroscience centre or a small DGH.[2] Therefore, there is a need to redesign services to ensure there is parity of care between hospitals and that patients are not exposed to a system where geographical service availability determines the quality of their care.

University Hospitals Plymouth (UHP) is an approximately 1000-bed tertiary hospital in the South West of England. It is a regional neuroscience centre, meaning it acts as a referral centre for smaller hospitals in the region and tends to be where most academic meetings in the region are conducted.[2] UHP has been running an acute neurology service for 16 years with a relatively small team of consultants in comparison to other major neuroscience centres. In this article, we will discuss our experience of developing an acute neurology service with a relatively small number of consultants in the hope that others can gain insight into how to develop their own services with potentially limited staff availability.

In 2006, we realised that the way our service ran needed to change significantly. We had a system with five neurologists seeing individual patients under their care two times per week on the wards. A review of our practice identified that the main reasons for inpatient pathway delay were decision-making and scanning decision delays, as this required consultant oversight which was only taking place two times per week. This, combined with inpatient numbers expanding beyond our 28-bed ward capacity, meant that something needed to change. We therefore set up an attending system instead.

The attending system

In this context, attending consultant can be defined as a physician who has completed neurology training and has overall responsibility for the care of any patient admitted to

hospital due to a neurological disorder. This role is analogous to that of an attending physician in the USA.

The attending system run in our trust involves a consultant with an attached registrar seeing admissions in the medical/acute assessment unit and leading ward rounds on patients already admitted under neurology for a 7-day period. They are also on hand to see inpatient referrals from other hospital wards and provide the hyperacute stroke service including thrombolysis and workup for thrombectomy through the emergency department.

We separate patients who had a stroke from acute neurology patients after they have been admitted for 24 hours. The patients who had a stroke then remain under the care of a different neurology consultant's team throughout their hospital stay until they are discharged from hospital.

At the start of the working day, there is a multidisciplinary team meeting with the consultant, ward-based junior doctors, physiotherapists, occupational therapists and discharge co-ordinators where we discuss progress of care and discharge plans. A handover list is generated with key information and updated daily by the junior doctors on the ward to facilitate changeover between team members and is particularly important for when the attending consultant changes each week, as the consultant taking over as attending takes over care of the inpatients for that week. As well as curating these lists, the junior doctors will enact consultant plans from ward rounds and perform procedures such as lumbar punctures on inpatients.

The attending consultant then does a ward round of all new patients each day, sees all patients with suspected neurological disorders on the medical assessment unit and will also see deteriorating or complex patients. They perform a full ward round of all neurology inpatients two times per week. They can discuss ward referral patients seen by registrar colleagues daily and if needed to support will also go and see such patients.

We have multiple registrars covering the acute stroke and neurology service each day. One covers acute stroke care with the second neurology consultant, a second covers acute neurology care and a third helps with acute neurology inpatients, ward referrals and elective days case admissions/procedures. All other registrars at the hospital undertake elective work. The neurology registrar acute experience under this system is far in excess of what is delivered by other neuroscience centres as we provide an unselected neurology take, in addition to the acute stroke role. The acute experience is also better supported by consultant availability than other neuroscience centres. However it must be acknowledged that the opportunity cost of an increase in acute experience for registrars is that elective experience is, to a certain extent, more complex to rota.

What came before

The initial setup of this system in 2006 almost immediately reduced length of stay by 37% and the bed base by 46%. The model of care prior to 2006 involved each of the five consultants at the time doing two full ward rounds of patients admitted under their individual care per week across both stroke and neurology. This meant roughly 8 hours per week for each consultant during weekdays, and 8 hours on weekends were covered by a single consultant on a rota. At that time, there were 5 consultants so a total of 9.6 hours per consultant per week, which averaged approximately 125 PAs per consultant on inpatient work each year.

The current system means our consultants work for 55 programmed activities (PAs, roughly equivalent to 4 hours of work) per year as attending consultant (between 10), as well as approximately 20 PAs per year each on acute stroke rounding (4 PAs per week between ten consultants). For the remaining PAs each year, consultant responsibilities include outpatient clinic work, teaching, management and subspecialty work including various components of stroke care.

The consistency provided by a single consultant doing inpatient work for a week, we believe, was responsible for the dramatic improvements in length of stay and bed base. Over the subsequent nearly 2 decades, the system has further evolved, but the improved efficiency at the transition is testament to the positive effect of this move between service models.

Staffing requirements

We currently have 10 full-time clinical consultants in our service. This is compared with a mean of 13.1 consultants for neuroscience centres of our size.

An attending week involves 7 days of covering and caring for acute unselected neurology admissions to the hospital. The department provides acute neurology care 365 days per year. The same group of neurology consultants also cover the acute stroke and regional thrombectomy service on a separate additional rota. The consultant job plans in Plymouth tend therefore to encompass a greater proportion of acute work compared with the majority of neurology consultant job plans.

The time period analysed via GIRFT (January 2018 to December 2018) is comparable to most years and the data within GIRFT is reasonably representative of our long-term experience of acute neurology.

To run a similar system, six consultants would be required as a minimum. The working pattern is as follows:

- 10 PA during week.
- 3.3 PA at weekends.
- 1 PA admin time per week of attending.

Admission avoidance sessions also form part of this system and will be discussed in a separate article.

From a junior perspective, we have seven specialty registrars, seven senior house officer training grade doctors (1–5 years postgraduate) and one trust post for both stroke and neurology. We also employ four physician associates.

Patients seen under the attending system

The most common non-elective admissions from January 2018 to December 2018 were headaches and migraine (650), epilepsy (498), surgical spine/peripheral nerve (182), rare disorders (136), undiagnosed symptoms (137) and central nervous system infections (106).

Out of the neuroscience centres, we have the third highest number of inpatients under neurology though have among the fewest numbers of consultants for a centre of our size. We have the shortest lengths of stay for patients admitted for 2+ days out of the neuroscience centres analysed in GIRFT.

Our system is effective at reducing length of stay. Of the major acute neurological diagnoses seen, we have substantially higher percentages of 0–1 day length of stays than the England average. For example, for patients discharged with epilepsy as the primary diagnosis, the proportion of patients staying for this time seen by neurologists at our trust were 63.8%, compared with a national average of 3.6%. Similar large increases are seen for status epilepticus (50% vs 3.5%). Same day discharge was 66.5% for primary discharge diagnosis of headache and migraine as compared with 3.4% in the rest of England. Similarly, for stroke disorders seen by neurologists, there was a maximum 1-day length of stay of 60.7% vs 18.1% nationally. In our experience, these shortened lengths of stay have not resulted in higher unplanned readmission rates, although reattendance to our admission avoidance unit is very infrequently required.

The attending system is also cost-effective. We are one of only two sites in England where acute neurology is integrated with the stroke service. Our non-elective short stay for stroke/transient ischaemic attack (TIA) had average costs of £466 in comparison to £769 per finished consultant episode (FCE, a unit of time a patient is admitted under the care of the attending consultant or seen in admission avoidance clinic in the context of this article). For longer stays, the cost savings are substantial with our provider average of £3755 versus a national average of £6489 per FCE. This is testament to the efficiency of same day admission avoidance, as well as early review by neurologists. FCE reductions of similar magnitude are observed when the data is broken down into headache and epilepsy related admissions.

When we analysed the first 10 years of our service we found we had cared for approximately 20 000 inpatients.[5] This figure excludes patients we see in admission avoidance clinics, so the true number through our service is much greater. We were proud to have been finalists in the *Health Service Journal* awards for best Acute Services Redesign in 2019.

Issues with the attending system—the introduction of admission avoidance service

As the system was implemented, we found that there was a progressive increase in the number of referrals. From 2010 to 2013, there was an increase from 150 admissions per month to 200 admissions per month. This created too much of a clinical burden on a single neurologist, and so we introduced an admission avoidance service effectively to compress a short admission into a single day. This required significant buy in from supporting specialties, especially imaging services, to be able to support this.

The admission avoidance unit is run by a separate consultant to the attending consultant and has an average of 35 slots per week available to see patients. They will see suspected transient ischaemic attacks, multiple sclerosis relapse and first fit patients and provide advice on the phone to general practitioners (GPs). They also see patients who would require a hospital admission if they would not be able to see a neurologist within the next few days.

One of the downsides of this system is that in a small department, there is a detrimental impact on outpatient clinics as the PA time involved is greater than elsewhere, meaning cancelled clinics and longer outpatient waits for an appointment if there is no additional consultant time provided through job plans. To counter this point, however, patients seen through the admission avoidance system were likely going to need to be seen by a neurologist anyway, and this system expedites this process.

Limitations

This paper has highlighted the way that we have found to run our own acute neurology service. Inevitably, there will be limitations in the broader applicability of our findings to other hospitals across the UK and internationally. The retrospective nature of our cost/benefit assessment makes it prone to bias, as does a lack of formal quantification of labour cost differences before and after introduction of the service. It is also not possible to draw out specific components that are most important for efficiency savings. However, it is clear from GIRFT that we are managing to provide a highly efficient service relative to similar UK centres.

Conclusion

Delivering acute neurology to all non-elective patients with neurology presentations is possible and can be done with a relatively small consultant team. The structure of an acute neurological service, including same day emergency care, can be conducted in a time-effective and cost-effective way. We hope our experience over the last 16 years and this article may be of interest to others developing similar services.

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