

**Is there a role for GPs in teaching neurology to medical students?**

**A qualitative evaluation**

**(Short title: Can GPs teach neurology? )**

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## **Abstract**

### **Background**

The purpose of this study was to evaluate whether general practitioners can support medical students in learning basic neurology in the context of a traditional hospital neurology attachment.

### **Method**

This qualitative evaluation used routinely collected data from stakeholders. Data was analysed in the form of student evaluation questionnaires, course documentation and correspondence from faculty staff.

### **Results**

The addition of GP teaching to the programme increased availability of accessible patients with neurological problems and provided a safe, supportive environment for students to learn their fundamental clinical skills. Students gained valuable insights into the impact of neurological disease from the perspective of patients, their families +and carers. GP teaching of neurology was well regarded by students. Some GP tutors felt they lacked adequate experience to teach more technical aspects of neurology, and some students shared this concern. Concepts of professional boundaries between generalists and specialists were not observed but GP teaching was perceived to be 'other' or outside normal medical school activity.

### **Conclusions**

General practitioners can successfully facilitate students' access to patients with neurological disease and employ their generalist approach to enhance neurological learning. Some GPs were initially uncomfortable with teaching skills such as detailed neurological physical examination.

**Key words: Clerkship, Neurology, Undergraduate, General Practitioner**

## **Background**

During the course of medical training students must master an enormous range of knowledge and skills, including those related to neurology.(1)(2)(3-5) Most neurological disease in the UK is managed in primary care, yet few GPs claim to have developed a specialist interest in neurology.(6) Neurology is still largely taught to UK medical students in hospitals, by specialists.(7)(2, 3) using varied teaching methods, (8-11) including traditional clerkships.(12) Whilst GPs do teach neurology opportunistically,(13, 14)(15-17) some report lacking confidence teaching this subject in any detail. (18)(19).

Medical students commonly fear neurology ('neurophobia') due to its perceived complexity (20, 21),and lack confidence due to lack of patient exposure and teaching.(18) High quality evidence for neurology educational interventions is scarce.(19)

For students to develop clinical competence they need initial exposure to the basic knowledge and demonstration of skills,(22), moving to the authentic setting, (23) for 'apprenticeship learning'.(24) The triadic learning relationship between student, patients and practitioner is key.(25) As students develop they become 'intermediates' (24) with 'supported participation' (25) where involvement in patient care drives learning.(26, 27) Multiple reinforcement is needed in order to acquire competence.(24)

## **Context**

UCL Medical School offers a traditional six year course. The final three years are clinically focused with substantial input by GPs.(15, 28) To make use of a "fallow year" for our GP Care of the Older Person (COOP) tutors which occurred as a result of a curriculum review, we invited them instead to provide a GP component within a traditional hospital-based neurology clerkship.

## **Structure of neurology course**

All students in year four undertake a four week neurology attachment. . We introduced four GP half days into this attachment. .GPs taught students in protected time involving patients with neurological disease, either in the surgery, at the patient's home

or in residential care settings. The teaching was facilitated by GPs without neurology specialists present. Tutors were asked to: 'focus on students being observed taking histories & practising examination on mostly elderly patients. It would be ideal to focus on patients with neurological problems e.g. stroke, PD, dementia, multiple sclerosis (MS)'. We did not prescribe a specific curriculum and asked tutors to observe students clerking & examining neurology patients,(29) and to give feedback.(26, 30) The course ran nine times for a total of 340 students during 2012-13 academic year. Interestingly in terms of context there has been within UCL historic faculty resistance to neurology being taught by GPs, (31) as demonstrated by a local senior neurologist who wrote;

*'I cannot think of anything, save famine or civil war, that would be more detrimental to the teaching of neurology to medical students than involving GPs'.*

### Aim of the evaluation

We aimed to evaluate the role of GP teachers in supporting medical students' learning of basic neurology knowledge and skills in their neurology attachment.

### **Methods**

This was a pragmatic evaluation using data collected from students, GP tutors, neurologists, course organisers and faculty. This included routine student evaluation questionnaires [SEQs], minutes of faculty module management groups (MMGs) & excerpts from stakeholders' anonymised emails (with permission). Student questionnaires asked;

*What was the most useful aspects of this placement?*

*Do you have any suggestions for improvement?*

The overall (module) feedback prompt was;

*What did you think was good about (Neurology)?*

*Do you have any suggestions for improving (this) Module?*

*How would you rate the Neurology teaching?*

A line of free-text/ email or block of feedback was an item of data (range:a few words to several paragraphs). We analysed the qualitative data using a thematic framework approach (details on request) (32).

**Ethics:** UCL ethics committee (4481/001) approved use of anonymised feedback without consent and identifiable data with consent.

## **Results**

We obtained 125 hospital, & 134 GP feedback items from students. There were 172 comments relating to 13 GPs; 14 items from MMGs & 7 from GPs.

### Themes

The main themes were;

- content of GP neurology teaching,
- impact of GP teaching,
- providing a supportive learning environment,
- status of GP teachers,
- developing skills/student transitions,
- access to suitable patients with neurological conditions,
- added value of seeing GP neurology patients.

### **Content of the neurology teaching in the community setting**

GP tutors offered a wide range of neurological knowledge and skills-based teaching;

*'The neuro GP was very good, some of the best theoretical teaching we have had' (student),*

*'key neurological topics: Headache, stroke, MS etc' (student).*

GPs offered experiential learning such as the approach to examining the neurological system;

*'We probably spent an hour on each of practicing eliciting reflexes, motor power assessment, upper motor neurone (UMN) vs lower MN, etc' (GP),*

and how students apply their clinical knowledge;

*'Going through examinations with particular focus on looking for pathology & how to explain to the individual steps to the patient' (student).*

Some tutors delivered more generic teaching (taking neurology histories & illness experience);

*'met patients with a wide variety of conditions; TIA (transient ischaemic attack), Huntington's Disease' (student),*

and some reports of teaching in routine GP clinics.

### **Impact of GPs' teaching on students**

A key theme was around the ability of GPs to help students learn about neurology;

*'Enjoyable & effective way to learn neurology' (student).*

Elements of high quality teaching were; small group sizes;

*'The chance to practise the neurological exams in a small group' (student),*

structured sessions,

*'Really well structured with a different key topic and patients to see' (student),*

receiving feedback,

*'Really good (tutor) feedback too' (student).*

However, GP teaching was not always perceived as useful;

*'I feel like a GP attachment is needed but...(describes poor experience)' (student).*

### **Providing a supportive environment**

Students reported a safe, supportive learning environment in which to practise;

*'really valuable to have so much protected teaching time and chances to practise examinations in a quiet & supportive environment' (student).*

## **Status of GP teachers in a specialist field**

There were contrasting views (students, GPs & faculty) about GPs teaching neurology. Students generally welcomed GP teaching and often perceived it as being of a high standard;

*'I really enjoy my GP sessions, I learn a lot, always see patients and find it very productive'* (student).

Students' perceptions were linked to the GPs' teaching ability, independent of content;

*'the GPs put a lot of time and effort into teaching us & introducing .. relevant patients... learnt a lot'* (student).

However, some had strong views that neurology should only be taught by neurologists;

*'However, she did not know enough neurology for this placement to be in any way a replacement for the neuro teaching we should of (sic) been receiving in hospitals... Neurology is obviously an extremely complex subject and we should have been taught by neurologists at Queen Square'* (student).

A contrasting student's view related to understanding tutor's professional uncertainty;

*'It was also very refreshing to have a tutor who was not an expert in the field of neurology, and so was happy to admit to gaps in her knowledge'* (student).

There were divergent views among the GPs themselves about their suitability to teach the subject;

*'I'm the only GP here ("mug") who will agree to do neuro teaching- I've taught for MRCP level on this to candidates'* (GP).

With some feeling under confident;

*'Felt the students were sometimes better informed than me'* (GP).

## Views of the faculty

Teaching of neurology was generally supported within the institution;

*'my perspective it is good to have GPs teach neuro'* (Neurology lead).

More broadly teaching in GP was supported but was viewed as disrupting the running of the medical school;

*'Some marginalisation of ... and GP teaching as 'taking up too much curriculum space'* (Senior medical school lead - document).

This was enacted as GP teaching as something that could reasonably be sacrificed;

*'I can't see any easy solution to these clashes ... As an interim measure I think we will have to drop the GP..sessions' (module lead).*

### **Students developing skills/ transition**

Students described how they developed their knowledge and competence. Novice students needed guiding by a clinician:

*'going through the theory and important questions in the history, before taking the history from and examining ..patients' (student).*

Students identified that hospital teaching was often focussed on advanced skills, pre-empting attaining basic knowledge;

*'(GP teaching) was the only time during my entire neurology rotation I felt I was being taught about common neurological disorders' (student).*

Students perceived the need consolidate their knowledge and skills;

*'Lots of time, lots of access, extremely interesting. BUT, not nearly enough. It takes about 3 weeks to get used to neuro and begin to understand what you need to get from examinations & patients' (student).*

### **Access for students to suitable patients with neurological conditions**

A key component of the GP firm was the ability to access neurology patients;

*(the GP) 'found very suitable & willing patients to come and talk to us' (student),*

although not always;

*'Only a handful of patients with neurology are willing' (GP).*

In contrast the infirmity and frailty of some inpatients impeded hospital-based teaching;

*'Meeting neuro patients (in GP) that weren't too sick to talk to us' (student).*

Some GPs used nursing homes and patients' homes as learning opportunities;

*'Visiting those at nursing homes or in their own home was very useful' (student).*

### **The added value of seeing patients in a community setting**

Some students found added value from community settings;

*'good chance to see patients with common neurological conditions and get an idea of their management in the community' (student).*

And the social context;

*'fantastic opportunity to see neurology patients in the community and how their chronic care is managed' (student).*

The holistic element;

*'The doctor who ran the sessions was very friendly, encouraging & obviously had a good rapport with the patients' (student).*

## **Conclusions**

**Implications.** GPs can make an important contribution to teaching neurology to medical students and the present study identifies strengths and weaknesses of this model. The foremost benefit was access to a broad range of neurology patients; secondly, GPs were well placed to enable students to spend time with patients to discuss their history and assess any physical signs.. This safe supportive learning environment is key (33) to developing skills in neurological history taking and examination.

What was perhaps lacking for some students and GPs, was confidence in teaching more complex neurology. Some GPs were reluctant to teach detailed neurological examination, but were willing to teach using their generalist skills.(34) Unanticipated benefits included the value of learning about chronic disease and a community perspective.

Our GPs identified themselves as 'clinical teachers', so facilitated students' learning with active engagement in a supportive environment.(35) Our findings can be incorporated into a model where the students' learning is facilitated by experts and generalists, with each discipline helping students develop mastery at different points in the students' learning cycles (figure 1). We found no evidence of a protectionist view by neurologists, (36) to GPs teaching this subject.

## **Limitations**

Routine student feedback data has been criticised as a data source for qualitative analysis. (37) (38) The curriculum changes and capacity adversely affected views of hospital neurology firms and perhaps inflated students' views of GP placements.

During the 'normal' course, hospital neurology receives positive feedback. GP author bias in interpreting the data cannot be excluded.

### **Link with existing literature**

Our findings reflect other work where students benefit from generalist settings, which include increased students' confidence in patient interaction and developing professional skills (39) (25), direct clinical observation, (40) and team working.(41) (42) There is evidence that community placements provide opportunities 'to observe psychosocial perspectives of health & illness'.(43) Early patient exposure is often more patient focused, authentic (30) espousing continuity & holism.(27) However learning in ambulatory care can be variable and unpredictable.(29) Specifically for neurology; students find that just being with patients has a demystifying role (9) and helps them in 'learning how to be with people'.(26) Students benefit from their clinical teachers having specific teaching skills.(44)(35) When professionalised teachers facilitate learning from real patients, (27) in a setting of 'education within patient care',(26) it leads to effective student learning.

Our findings build on previous work showing that GP and hospital specialists teaching can be complementary, with no difference in students' acquisition of clinical skills (15). However integrating GP & specialist teaching can present challenges.(16) Students perceived different settings helped with different areas of knowledge (acute conditions, procedures in hospital; clinical skills & conducive learning environment in GP.)(45) (46)

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### **Disclosure of interest**

MJ JR & MG were all employed by UCL to deliver this course. The course no longer runs so there are no longer any competing interests.

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