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Juan I. Baeza, Annette Boaz, Alec Fraser



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The roles of specialisation and evidence-based practice in inter-professional jurisdictions: a qualitative study of stroke services in England, Sweden and Poland.

Juan I Baeza¹

(Corresponding author)

King's College London

Annette Boaz²

St. George's, University of London & Kingston University

Alec Fraser³

London School of Hygiene and Tropical Medicine

On behalf of the European Implementation Score (EIS) Collaborative Group

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¹ Department of Management□

King's College London□

150 Stamford Street□

London SE19NH□

UK

juan.baeza@kcl.ac.uk

Tel: 020-78484634

² Faculty of Health, Social Care and Education

St George's, University of London

2nd Floor Grosvenor Wing

St George's Hospital

Cranmer Terrace

London

SW17 0RE

UK

A.Boaz@sgul.kingston.ac.uk

³ LSHTM

Department of Health Services Research and Policy

15-17 Tavistock Place

London

WC1H 9SH

UK

Alec.Fraser@lshtm.ac.uk

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The roles of specialisation and evidence-based practice in inter-professional jurisdictions: a qualitative study of stroke services in England, Sweden and Poland.

Abstract

This paper investigates how the concepts of clinical specialisation and evidence influence the jurisdictional power of doctors, nurses and therapists involved in stroke care in Sweden, England and Poland. How stroke care has become a distinct specialism across Europe and the role that evidence has played in this development are critically analysed. Five qualitative case studies were undertaken across the three countries, consisting of 119 semi-structured interviews with a range of healthcare workers. The informants were purposively selected and their perspectives of evidence-based practice (EBP) within stroke care were explored. The data were analysed through thematic content analysis. The two key themes that emerged from the data were the health professionals' degrees of EBP and specialisation. The results illustrate how the two concepts of clinical specialisation and evidence are interrelated and work together to influence the different professions' degree of professional jurisdiction. It is concluded that doctors' professional dominance gives them full jurisdiction in stroke care and that nurses' and therapists' degrees of jurisdiction is dependent on their ability to specialise.

Research highlights

- New medical evidence gives rise to the development of new jurisdictions in healthcare.
- A professional's degree of specialisation makes an important contribution to their degree of jurisdiction.
- Specialisation allows non-doctors to gain partial jurisdiction of stroke care.
- National health care contexts influence professionals' ability to specialise.

Key words: England; Poland; Sweden; jurisdictions; evidence; specialisation; stroke care; Abbott.

Introduction

There is a paucity of studies of the inter-professional perspectives of evidence-based practice (EBP) (Mykhalovskiy and Weir, 2004), the lived experiences of different clinical professionals working in specific clinical specialities of EBP (Broom et al. 2009) and no comparative European studies that can shed light on the impact of different national health system contexts. This research examined different healthcare professionals' perspectives of EBP and how this influenced their professional jurisdiction. We use Abbott's notion of professional jurisdiction as the theoretical lens to analyse the inter-professional relations in stroke care in England, Sweden, and Poland via five comparative case studies. Stroke care is an ideal condition to investigate these inter-professional perspectives, as contemporary stroke care is multidisciplinary; care is delivered by a team of doctors, nurses and a

range of therapists. We argue that the twin concepts of EBP and specialisation contribute to the degree of jurisdiction that these three different professional groups have in stroke care in England, Sweden and Poland. Before presenting our case study findings we examine the concepts of professionalisation and jurisdiction, evidence in healthcare in general and the development of EBP in particular, followed by a discussion of the development of stroke care as a discrete clinical specialism.

Professionalisation and jurisdiction

There is a vast literature on the power of the medical profession (Johnson, 1972; Mechanic, 1991) and its dominance over other healthcare professionals (Friedson, 1970). The intention of this paper is not to present a précis of this important literature, instead we investigate the contemporary inter-professional relations in a particular health speciality in different contextual settings. Much of the literature on healthcare professionals' have been uni-professional and ignore the important inter-professional relations. Abbott's (1988) concept of professional jurisdictions is valuable in investigating how and why inter-professional jurisdictional disputes occur within an interrelated system.

We empirically advance Abbott's (1988) argument that "the development of the formal attributes of a profession is bound up with the pursuit of jurisdictions and the besting of rival professions" (p.30). Abbott's concept of jurisdiction is useful to examine inter-professional relations as; "It shows how professions both create their work and are created by it" (p.316). Abbott argues that scholars of the professions had not examined a key aspect of professional life: inter-professional competition

(p.2). This competition leads to disputes over jurisdictional boundaries amongst professional groups that determine the history of the professions. According to Abbott the correct unit of analysis is the jurisdiction (p.112), which is defined as a particular area of work that has a distinctive body of knowledge (Timmins and Nairn, 2015: 9). The elaboration of strong evidence has established a distinctive body of knowledge for stroke care that has developed into a professional jurisdiction within which professional groups will vie for control. Before examining the jurisdictional dimensions of stroke care it is important to discuss how stroke care became a distinct professional jurisdiction by considering the key concepts of EBP and specialisation.

Evidence-based practice

Evidence-based medicine (EBM) changes medical practice from being primarily grounded on tacit knowledge to one characterised by encoded knowledge (Dopson et al. 2003; Greenhalgh et al. 2008). EBM is not a purely scientific endeavour, what EBM is and how it is defined is contested and hence political (Harrison and McDonald, 2008). Timmermans (2008:167) argues that EBM serves a number of purposes:

EBM offers a dominant and sweeping social mechanism to control unruly individual professionals, regain the public's trust, and shore up the scientific quality of the professional medical project that has spread from physicians to other allied health professions.

This quote suggests that the influence of EBM extends beyond doctors and the term evidence-based practice (EBP) is the inclusive term for the work that all healthcare

professionals engage. EBP has become the accepted orthodoxy and is now regarded as normative clinical practice (Lambert, 2006). A key EBP attribute is that not all evidence is considered equivalent, but a hierarchy of evidence which is dependent on the research design and its implied 'validity', which is itself a contested term (Grossman et al. 2005). The randomised control trial (RCT) sits at the top of this hierarchy; non-randomised controlled trials, case studies and observational studies occupy lower ranks on the EBP ladder, while qualitative studies are considered comparable to ideas and opinions (Harrison and McDonald, 2008). The EBM pioneers defend this hierarchy by arguing that:

the randomised trial, and especially the systematic review of several randomised trials, is so much more likely to inform us and so much less likely to mislead us, it has become the 'gold standard' for judging whether a treatment does more harm than good. (Sackett et al. 1996: 71)

This dominant view has been criticised by other healthcare professions, such as nursing, which questions its appropriateness to the goals of nursing (Wall, 2009). Critical discussions about how to incorporate qualitative research into systematic reviews and clinical guideline construction to reflect a more comprehensive understanding of the contribution of different types of research to the overall goals of EBP challenges this dominant EBP narrative (Dixon-Woods & Fitzpatrick, 2001; Dixon-Woods et al, 2006). Others have emphasised the importance of distinguishing between effectiveness and efficacy (Gartlehner et al, 2006) in RCTs and the role for patient engagement to improve EBP (Greenhalgh et al, 2014).

Notwithstanding these challenges, for others (Borgerson, 2005), the RCT remains at the pinnacle of the evidence hierarchy, creating a bias to healthcare provision that is amenable to the RCT. This is pertinent for therapists in particular (such as physiotherapists, occupational therapists and speech and language therapists). For example, a study into evidence and the provision of physical therapies for young children with motor disabilities reported that of 444 intervention study papers only 31 met the accepted (RCT type) criteria for evidence (Landsman, 2006). The lack of good quality RCTs for therapists' interventions is often cited in the literature (Landsman, 2006; Leung, 2002). Critics argue that much EBP is inappropriate in therapists' clinical work and that a fundamental clash exists between the medical research and therapy paradigms leading to the "therapies' dilemma" resulting from the medical model of evidence failing to recognise the value of non-RCT research designs (Grimmer et al. 2004). However, clinical practice is not solely governed by evidence, Greenhalgh et al (2008) argue that it results from the synthesis of professional judgement (tacit knowledge) and formal rule based systems such as EBP (encoded knowledge), concluding that encoded knowledge alone was not sufficient for clinical action.

One might conclude that the development of EBP is an example of what Abbott called an internal source of disturbance, a disruption that occurs from within the professions themselves, that has largely strengthened the medical profession's jurisdictional claims (96-98). However, the impacts of EBP on the medical profession are more complex (Armstrong, 2002). On the one hand the development of EBP challenges the medical profession as it erodes the profession's clinical autonomy by increasing their accountability but on the other, by formulating EBP on a narrow and

somewhat bio-medical model of scientific evidence it can perpetuate and preserve the medical profession's dominance among other healthcare professionals (Timmermans, 2005).

In terms of inter-professional jurisdictions EBP can be used by the medical elites to reinforce their power within a medical system, as they are often responsible for constructing evidence based clinical guidelines that dictate the clinical work of nurses, therapists and doctors. These developments create a paradox that diminishes health professionals' *clinical* autonomy while strengthening their *professional* autonomy by maintaining control of the construction of clinical guidelines and audit systems (Timmermans and Berg, 2003) and reinforces doctors' professional dominance over other healthcare professionals (Light, 2000). For example, Timmermans and Oh (2010) argue that the medical profession successfully minimised the challenges to their jurisdiction posed by complementary medical practitioners by incorporating and side-lining their activities, thereby bringing them into their sphere of influence and control. Light (2000) argues that the situation is dynamic; as medical power becomes dominant it is challenged by a range of countervailing powers such as nurses and therapists in the case of stroke who attempt to address the imbalance.

We now turn to how evidence has helped stroke care develop into a distinct specialty.

Developing stroke as a specialty

Globally, stroke has been a leading cause of death and disability for many years (Johnston et al, 2009). Stroke predominantly affects the elderly and historically there have been a lack of effective treatments (Pound et al, 1997). Issues of historical path dependency are important for understanding socio-professional status developments in comparative international analysis. Different medical professionals (neurologists, geriatricians, internalists) historically claimed jurisdiction over stroke patients. In Poland the role of neurologists in stroke development was stronger than in England and Sweden resulting in a more medically dominated management of stroke. In England and Sweden, lacking such neurological dominance, stroke care developed along multi-disciplinary lines.

Establishing a distinctive body of knowledge and good evidence on effectiveness enabled stroke medicine to become an important clinical specialism. Two recent evidence-based interventions have been significant in stroke care (Langhorne and Dennis, 1998). The first is the development of specialised Stroke Units (SUs), where stroke patients receive specialised multidisciplinary care from doctors, nurses and therapists in a specific location within the hospital (Stroke Unit Trialists Collaboration, 2007). The second is Thrombolysis – a drug that offers a radical improvement in outcomes for certain stroke types (NINDS, 1995). By the mid-1980s SUs were proliferating throughout Sweden, while England and Poland followed similar patterns, however, implementation of SU care was slower.

By 2008 the transformation of stroke care was such that the Royal College of Physicians (RCP) and NICE stated:

Over the last two decades, a growing body of *evidence* has overturned the traditional perception that stroke is simply a consequence of aging which inevitably results in death or severe disability. [emphasis added]. (NICE, 2008)

It is worth noting the importance of the word *evidence* in the extract above, which transforms the clinical perceptions relating to stroke. Both professionals and policy makers were keen to present *evidence* as being central to this transformation.

The external forces of organisational (SUs) and technological (thrombolysis) innovations opened up a new jurisdictional area that became available for professional capture through inter-professional competition. According to Abbott (1988), professions' jurisdictional claims are made up of three parts: classifying a problem (diagnosis); analysis of the problem (inference); and finally proposing a treatment to tackle the problem (treatment) (p.40). Stroke clearly displays these three: high morbidity and mortality from stroke (diagnosis); producing evidence that stroke patients can be effectively treated (inference); and developing organisational (SUs) and medical interventions (thrombolysis) to effectively treat stroke (treatment). Doctors, with the backing of their strong professional organisation, gained overall control of key aspects of stroke treatment (such as the administration of thrombolysis) and theoretically ought to be able to colonise the new jurisdiction of stroke care. However, our data illustrate that a more complex inter-professional process of negotiation emerges between and within the various professional groups of nursing and the therapies.

For example, whilst research shows that the roles of specialist nurses are contested in different European countries (Dury et al, 2014), the recent introduction of specialist

nurse roles (in stroke and other specialisms) may be seen as a political attempt to counter rising costs and physician shortages by transferring roles and responsibilities from doctors to nurses (Wanless, 2002) whilst simultaneously providing the nursing profession with an opportunity to further its own jurisdictional claims (Kroezen et al, 2014). Nancarrow and Borthwick (2005) identify similar processes with respect to therapists. These processes have been more pronounced in England and Sweden than Poland for two reasons: physician salaries are higher in Sweden and England than in Poland, making role transference more attractive. Secondly, nurses have been better able to capitalise on opportunities to specialise in Sweden and England than in Poland because of their higher educational levels on entry. The picture for therapists is less researched but appears to be more fragmented within and across the three countries.

Before exploring the study's findings we will describe our research methods.

Methods

As part of a European Commission seventh framework funding programme, five comparative case studies were conducted in England, Sweden and Poland to examine the level of implementation of evidence into practice in stroke services. The case studies focused on SUs but included community and general practice (GP) services in England (2 hospital sites) Sweden (2 hospital sites) and Poland (1 hospital site). Qualitative case studies allowed the team to explore stroke services in-depth and to ask the relevant 'how' and 'why' questions that emerged (Yin, 2003). A comparative case study design was used to construct a large-scale database of 119 interviews. This multiple case study approach enabled us to develop credible case

and cross case analysis to establish the internal consistency of the information gathered and use this analysis to develop theoretical constructs from the data (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). The informants were asked about their professional background and work history, if they used evidence research in their work, (and if so) why and how, whether they were encouraged to do so (and if so by whom) and their perspectives on the use of evidence in their area of work.

England, Sweden and Poland were selected following discussions with European stroke specialists that formed part of the European Implementation Score Collaborative Group. This collaborative consists of public health specialists, stroke clinicians, social scientists and patient group representatives from across Europe conducting research measuring the implementation of research into stroke care practice (project reference to be inserted after review).

According to national audit data (Rudd et al. 2005), Sweden has one of the most highly developed services, while stroke services in England are in a more developmental stage and Poland has the least comprehensively developed stroke services. Both Sweden and England treated 88% of stroke patients on SUs in 2010 (RCP, 2011; Riks-stroke, 2010) and in Poland there are significant geographical differences in stroke care in terms of patient outcomes (Niewada, 2006).

The case study hospital sites in England and Sweden included two urban and two rural hospitals to capture data from different contexts in terms of patient demography; influence and existence of competing hospitals; difficulties in attracting and retaining skilled staff; and differences in community care arrangements.

Achieving access proved more problematic in Poland, partly because there are far fewer comprehensive SUs in Poland (Członkowska et al. 2010), especially in rural locations. However, we were keen to include data from an East European health system with a very different history (both in terms of stroke and more generally). We secured access to only one Polish case study site. This was augmented by conducting three interviews with staff from other geographical sites in Poland. These were with a rurally based GP, a middle grade neurologist from a different Polish city and with the clinical lead doctor from a different hospital in the same city as our main site, these interviews allowed us to develop a more balanced picture overall. Furthermore, conscious of the particular nature of the main Polish case study site, we asked our Polish informants to comment on experiences elsewhere and reflect upon how representative the main case study site was compared to the more generalised Polish experience.

Interviews

Informants were purposively sampled to represent the different managerial and professional groups involved in delivering stroke care in the three countries. The purposive sample included a range of both clinical and managerial staff from the hospital based SU, emergency medicine, radiology, ambulance service, community rehabilitation services, including physiotherapists, occupational therapists, speech & language therapists, dieticians and psychologists, commissioners of services and GPs. A total of 119 interviews were carried out as shown in table 1 below.

Table 1: Roles and genders of informants

Professional group	English case study 1	English case study 2	Swedish case study 1	Swedish case study 2	Polish case study
Commissioner	3 M*=2; F*=1	0	1 F=1	1 F=1	0
Manager	4 M=3; F=1	3 M=1; F=2	3 M=1; F=2	3 M=2; F=1	4 M=1; F=3
Doctor	3 M=3	3 M=3	5 M=1; F=4	3 M=3	10 M=5; F=5
Nurse	7 M=2; F=5	4 M=1; F=3	8 M=2; F=6	6 M=2; F=4	3 F=3
Healthcare Assistant	1 F=1	1 F=1	1 F=1	0	0
Therapist	5 M=2; F=3	7 M=2; F=5	6 M=1; F=5	5 M=1; F=4	5 M=3; F=2
GP	1 M=1	1 M=1	3 F=3	2 M=1; F=1	1 M=1
Ambulance service	1 M=1	1 M=1	1 F=1	1 M=1	1 M=1
Welfare board	0	0	0	1 M=1	0
Total (119) M=50; F=69	25 M=14; F=11	20 M=9; F=11	28 M=5; F=23	22 M=11; F=11	24 M=11; F=13

* M=Male; F=Female

The interviews were arranged and conducted by AF between October 2010 and September 2011. The interviews ranged from 25 mins-90 minutes (most lasting an hour) and were semi-structured following the outline of the interview schedule. All informants were asked for an example of EBP and implementation in stroke care. The interviewer let them describe the implementation in their own words before following up with supplementary questions. Informants were then asked for an example of EBP in stroke care, which was yet to be locally implemented. Most informants opted to talk about the implementation of SU care or emergency thrombolysis and their associated organisational challenges. Some junior nurses discussed small-scale local interventions linked to patient care (e.g. oral hygiene) often allied to research projects being undertaken by nursing colleagues. Therapists

frequently discussed various interventions and then spontaneously reflected on the difficulties in describing much of these as 'evidence based' or not.

The interviews took place at the informants' workplaces normally in private locations. Although interpreters were offered to the Swedish informants none were needed, in Poland interpreters were used to conduct the interviews with some junior therapists, all the nurses and ambulance/social workers.

Interviews were recorded, transcribed and then entered into Nvivo for coding (QSR International, 2008). The initial codes were generated from a close reading of the transcripts and were based on the interview schedule, which primarily focused on informants' perspectives of implementing stroke research evidence into practice. However, the data analysis had an inductive component and various other issues emerged such as the implications of stroke becoming a distinct clinical specialisation and informants' views of EBP, which are the focus of our findings. The authors independently read various transcripts from all five case studies and discussed the coding frame throughout the data analysis to insure reliability (Miles and Huberman, 1984; Glaser and Strauss, 1967). Box 1 below provides brief profiles of the five case study sites.

Box 1: Case study profiles

English case study 1 (ECS1)

This is a district general hospital that is geographically isolated, impacting upon staff recruitment. It serves a population of 200,000 and has a staff of 3,000. It is affiliated

with the local medical school but is less prestigious than other specialist hospitals in the region, however, other hospitals are too distant to compete for SU patients. The hospital's historical stroke care performance is low. Patients are discharged with a care plan to be implemented by community therapists and once completed the patient is discharged to their GP.

English case study 2 (ECS2)

This teaching hospital is in a large southern city, serving a population of 500,000 with a staff of 4,000. The hospital's SU has been upgraded to a large combined hyper acute stroke unit and SU over the past two years. Most patients leave the SU with a discharge plan and a community therapy team will visit patients once every week for six weeks and then discharged to their GP.

Swedish case study 1 (SCS1)

The hospital is centrally located in a large Swedish city and a similar size to ECS2. It is affiliated with the university, but is less prestigious than another of the city's hospitals. There are elements of collaboration and competition amongst the local hospitals. This hospital has an especially high number of stroke patients who have a very short stay on the SU. Lack of bed capacity is a recognised problem at this hospital. The SU staff stated that post-stroke rehabilitation care provision had become less generous and more fragmented.

Swedish case study 2 (SCS2)

This is a district general hospital in a rural area in Western Sweden, serving a population of 150,000 and has a 20 bed SU. There are 3 other hospitals affiliated

with this site, each with an SU serving their small local town populations. There are staff recruitment and retention problems. Patients stay on the SU longer and get more therapy input prior to discharge than SCS1. A special factor in SCS2 was the existence of GPs with special rehabilitation/stroke interests who coordinated care as part of a pilot scheme.

Polish case study (PCS)

The interviews here (apart from three mentioned earlier) centred on a hospital in a large city that is considered a centre of national excellence for neurological conditions including stroke, making this case a positive outlier for Poland as a whole. The hospital serves a population of 200,000. The data indicated that stroke care was gradually improving in Poland following the implementation of SUs and the development of thrombolysis; however, the starting base of stroke care in Poland is lower than in Sweden and England. The provision of post SU care in Poland was highlighted as being particularly deficient.

Results

Firstly, it is important to note the differences in funding and organisational structure of the three countries' health systems. Swedish healthcare is largely administered and financed locally; England is funded by national taxation and has a centralised organisational structure; Poland has a decentralised mandatory health insurance system alongside supplementary government funding and out-of-pocket payments (Sagan et al, 2011). All three countries faced similar challenges in changing the perception of stroke as a disease and developing stroke care into a recognised

medical specialty. At the macro level, stroke care developments have been localised and clinician led in Sweden, whilst in England and Poland, a central government target driven approach has been more important in transforming services.

A composite approach was developed to assess the degree of EBP of each professional group at the five sites. The degree of EBP was based on both the narratives from the research interviews about professionals' attitudes and also, their self-reported use of EBP. For example, doctors stated how EBP aligned with their professional goals, therapists argued that they found EBP difficult with the evidence available and it was largely absent in the Polish nurses' narratives. In terms of EBP use some professionals said they were doing it, others that they weren't and/or couldn't and some were skeptical about EBP. These narratives were complemented with historical audit/registry performance, national guidance from independent experts, and local markers linked to SU implementation, thrombolysis availability and recognised nursing and therapy standards. The degree of specialisation of each professional group was also largely based on information gained from research interviews such as informant backgrounds, job titles and reflexive identity. For example, some doctors, nurses and therapists self-identified as 'stroke specialists' whilst others emphasised the 'generalist' nature of their work. This was closely linked to whether staff exclusively treated stroke patients, or spent significant parts of their time treating non-stroke patients. The degree of professional jurisdiction relates to the relative power and influence different professional groups enjoyed around strategic and operational matters delivering stroke care. The two key themes that arose from our data in terms of examining inter-professional jurisdictions were the different degrees of EBP and specialisation that the three professional groups

displayed. Our results illustrate how these two topics are interrelated and worked together to influence the different professions' degree of professional jurisdiction within stroke care.

Degrees of evidence-based practice

Evidence has had a major influence in developing stroke care into a separate clinical specialty. The degree to which a profession can construct their practice as being evidence based and thus develop an expertise can strengthen its jurisdictional claims.

The literature reviewed illustrated that how evidence is constructed is important in terms of EBP. Although there is 'strong' and accepted evidence for certain aspects of stroke care this is not true for all the features of stroke care. The therapists in all three countries stated that there was a general lack of RCT type evidence for much of their work:

... our research area, speech and language, pathology and communication problems, there is lack of strength [of evidence], because you, it's very difficult to get randomised, double blind controlled studies [...] So that's a problem. (SLT, SCS1)

... there's not much evidence about physiotherapy in stroke. I think that the evidence that we have, we know is mostly concerned with very precise and with detailed problems, which are not always connected directly to clinical practice. (Head of Therapies, PCS)

The fact that the gold standard for credible evidence is the RCT greatly limited therapists' ability to display a high degree of EBP in their work:

...as therapists it's hard to do research that's, how can you say, you know, a randomised controlled trial is so hard in therapy and blinding is so difficult. (OT, ECS2)

This lack of evidence particularly affected community-based non-specialist therapists:

Yes I think a lot of it is that there isn't that much evidence out there, that's the problem for community, but a lot of it is more in an acute bias. [...] But to be honest, there's not that much in the community. And I think that's the problem, because a lot of us work on our experience rather than the research that's out there. (Community physiotherapist, ECS1)

In contrast stroke specialist therapists were more able to validate their practice by drawing on their specialised experience of stroke patients (tacit knowledge):

So I think a lot of work with stroke and speech is about that, because we're looking at the damage and, you know, a scan can say one thing, how the person actually functions in front of you is something very different. (SLT, ECS1)

... if I do an intervention and I see that kind of it's not an evidence based feedback, but if I see that you as a patient are performing better, then it's an instant feedback for me that pushes me to try it on other patients. (SLT, SCS2)

In stark contrast, the stroke doctors in our study felt very able to illustrate their high degree of EBP:

I think it's just the prestige for the hospital that we can, we can show the effects of our treatments, that we have a lot of patients thrombolysed and we can write papers about that. (Neurologist, PCS)

The ambiguity of EBP is vividly articulated by this GP:

I'm right now in the middle of deciding if I'm really a believer of evidence-based medicine or not, being a primary care physician. And that's based on the fact that most of the evidence based medicine is kind of – it was born somehow in the hospitals, with selected populations which we never meet. We meet the real patients, you know. [...] I certainly feel that I've done a good job if I follow the evidence-based guidelines... (GP2, SCS1)

The Polish data clearly illustrate that EBP is within the medical profession's jurisdiction and outside the nurses' realm of influence:

Okay, we [nurses] usually have to follow the [doctors'] instructions. We can suggest ideas or such as changes but usually we will follow. [...] We are usually not taking part in the meeting - someone comes to the ward and tells us about research or any issues around that... (Nurse, PCS)

Nurses' weak position in Poland is in stark contrast to Sweden where stroke nurse specialists (SNS) are deeply involved, and often leading on developing local evidence based guidelines, reviewing practice and suggesting service changes based on research. The SNS informants described an equal and colligate

relationship with doctors, which differs from Abbott's (1988) competitive depiction of inter-professional relations:

We have both meetings with our doctors, the nurses and the doctors and we go through what we've been doing the past month or months, and look at figures, compare it to other hospitals. We also look at how the other departments are doing their part of the chain of reactions. (SNS, SCS2)

These data suggest that stroke doctors are the most able to display a high degree of EBP due to the nature of evidence. The accepted orthodoxy of the RCT in EBP constrains therapists' ability to exhibit a similar degree of EBP. The weak position of Polish nurses in terms of their involvement in EBP is clearly illustrated, as is the relatively strong position of the Swedish SNS, which we discuss further in the next section. In jurisdictional terms, it is the stroke doctors that have greatest authority in stroke care by virtue of belonging to a powerful professional organisation (the medical profession) and their high degree of EBP. However, our data also indicate the importance of specialisation, which is illustrated in the following section.

Degrees of specialisation

The literature reviewed illustrated how stroke care has gained prominence due to its ability to develop as a distinct specialist service, which has had a positive influence on stroke care specialists:

But this specialisation in the stroke units, our staff grew, they were, they felt internal confidence. We worked with something special, we are very good in this job, this stroke job, and it raised up the nurses, the paramedics and so on, you

know, we get some higher ranking on the social scale in the hospital. 'I'm not an ordinary nurse, I'm a stroke nurse.' (Senior manager, SCS2)

In essence our data suggest that the professions that can claim to be stroke specialists can gain greater authority than those who cannot. Nursing is a good example of this as illustrated in the previous quote, implying a large difference between 'ordinary' (or general) nurses and SNS. The previous section illustrated that the Polish nurses were relatively powerless which can in part be attributed to their lack of specialisation:

No we don't have the stroke [specialist] nurses [...] the nurses here in Poland are mostly involved in taking care and the washing and bed making with the patients. (Neurologist, PCS)

This weak position of non-specialist nurses, was not restricted to Poland, it was also echoed in very similar terms in our English case studies by all the professional groups:

Again I think there's a difference between the professions. The therapists are very self motivated. [...] it may well be that they [general nurses] spend so much time wiping bottoms and cleaning up vomit and that sort of thing that actually they don't have the energy and that's fine, because when push comes to shove nobody else does that work and that's their ultimate goal. And I mean they don't seem to be enormously motivated to actually bring themselves on to learn new things. (Stroke consultant, ECS2)

It is interesting in this following quote how the specialist nurse refers to general nurses as 'other', and not a group that she belongs to:

I don't think it's their [general nurses] fault, because they're not educated, because the information is not always available to them, but I think nurses often struggle to see the bigger picture. (SNS, ECS1)

This physiotherapist sums up the low status of non-specialist nurses:

I do have huge concerns about calibre of recruitment with nursing staff. I think they see themselves as the, they see themselves and are treated as the troops really, as, you know, the grunt workforce. (Senior Physiotherapist, ECS1)

Some informants attributed England's non-specialised nurses' lack of engagement with their difficult position on the ward compared to therapists:

... when I look at the time that therapies have for supervision for in service, and I know that the nurses don't have that, and it isn't part of their culture yet. And if it is, it's perhaps not very effective. And there's so many of them, and you've got a shift system (ECS1 Senior Physiotherapist)

However, one of the therapists questioned this perceived operational problem:

... we have 2.9 nurses per HASU [hyper-acute stroke unit] bed and 1.35 nurses per stroke unit bed. Trust me, they have got time to come to a meeting. It's not the ethos, they just... they don't get it and if they come to a meeting they sit resentfully and don't contribute, on the whole. (Physiotherapist, ECS2)

Conversely the prestige of SNS was clear in both England and Sweden:

... our stroke nurses here are very competent. And they have a great position, I think, among others, and that includes other doctors. (Departmental chief, SCS1)

... most of the leadership has come from elsewhere. And it's come from a very motivated stroke nurse specialist that we brought in from elsewhere and who had been doing this before, who is, you know, just one of those people that knows their subject, is passionate about their subject and communicates well. (Emergency Consultant, ECS1)

It is only by combining the two aspects of EBP and specialisation that we can arrive at a clearer view of the inter-professional authority in our five case study sites. The concepts of EBP and specialisation are combined in table 2 below, which summarises the results by charting the different professions' degrees of specialisation and EBP.

Table 2: Inter-professional degrees of EBP and specialisation

	Doctors	Nurses	Therapists
Poland	High degrees of specialisation and EBP	Low degrees of specialisation and EBP	Mixed degrees of specialisation and EBP
ECS1	High degrees of specialisation and EBP	Two groups: SNS: high degree of specialisation and mixed degree of EBP Non-specialised nurses: low degrees of specialisation and EBP	High degree of specialisation and mixed degree of EBP
ECS2	Mixed degrees of specialisation and EBP	Two groups: SNS: high degree of specialisation and mixed degree of EBP Non-specialised nurses: low degrees of specialisation and EBP	Predominately high degree of specialisation and mixed degree of EBP
SCS1	Mixed degrees of specialisation and EBP	High degrees of specialisation and EBP	Low degree of specialisation and mixed degree of EBP
SCS2	High degrees of specialisation	High degrees of specialisation and EBP	Mixed degrees of specialisation

and EBP

and EBP

ACCEPTED MANUSCRIPT

Discussion

The results illustrate how the two notions of evidence and specialisation are linked and influence inter-professional competition. The results demonstrate that the

medical profession has not been able to simply claim full jurisdictional control of stroke care; instead a more nuanced picture emerges.

Table 2 illustrates that doctors display a mixed to high degree of EBP and specialisation across the five cases. In spite of this mixed picture they maintain a high degree of professional jurisdiction over stroke care, winning the inter-professional competition regardless of their degree of EBP and specialisation. The fact that the clinical lead in all the sites was a doctor and audit data shows that this is the case in 97% of SUs (RCP, 2014) is testament of this. Doctors derive this jurisdictional power due to the fact that they originate from and continue their affiliation to the dominant profession of medicine (Abbott, 1988) and maintain their dominance through their high structural legitimacy in these formal institutional structures (Lockett et al, 2012). Degrees of specialisation and EBP are more important for the subordinate healthcare professions of nursing and the therapies. Our results show that nurses are differentiated by country in terms of their degrees of EBP and specialisation. In Sweden and England an elite group of nurses is able to specialise and thereby gain a partial degree of jurisdiction of stroke care but the non-specialised nurses in these countries have no jurisdictional power, indicating an intra-professional difference. Similarly, Polish nurses who cannot specialise also lack any jurisdiction of stroke care. SNS are a good example of a subordinate profession (nursing) strengthening their jurisdiction by developing a specialised knowledge, what Abbott termed the “the relevant level of abstraction” (p.111).

These advances have been aided in Sweden and England (but not Poland) by the development of protocols that emphasise the key role of SNS; thrombolysis is a

good example. Stroke specialist doctors hold on to their strong medical affiliation and develop their specialty *within* medicine, while, SNS strengthen their jurisdictional claims by differentiating and distancing themselves from their weaker non-specialist nurse peers. In England and Sweden, stroke doctors collaborate with SNS who are needed to deliver the specialist services such as thrombolysis in order to maintain stroke's distinct jurisdiction within hospitals. In this task evidence is crucial and the strong evidence for acute stroke care gives power to specialist stroke professionals (doctors and nurses) who are able to develop specialist knowledge and powerful roles together. In contrast community therapists and non-specialist nurses can offer little to this broader jurisdictional fight.

A less clear picture emerges for therapists; their jurisdiction tends to be largely determined by their degree of specialisation irrespective of their degree of EBP, although their general research focus helps. Therapists in England, and to a lesser extent Poland, who are able to specialise on stroke patients have a relatively high professional jurisdiction despite their mixed degree of EBP. In Sweden where therapists are managed centrally, rather than by the SU, their ability to exclusively treat stroke patients is restricted and so their jurisdiction of acute stroke care is weaker, but have managed to retain their jurisdiction within the less important rehabilitation services where doctors are largely absent and generally less professionally interested. The therapists, who can claim to be stroke specialists in England and Poland, continue to enjoy a high status in spite of their largely low degree of EBP.

Our results suggest that a profession's jurisdictional strength is largely determined by their degree of specialisation rather than their degree of EBP. Notwithstanding this finding, the notion of evidence has been instrumental in enabling stroke care to become a medical specialty and thus a distinct professional jurisdiction. Our data would suggest that EBP has been an important factor in developing stroke into a higher status specialist area but has been less important *within* the stroke world, where a profession's degree of specialisation and their ability to treat stroke patients exclusively largely determines their status rather than their use or non-use of EBP. However, the importance of evidence should not be ignored but needs to be better understood, the coterminous rise of EBP and specialisation means that a non-evidence based specialist professional could not now be countenanced in stroke care. Our results suggest that continued medical dominance and EBP are both mutually reinforcing in stroke medicine: EBP helps to perpetuate medical dominance and medical dominance helps shape what EBP looks like (i.e. the primacy of the RCT). In addition the EBP paradigm gives greater importance to acute (expensive) medical treatment as opposed to (cheaper) community rehabilitation.

Finally we reflect upon the study's limitations and areas for further research. In Poland half of the interviews were in English and in the remainder AF used an interpreter. Initially it was more difficult to develop a 'responsive' approach (Rubin & Rubin, 2011) in the interpreted interviews, but it was the only way to hear the opinions of the non-English speaking informants. In Sweden, informants were offered an interpreter but no informants requested this and the standard of English in all but one of the interviews was excellent. AF was careful to present the research in neutral terms so as not to induce overly positive or negative responses about EBP

from the informants. Longitudinal studies, including detailed observations of how teams function would be valuable in future research. It would also be interesting to conduct further international work to provide a richer comparative data set. Lastly, other medical specialities could be studied (e.g. cardiology) to examine whether the findings from this study are evident in different healthcare systems and settings.

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