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The physician assistant: Shifting the Paradigm of European medical practice?

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ABSTRACT

Introdution: Physician Assistants are medical care providers working under supervision and/or in collaboration with a medical doctor. The Physician Assistant profession has its origin in the United States, but in the last decade has also reached other nations to overcome medical staffing issues. With little summarized literature available, the aim of this study is to portray the Physician Assistant movement in Europe.

Methods: A literature search was conducted in Academic Search Premier, CINAHL, ERIC and MEDLINE databases. In addition, European PA educational programs, professional associations, and local experts on the PA profession were queried.

Results: Currently, in Europe there are three countries in which physician assistants are trained and are working. The educational models of physician assistant training in the United Kingdom, Germany and the Netherlands differ, as do the degrees offered by the training institutions.

Conclusion: There is scant literature about physician assistant training and practice in Europe available in the common scientific databases. The paucity of literature makes it difficult for an outsider to observe the developments and to value the impact of a new profession on national health systems. Further high-quality research is needed to adequately characterize physician assistant education and implementation across Europe.

Keywords: *physician assistant; medical task shifting; task reallocation; Europe.*

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INTRODUCTION

Despite a 2008 World Health Organization analysis which does not predict health workforce shortages in the developed world over the next decade (1), some developed countries still deal with health workforce shortages and specialty imbalances. Different countries have begun to look to medical task-shifting as one way to address physician workforce shortages. Since the 1960s, the United States (US) has deployed over 80,000 Physician Assistants (PAs) (2).

PAs have been characterised as "…a new healthcare professional who, while not a doctor, works to the medical model, with the attitudes, skills and knowledge base to deliver holistic care and treatment…under defined levels of supervision." (3).

They have a semi-autonomous status and

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work under the supervision of a fully trained doctor (4).
PAs obtain medical history, perform physical examination, request additional testing (from simple laboratory tests to advanced imaging investigations), render diagnoses, prescribe medication, assist in surgery, and perform a wide range of therapeutic services.
Numerous American studies suggest that quality of care provided by PAs is comparable with physician care and that patients, healthcare administrators and doctors are all satisfied with the current implementation of PAs (5-7). In the US, the anticipated shortage of physicians will most likely lead to a substantial increase in the number of practising physician assistants. The number of clinically active physician assistants is anticipated to increase by 72% to nearly 128,000 by 2025 (8).
In contrast, only few European countries currently have adopted the physician assistant model to address health workforce concerns. Employment of physician assistants and/or development of education programs are reported from Germany, United Kingdom and the Netherlands (9,10).

METHODS

In order to characterize Physician Assistant practice and training in Europe, a literature search was conducted.
The literature search, while not being a systematic review, was performed using the Academic Search Premier, CINAHL, ERIC and MEDLINE databases.
A search strategy was carried out using the terms “Physician Assistant” and “Germany”, “United Kingdom” and “The Netherlands”.
From this select group of articles it is set out to define the PA profession and the current state of the workforce in Europe.

RESULTS

The search revealed 28 relevant published articles on physician assistants in Europe. Therefore also the websites of the existing PA professional organizations and universities which train PAs in Europe were queried to gather current information on the numbers of practicing physician assistants, physician assistant students and PA training programs.
Physician Assistant training and practice in Europe. Currently, European physician assistants are trained and are practicing in three countries: Germany, United Kingdom and the Netherlands. Each of these three countries has a slightly different approach to training and deployment of physician assistants. This analysis excludes American physician assistants employed by the US government who practice on American military bases in Europe and are regulated via the US government.
Germany. There are currently no peer-reviewed systematic studies indexed in the above mentioned databases describing the practice of physician assistants in Germany. However, query of German PA leaders reveals that there are three academic programs training Physician Assistants.
All three programs educate registered nurses (and other para-medical personnel) after their three-year vocational training towards a B.Sc. degree level. All three programs may be characterized as dual education programs (academic training with integrated work experience in the profession) and have a workload of 180 ECTS within three years.
At the Steinbeis-Hochschule Berlin (SHB), the first course was initiated in 2005. The program was expanded in 2009 to incorporate PA training as well as training for Cardiology Assistants and Intensive Care Practitioners. A formal cooperation was initiated with the German Society for Or-

thopaedic and Trauma Surgeons in order to accommodate a certificate of competency in this field. A total of 41 Physician Assistants have been graduated at this institution, and 33 students are currently enrolled (November 2011). The Duale Hochschule Baden-Württemberg started its program in 2010. A total of 28 students are currently enrolled (November 2011). The Mathias-Hochschule in Rheine (MHR) started its Physician Assistant program in 2011. A total of 37 students have been admitted up to date (November 2011).

As of the date of this publication, two of three programs (SHB and MHR) received National Accreditation (Akkreditierungsrat). Legislation for PA practice was initiated in the Federal State of Baden-Württemberg with the aim to protect the title "Arztassistent" and to define the scope of practice. As of November 2011, this initiative however has not yet proven successful. A nation-wide legislation process has currently not yet been started. In Germany, PAs are reported to work in Surgery (Cardiac, Trauma, Orthopedic, Plastic), Emergency departments, Internal Medicine, Oncology and Pediatrics.

United Kingdom. Most of the articles identified in the literature search are simply descriptions of the experience of individual doctors or PAs with the new profession in the UK. A few are opinion pieces discussing the PA role in the UK. Two scientific articles were discovered, one quantitative and one qualitative. Ritsema and Paterson published the results of the first census of UK PAs in October 2011. The authors indicate that this census will be performed annually to track the development of the profession in the UK (10). Drennan et al. published a qualitative study of the experience of general practice physicians who employ PAs (11). In addition, formal evaluations of the English and Scottish PA pilot projects, in which American PAs were brought to the UK to test the feasibility of the PA role within the NHS, have been published (4, 12).

The United Kingdom (UK) has been training physician assistants in limited numbers since 2005. At the end of 2011, the United Kingdom has two active physician assistant programs, one at St. George's University of London (SGUL) and one at the University of Aberdeen in Scotland. Programs at the University of Hertfordshire and University of Birmingham have closed. The ongoing status of a program at the University of Wolverhampton is uncertain. Thirty five students enrolled as first year students in the training programs at SGUL or Aberdeen in September 2011. These programs award a Post-graduate Diploma in Physician Assistant Studies and require an honours degree in biological or medical sciences prior to matriculation. Physician assistant programs in the UK require a year of full-time classroom study, followed by a year of full time clinical placement experience in a variety of medical specialties, with a goal to train the PAs for use as a generalist medical provider.

As part of the process for developing the UK PA census, the United Kingdom Association of Physician Assistants, the UK and Ireland Universities Board for PA Education, and the existing PA programs were queried in December 2010. These organizations identified 71 people who are qualified to practice as PAs in the UK, and 94 individuals who were enrolled as students in a UK PA program (10).

A census of UK PAs performed in January 2011 reveals that both US and UK trained PAs are practicing in a wide variety of specialties and settings. PAs in the UK practice in at least 19 different specialities, with the more than 1/3 of PAs serving in General Practice. The remaining PAs practice in both medical and surgical subspecialties, as well as in Emergency Medicine and Psychiatry. A small number of PAs practice in

Paediatrics or Critical Care. PAs are working in outpatient clinics, inpatient wards, emergency departments, intensive care units and psychiatric facilities (10).

The legal status of PAs in the United Kingdom is not yet resolved. Currently, physician assistants are not registered as a profession in the United Kingdom. A recent change in the national government due to a parliamentary election has slowed progression of the application for professional registration. Until PAs are registered as a profession, they will be unable to prescribe medications, which may prove a limit to the expansion of the profession in the UK (13).

The Netherlands. The Netherlands currently has five physician assistant training programs. All five train students at the Master's degree level. The first program started in 2001 in Utrecht (University of Applied Sciences). Other training programs are located in Amsterdam (In Holland University of Applied Sciences), Arnhem/Nijmegen (HAN University of Applied Sciences), Groningen (Hanze University of Applied Sciences Groningen) and the Rotterdam University. In 2010, 135 students enrolled in one of the five Dutch PA programs (15).

The education model of the PA programs in the Netherlands is unique in its kind and differs from the US model by being a competency-based, dual-approach curriculum. This curricular structure means that the PA students are also employed as PA trainees within a particular medical specialty starting from the day of their enrolment (16). So, next to their in-school generalist education, they also already gain specialty care competencies during their training. All programs are offered through Universities of Applied Sciences and are fully accredited by the Accreditation Organisation of the Netherlands and Flanders (NVAO). The training program covers 30 months and accounts for 150 ECTS (4200 clock hours). Dutch physician assistants have organized themselves by means of a professional association, the Netherlands Association of Physician Assistants (NAPA).

The NAPA has played an important role en route towards the legal recognition of the PA profession. Recently, amendments to the Act on Professions in the Individual Health (the so-called BIG law) in order to enable medical task shifting, have been accepted by the First House of Parliament. Enactment of the changes in the BIG law - *being an experiment article of the BIG law, under Orders in Council for a fixed term of five years after which it will be evaluated whether a full incorporation of the PA profession is justified* - by publication in the 'Law Gazette', will allow the Physician Assistant to perform tasks that were previously reserved for medical doctors.

In addition to establishing medical diagnoses, these tasks include the performance of surgical procedures, endoscopies, catheterizations, punctures, elective cardioversion, defibrillation and prescribing medications. This authorization covers acts that fall within the competence and training area of the PA, typically, routine procedures with a limited risk.

These procedures may only be performed by PAs if they adhere to current national guidelines, standards and protocols. Medical practice by PAs is only possible in a collaborative partnership with a medical doctor (17). From the NAPA website it is found that Dutch physician assistants practice medicine in the specialties as displayed in *Box 1*. These numbers do not reflect the up-to-date workforce. Reasons include the fact that not all graduates are member of the NAPA, the survey was conducted in 2009 and also includes PA students. However, this data is indicative for the wide-range of medical specialties in which PAs practice medicine (18).

Impact and quality indicators. The introduction of a new profession to medicine should

Box 1 - *Medical specialties of Physician Assistants in the Netherlands.*

	n =		n =		n =
Addiction psychiatry	1	Intensive care Thoracic Surgery	3	Sleep medicine	1
Anesthesia	16	Internal medicine	5	Spine center	1
Breast care	1	Mental handicap care	1	Sports medicine	1
Cardiac surgery	1	Neonatology	3	Transplantation surgery	1
Cardiology	21	Nephrology	2	Traumatology	2
Cardiothoracic surgery (incl 1 pediatric)	17	Nephrology (dialysis)	2	Urology (incl 1 sexual medicine)	9
Center First Aid surgery	2	Neurology	9	Vascular risk medicine	1
Clinical neurophysiology	1	Neurosurgery	12	Vascular surgery	7
Dermatology	2	Nucleair medicine & PET research (1)	1	Youth health care	1
Emergency (Room) Medicine	10	Nursing home medicine	1		
ENT	6	Psychiatry	3		
Family Medicine (General Practice)	30	Public Health (1)	1		
Gastro-enterology	3	Pulmonary medicine (incl. 1 rehab)	5		
General surgery	25	Radio diagnostics	1		
Geriatrics	8	Radiology	4		
Gynaecological oncology (1)	1	Radiotherapy	5		
Gynaecology/Urology	1	Rehab spinal cord injury (1)	1		
Hematology/Stem cell transplantation	1	Rehabilitation medicine	9		
Intensive care	3	Rheumatology	5		
Source: http://napa.artsennet.nl/Kwaliteit/Specialismen.htm					

be accompanied by studies on impact and quality of care.
Currently, only few studies have addressed this issue in Europe.
In a study from Scotland, the scope of practice of physician assistants was evaluated. In primary care, intermediate care, emergency medicine, out of hours clinic and orthopaedics, the range of tasks varied from history taking, examination, formulation of a differential diagnosis to performing medical tasks without direct supervision. Physician assistants performed tasks in the range from nurse practitioners to mid-level or generalist doctors. The authors found that the physician assistants worked safely, that their work was valued, that they added complementary skills to the team, but that a strong and trusting relationship with their supervising medical doctor was

necessary (4). A 2005 study of the English pilot program of PAs deployed in General Practice and Emergency Medicine settings had similar findings (12).

Drennan, et al. performed a qualitative study of the General Practice physicians who employ physician assistants in the United Kingdom. The employers reported that physician assistants in General Practice were able to conduct a high volume of work with low levels of supervision, although less experienced, but that new graduate PAs were less efficient and required more supervision than those with more experience.

Also, patients accepted these professionals and sometimes even specifically asked to be treated by the physician assistant. The biggest limitation on the profession from the perspective of the employers was a lack of a regulatory framework for PA, together with a lack of prescribing authority (11). One study from the Netherlands worked to characterize the role of the physician assistant and the degree to which PAs can substitute for physician practice.

This study also evaluated facilitators and barriers experienced in the reallocation of medical tasks. In that paper, nurse practitioners and physician assistants were compared. For the physician assistants, it was noted that 45,2 % of their working time was spent with direct patient care, and that medical activities was the largest portion (34,2 % of total working time) of this set of activities. However, one of the findings of that time of the study was that the lack of a legal framework was seen as prominent barrier (14).

DISCUSSION

PAs are slowly beginning to change the paradigm of medical practice in three European countries. Regardless of the local definitions of the PA (i.e. practicing medicine under supervision or in partnership with a medical doctor), the PA profession is beginning to establish itself as an important link to help guarantee access to and continuity of quality medical care. PAs ought to be considered as a new type of medical professional, which has the potential to impact medical practice, once it is more widely deployed. Despite differences in the model of training and deployment within Europe, PAs in these different health systems share a common denominator, namely performing medical tasks.

While conducting this literature analysis it shows that the PA workforce, with approximately 500 graduates, in the Netherlands takes a leading position regarding medical task shifting against the other European countries that employ PAs. It is clear that PA training in the Netherlands - although in terms of the educational model it differs from that of the United States - does satisfy the entry level of a Master's degree as adopted in the United States (19).

It should also be evident that the upcoming, though irreversible legalization of the profession in the Netherlands, albeit through an experiment article in the Professions Act, brings about a major step forward in the recognition of this new medical professional and probably will serve as an example for PA workforces (in development) on the European continent.

Another remark which is justified to pose is the importance of the dual approach of training PAs. To get enrolled to the professional Master, students have to meet some criteria. One of the admission criteria for starting the training as a PA, in as well the Netherlands as in Germany - which possibly has a number of advantages over a complete in-school training - is the minimum of two years clinical experience prior to enrollment.

This, undeniably, brings the student into a

situation in which they do not have to get used to working with patients. This allows a steeper, faster learning curve be made in expanding the already present basic medical knowledge and inherently increase the process of clinical reasoning. But it eventually also creates an additional advantage from the patient perspective, i.e. a trainee medical professional who is already able to approach the medical problem from a patient's standpoint of view. The assumption of expanding medical knowledge instead of learning everything from the start especially accounts for the situation in the Netherlands, where students have already acquired a Bachelor's degree in a health related science. During those previous 4 years students already got exposed to basic sciences and patient problems. Besides these benefits it also has to be mentioned that training PAs in a dual program prevents the negative impact of withdrawing PA students from their environment.

Most often, students namely remain working in their specialty, though in another role and new set of tasks, but not causing a drain based on the total staffing of a department. In order to overcome the effect of understaffing, in the Netherlands the Ministry of Health also provides a salary compensation to the employer, so that they can fill in this gap, simply by hiring an alternate who continues to perform the previous work of the PA trainee.

CONCLUSIONS

Literature about the Physician Assistant from Europe is scarce. Rather a lot of information in this study is identified outside indexed journals, namely in policy documents, on websites of involved associations and based upon expert-opinion.

To proof the potency of the PA profession for the European health market, further studies are needed in order to precisely measure the impact of the PA profession on medical healthcare in Europe.

Such studies should endeavour to characterize the profession from the standpoint of the physician assistant, the doctors who employ PAs, patients who are cared for by PAs and health administrators of systems which use PAs.

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