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Orthopaedic PAs Abroad

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Education and Training

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Abstract:

This article will explore the role that orthopaedic PAs play outside of the United States. The PA professional model is growing in other countries, spurred by the success of the profession in the U.S. The handful of countries outside of the U.S. that have established PA programs will be discussed, including their educational requirements and training. PAs from Germany and the Netherlands, as well as a PA from the U.S. who spent time in Scotland, describe their firsthand experiences of practicing abroad.

In 2016, *The Journal of Bone & Joint Surgery* (JBJS) welcomed the *Journal of Orthopaedics for Physician Assistants* (JOPA) to its family of journals. JBJS is considered an international journal that reaches countries around the world. In fact, JBJS's editorial board includes physicians from Canada, Germany, France, China, Switzerland, the United Kingdom, Japan, Singapore, Norway, India, and Greece. Being published alongside JBJS, JOPA has a unique opportunity to promote the use of orthopaedic PAs in other countries. This article explores the countries outside of the United States that employ PAs, and how these PAs are utilized in the orthopaedic community abroad.

The U.S., by far, has the most well-established PA profession (or similar profession with a different name) in comparison with any other country in the world. The countries that are in the early stages of implementing the PA profession include the U.K., the Netherlands, Germany, Australia, and Canada. The U.K. established a program in 2002; more than 250 practicing physician associates and 500 students are participating in 30 of the current programs, and 5 more programs are scheduled to open in 2017[1]. The program in the Netherlands has been around since 2000, with 5 educational institutions in the country and over 850 practicing PAs who are licensed[2]. Germany's PA programs have been around since 2005; there are 8 schools[3] and more than 300 PAs[4]. The PA profession in Australia was established in 2009 during a pilot program, and still has 1 school today. Canada's PA programs were started in 2008, and there are 500 PAs practicing in this country[5]. Other countries such as Ghana, South Africa, Ireland, and India have providers (some with different titles) who have similar roles to the PAs in the U.S., although their education and training differ considerably[5,6]. These countries often have shorter curricula that are comparable with or lower than a bachelor's degree in the U.S. Most of the countries that are developing the PA model focus on training primary care providers in rural underserved communities to meet the needs of their population. The U.S. is the only country in the world where PAs

have subspecialized to a large extent; in the U.K. and in the Netherlands, subspecialization has occurred on a smaller scale.

The JBJS International Editorial Board members were asked to share their thoughts on the role that nurse practitioners (NPs) and PAs play in their respective countries. In general, the majority of countries represented by the editorial board have not developed a PA model. Some possible obstacles mentioned include the medicolegal uncertainties of PAs, a lack of understanding of the PA scope of practice, and finding a funding source to pay for international PAs in predominantly socialized health-care systems. Because nursing is such an established role, international efforts have been made to train nurses for an increased clinical role. However, very few countries have opportunities for advanced degrees for the nursing profession (e.g., nurse practitioner). In some countries, including Britain and Japan, orthopaedic surgeons who need help to meet patient-care demands may educate and elevate nurses to a role with more clinical responsibilities, at their discretion. These providers are often called advanced practice providers, which can include physical therapists, who are trained in this fashion and allowed to participate in the clinics.

In the pages that follow, Kim Tantarn, PA, from Germany, and Ramon L. Roerdink, MSc, PA-C, from the Netherlands, describe their roles as orthopaedic PAs in their respective countries, and how their roles compare with the PA role in the U.S. Charles Dowell, PA-C, describes his experience as a U.S.-trained PA practicing in Scotland.

Kim Tantarn, PA

Generally, PAs are relatively new to Germany. The first German PAs graduated in Berlin in 2008. As of 2017, there were 8 educational institutions that offered PA programs, and there were 300 PAs who had already graduated[3,4].

The existing health-care system in Germany is starting to acclimate to the new PA profession. The majority of the emerging problems are legal. PAs in Germany do not have the right to prescribe medication or to sign surgical consent forms; by law, these tasks only can be done by a physician.

This was and still is a learning process for both the medical doctors and the PAs, who must be aware of their abilities and limitations. Once accepted in the position of PA and having proven one's worth, it gets easier, but with every new job, the whole cascade generally starts from the top. Because the legal situation is not fully comprehensible in Germany, this is something that we probably will have to deal with for a while.

As a PA in Germany, I think I can say that most of the medical doctors appreciate our help and accept us in our roles, despite the legalities that limit our work. However, there is, and probably always will be, resistance from individuals who feel threatened by this new profession.

Concerning compensation in large fields of work (e.g., the medical or educational sectors), there are government-regulated tables that define payment according to education and duration of employment. For PAs, there is no standard wage as there is for nurses or physicians, so it is up to each PA to negotiate a salary with the employers. From personal experience, I can say that wages may vary, and discrepancies up to approximately 1,000 Euros/month may occur. Generally, wages lie somewhere between that of a nurse and that of a resident, with no difference between government and private employers.

After finishing school and having completed a so-called social year, I went to nursing school. At the end of my education, one of my teachers talked about a program that was new to Germany and allowed nurses to go through additional training, which would help compensate for the lack of physicians in the country. I did some research, applied for the program in 2010, graduated as a surgical PA in 2013, and have been working in this role since then.

Currently, my role is similar to that of a resident on the ward, with the above-mentioned legal limitations. I always work in cooperation with a medical professional, ranging from the resident assigned to my ward to the senior consultant.

After spending a couple of weeks on the U.S. Ramstein Air Base, I was able to make a comparison between the PAs in the U.S. and the

PAs in Germany. The PAs in Germany are still taking baby steps. Whereas American PAs are autonomous and are allowed to make decisions concerning treatment, we are only allowed to make suggestions for treatment. American PAs prescribe medication, but we must tell our patients to see their family physician for prescriptions. These are only a few of the differences. From what I have observed, American PAs basically have a role that is comparable with that of a resident in Germany. However, we must recognize that the education is different (the PA program in the U.S. is a master's degree program, whereas in Germany it is a bachelor's degree program), and we must acknowledge the 50-year struggle that PAs went through in the U.S. to get to where they are now[7]. Knowing that the PA system in Germany is still relatively new, I hope and have faith that the PA profession will become well established in a couple of years.

Charles Dowell, PA-C

My experience as a PA in Scotland was both educational and extremely rewarding. I graduated from PA school in 2004, did a PA residency in orthopaedic surgery for 1 year, and practiced as a PA in orthopaedics for 9 years. I was then lucky enough to be offered an opportunity to practice as a PA in Scotland for 2 years. As mentioned above, physician associates (also referred to as PAs), as they are termed in the United Kingdom, have been around since 2002. Most of the programs in the U.K. require a first-class honors degree (similar to a bachelor's degree with honors in the U.S.) for entry into the program, as well as previous health-care experience. Typically, PAs graduate with a postgraduate degree with a master's in science.

The program is approximately 2 years long and has a curriculum similar to the schools in the U.S., with both didactic and practical phases that include rotations through multiple specialties. At first, I noticed that during the practical rotations, especially in Scotland, many of the PA students did not have direct contact with PAs. This was because of the small number of practicing PAs in the area available for practical rotations. I think this made it difficult for the PA students to acquire the level of

education, training, and responsibilities that are expected of U.S.-trained PAs.

When I first started working in the U.K., I was surprised at how limited the scope of practice was for PAs. Having practiced as a PA for 10 years in the U.S., I was used to the autonomy concerning clinical decision-making and prescriptive authority for which I had been trained. In the U.K., PAs were still fighting for all of these privileges, and, much like Germany, did not have prescriptive authority, could not write orders in the hospital, and could not practice in the clinics without direct supervision. It gave me perspective on how the early years must have been for the PAs in the U.S., and the endeavors they had to go through.

When I was hired in Scotland, PAs were considered part of the nursing category by the Royal College of Physicians, the governing body in the U.K. I was paid based on the nursing salary scale, which is directly related to years of experience. Since then, PAs have been given their own faculty within the Royal College of Physicians; this was the first step in developing and advancing the profession in this country.

I was fascinated to see that the hospital I worked at had many different providers with multiple titles who practiced in a similar manner to the PA profession. There are advanced practice providers, who are trained nurses or physical therapists who are given increased autonomy and responsibility in the clinics and on the wards. These providers had prescription privileges and ordering privileges. There are also providers who use the name “physician assistant in anesthesia,” who function much like certified registered nurse anesthetists and are trained only in anesthesia. Initially, this created a bit of confusion regarding my level of training and capabilities as a U.S.-trained PA in comparison with these other midlevel providers.

I was lucky enough that the hospital I was hired at had participated in a pilot program, and some great PAs had paved the way for me. They had already demonstrated to the hospital staff the level of training, education, and competency we have in the U.S. This made the transition much

easier. I was also fortunate that many of the surgeons I worked with had done some training in the U.S., and they were familiar with the function of PAs. As with any job, I felt that the harder I worked, the more I was able to demonstrate my level of education, autonomy, capabilities, and training to the staff; as a result, the staff trusted me more. This allowed my job to change substantially from my first day to my last day.

The U.K. has adopted the role of PAs and understands how important we are in the health-care system and how integral we can be in providing high-level coverage in a multitude of settings. This is demonstrated by the substantial growth of the profession over the last few years, as well as with the job postings by the American Academy of Physician Assistants (AAPA) that seek an increased number of U.S.-trained PAs to work in the U.K. There are some very hardworking PAs in the U.K. who have established the profession and continue to fight to develop the PA model. When starting a profession like this in any country, I think that you need to establish an organization with respected and motivated professionals who will continue to push the profession to higher levels. I believe that this profession with continue to flourish in the U.K with this established committee of experienced PAs.

Ramon L. Roerdink, MSc, PA-C

The first PA program in the Netherlands began in the year 2000; since then, the number of PAs has been exponentially expanding. The PA program in the Netherlands is a master's degree that is earned over 2.5 years. After completing the program, a master of science degree is obtained. To qualify for the master's program, candidates need to have at least a bachelor's degree (e.g., in nursing or physical therapy), and they should have at least 2 years of experience in direct patient care. Furthermore, candidates must master the Dutch and English languages, and they need to have obtained experience in a clinical workplace that meets the requirements of the universities[2].

The PA profession is popular within the Dutch health-care system. As a PA in the Netherlands, I am authorized to treat patients independently. This includes prescribing

medication, providing (intra-articular) injections, and performing surgery. The regulations on the PA profession are controlled by the same laws that govern physicians. Adjustments for PAs are made by the government. As a PA, I work on independent tasks in accordance with the commitments made with the physicians; it is always possible to ask a physician for his or her supervision for tasks or cases that I think are not within my capabilities.

Dutch PAs assist in major surgeries as the first assistant. Outpatient visits, emergency room visits, inpatient rounds, and clinical consults for all orthopaedic patients are performed by PAs in many hospitals. Patient care is the most important part of the job. PAs also initiate projects for improving the quality of health care, build and maintain patient registries, and initiate clinical research.

In 2012, the Dutch Ministry of Health, Welfare and Sport created a law that gives PAs the legal status to perform independently on specific tasks involving medical care of low to medium complexity. It also gives PAs the possibility to expand their responsibilities depending on their knowledge and experience. There are some other conditions within the same law: PAs and physicians must have specific agreements about medical care so that PAs can provide care independently within that specific medical field. Some orthopaedic PAs in the Netherlands perform operations on their own (e.g., complex gastrocnemius slides, forefoot corrections, lateral clavicle resections, excision of ganglia, carpal tunnel release, removal of osteosynthesis material, and arthroscopies). With accurate training, a PA can earn independence for a particular operation by completing a learning process. In practice, it involves a lot of work: taking courses, learning the operation from an orthopaedic surgeon attendee, performing the operation with the attendee, and then performing the operation under direct supervision of the attendee. If at least 2 attendees confirm that the PA is capable of performing an operation, he or she is authorized to do so independently. Those activities have to be documented and saved as entrusted professional activities in a portfolio. Some PAs from other specialties also perform operations on their own

(e.g., hernia repairs in general surgery, implanting pacemakers in cardiology, crossectomies in vascular surgery, etc.). As mentioned above, not all of the orthopaedic PAs perform operations independently. Furthermore, there are some restrictions within the same law: no intracranial, intrathoracic, intra-abdominal, or major joint surgery can be performed independently by a PA.

As a result of the introduction of PAs in the Dutch health-care system and the adjustments in our law system, attendees can focus on highly complex medical care, which makes their job more challenging. The PA is the health-care professional who focuses on medical care of low to medium complexity. This makes it more likely that the Netherlands will avoid the shortage of medical doctors that is expected in the future.

In the Netherlands, PAs and physicians must maintain their competencies by completing credentialed activities that are approved by their scientific specialist associations (e.g., the Dutch Orthopaedic Association [Nederlandse Orthopaedische Vereniging]) and the Dutch Association for Physician Assistants [Nederlandse Associatie Physician Assistants]). Examples of approved activities are the AAPA and the American Academy of Orthopaedic Surgeons Annual Meetings, the AO trauma course, registered orthopaedic master classes, the Advanced Trauma Life Support (ATLS) program, and much more. Completed continuing medical education (CME) activities are registered in a formal quality register at the scientific associations. Additionally, physicians (and PAs, starting in January 2018) have to maintain their licenses in a separate governmental register, which ensures that medical professionals are indeed registered with their scientific specialist associations and follow the rules that are set by law. Every 5 years, these items are evaluated, and it is decided whether or not the license will be extended for another 5 years.

A couple of years ago, I went to the U.S. to see how the PAs worked there. I noticed that there was a difference between the implementation of the profession among the states. Some states allowed far more independence than others. Surgical PAs

had a larger role in the operating room than in the Netherlands during major orthopaedic surgery. This is something that we envy, and hopefully will be able to achieve in the future. However, I do think that most of the Dutch PAs are doing the job in a way comparable with the PAs in the U.S., who have a great deal of independence. Unfortunately, in the Netherlands, there are many PAs who still are working below their level of education and competencies. For the ambitious ones and for those who follow, the challenge to expand their work activities awaits.

I think that there are many similarities and differences between the PA profession in the U.S. and in the Netherlands. We can learn a lot from our American colleagues. Although the PA profession is far more developed in the U.S., I do think that American PAs can benefit from the Dutch PA concept. It would be a strategic move to offer an exchange program for PAs in the Netherlands and the U.S. This would provide new experiences and encourage international development of the profession. Unfortunately, this may be difficult because of governmental policies and procedures. Hopefully, we will be able to facilitate this in the future.

Conclusion

This article discusses the fact that, with the exception of a few countries, the PA profession is largely undeveloped outside of the U.S. Table I provides statistics from the countries that have established PA educational programs. It is difficult to understand why the PA profession has not flourished outside of the U.S. PAs certainly help with patient access to care, so is there a physician shortage in the U.S. driving PA utilization? Table I provides World Health Organization (WHO) data on the number of physicians per 1,000 population from each country[8]. Interestingly the countries with an established PA profession actually have more physicians per 1,000 population than countries without PAs. According to the WHO, 44% of countries worldwide are reported to have <1 physician per 1,000 population. These data suggest that a physician shortage may not be a major driving force behind increased utilization of PAs.

Although the idea of an advanced practitioner who could help diminish work demands would be welcomed by orthopaedic surgeons around the world, many regulatory obstacles prevent the PA and NP professions from flourishing abroad. The PA profession has been effectively established in countries where a PA scope of practice and reimbursement policies have been enacted, paving the way for increased utilization. PA employment in the U.S. has likely benefited from greater health-care funding since the U.S. ranks among all countries as the highest in health-care expenditure as a percentage of gross domestic product[9,10].

The fact that the PA profession is starting to grow outside of the U.S. reflects well on the success and influence of the U.S. model. As the PA profession continues to grow in the U.S., more and more countries will see the benefits of this model that improves patient care access and affordability. What a great time it will be when the PA profession is well developed internationally and PAs can collaborate from all over the world. JOPA, with the help of the JBJS international editors, will continue our efforts to grow our readership and the number of authors abroad.

References

1. Faculty of Physician Associates. http://www.fparcp.co.uk/. Accessed 2017 Apr 11.
2. Physician assistants in the Netherlands. https://www.napa.nl/page/43/. Accessed 2017 Apr 12.
3. Physician assistant programs in Germany. https://www.studis-online.de/StudInfo/studienfach.php?nr=1089&what=Physician%20Assistance. Accessed 2017 August 1.
4. Physician assistants in Germany. https://www.aerzteblatt.de/archiv/191941/Akademische-Gesundheitsberufe-Physician-Assistants-die-Neuen-im-Aerzteteam. Accessed 2017 August 1.
5. Hooker RS, Kuilman L. Physician assistant education: five countries. J Physician Assist Educ. 2011;22(1):53-8.
6. International physician assistants. https://doseofpa.blogspot.com/2014/04/international-physician-assistants.html. Accessed 2017 May 31.
7. Mittman DE, Cawley JF, Fenn WH. Physician assistants in the United States. BMJ. 2002 Aug 31;325(7362):485-7.
8. Global Health Observatory. Physicians per 1,000 population. http://www.who.int/gho/health_workforce/physicians_density/en/. Accessed 2017 May 31.
9. Health expenditure, total (% of GDP) http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS. Accessed 2017 Jun 1.
10. U.S. healthcare from a global perspective. http://www.commonwealthfund.org/publications/issue-briefs/2015/oct/us-health-care-from-a-global-perspective. Accessed 2017 Jun 1.
11. PA programs in the US. http://www.arc-pa.org/accreditation/accredited-programs/. Accessed 2017 May 30.
12. American Academy of Physician Assistants. https://www.aapa.org/. Accessed 2017 May 30.
13. Sc B. (physician assistant) programs in India. https://targetstudy.com/colleges/bsc-physician-assistant-degree-colleges-in-india.html. Accessed 2017 May 31.
14. Indian Association of Physician Assistants. http://www.iapaonline.org/. Accessed 2017 May 31.
15. Physician assistants in Australia. http://www.aspa-australianpas.org/. Accessed 2017 Apr 12.

TABLE I PA Statistics from Representing Countries

Country	Level of Education	Number of PA Programs	Number of Practicing PAs	Representing National PA Organization	Density of Physicians per 1,000 population[8] (Year Data Collected)
United States	Master's degree	226[11]	115,500[12]	American Academy of Physician Assistants (AAPA)	2.554 (2013)
Canada	Bachelor's and master's degrees	4	500 (nearly 300 in Ontario alone)	Canadian Association of Physician Assistants (CAPA)	2.477 (2012)
Germany	Bachelor's degree	8	>300	None	4.125 (2014)
Netherlands	Master's degree	5	>850	Netherlands Association of Physician Assistants (NAPA)	3.352 (2014)
United Kingdom	2-year postgraduate degree	30	>250	Faculty of Physician Associates	2.806 (2015)
India	Bachelor's degree	13[13]	300[14]	Indian Association of Physician Assistants	0.725 (2014)
Australia	Master's degree	1[15]	35[15]	Australian Society of Physician Assistants (ASPA)	3.374 (2013)