

Training and Retaining Physician–Scientists in Dermatology: The German Perspective

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In an ideal setting, physician–scientists combine clinical practice and knowledge with scientific curiosity and research in synergy. Li et al. address the current challenges regarding the rare breed of physician–scientists in the United States—much similar to those faced in German dermatology departments. The authors discuss multiple angles to transform the so-called leaky pipeline into a streamline of dermatologists in science.

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In the article *Training Physician–Scientists for Careers in Investigative Dermatology* by Li et al. (2021), pitfalls from recruitment to retaining dermatologists within science are examined. This article points out the differences and similarities between Germany and the United States (US). Overall, however, Germany and the US face similar challenges to retain a critical mass of physician–scientists (PSs).

PS versus practicing dermatologist: A battle of attractiveness

The main difficulty, one most likely shared across the globe, is the attractiveness of a PS in comparison with a purely clinical career. As in the US, financial and family-related aspects are easier to obtain in private practice rather than in scientific dermatology. Furthermore, a loss to family of especially female PS is a shared reason for the leaky pipeline. To retain women in academic medicine, efforts in the form of extensive programs appealing specifically to females in science and clinics are available in Germany. These programs are of significant importance for the future, seeing that 58% of board-certified dermatologists and 63% of

enrolled medical students in Germany were female in 2020 (Federal Statistical Office of Germany, 2021; German Medical Association, 2021; German Medical Association, 2021).

Dividing the physician population early

Many core differences between the situation in the US and Germany are based on the medical training system for residents. In Germany, there is a difference between a mere physician and an MD (doctorate medical degree [Dr. med. degree]). To attain the latter, during or after graduation from medical school, scientific work is necessary, concluded by submitting and defending a dissertation thesis. For patient-related work, obtaining a doctoral degree is not necessary. However, many physicians will submit a thesis to be recognized (and respected) as a physician through the Dr. med. title. This harbors big potential as a gateway to a scientific career for some but also divides the population of physicians very early in the career path: those with (basic) science affinity and those without. Only those who obtained a Dr. med. degree will be eligible for PS training programs



(PSTPs). As an additional hurdle, both an exceptional grade in the thesis evaluation and at least one first-author publication are required for admission to most PSTPs. As discussed by Li et al. (2021), publishing in high-end journals requires time—a resource medical students and young physicians have to invest early in their careers. This requires early decision making. Hence, the publication bias of physicians discussed by Li et al. (2021) carries weight not only in the retaining phase of PS but also early in the recruitment/admission phase.

Timelines for PSs: A path with an uncertain end?

The concept to frontload clinical training described by Li et al. (2021) within the career of a PS contrasts with the German approach to channel physicians with science interest into PSTP at the beginning of residency. This is designed to utilize the momentum gathered during the doctorate degree to smoothly transition into the combination of science and clinical work after medical school. A timeline for PS is structured by the 2+2 program in the US. In comparison, the board certification process for dermatologists differs from state to state in Germany. If at all stated in their regulations, most German states will accept around 6 months of scientific work as part of the 5-year residency. Several states are in the process of prolonging the time accredited for PS. This uncertainty regarding the potential extent of residency prolongation strongly hinders young doctors to pursue the PS route. In addition, physicians wanting to obtain a PhD on top of their Dr. med. degree are required to complete additional studies in basic science (i.e., biology). This extensive additional time of education and concomitant loss of potential income coming from attractive clinical practice is discouraging to most physicians.

Clinical workload + scientific workload = work overload?

Dermatologists in university hospitals in Germany face a clinical spectrum that is different from that in the US. In Germany, treatment of, that is, metastatic melanoma, or the use of aggressive immunosuppressive agents is the

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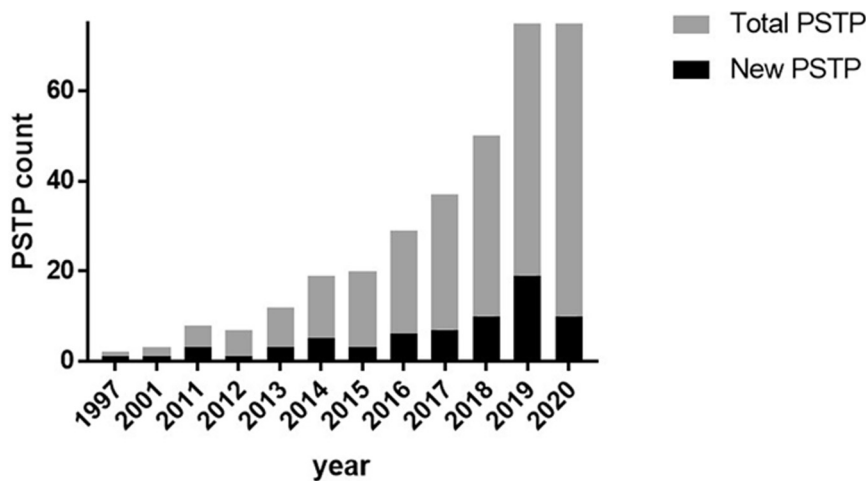


Figure 1. PSTPs in German medical faculties. Results of a yearly inquiry regarding the number of PSTPs by the German Medical Faculty Organisation (MFT) to the 39 medical faculties in Germany on the basis of voluntary self-disclosure; therefore, results may be incomplete. However, in 2020, all the 39 medical faculties replied to the inquiry (German Medical Faculty Association, 2021). MFT, Medizinischer Fakultätentag; PSTP, physician–scientist training program

duty of dermatologists. These extremely sick patients are often treated as inpatients requiring close supervision within dermatological wards. This workload makes additional scientific work parallel to clinical duties seem more like a burden than a joy for many young physicians.

Physician scientist training programs

PSTPs are designed to relieve physicians in the clinic from additional scientific work and to provide protected research time as well as training programs for future career planning. However, German PSTPs appeared late to the game compared with those in the US: Figure 1 shows the development of the numbers of PSTPs in the 39 German

medical faculties over time. A consensus statement of the German Research Foundation (Deutsche Forschungsgemeinschaft [DFG], equivalent to the National Institutes of Health in the US) gave the recommendation and request for stronger support of PSs within faculties in 2015, resulting in the establishment of specifically DFG-funded PSTPs in 2018 (DFG, 2015). On the basis of the memorandum *On the situation and improvement of clinical research in Germany* from 1979 by former vice president of the DFG, Wolfgang Gerok (Gerok, 1979), research rotations formerly called Gerok rotations have been providing protected research time for 1–2 physician positions in DFG-funded clinical

research projects. This can act as a gateway to independent clinical–scientific research, a process encouraged by the DFG in position papers from 1997 onward (DFG, 1999). It is encouraging to see the increase in applicants to PSTPs at medical faculties over time, as shown in Figure 2. The drop of admission rate from approximately 50–60% to approximately 40% may allow for the conclusion of increased demand under physicians for PS career options. Overall, PSTPs are an ongoing and growing movement, supported by government institutions and department-specific institutions (i.e., German Society of Dermatology–funded programs) alike. It is currently too early to evaluate how leaky the pipeline of PS truly is in Germany, that is, how many PSs remain active in science and/or clinics or how many PSs attain professorships, etc. The medical faculty of Berlin has one of the longest-running PSTPs aged 10 years now, and an initial evaluation is currently ongoing.

How to train and retain a rare breed?

The big question remains: how to grow and pamper the population of (dermatological) PSs? They will most likely always remain a small group within the overall cohort of physicians. As Christiane Opitz, an active clinician at the Department of Neurology at the University of Heidelberg, Germany and head of a group working on brain cancer metabolism at the German Cancer Research Center, said: “Physician-scientists are a rare breed, but so are physician-novelists, banker-poets or philosopher-scientists who try to remain actively engaged in both of their professions.” (Rehman, 2014). Extensive governmental, institutional, and societal networks; flexible and attractive training in science and in clinical practice; and importantly, personal mentorship are laying the grounds to support a streamline of PSs (Noble et al., 2020). Becoming a PS is often difficult and requires high investments by the PS and institutions alike. However, it bears the opportunity to be highly rewarding both personally and professionally and, importantly, to be an essential cornerstone in driving scientific progress for dermatological patients. Li et al. (2021) provide assistance with their comprehensive overview of

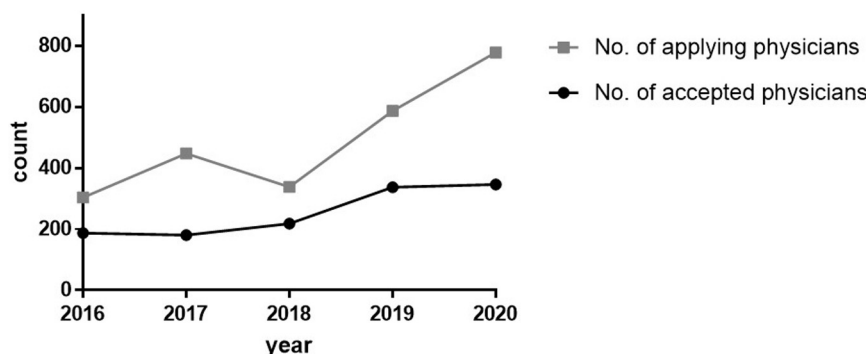


Figure 2. Rates of applicants and accepted physicians to physician–scientist training programs of German medical faculties. Results of a yearly inquiry regarding the No. of applications and acceptances to physician–scientist training programs by the German Medical Faculty Organisation (MFT) to the 39 medical faculties in Germany on the basis of voluntary self-disclosure; therefore, results may be incomplete. However, in 2020, all the 39 medical faculties replied to the inquiry (German Medical Faculty Association, 2021). MFT, Medizinischer Fakultätentag; No., number.

resources for US dermatologists looking to take the road less traveled—that of a PS.

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CONFLICT OF INTEREST

The authors state no conflict of interest.

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