Journal of Pain Research

Dovepress
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ORIGINAL RESEARCH

Employer Perspective on Pain Fellowship Education: A Survey to Understand the Current State of Pain Medicine Training

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Background: Pain medicine care has expanded to encompass a wider range of conditions, necessitating updated education and training for pain specialists to utilize emerging technologies effectively. A national survey was conducted through several verified Pain organizations regarding pain physician employers' perspectives on pain medicine fellowship training and education. The survey aimed to gather insights from a diverse range of geographic locations, practice types (academic and private practice), and practice settings. The findings emphasize the need for educational programs to adapt to the evolving landscape of pain medicine.

Methods: A survey was disseminated through several national professional pain societies, including the AAPM, ASIPP, NANS, and ASPN, and Pain DocMatters forum, an online verified pain physician forum to ensure a wide reach among potential respondents. The survey received responses from 196 participants, 39 from the Pain DocMatters forum and 157 through pain societies' channels.

Results: Most survey respondents reported a need for additional training and experience beyond what is offered during the one-year ACGME-approved fellowship. Professionalism and basic interventional skills were identified as the highest valued attributes of pain physician candidates by potential employers. Employers rated spinal cord stimulator (SCS) trials as the most important advanced procedure for trainees to learn. Other advanced procedures such as SCS implants, PNS implants, interspinous spacers, and percutaneous procedures involving the vertebral body were also rated as either very important or somewhat important by most respondents. A significant gap in training has been identified, with only 7% of respondents feeling that fellows were adequately prepared to independently practice in the current educational model. A vast majority of respondents stated that fellows need additional training following graduation from fellowship to practice independently.

Conclusion: Training programs should provide more robust education to prepare their graduates for independent practice.

Keywords: graduate medical education, fellowship training, analysis, multidisciplinary, independence

Introduction

The landscape of pain medicine is undergoing significant transformation, driven by dynamic advancements in interventions, technology, and the expanding spectrum of treated patient conditions. Procedural innovations such as neuromodulation and minimally invasive spine techniques are becoming integral components of pain management practice. In the

Received: 30 July 2024
Accepted: 28 December 2024
Published: 31 December 2024

post-COVID era, pain medicine has evolved into a busy and complex environment characterized by shortened patient visits, increased insurance oversight, decreased reimbursement, and a compensatory emphasis on productivity and throughput. This situation places additional responsibility on potential hiring practices to ensure that pain providers can meet these demands.[1]

Pain medicine care is broadening to encompass a wider array of patient conditions, including chronic pain syndromes, complex regional pain syndrome, neuropathic pain, complex spinal disorders that were previously treated with open surgeries, and cancer-related pain. These developments necessitate a comprehensive and dynamic approach to education and training, ensuring that pain specialists are equipped with the latest knowledge and skills to effectively utilize emerging technologies and interventions when they venture into independent practice. As the field continues to evolve, it is imperative that training programs adapt to these changes to meet the growing and diverse needs of patients.[2]

In this research, we present findings from a survey aimed at understanding pain medicine education and training from the perspective of employers of pain physicians. The survey gathered insights on various aspects, including practice settings, hiring practices, candidate qualities, qualifications, and preparedness for independent practice. Distributed through major pain societies and an online platform, the survey attracted a diverse range of respondents, both academic and non-academic, which highlighted current challenges and underscored the necessity for educational programs to evolve in response to the evolving landscape of pain medicine.

Materials and Methods

Participants

Approval for the research was obtained from the Montefiore Medical Center IRB (2024–15604). This study was designed by an independent group of academic pain physicians who were responsible for preparing the survey. The survey aimed to gather insights from pain physician employers regarding their perspectives on pain medicine education and training. The survey had 13 questions and was modeled after two previous surveys conducted by our team, which targeted trainees and program directors (Supplementary File).

The survey was distributed through major pain societies via email, including the American Academy of Pain Medicine (AAPM), the American Society of Interventional Pain Physicians (ASIPP), the North American Neuromodulation Society (NANS), and the American Society of Pain and Neuroscience (ASPN), seeking feedback and participation. Additionally, it was posted on the Pain DocMatters online forum (DocMatter.com), a trusted platform exclusively for practicing pain physicians with verified medical licenses.

A total of 196 respondents completed the survey, with 39 responses received from the Pain DocMatters forum and the remaining 157 responses obtained through pain societies' channels. All platforms were vetted to ensure licensed and practicing pain physicians were responders. While the exact number of Email recipients and the response rate could not be determined, the participation was voluntary, aiming to include a broad and diverse range of employers engaged in pain medicine to ensure comprehensive feedback for the study.

Survey Instrument

The authors designed the survey to gather employers' insights on pain medicine education and training. Our research planning committee, comprised of physicians in academic practice, initially drafted the questions, which were then reviewed and refined by the other authors. After multiple rounds of edits, the final version was approved for distribution.

The survey included 13 concise and clear questions, both multiple-choice and open-ended, to ensure accurate and relevant responses. This design aimed to provide a thorough understanding of employers' perspectives on the field.

Recruitment

The survey was administered online using a secure survey platform (SurveyMonkey.com). The recruitment process began with an advanced notification Email sent to major pain societies, explaining the purpose of this voluntary and non-compensated survey. This Email aimed to prepare the recipients and provide context for the upcoming survey invitation,

informing them that their responses would remain anonymous and confidential, and that once submitted, responses could not be altered.

Three days after the advanced notification, the survey link was distributed via Email to members of pain societies, including AAPM, ASIPP, NANS, and ASPN, specifically targeting employers of pain physicians. Participants received an introductory statement reiterating the study's purpose and emphasizing the confidentiality of their responses. The survey link was single use, ensuring that each respondent could only submit their answers once.

To enhance response rates and minimize nonresponse bias, a reminder Email was sent ten days after the initial invitation, encouraging participants who had not yet completed the survey to do so. The total duration for collecting responses was approximately three months. Upon completion of the survey, participants were directed to a thank-you page.

Data Analysis

To analyze the survey data, descriptive statistics were utilized to summarize the demographic characteristics of the participants and their responses. The data were exported from the survey platform and processed using statistical software to compute measures such as frequencies, percentages, and means.

Results

Practice Settings and Locations

The survey revealed a diverse range of practice settings among respondents. The majority practice in suburban areas (39.49%), followed by large cities (29.23%), urban (25.64%), and rural areas (5.64%). Geographically, the practices are spread across the United States, with the highest concentration in the Northeast (29.90%), followed by the Midwest (24.23%), West (14.43%), Southeast (20.62%), and Southwest (10.82%).

Professional Settings

A significant portion of respondents practice in private settings (49.49%), with a smaller proportion in academic settings (32.65%) and private practices with academic partnerships (17.86%).

Hiring Practices and Training

The survey indicates a strong inclination towards hiring new graduates, with 84.10% of respondents open to hiring a new graduate in their practice. Additionally, 73.47% of respondents have hired newly graduated Pain fellows in the last ten years.

Training Duration for New Post-Graduate

Employers believe training duration for new post-graduate hires varies, with 38% of responders indicating that new graduates require 1–6 months of extra fellowship training to be prepared for independent practice. Thirty percent of responders reported that fellows require up to one year of additional fellowship training. Eighteen percent reported that fellows need more than one year of additional training, and only 14% indicated that less than one month of extra fellowship training is adequate for independent practice (Figure 1).

Important Qualities in Candidates

When evaluating candidates, 83.42% of respondents prioritized professionalism, 79.59% mentioned bedside manner and empathy, 79.59% stated communication skills, and 65.31% reported clinic and procedural efficiency are very important features to consider a candidate for a position. Billing and coding experience, while still valued, was considered less critical (17.86% of respondents) (Table 1, Figure 2).

Regarding the learnability of empathy and bedside manners, 80.10% of respondents believe some components can be learned, while 8.67% think it can fully be learned during fellowship.

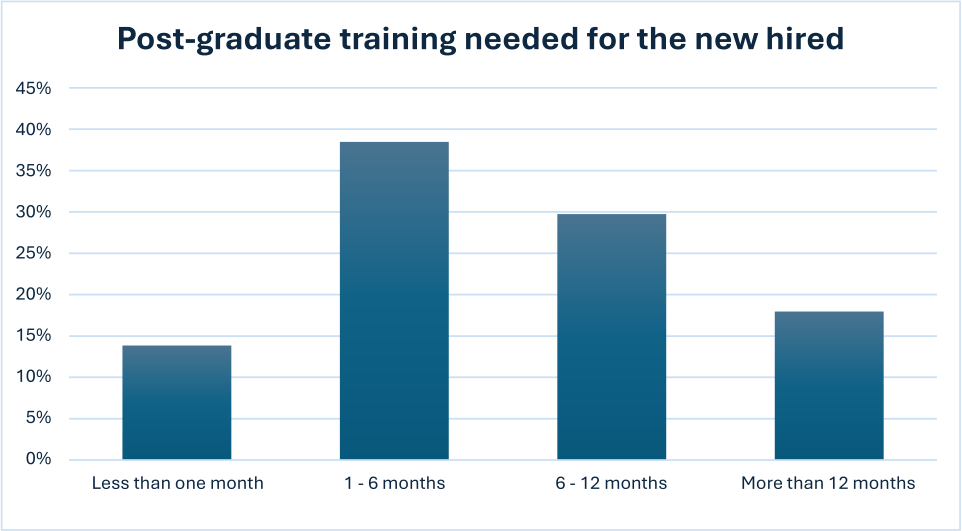

Figure 1 Training duration for new post-graduate.

Importance of Various Skills

In terms of specific skills, basic interventional procedures were deemed very important by 84.18% of respondents, followed by medication management (46.94%), advanced interventional procedures (35.20%), and institutional reputation and program specialty affiliation (25.51%). Exposure to acute pain medicine was less critical, with only 14.80% rating it as very important (Figure 3, Table 2).

Advanced Procedures for Fellows

Respondents highlighted the importance of fellows being comfortable with SCS trials (72.68%), implantable devices (41.75%), and percutaneous procedures (35.71%). Other advanced procedures, such as mild® (28.72%) and fusion procedures (20.41%), were also valued, though to a lesser extent (Figure 4, Table 3).

Preparedness for Independent Practice

The majority of respondents feel that fellows are well-trained for independent practice in areas like MBB and RFA (91.84%), interlaminar epidurals (95.92%), transforaminal epidurals (91.33%), and joint injections (93.37%). However, there is a notable concern about their preparedness in billing and coding (61.03%) and psychological and behavioral aspects of pain treatment (35.75%) (Figure 5).

Table 1 How Important is Each Quality Feature to Consider a Candidate for a Position?

Quality Feature	Very Important	Somewhat Important	Not Important
Bedside manner and empathy	156*	20	20
Communication skills	156	18	22
Clinic and procedural efficiency	128	47	21
Professionalism	161	9	23
Billing/coding experience, knowledge of business/healthcare operations	35	114	47

Note: *Each cell indicates the number of respondents.

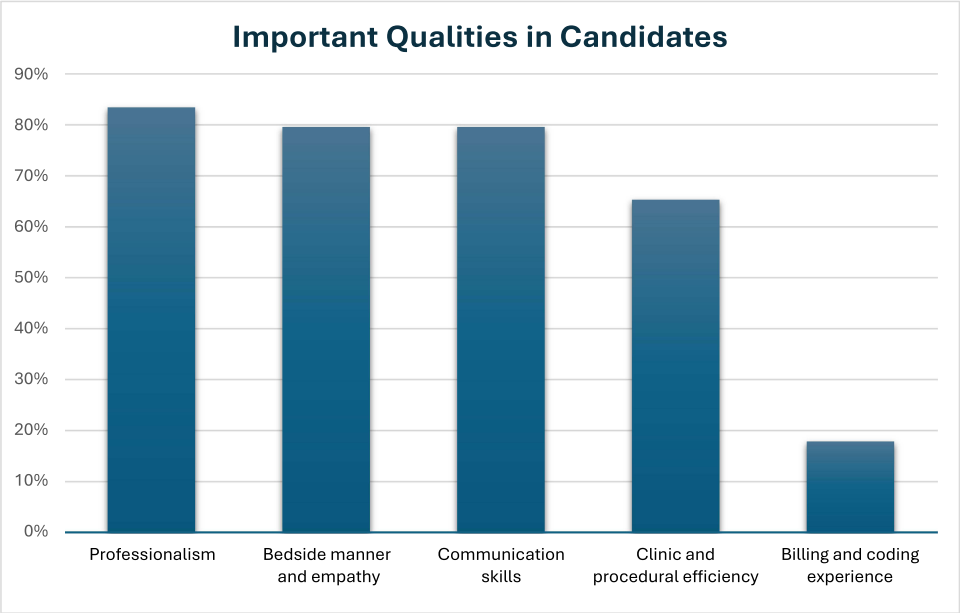

Figure 2 Important qualities in candidates.

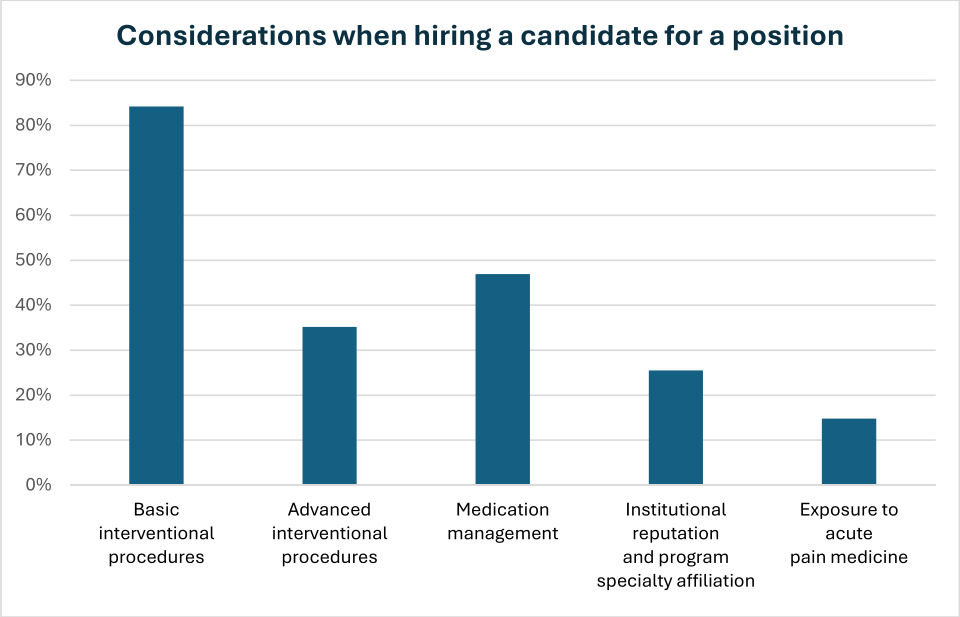

Figure 3 Considerations when hiring a candidate for a position.

Procedural Training During Fellowship

An overwhelming majority (85.20%) would not consider a candidate who was not procedurally trained during fellowship.

Overall Fellowship Preparedness

Finally, regarding the overall preparedness of fellows from US Pain Fellowships, only 7% of employers believe that fellows are prepared for independent practice in the current educational model; 58% believe that fellows are prepared but need more training within the hiring practice after fellowship; 21% believe that the hiring practice and industry need to provide additional training to new fellowship graduates; and 14% of employers believe that academic programs are failing to properly educate most fellows (Figure 6).

https://doi.org/10.2147/JPR.S487990

Table 2 Considerations When Hiring a Candidate for a Position

Considerations When Hiring a Candidate for a Position	Very Important	Somewhat Important	Not Important
Basic interventional procedures	165	11	20
Medication management	92	73	31
Advanced interventional procedures	69	112	15
Institutional reputation and program specialty affiliation	50	95	51
Acute pain medicine Exposure	29	70	97

Discussion

The survey highlights several critical gaps in the current training of pain physicians, underscoring the need for a more holistic and comprehensive approach to pain management education that integrates both technical and non-technical skills. Insights from employers reveal key areas of concern and opportunity. A significant majority of respondents emphasized the importance of empathy, professionalism, and psychological understanding in pain medicine practice. Specifically, 83.42% of respondents prioritized professionalism, 79.59% emphasized bedside manner and empathy, and 79.59% valued communication skills. These non-technical skills are essential for effective patient care but are often perceived as lacking in current fellowship programs. Addressing this gap requires training programs to incorporate structured training in these areas through workshops, role-playing scenarios, and supervised patient interactions that focus on developing these critical interpersonal skills. Interestingly, 65.31% of respondents believed that procedural efficiency was very important; this suggests that personal character is more highly valued than procedural competence in most practices. However, when paired with our understanding of employer training this result suggests that procedures remain a very important part of Pain medicine practice, but that the employer will train postgraduates in procedures. If true, this obviously limits the value of graduate education. In fact, approximately 85% of our respondents claim that Pain fellowships need to improve education to adequately prepare their fellows for independent practice.

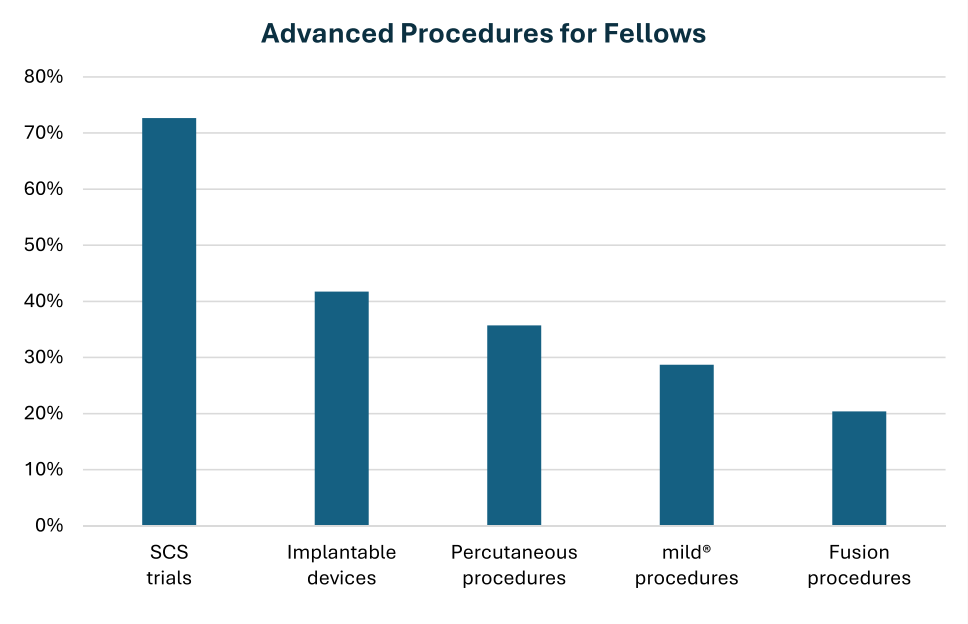

Figure 4 Advanced procedures for fellows.

Table 3 Advanced Procedures for Fellows

Advanced Procedures for Fellows	Very Important	Somewhat Important	Not Important
SCS trials	141	39	14
Implantable devices such as SCS implants, PNS implants, interspinous spacer	82	92	21
Percutaneous procedures requiring access to the vertebral body	70	99	27
mild®	56	89	50
Fusion procedures	40	69	87
Regenerative medicine	41	78	77
Endoscopic surgeries	24	34	138

While the survey data also indicate that basic procedure education such as epidurals and facet-based treatments (medial branch block and radiofrequency ablation) are enough for independent practice there also is a significant demand for proficiency in advanced interventional procedures, particularly spinal cord stimulation (SCS). Despite this demand, many program directors feel that their trainees are underprepared to effectively utilize these procedures.[3] With 72.68% of respondents considering SCS trials very important, fellowship programs should consider placing greater emphasis on hands-on training in advanced techniques. This can be achieved through extension of fellowship in specialized centers, partnerships with experienced practitioners, and the use of simulation technology to provide trainees with practical experience. These results suggest that the volume and/or the quality of basic procedure education is deemed to be adequate by employers, but that more complex procedures such as mild®, percutaneous disc procedures, and implantable devices (such as interspinous spacers) need to teach more.[4]

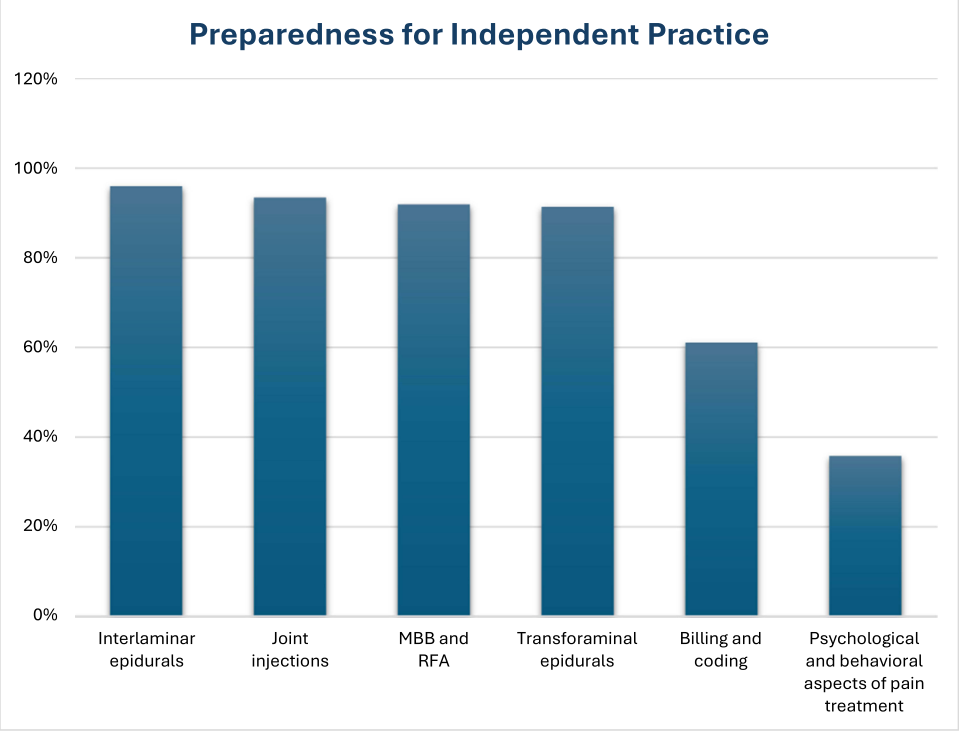

Figure 5 Preparedness for independent practice.

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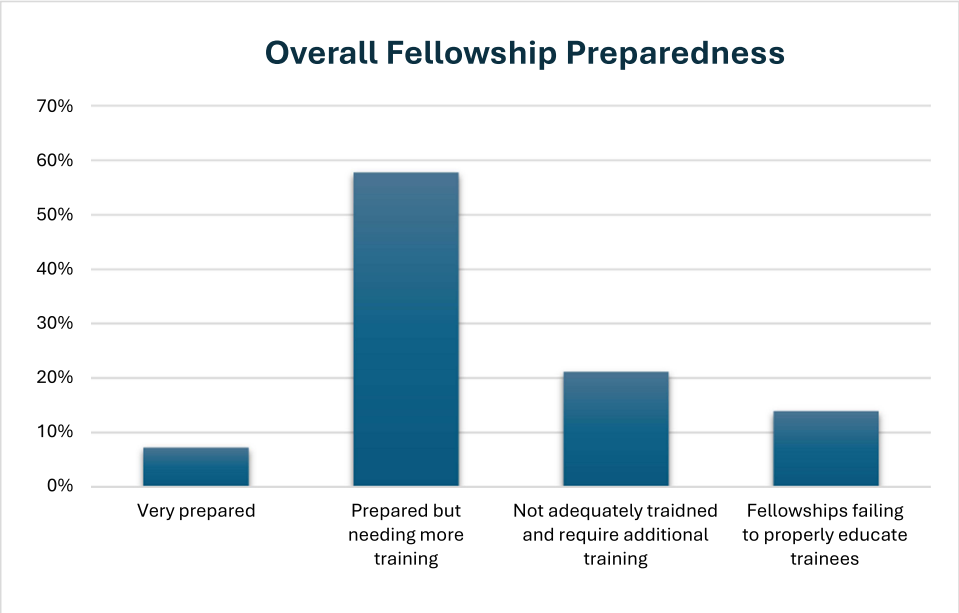

Figure 6 Overall fellowship preparedness.

There is considerable variation in employers' perceptions of the required training duration for new graduates. According to the survey, 38% of respondents indicated that new graduates need 1–6 months of additional fellowship training, 30% endorsed the need for up to one additional year, and 18% suggested that more than one year is necessary. Only 14% felt that less than one month of extra training is adequate. These data underscore the need for flexible and potentially extended fellowship programs that provide sufficient hands-on experience and mentorship to ensure graduates are fully prepared for independent practice. That only 7% of employers reported that they believed that fellows are prepared for independent practice is discouraging, as is the finding that 14% of respondents believe that training programs are failing to properly educate most fellows. Our findings are certainly consistent of those from recent literature.[5] In which the duration and scope of a one-year fellowship in pain medicine were criticized as inadequate.

An international perspective can provide valuable insights and contribute to global improvements in pain management education.[6] Different countries have varying standards and approaches to pain management training, which can offer potential solutions to the gaps identified in this survey. By examining successful international models and incorporating best practices, US pain medicine programs can enhance their curricula and better prepare graduates for the global healthcare environment.

Based on the survey findings, several recommendations can be made to improve pain medicine education and training. These included integrating structured training in empathy, professionalism, and psychological understanding into fellowship curricula, providing enhanced training opportunities in advanced interventional techniques, particularly regarding neuromodulation, providing flexible training options that allow for additional hands-on experience and mentorship, and examining successful international training models and incorporate best practices from around the world.

Our survey methodology provided us with a broad and representative cross-sectional snapshot of employers' attitudes and beliefs regarding pain physician training, and our data identify the need to improve its quality and quantity if we are to produce physicians who are capable of providing the safest and most effective pain management treatment. Survey research is inexpensive and efficient, which is particularly important given that the current investigation was not funded.[7] However, weaknesses of the study also need to be considered. As is the case with all survey-based studies, the present analysis has the potential for responders to be those most concerned with the topic, which may result in a degree of selection bias.

Evolving times must lead to an evolution of training and modification of goals of what it means to "complete" fellowship training. This survey shows the concern of many in the field of pain medicine that current training programs are not meeting the needs of an ever-changing dynamic. In the past decade, interventional pain specialists have created and transformed into a new role as a key expert in making spine and nerve procedures less invasive, more effective while simultaneously reducing risks. We as a specialty must work together to change the Pain education curriculum or to transform the field and add hands on focused apprenticeships that will create a new generation of physicians who can address the demands of our patients.

Conclusion

The evolving field of pain medicine necessitates an evolution in training and the goals of fellowship programs. This survey elucidates significant concerns among employers regarding the preparedness of new graduates, indicating that current training programs are not fully meeting the needs of a dynamic and changing field. By integrating comprehensive training in both technical and non-technical skills, extending fellowship duration, and adopting global best practices, the specialty can better prepare the next generation of pain physicians to meet the demands of their patients and the healthcare environment.

Abbreviations

AAPM, American Academy of Pain Medicine; ASIPP, American Society of Interventional Pain Physicians; NANS, North American Neuromodulation Society, ASPN, American Society of Pain & Neuroscience; ACGME, Accreditation Council for Graduate Medical Education; SCS, spinal cord stimulator.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Disclosure

Dr. Wahezi receives research funding from Boston Scientific, Abbott, and Vertos. He is also a consultant for Boston Scientific. Dr. Wahezi is responsible for the overall content as guarantor. Dr. Eshraghi reports personal fees from Saluda Medical Americas Inc., SPR, principal investigators for Medtronic/SGX and Avanos; grants, personal fees from Autonomous Healthcare Inc, outside the submitted work. Dr. Pritzlaff reports personal fees from SPR Therapeutics, Nalu Medical, Bioventus; educational grants from Medtronic, Abbott, Biotronik, and Nevro; royalties from Wolters Kluwer, outside the submitted work. Dr Trent Emerick reports stock/equity from Vanish Therapeutics, Inc, outside the submitted work. Dr Corey Hunter reports personal fees and/grants from Abbott, Saluda, Biotronik; stocks from Mainstay, PainTEQ, and Vivex, outside the submitted work. Dr Michael Schatman is a Senior Medical Advisor for Apurano Pharma, outside the submitted work. Dr Charles Argoff reports grants and/or personal fees from Lilly, Lunbeck, Abbvie, Nevro, XGene Pharma, Collegium, OPC, Tris Pharma; royalties from Elsevier. Dr Timothy Deer reports personal fees from Abbott, Vertos Medical, SpineThera, Saluda, Mainstay, Cornerloc, Boston Scientific, PainTeq, Spinal Simplicity, SPR Therapeutics, Biotronik, Aurora, and Nervonik, outside the submitted work; In addition, Dr Timothy Deer has a patent pending to Abbott. All other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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