

Supplemental Document 1

Pain Medicine Program Director Survey

1. In which of the following pain-related subcategories is your program strongest?
 - Anesthesia
 - PM&R
 - Radiology
 - Palliative care
 - Neurology
 - Psychiatry (addiction)
 - Psychology (behavioral medicine)
 - Medical management
 - Basic interventional pain management
 - Advanced interventional pain management
2. Does your program encourage online platforms for supplemental education?
 - Yes
 - No
 - Unsure
3. What online platforms do your fellows use for self-study? (Select all that apply.)
 - YouTube
 - Google Scholar articles
 - Webinars from professional organizations (APPD, ASRA Pain Medicine, AAPM, INS, NANS)
 - Industry-sponsored webinars
 - Industry-sponsored online workshops
 - Do not support online platforms
 - Other (please specify)
4. Does your program allow fellows to participate in industry-related procedural workshops?
 - Yes
 - No
5. How does your program manage trainee participation in industry-based procedural workshops?
 - Encourage
 - Discourage
 - Neither encourage nor discourage
6. Does your program allow fellows to participate in professional society-related procedural workshops?
 - Yes
 - No

7. What is your program's stance on trainee participation in society-based procedural workshops?
 - Encourage
 - Discourage
 - Neither encourage nor discourage
8. How much time do your fellows spend in rotations outside of the pain practice?
 - Less than 1 month
 - 1 month
 - 2 months
 - 3 months
 - More than 3 months
9. Outside rotations are:
 - Longitudinal
 - Chronological
 - Longitudinal and chronological
 - N/A
10. Does your fellowship offer electives?
 - Yes
 - No
11. In what topics do your fellows have the most clinical experience? (Rank from 1, most clinical experience, to 5, least clinical experience)
 - Procedural interventions
 - Multidisciplinary education
 - Surgical procedures
 - Business aspects of pain medicine
 - Scholarly and research activities
12. What characteristics do you look for in a fellow? (Rank from 1, most important, to 12, least important.)
 - Integrity
 - Intelligence
 - Skilled test taker
 - Procedural aptitude
 - Congeniality
 - Multidisciplinary collaboration
 - Professionalism
 - Diligent worker
 - Conscientiousness
 - Empathy
 - Listening skills
 - Cautious

13. What aspects of pain training are the most valuable determinants of long-term success for postgraduate practice? (Rank from 1, most valuable, to 12, least valuable.)

- Integrity
- Intelligence
- Skilled test taker
- Procedural aptitude
- Congeniality
- Multidisciplinary collaboration
- Professionalism
- Diligent worker
- Conscientiousness
- Empathy
- Gritt
- Cautious

14. What advanced procedures do you believe are most important for your fellows to learn during fellowship?

- Lumbar RFA
- Cervical RFA
- SCS trials
- SCS implants
- Interspinous spacer implants
- PNS implants
- SIJ fusion
- Vertebroplasty/kyphoplasty
- mild®
- Basovertebral RFA
- Endoscopic surgeries
- Interspinous fusions
- Intrathecal drug delivery systems
- PRP and stem cell therapies

15. What procedures do you think can be learned after fellowship if formal education is not provided in fellowship? (Select all that apply.)

- Lumbar RFA
- Cervical RFA
- SCS trials
- SCS implants
- Interspinous spacer implants
- PNS implants
- SIJ fusion

- Vertebroplasty/kyphoplasty
 - mild®
 - Basovertebral RFA
 - Endoscopic surgeries
 - Interspinous fusions
 - Intrathecal drug delivery systems
 - PRP and stem cell therapies
 - None of the above
16. Do you think pain fellowships can provide adequate training in all ABA subtopics in a 12-month training program?
- Yes
 - No
 - Unsure
17. In your opinion, how many months beyond the current 12-month training period would be needed to obviate the pursuit of supplemental fellowship training by industry or pain/spine societies?
- 0
 - 1 to less than 3
 - 3 to less than 6
 - 6 to less than 12
 - 12 to less than 18
 - 18 to less than 24
 - 24 or more
18. In your opinion, how many months beyond the current 12-month training period do you feel are needed to limit the need for industry-sponsored education to graduate a fellow that can excel in the independent practice of pain medicine?
- 0
 - 1 to less than 3
 - 3 to less than 6
 - 6 to less than 12
 - 12 to less than 18
 - 18 to less than 24
 - 24 or more
19. Does your program teach or emphasize physician-patient communication skills?
- Yes
 - No
20. Does your program offer any formal teaching in any of the following skills/disciplines? (Select all that apply.)
- Reflective listening
 - Cognitive therapy

- Behavioral therapy
 - Mindfulness-based stress reduction
 - Lifestyle medicine
 - Pain psychology
21. In which of the following disciplines/skills would you like to add formal teaching for your fellows? (Select all that apply.)
- Reflective listening
 - Cognitive therapy
 - Behavioral therapy
 - Mindfulness-based stress reduction
 - Lifestyle medicine
 - Pain psychology
 - None of the above

Employer of Pain Physicians Survey

1. What setting is your practice?
 - Rural
 - Urban
 - Suburban
 - Large city
2. What geographic location in the United States is your practice located?
 - Northeast
 - Southeast
 - Midwest
 - Southwest
 - West
3. In what professional setting do you practice?
 - Academic
 - Private
 - Private with academic partnership
4. Do you consider hiring a new graduate in your practice?
 - Yes
 - No
5. Have you hired newly graduated pain fellows in the last 10 years?
 - Yes
 - No
6. How long does it generally take to train a new post-graduate hire to practice independently in your practice?
 - Less than one month

- 1–6 months
 - 6–12 months
 - More than 12 months
7. Which qualities are important to you when considering a candidate for a position in your practice? (*Rate each as Very important / Somewhat important / Not important*)
- Bedside manner and empathy
 - Communication skills
 - Clinic and procedural efficiency
 - Professionalism
 - Billing/coding experience and knowledge of business or healthcare operations
8. Do you believe qualities such as bedside manner and empathy can be learned during fellowship?
- I believe it is an innate skill that cannot be learned.
 - I believe some components can be learned and some are innate.
 - I believe it is a skill that can be fully learned during fellowship.
9. How important is each of the following when considering a candidate for a position in your practice? (*Rate each as Very important / Somewhat important / Not important*)
- Basic interventional procedures
 - Advanced interventional procedures
 - Medication management
 - Institutional reputation and program specialty affiliation (Anesthesiology, PM&R, Neurology)
 - Acute pain medicine exposure
10. What advanced procedures do you believe are most important for a fellow to be comfortable with after fellowship? (*Rate each as Very important / Somewhat important / Not important*)
- Spinal cord stimulation (SCS) trials
 - Implantable devices (SCS implants, PNS implants, interspinous spacers)
 - Percutaneous procedures requiring access to the vertebral body (vertebroplasty, kyphoplasty, basivertebral RFA)
 - *mild*® procedure
 - Fusion procedures (SI joint and interspinous fusions)
 - Regenerative medicine (PRP and stem cell therapies)
 - Endoscopic surgeries
11. Do you feel that most fellows are well trained for independent practice in the following areas? (*Answer Yes or No*)
- Medial branch blocks (MBB) and radiofrequency ablation (RFA)
 - Implants

- Injections
 - Medical management
 - Billing and coding
 - Psychological and behavioral aspects of pain treatment
12. Would you consider a candidate if they were not procedurally trained during fellowship?
- Yes
 - No
13. How would you rate United States pain fellowships regarding preparation of young doctors to join faculty or private practice?
- They are very well prepared.
 - They are prepared but need additional training within our practice.
 - They are not well prepared and require additional training from both current staff and industry.
 - They are not prepared, and fellowships are failing to adequately educate trainees in most settings.

Trainee Survey Questions

1. What is your primary specialty?
 - Anesthesia
 - Physical Medicine & Rehabilitation
 - Neurology
 - Psychiatry
 - Emergency Medicine
 - General Medicine
 - Other (please specify)
2. What is your level of training?
 - Fellow
 - Resident
3. What is your career goal after completing pain fellowship?
 - Private practice
 - Start own clinical practice
 - Academic clinician
 - Researcher
4. How important is each of the following when considering a pain fellowship?
 - Basic interventional procedures
 - Advanced interventional procedures
 - Medication management
 - Institutional reputation

- Research focus
 - Practice management
 - Program geographic location
 - Program specialty affiliation (anesthesia, PMR, neurology)
 - Acute pain medicine exposure
5. What advanced procedures do you believe are most important for you to learn in fellowship?
- SCS Trials
 - SCS Implants
 - Interspinous spacer implants
 - PNS implants
 - SIJ fusion
 - Vertebroplasty/kyphoplasty
 - mild®
 - Basovertebral RFA
 - Endoscopic surgeries
 - Interspinous fusions
 - Intrathecal drug delivery systems
 - PRP and stem cell therapies
6. What advanced procedures do you think you can learn after fellowship, if not taught in fellowship? (Select all that apply.)
- Lumbar RFA
 - Cervical RFA
 - SCS trials
 - SCS implants
 - Interspinous spacer implants
 - PNS implants
 - SIJ fusion
 - Vertebroplasty/kyphoplasty
 - mild®
 - Basovertebral RFA
 - Endoscopic surgeries
 - Interspinous fusions
 - Intrathecal drug delivery systems
 - PRP and stem cell therapies
7. In order of importance, rank where you would most prefer to learn advanced procedures.
- Fellowship
 - Industry events
 - Society based workshops

8. Would you apply to a pain medicine fellowship if procedures were not part of the educational curriculum?
 - Yes
 - No
 - Unsure
9. Would you apply to a pain medicine fellowship if it was extended to two years and advanced procedures were part of the curriculum?
 - Yes
 - No
 - Unsure
10. Would you prefer a pain fellowship that was 2 years in duration, but provided exposure to a wide range of advanced procedures?
 - Yes
 - No
 - Unsure
11. In order of importance, please indicate what you believe are the most valuable reasons for completing a pain medicine fellowship.
 - Improving the opioid crisis
 - Understanding and diagnosing painful conditions
 - High salary potential
 - Learning pharmaceutical pain management
 - Application of a holistic approach to the chronic pain sufferer
 - Performing interventional procedures to improve pain
 - Becoming a leader in the field of pain medicine in a non-academic center
 - Becoming a leader in the field of pain medicine in an academic center
 - Differentiating myself from my primary specialty
 - Improving lifestyle relative to my primary specialty
 - Ability to create a practice model of continuity of care
 - Engineering new pain therapies
12. What characteristics do you think program directors value most in selecting a pain fellow? (Rank from 1, most important, to 12, least important.)
 - Integrity
 - Intelligence
 - Skilled test taker
 - Procedural aptitude
 - Congeniality
 - Multidisciplinary collaboration
 - Professionalism
 - Diligent worker
 - Conscientiousness

- Empathy
- Listening skills
- Cautious