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Pursuing a Headache Fellowship: A Narrative Review

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Conflict of Interest

Molly Fensterwald has no potential conflicts of interest pertaining to the review, authorship, and/or publication of this article. **Anna Pace** received compensation from Abbvie for a one-time workshop on including sexual and gender diverse individuals in research. **Matthew S. Robbins** has served on the editorial boards of *Continuum* and *Current Pain and Headache Reports*, the Board of Directors of the American Headache Society and New York State Neurological Society, and receives book royalties from Wiley. **Carrie E. Robertson** has received research support from Lundbeck, Pfizer, and Teva. She has participated in advisory boards for Biohaven, Impel Neuropharma, Linpharma and Satsuma. She also receives royalties as an author and section editor for UpToDate.

ABSTRACT

Objective/Background

The intent of this review is to provide practical guidance for trainees considering a headache medicine fellowship and examine key factors that contribute to program selection. Headache medicine continues to gain appeal as a neurologic subspecialty, and the number of headache fellowship programs across the country has paralleled that growth. Residents who develop interest in the field must decide whether to pursue fellowship for more specialized training. Establishing a framework for navigating this process can help trainees better evaluate programs and make informed decisions.

Methods

This narrative review was conducted as an initiative by the New Investigators and Trainees Special Interest Group of the American Headache Society in collaboration with a group of academic leaders and headache clinicians who participated in headache fellowship and/or the match process. Topics were selected based on themes identified in existing literature on fellowship selection across other

disciplines. Headache-specific information was obtained from a review of literature on headache education and fellowship, along with relevant professional society and program institution websites. This information was supplemented by the authors' perspectives when available evidence was limited.

Results

Physicians choose headache medicine for various reasons. This career path derives from inspiration through mentorship received during residency, exposure to a diverse patient population during training, and the desire to provide new therapies and procedural interventions. Headache medicine fellowships offer structured and in-depth training through clinical, educational, professional, and scholarly activities. Programs may vary in size, structure, support, and patient care settings. These factors can help trainees decide whether to pursue fellowship and what to evaluate in different programs.

Conclusion

This review identifies key factors in pursuing headache medicine fellowship, allowing trainees to seek programs that support professional interests and career aspirations.

PLAIN LANGUAGE SUMMARY

Headache medicine fellowship programs provide specialized training for physicians who want to focus on treating headache disorders. This review examines the key factors physicians should consider when choosing a fellowship program, including the types of clinical experience, research opportunities, and professional development each program offers. We describe how programs vary in size, structure, funding support, and patient care settings to help prospective trainees make informed decisions about their training.

INTRODUCTION

Headache medicine has gained recognition and strong interest as a field within neurology, particularly with advances in therapeutics that provide patients with symptom relief and hope. Although migraine is the most common headache disorder assessed in clinical practice, the field encompasses a spectrum of both primary and secondary headache disorders with distinct treatments and needs. The subspecialty requires understanding the unique interplay of anatomy, pathophysiology, and pharmacology as it relates to headache and facial pain

disorders. Exciting advances in the knowledge of headache mechanisms and in the identification of potential pharmacologic targets have spurred promising research. The ability to offer patients a wide range of new therapies and interventional procedures add to the subspecialty's appeal.

Exposure to the field during training, however, has been limited.¹ Historically, there has been a national shortage of board-certified headache specialists,² although there have been substantial increases in recent years. During residency training, residents who develop interests in headache medicine can choose to pursue further subspecialty training. One option is a fellowship in headache medicine, offering an in-depth and comprehensive path to becoming a headache specialist and an opportunity to develop specific interests and skills.

Headache medicine fellowship is one of 17 accredited neurology fellowships in the United States and is overseen by the United Council for Neurologic Specialties (UCNS) organization. According to the American Headache Society (AHS) and UCNS websites, as of 2024, there are currently 58 accredited headache fellowship programs, resulting in a continued growth in the number of fellowship-trained headache specialists.³ Eight of the programs offer pediatric headache fellowships.

The standard duration of headache training is 1 year, with some programs offering extended training for combined clinical and research fellowships or for other personal, academic, or scholarly pursuits.⁴ The number of fellowship positions varies by program, with many offering one or two positions per year.⁵

In 2022, the application process transitioned to a formalized match through the National Resident Matching Program (NRMP), a decision that helped to equitably and systematically standardize the process.⁶ In 2024, there were 69 applicants, and more than 80% matched.⁷ The application timeline typically runs from March to August for appointments starting the following academic year (see Table 1). The UCNS and AHS websites contain headache fellowship directories, with contact information and websites to explore the details of each program. The most updated application cycle timeline can be found on the AHS and NRMP websites.

Currently, there is limited literature and consolidated information to guide trainees through the headache fellowship process. This was identified as an area of unmet need during in-person discussions between trainees and early-stage headache clinicians at the AHS New Investigators and Trainees Special Interest Section meetings. Therefore, the objective of this article is to provide trainees with a framework of specific considerations for pursuing a headache fellowship program.

METHODS

This narrative review was conducted by a group of four stakeholders approved by the AHS New Investigators and Trainees Special Interest Group consisting of a trainee, residency program director, headache fellowship director, and section chair. Primary themes related to clinical training, educational structure, professional development, and other factors were identified through a review of existing literature on fellowship selection in other neurologic subspecialties. The authors created a framework to review best practices specific to the headache fellowship pathway by applying references from independent searches on PubMed using the terms “headache education”, “headache fellowship”, and “neurology fellowship”, along with searching personal libraries from December 2024 to June 2025. Articles were selected by relevance to the identified themes, and additional information was obtained from the AHS, NRMP, and individual fellowship program websites. All available program websites were reviewed for content, including fellowship size, training settings, curriculum details, scholarly opportunities, and faculty composition. Due to a wide variety of content between these sites, author consensus was used to prioritize relevant website information. This article incorporated evidence from existing literature when available and was supplemented with the authors’ perspectives obtained from group discussion. Any discrepancies between articles were resolved by group consensus.

CLINICAL ASPECTS

Structure

A fellowship program should prioritize developing trainees into proficient and confident headache clinicians who are prepared for individual practice and should also encourage engagement in educational and scholarly initiatives. Based on the review of individual program websites, most UCNS-accredited headache fellowship programs occur at a dedicated headache clinic of an institution and focus on outpatient management of headache and facial pain disorders. Trainees work directly with faculty to diagnose and treat a spectrum of conditions including migraine, trigeminal autonomic cephalalgias, neuralgias, cerebrospinal fluid pressure disorders, and other headache syndromes.

Whereas some programs are structured in a way such that trainees oversee their own patient panel, other programs use a preceptorship model in which trainees see patients within an attending physician’s schedule.⁸ The UCNS encourages programs to adopt a hybrid model where fellows start with a preceptorship model and gradually transition to seeing patients independently.⁴ The authors’ viewpoint is that these approaches provide a balance of clinical autonomy, graded independence, and faculty guidance through direct and indirect supervision. Having an emphasis on continuity of care additionally fosters

longitudinal patient relationships and allows fellows to evaluate the effects of their treatment decisions. Applicants should inquire how a program allots time for sufficient discussion and reflection when staffing cases.⁹

Patient Population

The UCNS common program requirements mandate that headache fellowships are affiliated with a sponsoring institution that is accredited by the Accreditation Council for Graduate Medical Education (ACGME).⁴ These are typically tertiary hospitals that may enhance exposure to a range of cases and complexities. The UCNS guidelines also require a minimum of 200 patients per fellow per year, and this must include a variety of patients in the inpatient and outpatient settings. Managing patients in the inpatient setting is incorporated into some fellowships through clinic- or hospital-based treatment facilities and emergency room or inpatient headache consultations.¹⁰ Patients requiring this kind of care are generally refractory to treatments or in prolonged headache states, requiring higher acuity management or therapies with closer monitoring. These opportunities can enhance knowledge and comfort with parenteral and infusion therapies such as dihydroergotamine, lidocaine, valproate sodium, dopamine antagonists, and other agents. Although pediatric headache fellowships are the minority, the UCNS encourages adult programs to provide experiences caring for the pediatric population and vice versa.⁴

Similar to other specialties, headache specialists are concentrated in urban areas. According to data published in 2022, the regions with highest density are the Northeast and Midwest, with growth in the South, California, and Texas.³ The expansion of telemedicine has benefitted both patients and clinicians in terms of convenience, flexibility, and reducing stress.¹¹ Telemedicine also has the potential to reach more diverse populations in underserved areas and some fellowships may offer regular telemedicine experience.

The authors recognize that candidates may choose to train in a program that serves a diverse population and advocates for the patients' needs. Treating patients from varying backgrounds can strengthen an understanding of barriers to care, communication, and cultural differences.¹² Additional factors contributing to patients' poorer outcomes include socioeconomic status, sexual orientation and gender identity, psychiatric comorbidities, and ability or means to navigate the healthcare system.¹³ Some clinics may have access to multidisciplinary care or additional resources for different patient populations, such as by integrating psychiatrists or pain psychologists.¹⁴ Other special populations that candidates may encounter include pregnant or lactating women, children and adolescents,

and those with renal, hepatic, or cardiovascular comorbidities that require a more nuanced approach to medication management.

Size and Breadth

The UCNS common program requirements state that there must be one core faculty for every two fellows. It is expected that core faculty will possess specialty expertise in the field of headache medicine and must include at least one neurologist.⁴ However, individual programs vary widely on the number of faculty available, and the size of a headache fellowship program can have potential implications on training. In the authors' experience, a larger faculty presence can offer wider expertise and educational opportunities, although trainees can benefit from smaller programs through more individualized attention and mentoring. Faculty who trained at the same institution may provide consistency in clinical practice and teaching, with similar approaches to diagnostic or management decisions. Conversely, faculty with diverse educational backgrounds can impart unique perspectives or philosophies to their trainees.¹⁵ Rotating with attendings that have additional fellowship training or specific areas of interest can provide a more comprehensive education. Headache fellowships by nature are small, creating a conducive environment to build close relationships with faculty and staff.

Procedural training

A critical feature of headache fellowship is the opportunity to develop proficiency in commonly performed outpatient procedures. This repertoire should include onabotulinumtoxinA injections for chronic migraine and peripheral nerve blocks for migraine and other pain disorders, such as occipital, supraorbital, supratrochlear, and auriculotemporal nerve blocks.¹⁶ Based on the review of individual program websites, some fellowships offer additional training in trigger point injections or tendon injections under ultrasound guidance for myofascial pain syndromes. Rotating with interventional pain physicians may be an option at some institutions.⁴ Hands-on training for providing procedural interventions is an essential component of headache medicine, and having these skills will enhance marketability after fellowship for providers with procedural competence.¹⁷

Practice Management

Another consideration when evaluating and comparing fellowships is the presence of ancillary staff who assist with administrative tasks, such as working with insurance to complete prior authorizations and managing procedural approvals. Some clinics have the additional support of advanced practice providers

and nursing staff who can have distinct roles and responsibilities in a headache program, such as evaluating new or follow-up patients, administering clinic procedures, or managing headache infusions.¹⁸ According to the authors' professional experiences, approaches to how a clinic screens headache referrals or handles patient messages before forwarding to clinicians can also vary. Fellowships additionally provide exposure to these operational differences, as well as billing, coding, and reimbursement strategies that are necessary for clinicians to have in independent practice.¹⁵

The clinic size, patient care settings, and individual program expectations can impact fellows' responsibilities for responding to patient needs during and outside of clinic hours. Drawing from the authors' experience, some institutions have a predominately outpatient practice where fellows respond to occasional inpatient consultations, whereas others incorporate after-hours call coverage in which fellows have attending physician backup support. Having these obligations can further develop skills in managing acute symptoms, observing consequences of prescribed medications, and counseling on medication interactions or side effects.¹⁹ The exposure to a range of patient concerns can build invaluable competence and confidence.¹⁹ Prospective fellows may inquire about how the fellowship program supports and balances these responsibilities with other clinical and educational duties.

EDUCATIONAL FOCUS

Curriculum

In conjunction with clinical training, a structured education is an essential part of headache fellowship. Headache programs follow guidelines put forth by the UCNS, which require incorporation of an academic and clinical curriculum to supplement fellows' learning.⁴ Most headache fellowship directors are responsible for coordinating and implementing a core curriculum that ensures fellows receive foundational knowledge. This can be accomplished through didactic lectures with themes incorporating pathophysiology, pharmacology, treatment strategies, procedural practice, and management of special headache populations. Some programs may also include case-based discussions or simulation-based learning sessions.⁹ Programs may invite guest speakers or lecturers from other institutions or departments that enrich education.^{8,9} Other programs participate in multidisciplinary case conferences, such as with neuroradiology,⁹ for in-depth discussion of complex cases that can foster partnership among subspecialties. Fellows may be expected to prepare monthly journal club article presentations to develop skills in reviewing and critically appraising the literature.^{8,9}

Elective Rotations

To bolster a well-rounded clinical experience, the UCNS requires programs to offer elective time with other subspecialties involved in the care of headache patients.⁴ Learning from other disciplines can offer unique perspectives on the diagnosis and management of pain disorders. In particular, trainees can develop a more comprehensive understanding of anatomy, along with clinical examination skills to correctly identify and localize sources of pain.²⁰ For example, musculoskeletal or nerve pathology can mimic primary headache disorders, and neck pain, a common migraine sequelae, can sometimes originate from structural cervical pathology that requires interventional procedures.

Headache fellows will also see patients with complex headache disorders that require multidisciplinary care, such as those with posttraumatic headache, low or high intracranial pressure disorders, medication overuse, chronic opioid addiction, or mental health comorbidities.^{14,21} It is important for trainees to recognize when to send referrals to appropriate specialists for further workup and monitoring, particularly given the interdisciplinary nature of the field.²¹

The UCNS has listed 14 possible elective rotation opportunities that may be available to headache fellows.⁴ Table 2 presents the authors' views of potential educational benefits of these electives when offered.

Faculty Mentorship

A strong fellowship program has faculty who are dedicated to mentoring and providing support by offering career guidance, fostering individual interests, and facilitating professional connections with colleagues.¹² Mentorship throughout academic training has been shown to increase research productivity, inform career choices and trajectories, and contribute to overall career satisfaction.²² One survey commissioned by the AHS to new headache clinicians found that working with a mentor in the field was the most important factor influencing their eventual subspecialty choice.¹ Programs should actively alert trainees to available projects, scholarships, and other career or leadership opportunities as they arise.²³ At the national level, the AHS also promotes mentorship through development programs such as the Emerging Leaders Program, Leadership in Advocacy Development, and the Headache Assistant Editor Leadership Opportunity.

PROFESSIONAL DEVELOPMENT

Programs are required to engage fellows in scholarly activities such as clinical or bench research, quality improvement initiatives, medical education, or advocacy. Candidates should inquire whether there is flexibility and support for

these academic pursuits, such as through protected time on a weekly schedule or an additional year of training.

Research

Engaging in research is a valuable skill for a well-rounded physician regardless of whether a fellow intends to remain in academia after fellowship. Some fellows may choose to design and implement a project with faculty support through writing institutional review board proposals, applying for grant funding, and assisting with data collection and analysis.^{8,9} Based on the review of individual program websites, institutions and headache clinics involved in clinical trials may welcome fellow involvement, typically as subinvestigators. Other options include performing literature reviews, authoring book chapters, and writing scientific papers. Research participation can take many forms. Examining the types of research and scholarly work that faculty are conducting can help inspire project ideas and opportunities for collaboration.^{12,15}

Medical Education

Fellowships offer many ways to become involved in medical education for those who wish to supplement clinical duties with teaching.⁹ Informally, there may be opportunities to teach medical students and residents as they rotate through the headache clinic. More formally, fellows can develop lectures for resident didactics, grand rounds, or morning report conferences both within and outside of departments of neurology. Other avenues include joining special interest sections and committees through professional societies or conducting research in medical education. Medical schools historically have inconsistently incorporated headache education into their curricula; therefore, fellows can contribute to this need through medical education initiatives that introduce early trainees to the field.²⁴

Advocacy

An emerging area within the headache field is advocacy - the effort to improve the lives of patients by promoting awareness, addressing disparities, influencing policies, and reducing stigma. Advocacy can be accomplished through public education campaigns and grassroots initiatives.²⁵ Those fellows who want to be involved on a national level can participate in Headache on the Hill, a program through the Alliance for Headache Disorders Advocacy, in which stakeholders go to Congress alongside patients and caregivers to advocate for policy changes and funding to improve headache care and resources.²⁵ The AHS, in collaboration with the Alliance for Headache Disorders Advocacy, has historically provided scholarships for fellows to apply to attend this important event. A newer program

available to fellows, the Advocacy Connection Team through the nonprofit organization Miles for Migraine, is designed to provide physicians and patients with advocacy skills.²⁶ Formalized training and participation in advocacy events during fellowship deepen understanding of systemic barriers in health care and develop leadership skills that contribute to meaningful change.

Meeting Attendance

The UCNS encourages trainees to attend regional, national, and international conferences to promote scholarly activity.⁴ Attending conferences can positively influence a trainee's professional growth by providing a platform to engage with the broader academic community and foster collaboration among headache providers.¹⁸ Other benefits include meeting fellows at other programs, networking with clinicians, educators, and scientists, and staying current on the latest research and treatment developments. Presenting abstracts or research can advance fellows' ability to prepare and deliver presentations to various audiences, while also exposing them to projects and initiatives going on at varying institutions.⁸ Importantly, meetings can provide an additional avenue to explore job opportunities after training.

Programs may offer protected time or sponsored attendance to one or multiple conferences each year.⁹ Limited information may be available on individual program websites, although applicants can inquire whether financial support is available for registration and travel costs. As conferences can be expensive, applicants may also want to ask whether reimbursement is contingent on presenting work or whether attendance requires use of vacation time.

OTHER CONSIDERATIONS

Physicians cite a variety of reasons for choosing headache medicine as a career. Early exposure to headache medicine in training has been shown to be a key motivator, through rotations, electives, mentors, and networking with headache specialists.^{1,27} The experience of working at a headache center and the satisfaction of providing care to patients with headaches additionally influenced their decision.¹ The AHS additionally has sponsored programs such as the Resident Education Program and Resident Education for Assessment and Care for Headache to provide early exposure to the field.

Headache medicine typically provides a favorable work-life balance with predictable working hours.¹ A 2015 survey of participants in the AHS New Investigators and Trainees Special Interest Group found that the majority of respondents felt they had sufficient time for personal and family life.¹ Candidates may want to consider how different programs align with their professional

aspirations and personal lifestyle preferences. Deciding between an urban or rural settings is one consideration.¹² Having multiple sites or rotation settings may provide broader learning experiences but can also add to daily schedules or commute times.¹² The cost of living in relation to salary and benefits is another important factor when selecting fellowship location.^{12,23} Choosing a program where one wants to practice after graduation can also help build connections that will be useful in finding a job.

Although pursuing headache medicine fellowship has become increasingly popular, there are ways for clinicians to forgo a formal fellowship and still be eligible for headache medicine certification through the UCNS.⁴ Known as the clinical pathway, the UCNS offers a practice-based certification pathway for clinicians who have completed residency and see a minimum of 25% headache patients in their practice. Historically, this provided an option for specialists to be eligible for the headache examination if they had been caring for headache patients in their practice.⁵ This route may be more suitable for trainees who wish to do general neurology with an emphasis rather than primary focus on headache disorders. Other factors such as financial or personal reasons, robust elective time during residency, and preference for private practice versus academic settings, may also contribute to this decision.¹⁵

Reviewing the details on individual fellowship websites, including trajectories of alumni, can provide insight into how a program will support personal interests and priorities. Resources for residents and trainees to learn more about the headache field and explore available fellowship options are found on the AHS, American Academy of Neurology, UCNS, and NMRP websites. We also recommend seeking counsel from current fellows, program alumni, residency program directors, and other stakeholders in the fellowship process.⁶

Finally, the authors recognize and acknowledge certain limitations. The viewpoints expressed are from a select group of individuals that may not be representative of the broader field. Additionally, several cited sources are based on opinion or survey data, which have potential for subjective biases. Not all program websites contain the most current information about scholarly opportunities, curriculum, number of positions, or faculty. Therefore, details about individual programs are best obtained through informational sessions or fellowship interviews. These factors should be weighed when drawing conclusions from the information presented. An overview of the considerations reviewed in this article are listed in Table 3.

CONCLUSION

Headache medicine fellowship can provide the unique opportunity for physicians to gain the skills and knowledge needed to be confident and proficient headache clinicians. Programs offer structured and in-depth training through clinical practice, education, scholarly activity and professional growth. Candidates should consider each program's unique strengths and benefits that best align with their professional interests and long-term career goals. Ultimately, candidates should seek an environment where they feel most supported, challenged, and nurtured as they embark on this stage of their career.

Table 1: Overview of timeline for pursuing headache medicine fellowship

Event	Date ^{a,b}
Headache medicine exposure and decision to pursue fellowship	PGY-1 through PGY-3
Application preparation	December-February of PGY-3
Application season begins	March of PGY-3
Match registration opens	May of PGY-3
Rank order submissions accepted	June-July of PGY-3
Match Day	August of PGY-4
Fellowship begins	July of PGY-5

Abbreviation: PGY, postgraduate year.

^aSee National Resident Matching Program website for specific dates.

^bTable reflects the standard adult neurology resident timeline; child neurology residents apply in PGY-4.

Table 2: Authors' perspectives on the educational value of elective rotations

Elective Rotation	Educational Benefits
Addiction medicine	Highlight additional strategies for patients with chronic opioid addiction or medication overuse
Autonomic disorders	Offer insight into the workup and management of autonomic disorders that can co-occur with migraine (e.g., postural orthostatic tachycardia syndrome or gastroparesis)
Concussion/traumatic brain injury	Provide education about available management strategies for postconcussion syndrome (e.g., physical therapy, occupational therapy, psychology, visual therapy)
Integrative medicine	Demonstrate alternative and

	adjunctive treatments for patients with chronic pain (e.g., mindfulness, acupuncture, yoga)
Maxillofacial pain	Increase proficiency in the evaluation of temporomandibular joint disorders and other facial pain disorders (e.g., bruxism, trigeminal neuralgia)
Neuro-ophthalmology	Develop skills in evaluating positive visual phenomena, performing the fundoscopic exam, and interpreting diagnostic imaging techniques (e.g., optical coherence tomography)
Neuro-otology/vestibular disorders	Shed light into the workup and management of vestibular disorders that can co-occur with migraine (e.g., benign paroxysmal positional vertigo or persistent postural-perceptual dizziness)
Neuroradiology/interventional radiology	Illustrate specialized imaging techniques utilized for cerebrospinal fluid leaks or other interventional procedures (e.g., digital subtraction angiograms, nerve blocks or ablations, sphenopalatine ganglion blocks, venous stenting)
Neurosurgery	Strengthen understanding of surgical interventions for headache and neuralgias (e.g., microvascular decompression, radiosurgery, radiofrequency ablation)
Pain Management/procedural clinic	Expand knowledge of procedural interventions for peripheral nerve disorders and cervical pathology (e.g., epidural steroid injections, medial branch blocks, radiofrequency ablations)
Psychiatry	Provide insights into alternative pharmacologic treatment strategies or behavioral therapies for chronic pain

	and psychiatric comorbidities
Sleep medicine	Explore the relationships between sleep disorders and headache (e.g., obstructive sleep apnea or chronic insomnia)
Women's health	Enhance understanding of the management of migraine in pregnancy and how hormonal changes can impact migraine across a women's lifetime

Table 3: Considerations for pursuing headache medicine fellowship

CLINICAL	EDUCATIONAL	SCHOLARLY ACTIVITY	PROFESSIONAL DEVELOPMENT	OTHER
Structure - Degree of clinical autonomy - Presence of faculty supervision - Adequate time for staffing cases	Curriculum - Didactic lectures - Case conferences - Critical appraisal of literature - Elective time	Research Ability to engage in various forms of research	Faculty mentorship - Support for individual interests - Access to career guidance - Promotion of leadership - Networking opportunities	Geographical setting Urban versus rural location
Patient population - Broad clinical exposure and patient volume - Variety of patient care settings		Medical education Opportunities to teach trainees	Advocacy Engagement in advocacy activities	Financial factors - Cost of living - Salary and benefits
Procedural training Instruction in onabotulinumtoxinA chemodenervation and peripheral nerve blocks				Training site locations Number and types of training sites
Practice management - Presence of administrative support and ancillary staff - Methods for handling patient inquiries and insurance authorizations				Program size and breadth - Size of faculty presence - Diversity of faculty interests

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