



Applying to Neurosurgery

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Figure 1: Harvey Cushing, the father of American neurosurgery, posed with one of his patients after completion of the head dressing (circa ~1928).

Using ERAS: Electronic Residency Application Service

As of 2016, applicants use the [Electronic Residency Application Service \(ERAS\)](#) to apply to neurosurgery programs in the United States. ERAS is affiliated with the AAMC so you can use the same login as you did when applying to medical school. This allows for a seamless application process, as all of your information is automatically stored and submitting scores etc. is only a few clicks away.

ERAS has nine main sections:

1. General Personal Information (name, address, photo, etc.)
2. Education
3. Training
4. Experience
5. Publications (manuscripts, posters, or oral presentations)
6. Licensure Information
7. Self-Identity (race/ethnicity)
8. Language Fluency
9. Miscellaneous (education interruptions, awards, professional societies, hobbies & interests).

Start ERAS early! We cannot stress this enough. The ERAS will release an opening date, which will allow you to log in and begin filling in your information. This will be weeks before you are able to actually certify and submit your application and gives you plenty of time to become acquainted with the website. The general personal information is the best place to begin and an easy way to get accustomed to the ERAS interface. Ensure that this information, especially your email address, is accurate, as this is the primary channel that you will communicate with programs.

The general section is also where you are able to upload a photograph of yourself. The importance of a professional and representative photograph cannot be stressed enough. This is the way programs will identify you before and after the interview. As memorable as you and your application may be, it is much easier for programs to use a photograph to know exactly who you are.

Therefore, invest the time and resources to obtain a professional and clear photograph of your head and shoulders – essentially a professional headshot. Many medical schools will offer the service of taking ERAS photos – find out early. You should be wearing interview attire, sitting or standing in a neutral position on a neutral

background, and displaying a professional facial expression.

While filling in ERAS, save your entries as you go. Understand that you are able to edit them until you certify and submit your application. Once you have certified and submitted your application, however, you will not be able to change **anything** in the application, except for personal information like your address.

In the past, the ERAS website has crashed on the date the “certify and submit” option became available. During the 2017 application cycle, in an effort to avoid this crash, ERAS has allowed for a 10-day window when you could certify and submit early to avoid the heavy traffic and potential crash. Even if you certify and submit early, you cannot edit your application. All applications, regardless of when they were certified and submitted, will be sent to programs on the first date the programs open for applications.

Plan to submit your application to each program on the day ERAS is first available for download by programs – usually September 15.

Many programs will not look at your application until it is complete, including USMLE scores, your photo, and at least three letters of recommendation (since many letter writers are busy neurosurgeons, some programs may appreciate that this is often out of your control, so only three are required instead of the four available).

That being said, ask for your letters as early as you can and keep lines of communication open with your writers, letting them know the due date and sending them a reminder a few weeks before. It may take time for the AAMC to publish and upload your USMLE scores, so attempt to do so as soon as ERAS permits.

The sooner your application is submitted and complete, the sooner you will begin receiving interviews. Most residency programs have a specific date when they release all of their interview invitations. If

your application is not completed by this time, it is unlikely to be reviewed by the residency admission committee. **Therefore, we recommend that you consider September 15 (or the first day ERAS makes applications available to programs) your actual due date.**

When you are ready to certify and submit to each program, ensure that you have no spelling or grammatical errors. If possible, have more than one set of eyes review your application and take sufficient time away from the application before coming back and proofreading again. It is also advisable to proofread a printed PDF of your completed ERAS application (available from the website,) as this is the format the programs will access.

Once you certify and submit to each program, make sure you have assigned your photo, your USMLE scores, and letters to each program as well (which are separate, but necessary steps). *These steps are all final*, so once you assign a letter, for example, you cannot rescind it. See the ERAS documentation for specific instructions on these tasks, which is beyond the scope of this guide.

A great deal of the application is simply the busywork of transferring your CV into the ERAS system. Most sections, such as work, volunteer, and research descriptions, have maximum characters that you are able to use. Do not feel obligated to use the maximum number of characters. Being concise and direct is better than being wordy. Additionally, your ERAS CV will generate discussion points during interviews, so being concise allows you to elaborate and will help the interview flow smoothly.

Most of the faculty who interview applicants will be reading your application for the first time on the interview day. Plan for this by making your ERAS CV as readable as possible, using short paragraphs or bullet points. Only include necessary information; do not add extra verbiage where it is unnecessary, simply to meet the

field's character limit.

How Do I Choose Where to Apply?

There is no “perfect” residency program, and each applicant is likely to have his or her own feelings about what is important in choosing the “right fit” programs. Starting your search by identifying the factors most important to you can help you narrow down the list of programs of interest. The main variable along which the US training programs vary is their academic orientation: whether large-scale research infrastructure is in place, how many funding opportunities exist (and are actually taken advantage of by residents,) how many papers residents are expected to publish, and so forth. The volume and diversity of operative experience also varies tremendously.

Research-oriented programs require between 1-2 years of “protected” (meaning some level of freedom from clinical obligations) research time and may have publication requirements for each year of residency. These programs are typically located at well-known research universities and therefore have numerous research opportunities available in basic science or clinical research.

Clinically oriented programs generally offer higher clinical volume, have minimal or no publication requirements, and may not even offer fully protected research time, meaning that residents take regular call during the research block. While some applicants feel that this arrangement may be detrimental to their goals of building an academic career, it is important to consider that residency is the best opportunity to develop solid operative skills and to start learning to be comfortable in the OR under almost any unexpected situation.

Residents who graduate with great research experience but below average operative skills often struggle to set up their clinical practice. Therefore, it is important to identify training programs that offer a

balanced experience that leans slightly in either the academic or the clinical direction, depending on your interests.

Programs also vary in size, accepting between one and five (new as of 2017) residents each year. The vast majority of programs take either two or three new residents annually, which seems to result in the best balance between operative experience (which may suffer when there are too many residents and too few cases) and call obligations (which, as one might imagine, can be onerous with only one resident per class).

Other factors applicants often use to identify programs of interest may include, but are certainly not limited to:

- **Location:** You should consider the location of the program, but not place too much emphasis on it. Ultimately, you will be spending seven or more years in the location where you match. Therefore, you should not waste time and money traveling to programs that are located in cities where you would not be comfortable, unless you have limited interview options. Some applicants feel that quieter cities provide more opportunities to focus on work and avoid traffic. These cities are generally more affordable and comfortable on a resident's salary and may be less competitive. Others enjoy the bustle of the big city and the easy access to recreational options it offers, given the limited time residents have to take advantage of them. For most applicants, regions with family or friends nearby are advantageous. A good support network will always be valuable.
- **Reputation:** Some programs have "big" names that instantly command respect, while other programs may not be as well-known, but still offer solid neurosurgery training experience. In truth, reputation may be somewhat overemphasized. The vast majority of US residency programs offer sufficient operative

training, while some of the most well-known programs have struggled to ensure good operative experiences in all of the different subspecialties of neurosurgery. Keep in mind that there is bound to be faculty turnover during a resident's seven-year tenure at a program; therefore, do not apply to a program because of one attending or the chairman.

- **Culture:** Gone are the days of “malignant” programs where new residents are mercilessly hazed. That being said, however, there is still a wide range of cultures that exist at different training programs, from the extremely amicable and collegial (where residents and even attendings, and possibly even their significant others and children, all are friends and frequently spend time together outside the hospital) to the business-like (where colleagues are friendly at work, but disperse as soon as their shifts are over) to the more traditional (where attendings are “ma’am” and “sir”, and the relationship between residents may be more like that between fraternity brothers than work colleagues).

The culture of a program is most likely the most important factor to consider in determination of the true value of a program.

Since it can be difficult to ascertain the characteristics of each program before you interview there, we recommend creating a broad list of programs you plan to apply to and asking a senior resident or mentor to look it over. Once you have your list ready, visit each program's individual website and also their listing within ERAS to take note of any additional information the program may require. For example, some programs will require supplemental essays and will not consider your application until these are complete.

What Does it Mean to Apply Broadly?

Applying broadly means something different for everyone. On the

whole, it means that you should apply to many programs around the country and over a wide range of competitiveness. It is best to have a mix of top-tier or “reach” programs, mid-tier programs, and some lower-tier programs. Again, speaking to a trusted mentor is the best way to identify which programs fit into which category; keep in mind that the reputation of the undergraduate institution may not correlate with the quality of the neurosurgical residency program!

As of 2015, the average applicant applied to more than 50 neurosurgery residency programs. Some applicants will apply to every program and some will be more selective and apply to 30 or fewer. It is preferable to apply to more programs and turn down interviews than it is to misjudge the competitiveness of your application and to apply too selectively.

It is impossible to predict what interviews you will receive until you actually receive them, though you may be able to estimate your competitiveness by comparing your application statistics to those of successfully matched students using the [NRMP’s Charting Outcomes in the Match document](#) (see below).

At the end of the day, the only loss in applying to more programs is the cost, which can become substantial. Once you are invited to several interviews and you get a feel for how well your application is being received, then you can be more selective about which programs you choose to interview at, and progressively refine your list.

How do I Gauge How Competitive my Application is?

To gauge your competitiveness, you need to talk openly and frankly with the chairman and program director at your institution, or another trusted neurosurgical mentor. Additionally, the [NRMP Charting Outcomes in the Match document](#) is an excellent resource to see

statistics for previously successful applicants. Keep in mind that the average for each data point, including USMLE scores and number of publications, continues to rise every year. For example, in 2009, the average USMLE Step 1 score for entering neurosurgical residency applicants was 239, while in 2016 the average score was 249. All other collected data points have similarly increased.

As we discuss in sections titled [Preclinical and Early Clinical Years](#) and [Conducting and Presenting Research](#), it is important to remember that almost everyone who applies to neurosurgery residency has done well throughout medical school. Many applicants have first-author publications, some in very prestigious journals. Many are MD/PhD students and others have completed extra years of research.

Obviously, the higher your USMLE Step 1 scores and the more research/volunteer experiences and awards you have, the more competitive you will be. Furthermore, an application gets you to the interview phase, but does not guarantee you will match, regardless of the strength of your application. See [Interviews](#) section for more on this crucial part of the application process.

The importance of letters of recommendation cannot be overstated in this process. Neurosurgery is a small family and the words of colleagues can often be the most critical differentiating factor among applicants that appear relatively competitive on their applications.

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