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GENERAL ADVICE

Original work by Jessica Volk and Neha Jeurkar. Updated most recently by the Class of 2020.

Electronic Residency Application Service (ERAS) application

- Plan to submit your application no later than the day ERAS applications are released to programs in September (usually the 15th). In past years, there have been website delays due to high activity on the day of release to programs. As of 2019-2020, ERAS opens for submission approximately a week beforehand; you will be fine as long as you submit within that time frame. On the other hand, a delay in submission of just several days beyond the application release date may mean the difference between an interview invite and being placed on the waitlist at some programs, as some programs offer interviews on a rolling basis once they begin receiving applications. You do not have to have all of your letters of recommendation in to submit your ERAS application.
- Start working on your personal statement as early as possible. It is the most work-intensive component of the ERAS application, and it is nice to be able to provide your letter writers with at least a draft of your personal statement along with your CV.
- Regarding the personal statement for transitional or preliminary programs, some applicants write an entirely new statement while others tweak their specialty-specific personal statements. Do whichever you prefer, but if you choose the latter, it is a good idea to add a paragraph about why you think the transitional/preliminary year is an important one.
- Ask for letters of recommendation as soon as possible—typically during or right after the rotation from which you are requesting the letter so that your writer can remember specific details to include. There is little harm in asking for more letters than you end up using, so do not wait until you have completed all your rotations to ask. If you have taken a year out, it is optimal to have a letter from your mentor during that time. When asking for letters, be sure to provide your letter writers with instructions for uploading the letter to ERAS.
- It is never too early to begin thinking about Scholarly Pursuit. In general, it is not expected that you have completed your research project by the time of your application (see specialty-specific information), but it is nice to either have started something or have a definite plan in place so that you can write it in your ERAS application and talk about it during interviews.
- Check the website of each program you are applying to for information about the number of letters required, specific instructions for personal statements, Step 2 CK and CS requirements, or any other unique features of that program’s application.
- Resources:
  - https://www.med.upenn.edu/student/ à Residency Application & Resources
  - AAMC Careers in Medicine
  - American Medical Association (AMA) FREIDA: Database of program information

Interviews

Before the interview

- Try to schedule interviews as soon as possible after receiving invites in order to get your desired dates. For some specialties, interview slots may fill up within hours of
invites being released, leaving you on the waitlist even if you were offered an interview. It is a good idea to check your email frequently and to set up email alerts on your phone. In the 2019-20 season interviews were offered through email directly, the ERAS calendar, and scheduling applications such as Interview Broker and Thalamus. It may be helpful to download any necessary apps and know your login information before invites are sent out.

- Programs in smaller specialties may only have 1-2 interview dates. Some programs publish these dates in advance on their website or on ERAS, so you can plan for potential conflicts and have preferred dates picked out. This will be particularly helpful if you have someone else responding for you while you are on a rotation, taking an exam, etc.
- In general, try to make it to interview social hours and schedule travel accordingly. Although programs generally label them as optional, this may be more or less true depending on the individual program, and not attending could be misconstrued as a lack of interest in the program.
- Be aware that you may receive emails or calls from programs before the interview day.
- When rescheduling or cancelling an interview, try to give at least two weeks notice. You may cancel by phone or email. You will also need to indicate the cancellation in ERAS by withdrawing your application from the program.

The interview

- Dress as you did for med school interviews—a suit is appropriate.
- Leave extra time to get lost, experience a train delay, have your cab run out of gas, spill coffee on your suit, etc. It will happen the one time you decide to cut it close.
- Potential questions include:
  - Where do you see yourself 10 years from now?
  - Tell me about a challenging case you had on the wards.
  - Tell me about an ethical dilemma you’ve had on the wards.
  - What are your greatest strengths?
  - What are your greatest weaknesses?
  - If you weren’t in medicine, what career would you pursue?
  - What’s the most difficult experience you’ve had to overcome?
  - How did you like medical school?
  - What have you found most difficult about medical school?
  - Why are you going into your chosen specialty?
  - Why are you interested in this program?
  - What do you do in your spare time?
  - Where do you see the future of the field?

After the interview

- At the end of each interview, you may want to write down your thoughts on the pros and cons of the program. Some students choose to jot down a brief train of thought on gut feeling, interactions throughout the day, any highlights or lowlights, etc., while on the trip home or shortly after the interview. Programs will absolutely start to blend together in your mind, so it is important to have notes when you have to sit down and rank programs.
- Etiquette on thank you notes may vary by specialty and by individual program. Many applicants seem to regard thank you notes as a courtesy and appropriate component of the application process. Email and handwritten notes are both acceptable. However, some program directors and applicants are ambivalent about
the value of thank you notes, and some programs will explicitly state that they do not expect or want thank you notes. Feel free to ask your advisor if this is appropriate.

- Talk to other medical students, residents, your adviser, and alumni as you try to figure out your rank list. Look at prior Penn match lists to find alumni who are now at programs you are considering, as they may have helpful, honest insights and be able to draw comparisons between Penn and their current program.
- Once you have decided on your first choice, you should let that program know that you will be ranking them first, either by sending an email yourself or having an adviser in the field do it. You cannot tell more than one program that they are your top choice.
- Programs may contact you after the interview to express their excitement about you as a candidate or to see if you have any questions. Clear out your cell phone’s voicemail and make sure you have a professional greeting. It is recommended to let calls from unknown numbers go to voicemail so that you have time to compose yourself and organize your thoughts before calling back, should the call be from a residency program.

**MILITARY MATCH:**

Email Rainey Johnson, Class of 2015, with any questions: w.rainey.johnson@gmail.com
COUPLES MATCHING

Original work by Sasha Anshelevich (Dermatology) and James Stephen (Neurosurgery). Contributions by Alan Workman (Otolaryngology), Annie Duckles (Internal Medicine–Primary Care), Catherine Mezzacappa (Medicine-Pediatrics), Jonathan Villanueva (Anesthesiology), Connor Barnhart (Psychiatry). Recently updated by Claire Drolen (Internal Medicine), Beda Cha (Internal Medicine), Jasmine Hwang (General Surgery), Megan Chenworth (Emergency Medicine).

Preparing

Start thinking as soon as possible about which programs or geographic locations you may be interested in and discuss this with your partner. Start planning for away rotations if they are required by your specialty(ies) and think about whether both partners should do aways at the same institution. It can also be helpful to both meet with the program directors of each of your respective programs, to establish a connection early on and discuss couples match goals. You can also reach out to Jessica Maguire to schedule a couples match-specific dean’s meeting with JoMo, which can be separate from your own individual JoMo meeting.

Applying

Consider applying to more programs than the average applicant in your field. As you might imagine, larger cities with multiple programs afford the greatest number of potential combinations for a combined rank list.

Create new ERAS emails (recommend gmail) and share them with each other so that you can respond to interview invites for each other in a timely fashion. Create a calendar for each of these emails and sync them to your phone so you can update them.

Please be sure to look on each program’s individual website for information about couples matching. Programs may not list any specific information, but some will have unique requirements for couples. You have the opportunity to state that you are couples matching when you fill out ERAS with the name of your partner and their specialty, but it may be helpful to also include it in your personal statement that you send to all programs. It does not have to be integrated into your main narrative essay, but can simply be an additional sentence at the end reminding the program that you are couples matching with your partner’s name and specialty.

Interviewing

Each specialty will send out interview invitations on a different timeline. When one partner receives an invitation to interview, both people should consider sending a polite email to their respective programs to remind them that they are couples matching. You can send them both at the same time, or you can send them separated in time and use the second email as a “reminder”. For example, the emails could say something like…

“Thank you for the invitation… I also wanted to let you know that I am couples matching with Mr. X, who is applying in Specialty Y. We are both very interested in your institution, and we appreciate your help with this process!”
“Dear Program Coordinator/Director, I am writing to let you know that I am couples matching and my partner Mr. Y recently received an interview invite at your hospital for their Specialty Z program...We are both very interested in your institution, and we appreciate your help with this process!”

You can send it to either the program coordinator, the program director, or both. Every specialty, and to some degree every program, has a different interview culture. Program directors in closely related fields might chat frequently about applicants while others might not know each other.

Certain specialties are more proactive about contacting applicants who are couples matching while others do not treat them any differently. Do not be discouraged if you reach out and receive a sort of neutral response; it is just the way some programs handle requests. These emails should be sent very shortly after one partner receives an interview—even if your partner’s program has not started sending out invites, do NOT wait for them to do so as you may miss the chance for your partner to be included in the initial (and sometimes only) wave of invites that are sent out.

When you are scheduling interviews and the invitations come in at different times, it can be hard deciding where it makes sense to invest the time and money to interview if you are not sure whether your partner will go there as well. Do not be afraid to be proactive, especially for programs that you are truly interested in. If there is a program you really want to interview at (i.e. you think would be your first choice), you or your partner could also ask for advocacy from your/their adviser.

At some point during each interview day you should let your interviewer/PD/APD know that you are couples matching if they do not bring it up on their own. Be aware that bringing up couples match/your relationship (and any other "off-limit" topics) makes it fair game as a topic of discussion during your interview. They shouldn’t ask additional match violation questions, but know what you are and are not willing to discuss and be prepared to deflect additional questions (e.g. about family planning, children).

If you are interviewing at an institution where your partner was declined an interview but you are still interested in the program, be prepared to answer questions on how you would be willing to make your situation work if you do not match at the same institution (e.g. My partner has other interviews in the area [you may be asked where specifically...], we are willing to do long-distance if this program is the best fit for me, etc.) This situation is uncomfortable and it is unclear whether it constitutes some kind of match violation, but be prepared to answer in some way or deflect if it comes up.

There is a “magic number” of interviews for each specialty at which point you have diminishing returns. Unfortunately, there is no “magic number” of interviews to aim for in the couples match since there are a lot of factors to consider. As a general rule of thumb, it’s good to have at least 3-5 more interviews than your specialty’s “magic number.” As the interview season goes on, you will develop a better sense of how competitive you are for the programs you’re applying to and how well your programs align with those of your partner. You can consider canceling interviews or petitioning for more interviews at this time.

**Letters of Intent**

If you and your partner are sending letters of intent/love letters to the same institution or programs in the same geographic area, you should include a brief sentence at the end that lets your program know that your partner is also ranking their respective program as number one. Similar to how letters of interest work when obtaining interviews, not every program will reach out to your
partner's program to coordinate rankings, but ideally this will let your programs know that you are a "package deal," which may get one or both of you bumped up on your respective program's lists and increase the chances of you both matching at your number one.

**Ranking**

In a couples match, each line of one partner’s rank order list is paired with the corresponding line on the other partner’s list, with up to 300 possible paired rank combinations. It is up to you and your partner to determine how far apart you are willing to be when you make your paired rank lists. Each partner may list the same program multiple times as long as it is in a new combination with the other partner’s list. Importantly, if the whole list is run without finding a match, the computer will NOT run the two lists separately afterward.

It may be advisable to include combinations in which one partner does not match in order to maximize the chances that at least one partner will match, with the other partner potentially finding a residency position through the Supplemental Offer and Assistance Program (SOAP). If you do not choose to have one partner go un-matched at the end of your list or if you want to minimize the possibility of one person having to SOAP, you should rank every possible combination of programs that you are willing to accept, even if there are combinations that are geographically far apart. Here is an example of a couples match rank list (with no match possibilities at the end):

<table>
<thead>
<tr>
<th>Rank</th>
<th>Partner 1</th>
<th>Partner 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Program A</td>
<td>Program A</td>
</tr>
<tr>
<td>2</td>
<td>Program B</td>
<td>Program B</td>
</tr>
<tr>
<td>3</td>
<td>Program C</td>
<td>Program C</td>
</tr>
<tr>
<td>4</td>
<td>Program A</td>
<td>Program B</td>
</tr>
<tr>
<td>5</td>
<td>Program A</td>
<td>Program C</td>
</tr>
<tr>
<td>6</td>
<td>Program B</td>
<td>Program A</td>
</tr>
<tr>
<td>7</td>
<td>Program B</td>
<td>Program C</td>
</tr>
<tr>
<td>8</td>
<td>Program D (East coast)</td>
<td>Program E (West coast)</td>
</tr>
<tr>
<td>9</td>
<td>Program A</td>
<td>No match</td>
</tr>
<tr>
<td>10</td>
<td>No match</td>
<td>Program A</td>
</tr>
</tbody>
</table>

The cost of submitting your rank list varies depending on how many discrete programs you list and how many combinations you and your partner rank. As of the 2020 cycle costs are as follows: both applicants will pay $85 initially to register for NRMP accounts and both applicants will pay a $35 couples matching fee to link accounts. There is an extra $50 late fee if you register after November 30. If you rank more than 20 program codes (this is individual programs, not permutations!), you will pay an extra $30 fee per program. The “No Match” NRMP code (999999999) counts as one of the 20, and advanced/categorical programs are also individually counted. Finally, there are fees associated with the match list length: 100-150 ranks is $50; 151-
200 ranks is $100, 201-250 ranks is $150 and 251-300 ranks is $200. These costs are paid by each applicant.

Questions: Alan Workman (alanworkman8@gmail.com), Annie Duckles (Anne.Duckles@gmail.com), Catherine Mezzacappa (catherine.mezzacappa@gmail.com), Jonathan Villanueva (jonathan.y.villanueva@gmail.com), Connor Barnhart (connorbarnhart@gmail.com), Claire Drolen (cdrolen@gmail.com), Beda Cha (bedacha@gmail.com), Jasmine Hwang (jashwang101@gmail.com), Megan Chenworth (meganchenworth@gmail.com)

**Couples Matching from Different Institutions:** If you are applying from different institutions, it may be a good idea to plan for an away rotation at your partner’s institution (or vice versa), particularly if either of you would like to stay at your home institution. Alternatively, if you are both seeking to end up at a specific institution or region that is different than where you are now, you can apply for aways at those locations. Some suggest that you and your partner do aways at different institutions to maximize your reach and connections. Lastly, try to coordinate couples match dean’s meetings for your respective schools.

Questions: Jasmine Hwang (jashwang101@gmail.com)

**THE “PSEUDO-COUPLES MATCH”:** couples who are unable to officially couples match (e.g. one partner is applying into a specialty with early match like ophtho or urology)

Much of the advice is the same as above with some additions:

**Preparing:** Because of the way the “pseudo-couples match” works, you will not have the opportunity to guarantee that you end up in the same city. Be honest with each other throughout the process about cities and programs you particularly like, and consider if you would be willing to be there alone.

**Applying:** Both parties should apply broadly, and the later match applicant should consider applying to multiple (3 or 4) programs in each major city that the early match applicant is applying to - this will make it easier for you to end up in a program near where the early applicant matches.

**Interviewing:** Similar to traditional CM advice, if one side of the couple particularly likes a city or program the other half doesn't have any/many interviews in, reach out to programs in that city expressing your interest and specifically state that your significant other is especially interested in that city. Getting interviews will be easier to accomplish for the “traditional” match applicant, but not unheard of for the early match applicant.

**Ranking - Early Match:** Try to come up with separate personal rank lists assuming you’re going there alone, and set aside time during winter break (right before Christmas to right after New Years) to discuss where each of you liked and if there is anywhere each of you will not go. Come up with the early person’s rank list together (often due in the first week of the New Year) and consider what each of the “late” person’s options will be for each rank. For example, “if you match at A, then I would rank X, Y, and Z top 3, but if you match at B, I will rank W first but don’t have any other options in that area so would likely rank X and M below that”. Having a personal rank list for each partner helps with this.

**Ranking - “Traditional” Match:** Once the early person matches (congrats!) re-evaluate programs in that area and decide the 2nd person’s rank list. Consider sending a love letter to the top program, specifically mentioning that your significant other matched in the area/at that institution (along with
all the myriad reasons you would like to be there and why they would make you a great physician). Consider having the chair/PD of the early match partner reach out to the PD/administration of the top rank for the later match, or consider having advisors reach out to the program on your behalf (talk to your advisors about this, different specialties have different cultures for this). Again make the second person’s rank list together and consider what you will do as a couple for each of the ranks. Try to keep busy until Match day (the stress is real).

Side note: If you’re not both from Penn you can still be at each other’s match day! Penn has functions in place to send your envelope somewhere else or have the other institution send the other partner’s envelope to Penn so you can read them together! Just ask JoMo/Jess/Carrie!

Questions: Alycia So (general surgery, so.alycia@gmail.com) and/or Rupak Bhuyan (ophthalmology, bhuyanr54@gmail.com) or, from the 2019 class, Marybeth Farazdaghi (ophthalmology, marybeth.farazdaghi@gmail.com) and/or Armin Farazdaghi (vascular surgery/general surgery, armin.farazdaghi@gmail.com) or, from the 2020 class, Megan Chenworth (emergency medicine, meganchenworth@gmail.com).
ANESTHESIOLOGY

Original work by Jon Wanderer. Updated most recently by Vivien Wong (2020).

**Point people for application:** Dr. Dimitry Baranov (Program Director), Dr. Emily Gordon (Associate Program Director), Dr. Jason Walls (Associate Program Director), and Dr. Lee Fleisher (Chair)

**Mentorship**

From the top: The best advice will come from Dr. Baranov and Dr. Fleisher, and you should schedule meetings with either of them to express your interest. Dr. Fleisher is well-known for his open door policy for students and residents. Both have a strong interest in the success of medical students and are always willing to help, or point you in the direction of someone who can. They know the process, people, and programs best and will help you in every and any way they can throughout the entire process. *Be open and accepting of their wisdom and experience!* Once you are on the interview trail, you’ll appreciate how truly unique this kind of advising is to Penn anesthesia.

From your rotations: Try to have someone you can turn to with questions about where to apply, interview practice, how to make your rank list, how your personal statement reads, etc. Often times, these are letter writers or research mentors. Dr. Walls, the course director for the ANE300 rotation, is also a fabulous resource. He can also point you to someone else if you need it. Penn Anesthesia faculty (and residents) are incredibly friendly and don’t often turn away med students seeking help, mentorship, or guidance!

**Letters of Recommendation**

- **Number of letters:** Aim for four letters 1) Departmental (Walls/Fleisher), 2) Anesthesia attending, 3 and 4) two other attendings (ICU, sub-I, research mentor, non-anesthesiology attending, etc). Keep in mind you can use the same letters for prelim programs, so one of them should be non-anesthesia.
- **Re: Departmental letter:** Dr. Walls and Dr. Fleisher co-write a departmental letter for everyone applying to anesthesia. During ANE300, try to spend a day each working with Dr. Walls, Dr. Baranov, and Dr. Gordon. Meet with all of them once you decide on pursuing an anesthesia rotation so they can offer helpful advice. Once you decide to apply to Anesthesia, reach out to Dr. Walls regarding the departmental letter to give him ample time to write it. You will be asked to provide your clerkship grades, USMLE scores, CV, and a draft of your personal statement. You will also have a conversation with him to help him craft the best letter!
- **General advice:**
  - Update your CV and work on your personal statement. Note that some letter writers request these, so get an early start!
  - Ask early, as faculty members are busy and need time (and sometimes prompting) to complete the letters. *This is notoriously true for medicine attendings;* monthly reminders go a long way and they will appreciate the reminder!
  - You can ask for more letters than you need—you do not have to submit all of the letters that you have received.
  - When asking for a letter, always ask if they would be comfortable writing you a **strong** letter of recommendation. You waive your right to see the letter before it is submitted. A neutral letter can hurt more than you may think. Attendings will be honest with you if
they feel uncomfortable with the request for a strong letter.

○ Quality of letter is more important than who it is from (i.e., an excellent letter from a non-anesthesia attending is superior to a mediocre letter from an anesthesia attending.) That being said, keep in mind these clinicians all know each other, have trained together, served on committees together, etc. It is not unsurprising when the person reading your letter knows the author!

Residency Programs

- Research them before you apply and interview (websites, word of mouth, location, FRIEDA). Program rankings such as those on Doximity should be taken with a grain of salt, but it is possible to arrange them into some loose tiers. Dr. Fleisher provides very honest advising regarding where to apply and how many programs. Our mentors have recommended applying anywhere from 10 to 15 programs, but students are often conservative and over apply. It’s easier to turn down interviews than apply late to get more interviews. Your goal is usually to have ~10 interviews. Pro tips: 1) Don’t waste your time and money applying to programs you won’t realistically go to. 2) All your applications should be submitted the FIRST day ERAS allows them to be submitted. These programs can usually get a sense of your (lack of) interest. 3) AAMC and NRMP put out some good data by specialty about this stuff.

- Dr. Fleisher may have specific suggestions if you have particular interests such as research, subspecialty, or location. Follow his advice! Residency program directors and chairs may ask you why you applied to their program when you are on the interview trail, and it is awesome to be able to say that you applied because Dr. Fleisher recommended it to you because of XYZ.

- Get a feeling for what type of program you might like: community vs. academic, how many residents pursue fellowships, what fellowships are offered at the program, caseload variety (e.g., if they do transplants, trauma, regional), if residents elect to do research, availability of international opportunities, support for attending conferences, call schedule, moonlighting opportunities, “pre-attending” opportunities.

- Programs also differ on the extent to which they employ CRNAs. Some programs rely on residents as their primary workforce, while others handpick interesting cases for residents to learn from and assign more mundane cases to the CRNAs. Obviously, this can affect your life as a resident.

- A word about special tracks
  ○ There are few special tracks but it is not a trend within the specialty. These can be either opportunities to focus more heavily on research or a guaranteed spot in a critical care fellowship as part of a “critical care track.”
  ○ Not all programs, not even all the top programs, really offer this, in large part because programs tend to differ in philosophy on the value of dedicated “tracks” vs. a sort of “choose your own adventure” approach in which the program is somewhat flexible and can tailor experiences to your career desires/needs. Overall, it is not really that big of a thing within anesthesia, but if you happen to be very interested in research with a demonstrated track record of projects/publications already and know you want to continue, this would be something to inquire about at programs. Penn has such a program (Dripps Scholarship), but it is not advertised heavily.

- If you are particularly interested in a research-heavy academic career, try to meet with Dr. Max Kelz, who leads the Dripps Scholar program here at Penn. He can guide your selection of programs.

Transitional/Preliminary Years

- Anesthesiology requires 4 years of total training. Some programs are categorical (all four years at
one institution), while others are advanced (complete your intern year in a different department or institution and then enter your primary program in anesthesia as a PGY2). You can fulfill the requirements of the first year (PGY1) by doing a medicine-preliminary, surgery-preliminary, or transitional year, which requires separate applications and interviews.

- A transitional year consists of a few months of medicine, few months of surgery, some critical care months, emergency medicine, and a few electives. Transitional years tend to be more “cush” and are highly competitive, as you will be interviewing alongside applicants going into radiology, dermatology, and ophthalmology.
- Medicine-preliminary, surgery-preliminary, and transitional programs tend to interview regionally, so you will probably get interviews at Philly programs and programs where you have regional ties (e.g. family). It can be quite challenging to get interviews elsewhere. Do not apply to too few preliminary programs unless you apply only to residencies that offer only the categorical option. It would be a giant pain if you matched in anesthesia but then had to scramble to find a position for your intern year. The Penn surgery-preliminary internship, while tough, is a good backup. They often have open spots.
- Be careful to not wear yourself out on the interview trail doing prelim interviews. They can be good practice interviews. General surgery prelims tend to interview via Skype (except NYC programs), so that can help hold down travel costs.
- You do not need to write a completely different personal statement for prelim programs. Usually, people change the last paragraph or add a few sentences at the end addressing why they would like to do this particular prelim.
- Some programs have “linked” programs that will hook you up with an interview with an associated hospital or medicine program. These are programs specific and you will need to check with them individually
- Many programs currently offer both the advanced and categorical paths. When you make up your rank list, you rank them separately. For each advanced program, you craft a “supplementary rank list” to rank the transitional/preliminary programs. Unless you plan to exclusively rank categorical programs, you need to apply to preliminary programs at the same time as you apply for your residency programs.

- This is often a confusing topic for students as they begin to apply. NRMP has a few videos on youtube that can explain how this process works.

**Application Process**

- **Pre-applying**
  - Schedule ANE300 as early as possible. Develop a mentorship relationship with Dr. Fleisher during this rotation.
  - Drs. Baranov and Fleisher will give you personalized advice on which programs and how many programs to apply to.
  - Update your CV and draft your personal statements.
  - Get your letters in before the first day programs download applications.
- **Applying**
  - Submit your applications on the first day that submission opens!
  - The ERAS layout is not intuitive. Make sure your application is actually submitted!
  - Make sure your personal statement displays to the programs as only one page.

**Application timeline**

March to June

- ANE300 elective
- Meet with Dr. Fleisher
- Ask for letters of recommendation
- Plan Scholarly Pursuit: The anesthesia department at Penn is well known for doing cutting edge
research on the mechanisms of anesthetic action from a basic science perspective, but there are plenty of options for clinical and public policy research as well. Dr. Fleisher has a particular interest in health policy and has been a great resource for students looking for projects and mentorship both in and outside of the department. Finding a project is usually as easy as reading through the list of ongoing research projects on the departmental website, finding a mentor with interests similar to yours and emailing. Dr. Fleisher is very up-to-date on current clinical projects. He will help link you with a mentor that aligns with your particular research interests. It is helpful to have started the project by October of your fourth year so that you can talk about this research on your interviews. It will also allow you to interview during your Scholarly Pursuit time and not waste a vacation month on interviews.

June to September

- Schedule meeting with JoMo about the Medical Student Performance Evaluation (MSPE, a.k.a. Dean’s Letter)
- Draft personal statement
- Write MSPE unique characteristics
- Start ERAS application
- Meet with Dr. Baranov, the residency PD at Penn
- Complete and submit application
- Verify that letters of recommendation are submitted
- Register for NRMP

October to February

- MSPE released October 1st
- Step 2: Most programs do not have specific requirements, but the school requires you to take the exams by December 31st
- Interviews

Interviews

- Schedule them as soon as you get an invitation to interview. Unfortunately, interview spots have been known to fill up within minutes, especially for programs that use Thalamus or ERAS to schedule.
- Read the program’s website before you go. Always have program-specific questions to ask that demonstrate that you have done your homework before you came to interview.
- The most common questions you’ll get are:
  - “Do you have any questions for me?” Have some. They should reflect your interests and priorities. Always have a few questions that would work wherever you are, but make sure they are thoughtful, genuine, and not too generic. It’ll be easier to come up with questions as you get more interviews under your belt because you’re really trying to tease these programs apart!
  - “Why anesthesia?”
  - “Penn is great! Why did you apply here?”
  - “Tell me about yourself”
  - On occasion, someone will ask you to talk about an interesting anesthesia case in which you participated. Be prepared to speak intelligently about one and give a short case presentation.
  - Have a good answer to the “where do you see yourself in 10 years?” question that shows you have given some thought to your career and the interests you would like to pursue. For extra points, your answer should show how training at that specific program would get you to your goals faster/more easily than anywhere else!
- If you do not get an interview at a program that you want, talk to Dr. Baranov or Dr. Fleisher for advice; they are incredible resources and always willing to provide guidance!
- Penn will be your first interview, early in October. The department organizes “Penn Day” for all students applying into anesthesia from Penn. This is designed to take away the stress of an
interview and give you feedback for subsequent interviews at other programs. You will have approximately five or six 30-minute interviews. Afterward, leadership will take you out to lunch and, as a group, they will comment on what applicants did well and how they can improve. This is a great experience that is unique to the Penn department. If interested, you are welcome to attend a pre-interview social at a future date to spend time with Penn residents and fellow applicants.

- Be on your absolute best behavior during interviews! You never know who is watching/listening.
- At the end of your interview season, you will tell Dr. Fleisher and/or Dr. Baranov your intentions. He will make an advocacy call to the program director of your top choice program. This will go a long way to helping you match at your top choice.

Final Thoughts

Anesthesiology is a wonderful career choice. It requires a dedication to patient safety and comfort above all else and draws on your knowledge of multiple fields. It’s also a great pathway to critical care as an alternative to medicine or surgery, if that is what you’re interested in. Do not underestmate your own satisfaction with your specialty choice when choosing your career path. Look around the hospital, and think about who seems happy with what they are doing. You will be hard pressed to find an anesthesiologist who wishes he or she chose a different path.

Another great way to get involved: Join and attend some of the meetings of the student run Anesthesia Interest Group (AIG). This is a great way to get more involved, meet some interesting faculty, and get your face/name out there to Dr. Baranov and Dr. Fleisher. The Co-Presidents of the AIG are funded to attend the annual American Society of Anesthesia conference.

Questions: Vivien Wong (vee.ivi.en@gmail.com, 917-250-8644)
CARDIOThorACIC SURGERY

Created by Matthew Duda and Dr. Marisa Cevasco (2020)

Cardiothoracic (CT) surgery is the surgical sub-specialty concerning disease affecting the thorax and the organs it contains. These include the heart and great vessels, lungs and lower respiratory tract, and esophagus among others. CT surgery address issues in these areas using various approaches including median sternotomy, endovascular techniques, and minimally invasive techniques including robotic surgery and video-assisted thoracoscopic surgery (VATS) among others. Further, CT surgeons may seek additional training with aortic disease, mechanical circulatory support (MCS) and transplantation, and congenital disease among others.

Two training pathways exist in CT surgery. Traditional training involves completing a general surgery residency and CT surgery fellowship. Integrated 6-year (I-6) CT surgery training programs involved relatively less general surgery experience and earlier CT surgery immersion.

Students applying to CT surgery typically take the emergency medicine sub-internship, which emphasizes triage and emergency management while permitting flexibility for scheduling electives and interviews. Students may also consider taking the internal medicine sub-internship to learn more about cardiopulmonary disease management.

Students will take the elective rotation in CT surgery at the Hospital of the University of Pennsylvania (HUP). Students may also consider taking elective rotations in CT surgery at Presbyterian Hospital (Presby), general surgery services especially thoracic surgery and vascular surgery, HUP cardiothoracic surgery intensive care unit (CTSICU), cardiac anesthesiology, congenital cardiac surgery at the Children’s Hospital of Philadelphia (CHOP), and electrocardiogram (EKG) interpretation.

Considering CT surgery is a relatively small field, many students take away elective rotations to familiarize themselves with different programs. Students typically take 1-3 away rotations depending on their application interests.

As the Chief of the HUP Division of Cardiovascular Surgery, Dr. Michael Acker, MD., will write a Letter of Recommendation for students applying to CT surgery who rotate on service. Dr. Joseph Bavaria may also write a letter for any student he works with at HUP, as well as Chief of Cardiac Surgery at Presby, Dr. Wilson Szeto. Students should ask other cardiac surgeons, general surgeons, and research mentors whom they work with for Letters of Recommendation.

I-6 programs offer limited residency positions. Currently, 28 programs offer 36 positions nationwide. Many students dual-apply to General Surgery to increase success in the National Resident Matching Program.

The cardiothoracic surgery interest group (CSIG) is available to discuss questions and introduce students to residents and faculty for mentorship.
DERMATOLOGY

Original work by Camille Intracaso and Adam Lipworth
Updated most recently by Jaclyn Rosenthal (2020) and Leo Wang (2020).

General advice:
Dermatology is a very competitive specialty; however, coming from Penn is an advantage that cannot be understated since our faculty are very well-known and well-connected.

Mentors
If you were not assigned a mentor through the Office of Student Affairs according to your specialty interests, talk to Carrie or Jessica. Choose a person from their list and make an appointment to meet with the faculty member to discuss your application as soon as you start considering dermatology (spring of your third year, if not earlier). Ideally you will meet with your mentor several times over the year.

Do not expect a letter from your mentor unless you interact with him/her through electives or research. Recommended mentors include Victoria Werth (clinical and basic science, autoimmune diseases), Alain Rook or Ellen Kim (basic science, cutaneous T-cell lymphoma), and Jim Trest or Leslie Castelo-Soccio (clinical pediatric dermatology and medical education). Misha Rosenbach and Rob Micheletti are also great mentors who can assist with some of the nuances of the match after you have submitted your application and begin interviewing.

Typically, one member of the dermatology faculty mentors all Penn Med dermatology applicants and is not involved with residency admissions – in 2019-2020, this was Katherine Steele.

Of note also, the Topical podcast from Harvard is a wonderful resource that can answer a lot of questions people have traditionally asked their mentors. We would recommend looking into this for help at every stage of the process, from first considering dermatology all the way through making your rank list.

Research/Scholarly Pursuit
Research with an attending can be another way to get a letter and can help your application overall. It is important to consider the size of projects; you may want to mix some larger research projects with smaller ones (e.g. case reports or abstracts) so that you have longitudinal research experiences but also have the opportunity to publish quickly.

For your Scholarly Pursuit, find a project in dermatology and try to start as early as possible so that you can get a letter and possibly have an abstract or paper submitted in time for inclusion in your ERAS application.

Possible research mentors include
- Clinical research: Werth, Rosenbach, Micheletti, Kim, Steele, Samimi
- Basic science research: Rook, Seykora, Cotsarelis, Payne, Leung
- Epidemiology research: Gelfand, Margolis, Ming
- Teledermatology/global health: Kovarik, McMahon
- Pediatric dermatology: Yan, Castelo
- Procedural dermatology and Mohs surgery*: Sobanko

*Of note, some will tell you to be very cautious of emphasizing interest in Mohs, as it might hint that you may be more interested in private practice.
Many Dermatology applicants choose to take a year out for research. The benefits of a year out can include plenty of time for publications, building relationships with faculty, and most importantly ensuring at least one very strong letter of recommendation from your research mentor (assuming you do well and have a good mentor relationship over the year). Letters are a very important part of your application; dermatology is a small field, and everyone knows the Penn faculty, so strong letters from our faculty can be a huge asset.

That said, it is also possible to get these strong relationships and letters without a year out. Doing so requires either identifying mentors earlier in med school (e.g., during pre-clinical years), or dedicating extra time early in Mod 5 towards research (e.g., taking 1-2 research months before August). Many students who have chosen not to take a year out have also done very well in the dermatology application process.

If you are unsure whether to take a year out, Dermatology faculty mentors (e.g., Drs. Rosenbach, Steele, Micheletti, Samimi) can be very helpful in providing an honest assessment of whether one would be helpful or necessary in your situation.

The decision to pursue clinical research vs basic/translational research often comes up as well. Basic science research does look better on paper for some, but comes at the expense of potentially not having a paper at the end of all of it. Clinical research is often easier to publish and in most cases can get you something you can actually list on ERAS. This decision should also be weighed in the context of your career goals.

**USMLE Step 2 CK/CS**

During this past application cycle (2019-2020), only a few schools required Step 2 scores prior to ranking applicants in March of the application cycle (e.g., UCSF, Tufts, Cooper). The trend at Penn has been to delay Step 2 if you scored well on Step 1 (>240). If you do well, this can be one more positive to add to your application; if you do much worse than you did on Step 1, it can definitely hurt you.

If you receive your Step 2 score after you submit ERAS, you can optionally choose on ERAS to release the score depending on how well you did (if you receive the score before ERAS, it will automatically be transmitted to programs).

Bottom line: If you did not score well on Step 1 and think you can improve on Step 2, take Step 2 early. Keep in mind that some preliminary programs may want your Step 2 scores and it is not possible to send scores preferentially (i.e., if you want to send scores to one program, you obligatorily must send scores to everyone as a result of the ERAS score reporting structure).

**ERAS application and scheduling interviews**

**Timeline.** ERAS opens on July 1. Applications are released to residency programs on September 15, but they can start being submitted up to two weeks beforehand. Try to submit your application by September 15, even if not all of your letters are in.

- Make sure to check program websites for application deadlines. For example, the deadlines for Harvard and UCSF were October 1, for example.
- A full list of Dermatology programs is available through FREIDA, but you will have to visit each program’s website to get specific due dates and any application requirements unique to the program (e.g., number of LORs, Step 2 CK requirements, supplements).
Letters of recommendation. It is recommended to have at least 2 (preferably 3) letters from dermatologists. Big names matter so if you can get a letter from a big name, you should do so

- If you have a number one program in mind, it could be helpful to speak to a faculty member at Penn who went there or may know faculty there.
- Try to get a good balance of letters (eg, 1 from a faculty member who knows your research and 2 from faculty who have worked with you clinically). Preliminary/transitional program applications usually require a Medicine letter (eg, from a sub-internship or a departmental letter), so be sure to check specific program requirements.
- An example of a strong combination of letters would be three letters from well-known dermatologists who have worked with you clinically, scholastically, or both and the attending on your medicine sub-internship.
- You are also able to customize the letters that you send to your intern-year programs. For example, you could send two dermatology letters, the letter from the attending on your sub-internship, and one medicine departmental letter.
- If you are concerned about letters, please keep in mind that many faculty members will wait until the week prior to September 15 to submit. It is reasonable to send periodic reminder emails, but it is recommended to avoid sending too many too frequently.

Other logistics.

- Dermatology applicants from Penn apply to 60 to 70 programs on average, but some do fewer and others do more. Talk to your mentors and fourth-year students to decide on a suitable number of applications.
- Program directors know you are casting a wide net and applying to many places, but they will only interview people they expect to be serious about their programs (based on the student’s expressed interests, geography, competitiveness, etc.).
- Be aware that some programs may require special personal statements or additional questions. In the 2019-2020 cycle, these included UT Southwestern (dedicated personal statement), Mayo Rochester, Boston University, University of Connecticut, Indiana University, Ohio State University, University of Missouri-Columbia, Oregon Health and Sciences University, the University of Washington, University of Iowa, and the University of Utah; please know that this list is not comprehensive.
- Many programs will not send you a notification that they require supplemental materials, so make sure you check each program’s specific website. Penn for example has a required supplemental questionnaire on their application website.

Preliminary/transitional-year application. Dermatology does require a preliminary (“prelim”) or transitional year, which is a separate application process through ERAS.

- Most applicants aim for 6 to 10 preliminary/transitional program interviews, which tend to be very relaxed, friendly and conversational. These are usually one or two 15 to 30 minute interviews.
- Try to schedule your preliminary/transitional interviews as early as possible (October and November), as most Dermatology interviews happen later (December and January) and you do not want them to conflict.
- If you do find yourself in a situation where a intern-year interview is conflicting with a dermatology interview, it is recommended to go to the dermatology interview unless you believe that you will be ranking the intern-year program very highly and the dermatology program lower (on a long list).
Scheduling interviews. Most Dermatology programs send out interviews in November (around Thanksgiving), so try to relax. You may hear as late as Christmas. Please note that this is in contrast to many other specialties (so really, relax).

- The peak time for interview invitations is the two to three weeks before and leading up to Thanksgiving. Some programs like Wake Forest, UNC, Boston University, Medical College of Wisconsin, and Medical University of South Carolina send out invitations earlier in the process (end of October and very beginning of November).
- Some programs will not inform you until early to mid-January, which essentially means that you were placed on a waitlist without being told so. UT Houston is one of the last programs to offer interviews and usually does this in mid-January.
- “Trickle” interviews are interviews that you get after a different applicant turns down an interview invitation. They occur but are rare. They also do not mean you are any less desirable at the program that invited you.
- If there is a particular program that you really want to interview at, you can ask your mentor to contact the program on your behalf before invites go out. Mentors will typically only do this for one program. Some applicants have also had luck contacting programs themselves assuming they had good reason, though this has mixed levels of success.
- Most interviews are in December and January. Be aware that interview days will overlap since most interviews are occurring in the first half of December and most of January.
- In 2019-2020, there was an interview calendar that was started at Harvard that contained the interview dates for most programs. It is helpful to have this calendar handy as you schedule interviews.
- DermInterest.org will have a skeleton schedule of interview days indicated by program directors as well.
- It can be very difficult to reschedule interviews and inevitably you may need to drop an interview due to a conflict with another interview at a program you want more. Organization is key. Check out program websites, and if necessary, call program coordinators to ask for interview dates.
- Keep your phone on you so you can respond to emails quickly. Interview spots will fill up very very quickly and some programs will only interview on one or two days (and you may already have another interview scheduled on that other day!) Some programs will also call you to invite for an interview (ie, Yale and UCSF), so pick up these calls since they schedule you for your interview during the call. It may be helpful for some applicants to create a separate ERAS account to respond sooner to interview invitations.

Pre-interview dinners. Most programs host a pre-interview dinner or event, usually held the night before the interview. While it is not absolutely required that you attend these events, you should try your best to make them as they are opportunities to interact with residents (and sometimes faculty) in a less formal setting.

- Thus, be aware of these additional commitments when you schedule your interviews and make your travel arrangements. However, it is generally not worth missing an interview in order to attend a pre-interview dinner for another program.
- Please note that you are being observed and evaluated during these dinners. The residents will report back to the PD. Have fun, but do not do anything controversial (eg, get drunk, make negative comments about programs or other applicants, brag about other places you are interviewing).
The interview

Interview at as many programs as you can within reason, aiming for 12+ interviews. See the NRMP’s “2019 Charting Outcomes” to get a sense of the match rate per number of interviews. You will have an approximately 75% chance of matching with 6 programs ranked, 90% with 9, and 97%+ with 12. There are remarkably diminishing returns beyond 12 interviews and it is not to your advantage to interview significantly beyond that number given that the process can become exhausting and very expensive if you are interviewing at and ranking low many more programs than you need to.

Some say the interview is the most important factor in your application, while others say it is not particularly important as long as you do “okay.” At each program, you should expect to have anywhere between 4 and 20 mini-interviews, each lasting 10 to 20 minute, and each with either a single interviewer or multiple interviewers.

- Know the program before you go in and why the program would be a good fit for you. Specifically, you should be able to clearly articulate an answer to the question why you would want to come to said program. Geography is very important here and you will often be asked about whether you have been to that location before, have family in the area, or would be willing to relocate there.
- Be excited about the program. Enthusiasm is really important and a lack of enthusiasm is an easily detected red flag for programs.
- Be excited about your plans within dermatology and have an idea of where you see yourself in 10 years with respect to your career. This is a question you can expect at almost every interview day.
- Be ready to talk about your research, especially in dermatology.
- Be familiar with the faculty members (especially the PD and chairperson) and have good questions prepared for them. It is not unheard of to be asked what kind of research the chairperson is involved in.
- Let the interviewers see your personality (or the best version of it).
- Know about your hobbies, your strengths and weaknesses, your research and activities (anything you include on ERAS is fair game, even activities or research from college), and reasons why you would leave Penn or move to that city. If you have a unique hobby, be prepared to be asked about it.

Prepare answers for “classic” interview style questions (you will have a prep session with Katherine Steele and some of the Penn dermatology residents during which you will learn more about commonly asked questions). They have excellent resources recommended as well as a long list of sample interview questions that can help you prepare; some of these questions may seem strange and obscure, but you will be surprised how many you will encounter over the course of the process.

As always, practice, practice, practice. Dermatology interviews can be intense since they are all relatively short. You have little time to put your best foot forward. You will find that the more times you answer the same questions, the more polished your answers become, so practice is important. (Beware that after a while, you will also have to try not to sound too rote.

Many programs are transitioning to interview formats using a list of standardized questions, which makes the interviews less conversational. Do not let this throw you off; everyone is in the same boat. At the extreme of this format, the interviewers may not have reviewed your application ahead of the interview and simply ask so-called “behavioral questions” to learn more about your personality. We recommend speaking with your mentor(s) and Dr. Steele about the best way to prepare for these questions; the topical podcast with Kris Liu from Harvard is also a great resource here.
Try to take notes on the interview day about things that matter to you. It is a whirlwind process, so it can be hard to recall later when making your rank lists.

Post-interview communication

Thank you notes. Some programs specifically ask that you do not send thank you notes. For the others, you could send thank you emails to the PD and/or program coordinator, but you do not have to. Most programs rank applicants right after the interviews, so thank you notes probably make no difference in the end. Please note that if you do elect to send thank you notes, everything you write may end up in your application so proofread your work carefully (e.g., make sure you spelled names correctly, did not mix up programs, have good grammar).

Phone calls. Some programs do “ranked to match” calls/emails, but most do not. Generally, it is best to not pick up post-interview calls from programs and wait to hear the voicemail if they leave one. That way you have some time to collect your thoughts and call back, so you are not caught off guard.

- If you have a clear number-one program, ask your mentor to call and tell the program this. You should also tell the program this yourself, typically via email.
- Many programs will not change their rank list after they have made it. You should thus tell a program they are your number one as soon as possible.
- Do **NOT** tell more than one program that they are your number one as dermatology is a small field and programs do talk.

2+2 Programs and Dermatology Research Residencies

Research residencies are reserved for MD/PhDs or MDs with significant commitment to research, typically in basic science. Applicants interested in 2+2 programs should reach out to Aimee Payne and Thomas Leung for individualized advice. The advice in the booklet is generally applicable to all research applicants but there are additional nuances (research presentations, research interviews, etc) that apply as the interview and application process is not entirely the same. A common misconception is that applying to these programs may increase chances of matching – it does not.

Final thoughts

Be wary of the infamous Google Sheets spreadsheet. Historically, it has been crazy and often incredibly (and even intentionally at times) misleading and there have been many scenarios of people purposefully posting inaccurate/fake information. More recently in the 2019-2020 cycle, the spreadsheet has been respected and a reasonably reliable source of information, though again we recommend always remaining circumspect of what is written there.

Derminterest.org is a great resource but gets much less traffic. The best resource is the Penn students who have gone through the process, so you should feel free to reach out to us. Take a deep breath and relax. It is a stressful and long (but also fun!) process and all you can do is try your best. Reach out to your faculty mentors and the fourth-year medical students for advice. Everyone knows it is a stressful and crazy process (but a worthwhile one!) and we are all willing to help.

GOOD LUCK

Other resources

• Desai, Samir and Katta, Rajani. The Successful Match: Getting into Dermatology. An interview with Dr. James (Penn Vice Chair and PD)
• https://www.studentdoctor.net/2009/10/the-successful-match-getting-into-dermatology/
• Charting Outcomes in the Match for U.S. Allopathic Seniors: Characteristics of U.S. Allopathic Seniors Who Matched to Their Preferred Specialty in the 2016 Main Residency Match (1st edition) (PDF, 211 pages)
• Topical Podcast from Harvard Dermatology

Questions
Jackie Rosenthal (2020), Jackie.rosenthal1@gmail.com, Leo Wang (2020), leowang4@gmail.com
EMERGENCY MEDICINE

Original work by member of class of ’07. Updated by Loren Mead (2020)

Program Director: Dr. Lauren Conlon (previously Dr. Francis DeRoos)
There is a general meeting for EM applicants in the spring of third year, so look out for that.

Why Emergency Medicine (EM)?

- Relatively new, exciting field with ample career opportunities—lots of jobs available in many types of settings.
- Diversity: Wide spectrum of patients and pathology in a fast-paced environment. Great for people who like to think on their feet.
- The Emergency Department (ED) is the “safety net” of the health system – patients are seen in order of acuity without regard to insurance or ability to pay.
- Great colleagues: Generally very down-to-earth with diverse professional and personal interests.
- Lifestyle: No call! When you go home, you go home! Shift work allows for great flexibility for family, hobbies, travel, etc.
- Training: You are the person they need when they say, “Is there a doctor on the plane?” You will be prepared to handle anything and everything.
- There are many subspecialties that have evolved out of EM with a variety of fellowships that one can apply to after residency (though a fellowship is absolutely not required to be a great EM physician!). It is helpful to think of EM fellowships as falling into one of three categories:
  - Clinical Focus focused: Pediatric EM, Geriatric EM, Toxicology, Ultrasound, Critical Care, Sports Medicine, Cardiac Emergencies
  - Special Environment: Wilderness Medicine, Transportation Medicine, Hyperbaric Medicine, Simulation Medicine
  - Health Systems: Health Administration, Health Informatics, Health Policy, Medical Education, Global Health

- Things to consider:
  - Evaluating undifferentiated and critically ill patients is a unique challenge. Quick decisions are often made without a complete workup. It helps if you are able to see “the big picture” and not get too hung up on the small details.
  - The role of the Emergency Physician (EP) is to **acutely manage** any patient that presents to the ED. Once a patient is stabilized, they are either admitted or discharged. There are few chances to establish a long-term relationship with patients and we frequently don’t make final diagnoses. This can be a pro or a con depending on your preferences.
  - People will often criticize ED management decisions and play “Monday-morning quarterback.” It helps to have thick skin.
  - EP’s are generalists in that they are trained to care for anyone and anything that walks through the door, but they are specialists too, in resuscitation—lots of critical care happens in modern EDs. You’ll be adept at handling the sickest of the sick.
  - The ED never closes! Emergency physicians will work nights and holidays.
  - Many patients come to the ED without true “emergencies.” Although it can be frustrating to see multiple patients with URIs and rashes, you must be willing to be part of the safety net of our health care system.
Many EDs are becoming mini-hospitals due to the upper floors being backed up. We have resuscitation bays that can hold people for sometimes over 24 hours (ICU), observation units that in some hospitals go over 24 hours (Internal Medicine), fast tracks (Urgent/Family), and some hospitals are starting to open psych units with 24/7 psychiatrists (Psychiatry). We also have Emergency specialized pharmacists, radiologists, psychiatrists, and social workers. You can really do a lot in EM.

Research

While research is by no means a requirement for a successful application as it is in other fields (ENT, Dermatology, etc.), it can strengthen your application and help set your application apart from others and/or demonstrate your interest in a particular area of EM. This is especially true if you are interested in a more academic residency program or see yourself completing a fellowship down the line. Additionally, research projects tend to be good interview conservation topics, especially if your interviewer also has interests in that topic. Whether the research you do should be done specifically within the EM department vs other specialties/departments does not matter quite as much, since emergency physicians tend to see a little bit of every other specialty! Anyone you do research with can also be a good person to ask for a letter of recommendation down the road as well. If you are interested in getting involved in research but have not jumped on a project yet, the Penn EM department nearly always has research projects floating around in need of extra hands—feel free to reach out to Dr. Scott, Dr. Bryan Walker Lee or Dr. Wilma Chan to help be set up with a mentor or project. Dr. Ben Abella, Vice Chair of Research, is another great resource.

Mentorship

The Office of Student Affairs will set you up with an advisor if you say you have an interest in EM; however, this process is slow and should not be relied on. Be proactive and reach out to faculty with overlapping experiences or areas of interest. Other good sources of mentorship are residents or attendings with whom you have worked shifts. Dr. Lee (sub-I director), Dr. Scott (assistant program director and former sub-I director), and Dr. Conlon (program director) are usually available to meet with applicants and are a good source of advice since they are heavily involved in the application process. The person you do research with can also be a great source of advice.

Letters of Recommendation

- Programs require 3 to 4 letters; send no more than 4 letters. Two of these come from your Standardized Letters of Evaluation (one from your home EM sub-I, one from your away EM sub-I).
- What are Standardized Letters of Evaluation (i.e. SLOEs)? A SLOE is a unique recommendation letter used by Emergency Medicine as a specialty. Though a SLOE can technically be written by any EM faculty member, a SLOE is typically written as a joint departmental letter of recommendation by the EM clerkship director (and/or program director/department chair) with whom you completed your EM sub-I (Dr. Lee, the course director for the EM sub-I, will be the author of your Penn SLOE). For more information on SLOEs, it is recommended to attend the EM applicant information session held annually in the spring each year or check out this summary: [http://emadvisor.blogspot.com/p/applying-letters-of-recommendation.html](http://emadvisor.blogspot.com/p/applying-letters-of-recommendation.html).
  - EM program directors care more about your SLOEs than anything else in your application. It would serve you well to put more effort on your SLOE-granting rotations and plan to be able to do so accordingly. See the [NRMP program director’s survey](https://www.nrmp.org/programs/director-survey) (page 31) for concrete information concerning this.
- Home rotation SLOE/ED Departmental letter: A SLOE will be written based on your performance on your EM sub-I by Dr. Lee. Residency program leadership and the department chair will also review and sign your SLOE.
- Away rotation SLOE: The place(s) you do an away rotation can each write you a SLOE. In fact, the programs to which you apply will expect a SLOE from your away site. This letter can be sent to every program you apply to (no bad politics here). Make sure to tell your sub-I director at your away at the beginning of the rotation that you are hoping for a SLOE.

- One additional letter from another EM physician or other faculty/rotations: If you have done research or worked closely with an individual EM physician, you should consider asking him/her for a letter. Alternatively, a letter from someone you worked with on your Medicine sub-I, ICU, Trauma, research, or really any elective rotation you do would work, as long as it is someone who knows you well enough to write a strong letter.
- It is generally better to submit 3 letters rather than 4 if the 4th letter doesn’t add anything different or substantive to your application.

**Residency Programs**

- There is no single list of “best” residency programs (although many people will volunteer their opinions!). Keep in mind that different programs may be “best” depending on what you’re looking for. Almost every residency will give you great clinical training—you have to pick the one that works for you, where you think you will be happy.
- Important features to think about: geographic location, proximity to your own support system, hospital setting, patient setting, patient population, patient acuity, trauma/ultrasound exposure, resident happiness/wellness, resident career choices/placement, research/elective opportunities, program history, and overall “gut feeling.” Also, keep an eye out for interactions between residents, attendings, nursing, and other staff—some programs, like the NYC ones, have unionized nurses, which can have big impacts on your workflow. A note on trauma: It is often the most asked about feature by students, but almost universally panned by senior residents. Most programs will give you sufficient exposure, so try keeping a broad list of priorities.
- Formats include PGY1–3 and PGY1–4. Traditionally 4-year programs are more academic than 3-year programs (see below). But these lines can be blurred, and programs have very different plans for how they use the extra year. It may include extra electives, research time, more ED exposure in a pre-attending role, etc.; pay attention to this. We would recommend against excluding programs solely based on format, although you may figure out you would prefer a 3- or a 4-year program during the interview process.
- We recommend applying and interviewing at a variety of program types to discover which ones feel most comfortable and meet your criteria—you will get a good feeling of what you want quickly once you start interviewing.
- Basic program types: Although most programs can be placed into one of the following three categories, it is important to recognize that often there is overlap. For example, a county program that has a significant academic affiliation allowing for more research opportunities than would be expected, the academic program with significant community ED off site rotations, or the academic program that exposes residents to both large tertiary referral setting and to the challenges faced by county hospitals due to the lack of an area public hospital.
  - Academic (university based): Typically great resources, ancillary services, teaching on off-service rotations. Research and academics tend to be emphasized. Patient volume
varies. Sometimes less autonomy in patient management, may have to battle other services for procedures. Examples: Penn, Brigham/MGH, Northwestern.

- County: Typically high patient volume; lots of trauma, medically ill patients, infectious disease, and social issues. Ancillary services and teaching on off-service rotations may be lacking, more resident autonomy. Many of these programs have affiliations with universities, and there are plenty of academic county programs out there. Examples: Jacobi/Montefiore, Emory, Denver, Highland, UCLA-Harbor, Temple, BU/Boston Medical Center.

- Community: Less emphasis on research; typically does not have either the resources of a large university hospital or the exposure of a county hospital, but often provides the most experience with the ‘bread-and-butter’ patient complaints that comprise much of emergency medicine. Examples: York, Lehigh Valley, Christiana

- Be sure to check out the residency catalogue on the Society of Academic Emergency Medicine (SAEM) website (www.saem.org) that has info on all the residency programs in the country. You can also find a database of programs with a lot of information about them on the Emergency Medicine Residents’ Association (EMRA) website, which has a nice map feature with the ability to sort programs, make lists, and also download an Excel spreadsheet with all the information of your favorite programs.

Application process

Application

- Personal statement: The basics—why you chose EM, why you are well-suited for the specialty, your past experiences, and your future career goals. Keep it simple and direct. Get feedback from others—your EM adviser, Advisory Deans, EM faculty, friends, family, etc. Also the EM residents are willing to read personal statements and give feedback if you ask them early.

- Applications have increased in recent years and the specialty is getting more competitive. Applicants should have strong clinical performance and average to above-average board scores. Publications within the field are helpful but certainly not necessary.

- Penn students typically apply to a minimum of 20–25 programs. It may make sense for some students to apply to more if they have any weaknesses in their application or are applying to highly competitive programs. If you have any doubts about how many programs to apply to, ask Dr. Conlon or Dr. Scott to review your application.

- Aim to interview at 10–12 programs. Going on 10+ interviews results in a >95% chance of matching, and statistically there is not much benefit to going on more than 12 interviews unless you are couples matching. Most programs do not care when you take Step 2, although some states require it earlier (e.g. California). Step 2 is generally not needed to obtain interviews if your Step 1 score is good, but check program websites or email program coordinators if you are unsure about specific programs’ policies. Some programs may not include applicants on certified rank lists if they have not posted a passing Step 2 score. This prevents programs from matching a student who failed Step 2 and is unable to start residency right away.

Interviews

- The interview season runs earlier now than in previous years; some programs offer no January interview dates. Most programs send invites early-mid October, and some send a second round of invites in mid-late November. Look on the programs’ websites—some publish the date when they send out initial invites.

- The season generally runs from mid-late October to late January. Be on top of your email! Interview dates can fill up quickly so it is best to respond as soon as you can. Accept or decline in a timely and courteous fashion. It is okay to cancel an interview after you have scheduled it, but do so with plenty of warning (ideally 2 weeks) so that the program can offer the spot to someone
else.

- Be able to talk about anything on your application.
- Be prepared to talk about current hot topics in EM—you do not need to be an expert, but be aware and have some educated ideas about them.
- Go over the program’s website before your interview. Have questions prepared for your interviewers and be prepared to talk about why you’re interested in the program and why you’d be a good fit.
- **Interviews are generally low-stress and conversational.**

### After interviews

- Sending thank-you emails is optional.
- Inform your first-choice program of your interest via email. EM does not make calls as much as other specialties. Dr. Conlon is happy to make a call for you, but you will need to ask her.
- Rank programs according to where you want to go; in other words, where you could picture yourself being a happy resident and graduating well-trained to accomplish your career goals.
- Do not rank programs based on who seems interested in you or based on other people’s opinions of programs (you will hear plenty of these).

### Final thoughts

- Can I do EM research at Penn? Absolutely. As in many other specialties, research is huge at Penn EM. Many of the faculty at Penn and CHOP are national leaders in EM research. The recent establishment of the Center for Resuscitative Science has created many opportunities for basic science, translational and clinical research on disorders that are particularly relevant to EM, such as cardiac arrest and sepsis. For those interested in healthcare policy and healthcare services research in EM, the faculty involved in the Center for Emergency Care Policy and Research (CECPR) would be a great fit. Check out the Penn EM website ([www.uphs.upenn.edu/em/](http://www.uphs.upenn.edu/em/)) to learn more about faculty research interests. There are many opportunities for scholarly work in other areas of EM (ultrasound, education, toxicology, etc.). Start this process early—finding a mentor and getting scholarly pursuits/other projects up and running can take a while!
- Thinking about a year out? A year out to explore if a career in research is right for you or to pursue a second degree could be helpful with your own career planning and thinking about what types of programs are right for you. However a year out isn’t necessary, as noted above research in EM isn’t seen as a requirement as much as it is in some other specialties. It is recommended that you do an away rotation the summer before you are applying, so if you took a year out you could be a little rusty coming back. There are opportunities to do some shifts in the ED before you start your away, but you should plan for all of this in case you have other summer obligations like classes, internships etc. You could do an away before the year out, which could be helpful depending on your situation, however you will probably still have to do an away the next year, in the summer before you apply. Ask your EM mentor, Dr. Lee, Dr. Scott, or a student in the years above you who have taken time out to figure out how to plan your aways with the year out.
- Join an EM organization, such as SAEM, EMRA, ACEP, AAEM, etc. They typically have newsletters that address topical issues in EM and are a great way to learn more about the field and the challenges it faces.
- EMRA, in particular, is an excellent organization to join. It is cheap for students and offers the EMRAP podcast for free. The podcast is an awesome, entertaining, and educational resource that will teach you a lot and, more importantly, help you stay current on controversies in EM.
• Consider attending a conference from one of the above organizations if you have the time/resources. This is absolutely not necessary to match, but looks good on interviews and may offer a chance to network with faculty at institutions of interest.

Questions: Loren Mead (2020) Mead.loren@gmail.com
Point people: Reach out to Dr. Mario DeMarco, Dr. Renee Betancourt, and/or Dr. Margaret Baylson if you are thinking about applying in Family Medicine, each of whom can offer a different perspective. Dr. Betancourt is excellent for giving personalized advice, and has experience with West Coast programs if that is an area you are interested in exploring. Since Dr. Baylson is the program director, she can give you specific feedback on your application. She is more than happy to meet with students and has enormous integrity; she will support you even if Penn's program is not your first choice. Dr. DeMarco is very useful for going through your application materials and list of programs you are applying to.

Dr. DeMarco usually plans an event during the spring or summer in order to explain the application and interview process. This event is geared toward MS3s but open to all classes. Dr. Betancourt also often hosts Family Medicine applicants at a casual meal at her home in the spring of third year to talk more about the process, introduce residents, etc.

Mentorship

- The Office of Student Affairs should assign you a mentor. Otherwise, talk with someone in Suite 100 or in the Department of Family Medicine directly.
- Meet to discuss your application in the early spring of third year. If you were matched up with someone who does not share your same perspective or interests, it is okay to talk with someone else on the faculty. The family medicine faculty are a friendly bunch and love talking to interested students.
- Use your family medicine electives to build mentoring relationships! The course directors are particularly invested in students and providing support for the application process, and will be happy to meet with you during or after electives.

Letters of Recommendation

- Polish your CV and personal statement early as most letter writers will request these. It is okay to ask for a letter early and then send your personal statement to the letter writer later once you have completed it.
- The required number of letters varies from program to program, but it is usually 3 and occasionally 4. It is best to get at least 4 just in case.
- Get at least one letter from a family medicine attending, preferably two. You should have at least one letter of recommendation from your sub-I, and the others can be from basically anyone that you have worked with and formed a good relationship. Because family medicine draws on all disciplines, it is more important that you pick the right person to write your letter than the right specialty. Some programs do like to have one letter from someone outside of the field of family medicine, though most do not specify a preference.
- Ask early, as faculty members are busy and need time (and sometimes prompting) to complete the letters. Ask for letters early-to-midway through the rotation. This will give letter writers the time to evaluate you, give you feedback, and watch you grow from their suggestions. You should ask for a letter AT LEAST by the last day of your rotation, not four weeks later. Letter writers will likely forget who you are or how you performed once the rotation is over. Giving
them a heads up will allow them to take notes and, ultimately, write you a better letter.

- Make sure to consider letters when scheduling electives. If you think an elective will be a great experience but will not facilitate getting a letter, go for it but schedule it later in the summer. If you have questions about which electives tend to facilitate letters, feel free to reach out to recent graduates.
- If your sub-I is away, ask your adviser whether or not you need a letter from a Penn family medicine faculty member as well.

### Residency Programs

- Know that because family medicine is a broad discipline, no program will be strong in every area. Unlike other disciplines, there is no single reliable list of “top programs.” Rather, certain programs are better fits for certain career paths.
- Because of this, it is especially important in family medicine to talk to faculty, MS4s, and residents to learn about good programs that match your interests. Think of a few core characteristics that are important to you (e.g. strong obstetrics, urban underserved focus, etc.) and use them to guide your search.
- You can also use the AAFP Family Medicine Directory or AMA FREIDA site to search by various criteria, such as geographic location, then look up the programs’ individual websites for more detailed information.
- Get a feeling for what type of program you might like: big vs. small, rural vs. urban, academic vs. community, available fellowships, elective research, international opportunities, etc.

- “Opposed” vs. “Unopposed”—“Community based” vs. “University based”
  - At “unopposed”, or “community based” residency programs, family medicine residents are the only residents at the hospital. At these programs family medicine residents are responsible for a wider variety of patients that might otherwise be cared for by other services. This can help helpful if you intend to practice in a rural or international setting where referral to a specialist is more difficult. Some good unopposed programs to consider are Lancaster, Lawrence, Ventura, Sutter Santa Rosa, Kaiser Permanente Programs (Washington, Napa-Solano, etc.), Contra Costa, and the Swedish programs in Seattle.
  - At “opposed” or “university based” programs, family medicine residents work alongside residents of other specialties during some of their rotations. For the most part, relationships with other programs are good and residents teach a lot to each other about their respective disciplines. Additionally, by focusing less on providing specialty care you can focus your training on other areas. Note that programs at academic medical centers where you have more teaching and research opportunities tend to be opposed. Some good opposed programs to consider are UCSF, University of Washington, Oregon Health & Science University, Boston Medical Center, Montefiore, University of Illinois at Chicago, Jefferson, University of Colorado- Denver, University of Wisconsin- Madison, University of New Mexico, and of course, Penn.
  - In general, goodness of fit with the program is more important than opposed vs. unopposed.

- Academic (often opposed) vs. Community (often unopposed)
  - If you are interested in teaching or research in academic family medicine, consider programs with stronger research infrastructure and the resources of big universities, such as the opposed programs listed above.
  - If you are interested in being a badass rural doc who does everything for your patients, you might want to consider a community program, perhaps one of the unopposed programs listed above, or opposed programs with a mission to care for the whole state (like UW-Madison or University of New Mexico), where you will really take responsibility for the full spectrum of your patients’ care.
• Strong obstetrics vs. weak obstetrics
  o If you want to practice OB, you should aim to get 80 to 100 vaginal deliveries during residency. Most programs can get you around 40 during your intern year and then offer elective rotations to get more. If you know you want to practice OB or want to keep that option open, look for programs where other residents share this interest and it is easy to get a high number of vaginal deliveries. It is often easier to get a lot of deliveries and training in higher risk obstetrics at unopposed programs. A family medicine labor & delivery service can be beneficial as family medicine OB tends to be stylistically different from OB/GYN L&D in important ways. A program with a family medicine obstetrics fellowship or something similar is also often (but not always) a sign of a strong OB program.

• RHEDI vs. non-RHEDI programs:
  o RHEDI programs, as well as a few non-RHEDI programs with alternative sources of funding, teach comprehensive reproductive care and family planning, with explicit training in abortion provision and management, to family medicine residents. Other programs may not include this in their curriculum, although away electives at Planned Parenthood or other high volume settings can be arranged to get this training.
  o RHEDI programs include: Brown, Contra Costa, Jefferson, Kaiser Permanente, Montefiore, Mount Sinai Downtown, New York-Presbyterian, OHSU, Tufts, Sutter Santa Rosa, UCSF, UIC, University of Maryland, Minnesota, University of New Mexico, Penn, University of Vermont, and University of Washington (among others). The full list can be found at https://rhedi.org/rhedi-programs/

• Remember that there is great variation in family training both geographically and program to program. Community and unopposed programs tend to have more inpatient, OB, procedural, and surgical training. The difference between FM at those programs and FM in Philadelphia can be so great they almost seem like different specialties.

• Some questions to ask if you are interested in full-spectrum FM are:
  o How many deliveries do residents graduate with?
  o How many of those are continuity deliveries from clinic?
  o Do you follow your clinic patients when they are admitted?
  o Is your clinic an FQHC?
  o What are the demographics of the clinic sites (% adults vs. pediatrics vs. OB)?
  o Where do graduates end up practicing, what percentage of them have hospital privileges, practice OB, etc.?
  o What procedural training do residents receive?

• Special tracks: There are many tracks and fellowships available within FM. Look on program websites to see what kind of tracks they offer—women's health/family planning, HIV, global health, quality improvement, population health, integrative medicine, faculty development, obstetrics, sports medicine, etc. Many of these fellowships will pay for an MPH or MSCE. If you are interested in academics, see if there are fellowships associated with the residency program and whether or not graduates go onto fellowships. The presence of a particular fellowship at the same institution as a residency program usually indicates that the residency will have strong training in that area.

• If at all possible, go to the American Academy of Family Physicians (AAFP) national conference in Kansas City. This conference is held every summer and is a fantastic place to meet with residents and faculty. Each residency will send representatives and you can go around and speak with whomever you want without pressure. This helps to narrow down your application process. Scholarships from the AAFP or Pennsylvania Academy of Family Physicians (PAFP) are available for first-time conference attendees and based on merit, and the PAFP can help cover costs as well.

• If you are unable to make it to the National Conference and are considering applying to programs in the northeast, the Family Medicine Education Conference is a similar experience but limited to East Coast programs. Scholarships are also available. Talk to Dr. Betancourt.
Application process

- Family Medicine programs are very diverse and it's worth applying to a variety to get a sense of what you're looking for. Applying to 15 programs and interviewing at 8-10 will likely be adequate, although ask your advisors what they think.
- The University of Washington has a helpful website with information about all steps of the application process. The site can help you assess how competitive your application is and also how many and to which programs you should apply:
  

- Some programs (UW, Swedish First Hill, Swedish Cherry Hill, Rochester) have separate rank numbers for different clinic sites, so you match not only to the residency program but also to the clinic site. Others assign clinic sites by lottery after the Match (OHSU), or have your continuity patients split between two clinics (Lancaster). Make sure you visit the clinic sites—usually included during interview day tours—and have a good idea of what type of community you'd like to train and practice in (e.g. urban, rural, Spanish-speaking, etc.).

March to June
- Meet with mentor.
- Family Medicine or Internal Medicine sub-I.
- Other relevant Medicine, Pediatrics or OB/GYN electives.
- Update CV.
- Ask for letters of recommendation.
- Schedule Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter) meeting with JoMo.
- Write MSPE Unique Characteristics paragraphs.
- Start working on personal statement.
- Start planning Scholarly Pursuit—lots of good family medicine options, but not necessary to do research with Family Medicine faculty.

June to September
- Attend AAFP Conference (very helpful but not mandatory by any means).
- Finish personal statement.
  - Despite what JoMo says, the personal statement is extremely important in family medicine, and you WILL be asked about it during interviews. Really convey why you are passionate about family medicine. Review it with a family medicine faculty member.
- Start ERAS application
- Verify that letters of recommendation are turned in. Remind faculty members to submit them if they are not.
- Complete application—Submit in the window between ERAS opening for submission and applications being released to programs, especially if applying to broad geographic range. The earlier you get your application in, the sooner you will get interview offers and the easier it will be to schedule. Submit even if not all of your letters of recommendation have been submitted.
- Register for NRMP

October to February
- Interviews (interview months are a good time to do Scholarly Pursuit).

USMLE Step 2
- It seems as though more and more programs are using Step 2 CK in some capacity. UCSF, UW, Swedish Cherry Hill and University of Vermont state on their website that Step 2 is required to rank. Santa Rosa states it is not required but “a good idea to submit.”
- Some programs have deadlines for receiving Step 2 CK and Step 2 CS scores. Check for specific instructions when you are applying, and make sure that you schedule Step 2 CS with enough time to receive your score report before programs rank.
Interviews

- Schedule your interview as soon as you get an invitation. If you need to reschedule the interview day in order to cluster interviews geographically, program coordinators are generally pretty accommodating. However, do not move an interview more than one time.
- Interviews start early in Family Medicine, around early October, and can be tricky to schedule because programs can be small and only offer limited interview days. Feel free to reach out to programs in certain geographic areas and tell them when you will be there. The process is a little less formal than in other specialties, and programs will do their best to work with you to help you interview there. Many East Coast programs will pay for a night at a hotel the night before the interview, but this is less common on the West Coast.
- Try to allow time to go to the dinner the night before. These are usually low-key dinners in a resident’s home and are an excellent way to meet the residents and see how they interact with each other. Unlike some other specialties these are very informal—okay to wear jeans! It is also a great way to see the types of housing available in that location.
- Read about the program before you go (their website is a great resource) & have questions prepared. Be ready to answer “Why Family Medicine?” and “Where do you see yourself in 5 to 10 years?” You will be asked these questions during most if not all interviews. Use the interview day to gather as much information about the program as possible. Pay attention to the feel of the program—can you see yourself fitting in there? Write down your impressions immediately after the interview day as programs will start to blend together after a few interviews.
- Programs are increasingly discouraging applicants from sending thank you notes, but be sure to inquire about this on your interviews, as a few programs tend to value them.
- If you like, you can pick out your top 2 to 3 programs from your interview impressions and schedule second look visits. These can be very helpful, but again, are NOT required or necessary to match. At these visits, try to spend time on the inpatient family medicine team and in the resident clinic. Because Family Medicine programs can be so different from each other, spending the extra time getting to know a program can really help. Again, focus on feel/fit, as well as whether the way the third year residents practice is the way you want to be practicing when you finish training. You can also set up an away rotation (2 or 4 weeks) at a program you are particularly interested in, if you have time.

Ranking

- You can send a letter of intent email to one program to tell them that you are ranking them first.
- Unlike some other specialties, it is probably unhelpful for Dr. Morris to make an advocacy call for you; he doesn’t know much about the world of family medicine. If you are uncertain about your standing with programs, you can always have a faculty member in Family Medicine call for you. Dr. Betancourt is especially helpful in sending a letter of intent (to the first-ranked program), and before that, she is able to support in advocacy emails to programs that hadn’t responded to interview requests. In short, she was an incredible resource and very generous with her time.

Questions:

Please contact us with any questions, especially if you need help forming a list of residency programs to check out. We are here for you!
- Family Medicine for Underserved: Emily Brown (embrow13@gmail.com), Allie Johnson (alj527@gmail.com), Roseann Day (roseannday@gmail.com), Harrison Kalodimos (hkalodimos@gmail.com), Billy Maes (billymaes93@gmail.com), Julie Carney (juliecarneyyy@gmail.com)
- Obstetrics and Women’s Health in Family Medicine: Allie Johnson (alj527@gmail.com), Lauren

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Nadler (laurenenadler1@gmail.com), Emily Brown (embrow13@gmail.com), Billy Maes (billymaes93@gmail.com), Julie Carney (juliecarneyy@gmail.com)

- Family Medicine for Global Health: Joanna Stephens (joannapstephens@gmail.com), Billy Maes (billymaes93@gmail.com)
- Family Medicine and Public Health: Jessica Zha (iamjes@gmail.com), Billy Maes (billymaes93@gmail.com)

Faculty Members to contact:
- Dr. Mario DeMarco: Mario.DeMarco@uphs.upenn.edu
- Dr. Renee Betancourt: Renee.Betancourt@uphs.upenn.edu
- Dr. Margaret Baylson: Margaret.Baylson@uphs.upenn.edu
GENERAL SURGERY

Original work by Landy Parish. Updated most recently in 2020 by Drew Goldberg and Joy Obayemi.

Introduction

Congratulations! If you’ve reached this page, it’s because you are considering taking on one of the most challenging yet rewarding careers in the world. Those of us who’ve gone before you love what we do and are excited to share our experiences with you.

However, General Surgery is one of the longest, most grueling residency programs out there, and it can still turn out to be the wrong choice even for people who love the OR: it has a national attrition rate of nearly 20%. So, this path should only be chosen after deep reflection and careful deliberation with loved ones.

Check out this short online guide from the American College of Surgeons for advice from national leaders about choosing this residency: https://www.facs.org/education/resources/residency-search.

If you still think General Surgery is right for you after taking those steps, please read on!

Penn Department Leadership

- Chair: Dr. Ron DeMatteo (former Penn resident)
- Program Director: Dr. Cary Aarons

Interest Group

Agnew Surgical Society

- Advisor: Dr. Ari Brooks
- 2019 Student President: Amanda Chin (amanda.chin@pennmedicine.upenn.edu)
- Website: www.uphs.upenn.edu/surgery/Education/medical_students/Agnew/Agnew_home.html

Be sure to get on the Agnew listserv!

Rotations

- **Sub-Internships:**

Typically, students applying into General Surgery will complete 3–4 “sub-internships” in the Department of Surgery at Penn. The rotations you choose are up to you. We will share additional tips and tricks about each one so you can choose according to your interests and to help you prepare your residency application in the best way possible.

Most residency programs require 3 letters of recommendation from attendings, so each rotation should generally result in a letter. Rarely, students will do extra sub-Is in order to explore their interests or build additional relationships with the Department. Doing more than 3 sub-Is is absolutely not required for success. Dr. DeMatteo, the Department Chair, will write a 4th letter for everyone going into surgery if you request it. In fact, some residency programs require a letter from the department chair. More on this here.
*Note: Surgery sub-Is are in addition to the required sub-internship the med school requires for graduation: medicine, pediatrics or EM. More on this [here](#).

**Meeting your team:**
Once you have signed up for your sub-Is, it's important to find out which residents you will be working with. To do so,

1. log in to the UPHS intranet → go to the sidebar on the right
2. find and click on "Penn Medicine On Call" → scroll down
3. find and click on "On Call Schedule Search" → find your service on the list
4. select "View Month."

You should text your chief resident during the weekend before you start to introduce yourself and ask when/where to report for rounds.

**Carrying patients:**
Your morning routine will be dictated by the service you’re on as well as by your chief resident’s expectations. It can be a bit disorienting to learn a different set of rules for each elective, but you can think of it as great practice for residency.

Examples:
- **ESS:** sub-Is are usually responsible for “getting numbers” (e.g. printing the patient list and writing I/Os next to each patient’s labs) and making copies for the rest of the team. You’re often not expected to pre-round or present on individual patients, but it is advisable to check in with your chief for their expectations regarding presentations.
- **EOS and GI Blue:** sub-Is are expected to carry patients and give concise presentations in the morning. You may get a “tough love” chief who pushes you to see 6–8 patients and print lists for the entire team. You may also get chiefs who would rather not hear student presentations, so be prepared to adapt to what the team needs and wants.

Whatever the expectations are, recognize that you can rise to the occasion; the pain is temporary and you will feel good after accomplishing all that has been asked of you.

**Taking call:**
In general, whether or not you take call as a sub-I will be at the discretion of the chief resident on your team. Therefore, be sure to ask what his/her expectations are on the first or second day of your rotation. For most services, the chief will likely expect you to come in on two out of the four weekends during your month on the rotation (both Saturday and Sunday). Which weekend you come in for is usually up to you, but because the chief residents are ultimately the ones evaluating you, it is advisable to take call on the weekends your chief will also be there… although you can always negotiate the schedule if you have an important personal conflict.

On weekends, the days are usually pretty short. Normally, you round, offer to help write notes (you most likely won’t get the chance to do notes on weekdays), pull drains or remove staples as necessary. For services on a q4 call schedule, Dr. Aarons says “students should not feel obliged to take overnight call.”

**Day-to-day tips:**
A good rule of thumb is if you see your intern doing something, you can/should do it too (e.g. writing notes, changing dressings, pulling drains/foleys, placing nasogastric tubes and US-guided IVs, counseling patients, calling consults, doing post-op checks, etc). The more you offer to help, the better your experience will be. (And the better the things the intern says about you will be.)
Some sub-Is may make the mistake of thinking that they only have to shine in front of the attending in order to get a great letter of recommendation – which is false! Remember that in Surgery, everyone talks. Penn attendings often ask their residents about how you are doing, and they highly value the feedback of their residents when evaluating your performance.

● **Treatment pathways:**
Some services have clearly defined treatment pathways. An excellent resource for information about treatment pathways is this website: [https://cutinginsights.uphs.upenn.edu/](https://cutinginsights.uphs.upenn.edu/). The website was designed with Dr. Aarons with the objective to help orient interns/residents on the first few days of a new rotation.

For treatment pathways, the website includes information on common operations (e.g. sleeve gastrectomy on GI Blue) based on best practices and attending preferences. It is helpful to get your hands on these pathways at the start of your rotation so they can guide your Assessment/Plan for relevant patients. Also, ask the APPs (advance practice providers, aka NP/PAs) on service about these pathways. Even though the website has the outline, the APPs do this every day and are excellent resources to ask for help anytime there are deviations from the pathways.

● **Study & prep resources:**
Penn Biomed Library:
There is a treasure trove of online resources available to you through the Penn Biomed Library. One we really like is “ClinicalKey” because you can find numerous illustrated surgical atlases as well as the classic textbooks available for download/print by chapter.
- Go to [http://www.library.upenn.edu/biomed](http://www.library.upenn.edu/biomed) → scroll down to the “Key databases & tools” section → select “ClinicalKey” → register for an account (it’s easier to do when on the school wifi)

Examples of Books/Chapters we found useful via ClinicalKey:
- Cameron’s *Current Surgical Therapy*: manageable and useful.
- Acland’s *Video Atlas of Human Anatomy*: helpful for reviewing basic anatomical relationships.

Examples of Books/Chapters via AccessMedicine (also in the Biomed library website):
- Schwartz’s *Principles of Surgery*: the “specific considerations” section of the book is organized by anatomy/procedure with helpful keypoints, summaries, and pictures.

Other books that we found useful (not online via Biomed library):
- Skandalakis and Skandalakis’ *Surgical Anatomy and technique: A Pocket Manual*: useful for reviewing procedures before a case. It contains synopses of procedures with succinct descriptions of the anatomy, procedure steps, rationale, and different approaches, with simple ink drawings illustrating these points. Although not widely used, it has gotten many thumbs up from both residents and attendings when shared with them.

*Cutting Insights*, website developed with Dr. Aarons for general surgery residents:
- Go to [https://cutinginsights.uphs.upenn.edu/](https://cutinginsights.uphs.upenn.edu/) (Penn Wifi or VPN required)
- Log in with your Penn username and password
- Useful links:
  o Service guide, Goals, and Contacts: [https://cutinginsights.uphs.upenn.edu/informations/H3A5euK2DWwGvrpTb](https://cutinginsights.uphs.upenn.edu/informations/H3A5euK2DWwGvrpTb)
  o Enhanced Recovery After Surgery (ERAS) & Patient Care: [https://cutinginsights.uphs.upenn.edu/pathways/H3A5euK2DWwGvrpTb](https://cutinginsights.uphs.upenn.edu/pathways/H3A5euK2DWwGvrpTb)
  o Common Operations & Helpful Review Articles: [https://cutinginsights.uphs.upenn.edu/cat/R8drqHBv7Pam5Ni4K](https://cutinginsights.uphs.upenn.edu/cat/R8drqHBv7Pam5Ni4K)
Mentorship

- **Approaching Attendings**
  It can be difficult to establish a mentor in the Surgery department because (a) the attendings are super busy, (b) the atmosphere in Surgery tends to be a bit more formal than in other specialties, or (c) maybe you want to impress the people at Penn and therefore feel reluctant to talk about personal life concerns, other programs that you are considering, etc.

  That being said, the attendings at Penn are generally very kind and open to being approached by students. Don’t be afraid to reach out to someone a few times in a row or to multiple people. Once you reach out, you’ll be surprised at how many of them will go out of their way to help you.

  If you developed a good relationship with an attending during your surgery clerkship, that person would be an excellent place to start – as your mentor, as someone to help you find a mentor in a subspecialty of your interest, and even as someone to help you find ongoing research projects if you so desire.

- **Remember the Residents**
  The residents at Penn are an amazing resource. They remember what it’s like to be in your shoes and many are willing to talk through the decision to apply into General Surgery, advise you about sub-Is, and help you with the application process. All you need to do is reach out!

- **JoMo as your secret weapon**
  JoMo is an excellent advocate, and as the former Penn PD, can help you figure out how to navigate the head-spinning residency application process. If you ever have questions, do not hesitate to email him (he always responds within 24 hours).

- **Find mentors early on**
  Going into the application process, you need to be proactive. Other specialties give a lot more support to their applicants. For Surgery, if/when you have questions, you should actively seek out the advice of your mentors. It can also be very useful to connect with a recent Penn med graduate who applied into general surgery to check-in with and to turn to with small questions. Since the formal surgery advising is so limited, being proactive is key!

Letters of recommendation

It is very important to start planning as soon as possible!

- **How many**
  You can send up to 4 letters to each program you apply to. You do not need to send the same 4 letters to each program, though; you can mix and match. Some programs require a letter from the Chairman, so make sure to check. Many applicants will choose to obtain 1 letter from the Chairman + 2 to 3 letters from sub-I attendings. If you have worked with a surgeon on a substantial research project, consider asking him/her for a letter, especially if you have also spent some clinical time with him/her.

- **When/How to ask**
  Try to have your letter writers lined up as early as possible, as delays are inevitable. We recommend setting up a time to chat with your attending at the end of each rotation. They know the drill, and most of them will be expecting you to ask. You should give your letter writers a copy of your CV and personal
statement to help guide their work. Ideally, this means that you should have a good draft of your personal statement by June.

As the ERAS submission date approaches, do not be afraid to send gentle reminders to your writers if they have not yet posted your letters. If things are really getting down to the wire, ask JoMo for help.

**Residency programs**

- **Which ones to pick**
  Unlike for college and medical school, there is no real ranking system to help you figure out where the most reputable programs are. Doximity has a list, but it should be taken with a grain of salt.

  The best approach is to ask your residents and attendings to recommend programs to you. Seriously, ask every resident and fellow you encounter what programs they liked/ might work for your particular interests. Not only will they give you excellent advice, but a lot of the time they'll put you in touch with people they know at the different programs you are looking into. Then use your own geographical criteria to narrow down the list.

- **How to pick**
  You will also need to think carefully about what you might want for your future career, as this general direction will help guide the type of program you apply to. While the default for Penn students is to pursue a 7-year program with a 2-year research requirement, there are lots of strong 5- and 6-year programs to choose from. Are you definitely staying in academia, or are you interested in exploring community practice? Are you vying for an ultra-competitive Pediatric Surgery spot, or are you interested in Public Health, or do you want to study health systems and quality improvement?

  Almost no program “has it all,” so look and listen carefully to identify which ones might be the best fit for you.

- **How many to pick**
  The national average in 2017 for the number of general surgery programs that students applied to was 52. However, you may be advised that most Penn students apply to 15–20 programs. The truth is, many of us recently found this to be too few, especially so if you are couples matching or if you are limited to a certain geographic area.

  Even if you’re a great applicant, you will not get interviews everywhere. Some of us found that programs were probably already assessing "fit" (e.g. getting a ton of interviews at surgical-oncology heavy programs when that’s what your statement/research is all about, but not so many invitations to interview at places that may not even have a surg-onc department). Make sure to check each program’s website; a few have slightly different application requirements.

**Interviews**

- **Scheduling interviews**
  You can substantially help yourself avoid scheduling nightmares by using last year’s interview dates to predict when programs will be interviewing this year. This way, you can anticipate conflicts ahead of time and have your ideal schedule planned out. There are General Surgery application threads on both Reddit and Student Doctor Network for 2019-2020 where you can find previous year interview dates.
Interview invitations may start rolling in as early as the end of September. BE PREPARED TO RESPOND TO AN INVITATION TO INTERVIEW IMMEDIATELY UPON RECEIVING AN EMAIL. Some programs send more invitations than they have spots available, so don’t let yourself get shut out. This is the case across specialties, not just surgery. It’s particularly difficult to be on top of invitations if you’re on a rotation.

- Make sure you have a plan for timely responses to invitations (classmate, significant other, etc.) if you’re indisposed, e.g. scrubbed in a case.
- There are ways to set up an alert system so that ERAS messages get forwarded to your school email or trigger an alert on your phone via text message.
- Some of us found it useful to create an entirely separate gmail account for ERAS/Interview communication and to give friends/family access to it in the event that we were unavailable.

**How many interviews should I accept**

You should aim to schedule at least 10 interviews at places where you would be truly happy to train. If you are not couples matching, 12–13 interviews is probably the sweet spot, with rapid burnout ensuing with each additional interview. If you don’t get an interview at a program that you really like, consider asking JoMo if he or another faculty member can make a phone call on your behalf.

Try to schedule your interviews at your top choice programs somewhere in the middle. Late enough that you are warmed up, but not too late that you are burned out.

**Attending Interviews**

"Night Before"

In Surgery, the “night before” events are nearly mandatory from the program’s perspective. For you, it’s a great opportunity to meet the residents when they let their guards down and get a feel for the program. The big questions are: “will I like working with these people?”, “do I want to be like these chiefs when I get there?”, “what is the culture like at this institution?” One pro-tip about these dinners, try to look up the names and faces of the program leadership, especially the chair and the PD. Take it from experience, it can be pretty embarrassing to say “And you are…?” to the chair of the department.

**Interview Day**

The interviews themselves are generally pretty benign. Typically, you will meet with 3 to 8 interviewers for 15–30 minutes each. Some programs will give you one-on-one time with the Chair and PD. You will get lots of questions like “where you see yourself in 10 years?”, “what will your career look like?”, “why surgery?”, “what fellowship/research are you interested in?” You should pick one or two potential fellowships or subspecialties to say you are considering even you have no idea. It goes along the same line of the question “where do you see yourself in 10 years?”

Some more challenging questions include: “what are your greatest flaws or regrets?,” and “describe a scenario when you disagreed with your resident or attending.” Sometimes they’ll ask questions that are more specific ("describe the steps of an operation"), or questions regarding recent journal articles, ethical dilemmas, behavioral questions, etc.

They’ll also ask you “why this program?” everywhere, in almost every interview, so you have to be prepared before each interview about why that program is ‘perfect’ for you. This is where you mention what you about a specific program (mentors, 5 vs 7 years, class size, etc). Also, if you have a reason to want to be in a specific region of the country (e.g. family, sibling, significant other, etc.), make sure to verbalize this to the program during your interview day. It carries a lot of weight if you are interviewing at a program that’s farther away or in a city/region you haven’t lived in before.

_How do I keep track of the programs?_
Figure out some way to keep the different programs straight. You could take notes, make a table, borrow someone else’s ranking system to create your own and then add your own criteria to it, debrief with your mom or best friend, or even save voice notes.

There’s also a new app some people used on the 2018 interview trail, called ‘PRISM.’ You can add the programs you interview at and then rate different aspects of them. The app has some default questions, but you can add your own as you go along. It’s an easy way to keep track.

**After Interviews**

Consider sending thank you emails to all programs: chair, PD, and any interviewers you really hit it off with. Some programs will outright tell you at the end of the interview day that they’d prefer to not get thank yous, so it’s helpful to keep track. In general, PDs respond in general surgery and this can provide some feedback about how you came across during your interview.

When you are close to submitting your rank order list (preferably before the first week of February) meet with the Penn Chair to let him/her know your #1 choice. If it is not Penn, ask the Chair or JoMo to call the program on your behalf (you should also send your own email to your #1 program stating your intent to place them at the top of your list). This can be very helpful.

Our perception is that general surgery is still a little old-fashioned when it comes to recruitment: they want you to convince them that you would seriously consider going there. They may directly ask you at interview about your level of interest in the program, or contact you afterward offering to ‘answer any questions’ or link you up with a faculty member as a way to gauge your level of interest and whether you would rank them highly.

Be prepared to receive calls from PDs or residents, but do not initially pick up the phone if you don’t recognize the number. Take a moment to compose yourself and think through what you plan to say, then call them back in a timely fashion. You can communicate as much interest in a program as you wish to, but never feel that you are forced to tell a program where they are on your rank list. Remember, every program communicates differently with their highly ranked applicants (some call, some email, and some do not communicate at all). Try not to change your opinion about programs based on the post-interview communication and stick with your gut instincts about which place is right for you. Unfortunately, this part of the process can be unexpectedly stressful, but try to receive the programs’ interest in you as a compliment and do your best to stay positive and professional.

**Questions:** Drew Goldberg (Drew.w.goldberg@gmail.com) and Joy Obayemi (joy.obayemi.e@gmail.com)
INTERNAL MEDICINE


Point people for application: You will work with Dr. Hamilton or another Department of Medicine (DOM) advisor during the cycle. Ann Marie Hunt will coordinate setting up mandatory meetings with one of them during the summer you apply. They are also happy to meet with students earlier as well.

There are recommended but non-mandatory meetings for all students who might be interested in internal medicine (categorical, physician scientist, primary care, Medicine-Pediatrics), in both the fall and the spring of your third year. These meetings cover different sets of information.

Mentorship

- Ann Marie Hunt can assign you a mentor within the Department of Medicine if you have even a tentative interest in the field.
- You do not have to wait for (or even pursue) an assigned Department of Medicine mentor if you end up bonding with an attending on a sub-I or elective. In fact, many of us have felt that the best mentors have been clinical faculty we have gotten to know on sub-Is, electives, and research months. There are lots of great faculty members out there ready and willing to keep in contact with you and offer their wisdom as you navigate fourth year.
- Some mentors become very invested in the application process and have been of tremendous value during the interview process. They may help you develop your list of programs, give feedback on your personal statement, and make advocacy calls for you at your top choice program when you have decided on one (more on that below).
- The key is to figure out what you want to get out of your mentor and ask them what they feel comfortable talking about. DOM advisors are great resources for the actual application process, so if your mentor only wants to talk about specialty stuff, that is okay too.

Letters of recommendation

- Programs will require 3 to 4 letters, one of which must be a letter from the Department of Medicine (also called a “Chair letter” or “Department letter”). DOM advisors will take care of your Department letter as long as you have had your mandatory summer meeting; the rest are on you to solicit. You can ask for as many letters are you want, but can only submit 3 to 4 (really only 3 that you solicit yourself, because the Department letter counts as one). Letter writers will not know how many programs or to which programs you send their letters.
- You should try to have at least one letter from your sub-I (or MICU), although if that does not work out it is not the end of the world. If you have done a research year (or years) during medical school, you should ideally have a letter from your PI (required for ABIM research pathway applicants). You should try not to use letters from non-Medicine electives. In general, DOM advisors will recommend against asking for a letter from your internal medicine clerkship, but if you are having a tough time getting enough letters from fourth-year electives and got to know an attending well or were able to take on a lot of responsibility as a clerkship student, we would not rule out asking for a clerkship year letter. This is something you should bring up with your DOM advisor. Also keep in mind that it is better to have a strong letter from a less well-known faculty member (or even a chief resident, if they served as your attending) than a generic letter from a bigwig.
Warning: Attendings are very busy and tend to disappear once your rotation is over. For this reason, you should ask for the letter—most definitely in person—at the end of the rotation when they are a captive audience and you are still fresh in their minds. Most students will ask their attending for a few minutes of feedback, and if the vibes are good, lock down the letter then ("would you be willing to write a strong letter...?"). Follow up afterwards with an email that contains your personal statement, CV, and the letter upload request from ERAS (this request is sent directly to the writer via the ERAS system; see below), as well as the deadline for the letter. Give at least 4-6 weeks, unless asking in September. In the rare case that an attending offers first, ACCEPT, even if you were not planning on asking them.

You may have to remind busy attendings several times—gentle email reminders are best. If you are nearing the ERAS submission date, JoMo and/or your DOM advisor can help you track down attendings, but this should be a last resort.

Ideally, all your letters should be uploaded to ERAS by September 15, which is when programs can download your application, though a late letter or two will not have a negative impact on your application. To be safe, ask your letter writers to submit the letters by the first week of September.

Letters are uploaded directly to the ERAS Letter of Recommendation Portal by your letter writers. When ERAS opens in May, you will be able to generate a customized link for the letter writer to upload to ERAS (they will need to create a free account). You will then assign the letter to specific programs. You will also get an email notification when your letter has been uploaded—do not forget to send a thank you note!

Physician-scientist pathway applicants may need an additional letter(s) from a second research mentor or someone familiar with your research (see the Physician-Scientist Pathway section below).

USMLE Step 1 and 2

Bottom line: Scores matter, but less in IM than in more competitive subspecialties. If your Step 1 score is <235, DOM advisors suggest you meet with one of them in the spring rather than wait until the summer, and you might consider taking Step 2 CK earlier so programs can factor this score into interview invitation decisions. This is a decision that is best guided through discussion with your DOM advisor.

Most internal medicine applicants take Step 1 between February and June and take Step 2 CK between August and December. Remember that Step 2 CK tests multiple specialties (medicine, surgery, pediatrics, OB/GYN, etc.). Also know that the interview season (November to January) will end up being busier than you might anticipate, and it can be very hard to carve out 2 to 3 weeks of dedicated study time during these months.

Step 2 CK and CS are becoming necessary for applications to certain programs. Requirements are evolving so you MUST check each program’s website to see what they require and by when; more programs are requiring receipt of these scores before they make their rank lists. Note that FREIDA, the residency database run by the AMA, is not a reliable source of information regarding requirements. Scores take about 3 to 4 weeks to come back. You will be able to specify on ERAS how you want your USMLE scores released to schools: you can either automatically release all current scores (and future scores as they become available) or you can release only your current scores and maintain control over when you release future USMLE results. Most students choose the latter option as this way you can see your Step 2 CK scores before choosing when to release them (i.e. before interview invites, before rank day, before match day, etc.). Step 2 CS is pass/fail, but sign up ASAP (your scheduling window is an entire year) because slots fill quickly and you will want to get a spot at the Philadelphia site!
Research

- For internal medicine, research/published work is not necessary, but certainly helps an application, particularly for more competitive programs. If research is not your thing, distinguish yourself through leadership, community service, or other interests. Keep in mind that “scholarly work” does exist outside the realm of pure basic science or clinical research; if you are able to speak intelligently about recent advances in medical education, quality improvement, health policy, global health, etc., programs will value this just as much as “traditional” research. Pursue what interests you and it will shine through on ERAS. Be ready to talk intelligently about the activities you have participated in.

- If you have done significant research during medical school, you should consider getting a letter from your PI. If you have old research (from college or before medical school) you can list this on ERAS as well, but be sure to dig out those old papers and review them—you never know when you might be asked about it in an interview!

- The majority of applicants start working on their Scholarly Pursuit projects in the months immediately after ERAS is due; in this case, you should try to mention your Scholarly Pursuit research during your actual interviews! Programs will make a note of this and it can only help.

- Bear in mind that there is a September 1 deadline for submitting Scholarly Pursuit proposals, and finding a mentor and writing a proposal can take some time. Start looking early.

Residency programs

- Things to think about when investigating programs: rigor and diversity of clinical exposure (inpatient and outpatient), city, proximity to friends/family, cost of living, fellowship placement, primary care and/or international opportunities, special “tracks” (e.g. medical education, global health, quality and safety, leadership), scheduling of clinic time (x+y vs traditional; more on that below), etc. While Penn students traditionally match at highly-regarded programs, definitely look beyond only the “best ranked” programs. You never know which programs will surprise you on the interview day—do not get attached to a single “dream” program this early in the game!

- Primary Care vs. Categorical residency programs: Many institutions have a dedicated PC program with a separate NRMP match number, while some places just have a PC “track” within the Categorical program. Most people applying in Primary Care apply to both PC and Categorical programs; at a few places (like Penn) it is possible to switch into PC from the Categorical program, and at some places (like UCSF, UW) categorical residents get fantastic generalist and outpatient training. See the in-depth note below about applying in Primary Care.

- Internal Medicine residencies have increasingly been moving toward “x+y scheduling,” in which residents go through x weeks of inpatient rotations followed by y weeks of ambulatory time. The main Penn residency does have this type of scheduling, while the Pennsy residents are on a traditional schedule (in which residents have a weekly half-day of continuity clinic, so they sign out their patients and head to outpatient clinic for the afternoon). While this may not matter to some applicants, others, including those who might be interested in primary care, may favor programs with x+y. Programs with traditional scheduling state that this allows for more elective time and possibly better patient continuity, while x+y generally allows for a fuller appreciation of primary care clinic and guarantees a less demanding schedule and “golden weekends” every certain number of weeks. x+y programs also note that patient continuity is as good, or even better, compared to the traditional format.

- Former Penn students, Penn residents and fellows may also be able to shed some light on other internal medicine programs, especially ones where they trained or interviewed.

- You will have a required meeting with a DOM advisor during the summer; they know a great deal about the various programs across the country and will help you make sure that you have an appropriate list of programs.
Applicants generally apply to approximately 12–18 programs and go on about 8–10 interviews. Again, your DOM advisor will advise you on this, but if you have any red flags in your application, are geographically restricted, or are couples matching, you will likely want to be on the higher end of those numbers. You do not have to accept every interview offer you get, and you do not have to go on every interview you schedule, so it is never a bad thing to cast a wide net at the outset and be more selective later. Just remember that if you do decide to cancel a scheduled interview, do so at least 2 weeks in advance so that another applicant can take your spot!

Application Process

- You will meet with a DOM advisor during the summer to go over your academic record, CV, and program list. Because they will want to see your personal statement then, plan on having a draft you are not embarrassed to show by July, which is when the earliest meetings take place. The earlier you begin working on your personal statement, the better, especially since many of your letter writers may ask to see it before they write your letter. The CV that you review with your advisor should ideally be in the ERAS format, with a brief description for each experience.
- If you have a low Step 1 score (<235), Pass or Fail in any clerkship, leaves of absence, or other issues that might affect your application, you should meet with a DOM advisor in the spring as early as possible.
- The ERAS online application system will open in late summer; at this time, you can register and begin entering your demographic information, CV components (education, employment, research, extracurricular activities, awards), personal statement, and USMLE transcript. The Office of Student Affairs will be responsible for uploading your medical school transcript.
- Letters of recommendation are uploaded to ERAS directly by the letter writers. You can upload as many letters as you would like but can only assign 3–4 of them to each program (one of which will be your required Department letter).
- You may release your ERAS application to programs on September 15, so aim to have your portions of ERAS ready to go for submission by this date (you can fill out the application prior to September 15). You are able to—and should—release your ERAS application even if all your letters of recommendation are not yet uploaded! Your Department letter probably will be ready mid-September, so it is okay to send off your ERAS before that is in. Some programs will read applications in the order that they are submitted starting September 15.
- The MSPE is released on October 1; this is done by the Office of Student Affairs and you will not see the finished version until then. You will see a draft and be able to edit it before this, although it will not contain the “bottom line” (a code word for your ranking in the class). Ideally this will be the last piece of your application to be sent off, but if you have a straggling letter or two at this stage, it is not the end of the world. Aim to have all letters submitted by the first week of October at the latest.
- Application deadlines and requirements (e.g. when Step 2 CK must be taken) vary by program. You must read about the application process on each program’s website to be sure.

Interviews

- During the 2019–2020 application season, interview invites were released starting mid-late September through early November. Some programs will start sending invites as soon as they receive your ERAS (September 15 at the earliest); others will not begin until a few weeks after the MSPE goes out on October 1 (MGH, Brigham, Penn, etc. typically release their first set of interviews in mid-late October). Try not to worry about who is hearing from what programs and when; many places issue invites on a rolling basis, so just because you have not heard from a particular program does not mean you never will. Also know that your DOM advisor can help you
determine the need and efficacy of a pre-interview advocacy call; these are generally handled on a case-by-case basis.

- Stay close to your smartphone (and consider enabling an email alert, forwarding ERAS emails to texts, or creating a dedicated ERAS email address if you can) since many programs fill their interview slots on a first-come, first-served basis. Though rare, it is possible to miss out on an interview if all the slots are filled by the time you respond to the email, or the only ones available conflict with your schedule. A quick response is also essential if you are trying to group interviews together based on travel plans or are coordinating with a significant other. For this reason, when applying, you may want to avoid using your Penn Medicine email if you do not have it set up on your phone’s email app (many of us used our Gmail accounts). That said, most programs generally have enough wriggle room that you can just e-mail the program coordinator to see if they can fit you in for a date that is showing up as full.

- Most interviews occur from late October through mid-January. In general, applicants should block about 5–6 weeks for interviews (assuming that they are interviewing at 10 places and doing 2 interviews per week). Keep in mind that many programs do not interview the week of Thanksgiving or the last two weeks of December. If applying in Primary Care, keep in mind that many programs will have separate Primary Care and Categorical interview days, so you need to make your travel schedule keeping in mind you’ll probably need to spend 2 days where you’re interviewing for both PC and Categorical programs.

- It helps to think of what you want your interview schedule to look like before invites come rolling in e.g., clumping interviews by geography to cut travel costs, leaving several weeks free for an elective or boards studying. Also consider spacing out your interviews to avoid interview and travel fatigue; Todd Barton, the Penn program director, recommends doing no more than two in a week. It will not be possible to have complete control over how your schedule develops, but the more prepared you are, the greater your odds of fashioning a plan that works best for you.

- The “Host” program, run out of the Alumni Relations office, pairs interviewing students with Penn-connected hosts in various cities. The program is a great way to save money on the interview trail and gives another point of contact to answer your questions about a city/program.

- Some people find it useful to have one or two “warm-up” interviews in October or November at places lower on their list. Just something to think about, especially if you are nervous about your interview skills. Also keep in mind that you will likely be tired by January, and it will be tougher to put on your game face; for this reason, DOM advisors recommend that applicants avoid saving their top programs for the end. That being said, whether your dream program offers you an interview for November 1 or January 25, you will be fine! When you interview has absolutely no bearing on where programs will rank you; it is how you interview that matters.

- Always try to talk to the Penn graduates at every program on your interview day. You can look through old match lists on the student portal and most programs will give you a list of current residents and their medical schools on the interview day. Feel free to email ahead of time or get in touch after your interview day with whatever questions may arise as you visit other programs and begin to formulate your rank list. This information will not only be helpful in making your ultimate decision, but it will also provide you with nuanced ammunition during your interview day about why X program is a good fit for you. Other great resources are current Penn fellows who have come from outside residency programs that you may be interested in.

- Be kind and courteous during all your interactions with anyone connected to the programs to which you are applying. This includes any program alumni with whom you meet outside of the interview. More importantly, this includes all residency program administration and staff. Your “interview” is not only confined to your interview day.

- All programs will invite you to some sort of social event. Most will be dinner the night before the interview (so plan travel accordingly), while some may only have a social event once a week. You should make every attempt to go, but it is definitely not a deal-breaker if you cannot make it (especially if you are traveling from far to get there). These dinners are usually the best place to get inside info about a program and to really see what the residents are like. Plan to dress business casual (at least for the first couple until you get a sense for how casual or not these
are), and don’t drink too much.

- Interviews themselves are usually VERY laid back in internal medicine. Most will start with some variation on “tell me about yourself” and go from there. Stay calm, you will be fine.
- A few programs (e.g. MGH) include a panel interview conducted by 3-4 faculty. This style of interview is more casual than it sounds, and most questions will stem directly from your ERAS application and be intended to give you a platform to talk about the amazing things that you have accomplished. Contrary to many rumors, there is typically no testing of medical knowledge. Again, stay calm and you will do fine.
- The Department of Medicine will hold an interview prep night with a PowerPoint presentation and mock interviews with residents or faculty. This is highly recommended.
- The Office of Student Affairs will also email out a guide that includes several frequently asked questions in interviews; you probably won’t end up being asked very many of these, but it is worth reading through them and creating loose frameworks for answers to the tougher questions. It is also worth trying to recall 2–3 patients you encountered during your time in the hospital (a memorable patient, difficult patient, etc.); you should be able to adapt one of them to any question you might get about your clinical experiences. Always be able to answer the question, “Where do you see yourself in 10 years?” as you will probably be asked this at most interviews.
- There are also interview “prep sessions” with a consultant that Penn hires to meet with small groups (15 or so people) at a time. She covers how to answer questions in a way that is memorable and puts you in your best light. She regularly meets with PDs from around the country and asks them what they are looking for, then she passes that info on to you. She gives advice on formulating your “stories” to answer interview questions, how to shake hands, how to prep for almost any question, and what to wear (from shoes, to nylons, to make up, to jewelry choices). **Her advice should be taken as suggestions;** if something she recommends does not feel natural for you, feel free to adapt to your own style.
- On the interview day, you will usually interview with 1–3 interviewers, generally attendings matched up with your interests and/or people who trained at Penn (you will sometimes be asked about your tentative interests when you receive the interview invitation—it is better to just go with something rather than say “undecided”). You will also sometimes be asked to indicate specific faculty you are interested in meeting with; don’t hesitate to ask to meet with attendings whose work you are truly interested in, no matter how high-profile they seem. Some programs will have you interview with residents. Be on your best behavior with residents, as you would with a faculty member.
- Make sure you know your application, research, and publications backwards and forwards. If it has been a few weeks since your last interview, it might be worth taking another glance at your ERAS or running through that list of frequently asked interview questions again.
- Have questions for your interviewers. You will be asked 100+ times “what questions do you have?” from everyone on the interview trail—some interviews may consist entirely of this question! You should definitely read the information on the program’s website the night before your interview, as this can help you think of questions, especially thoughtful ones that are related to your interests. Remember that your interviewers don’t know what questions you have already asked other people, and there is value in gathering a variety of perspectives. If you are truly stumped and exhausted, faculty interviewers are virtually always enthusiastic about discussing their own research and/or career paths. Do not ever say that you do not have any questions. This risks being mistaken for lack of interest in the program.
- Smile, be enthusiastic, and be professional and nice to everyone you meet including residents (DOM advisors have heard stories of students interviewing with residents and being too casual or uninhibited—this does get reported back), and say thank you. Be positive and excited about medicine. Do not disparage other programs or specialties. Recently, the Department of Medicine has gotten feedback that some Penn applicants have come across as arrogant in interviews. While it is great to be confident, be sure to show some humility too!
- Write down your impressions of programs on your trip home, as soon as possible following the interview. Programs tend to blend together after the first few, and even though you think you will
never forget certain details about this specific program, it becomes tricky after 10 or so interviews!

- Thank-you notes are not necessary and some programs will tell you their post-interview communication policies on interview day (some will actively discourage you from sending emails). Increasingly, in Internal Medicine, programs are adopting a policy of not reaching out to applicants following the interview. However, you should always feel free to reach out to them if you have any questions—see below for more information on this. Some students still err on the side of sending thank you notes; if you do, email is preferred. Do not feel pressure to send these, however, as many students do not. DOM advisors will tell you that thank you notes typically end up in the trashcan (real or virtual).

After interviews

- You get to tell ONE program that they are your number 1. It is NOT required that you do this, but the general feeling is that it can only help (assuming you are being honest). Not sending an email telling a program you are ranking them #1 does NOT mean you have less of a chance of matching there. Do not do this until you are absolutely certain. You can ask your DOM advisor or another faculty member who knows you well and/or has ties to your top choice institution to call or email on your behalf. Current residents at your #1 program who know you well (e.g. PSOM graduates) can also provide valuable advocacy on your behalf. The ideal time for this sort of advocacy is mid to late January, as this is the time when most programs begin forming their rank lists. If programs have a no-communication policy post interview, clarify if this also means communication regarding your first choice.
- Though it happens far less frequently in internal medicine, you may be schmoozed via email or telephone during or immediately after the interview season. Beware of phrases like “highly competitive,” “highly ranked”, “ranked in a spot that historically matches,” etc. Some of it probably means something, but much of it definitely does not, so just try to ignore it all. Do not get trouble by what you may read on the Internet (good general life advice) or the rumors you may hear from other students. Rank the programs in your order of preference; the Match works in your favor.
- You do not have to tell programs how you are ranking them. We recommend not answering calls from unknown numbers once interviews start—let it go to voicemail, but call them back. When you do call or email back, be pleasant and as honest as you can. Remember, you are under no obligation to directly respond to their comments about your ranking status. The best strategy is to thank the caller and deflect this line of conversation with positive/courteous comments about your interview experience and thoughts about the program.
- If you get an email or potential phone call that you are not sure how to navigate, feel free to reach out to your DOM advisor for help with wording an email response or planning a phone conversation.

A word about Internal Medicine Primary Care Tracks…

Most academic programs offer a separate track in primary care; there are also a few programs that are solely primary care programs (e.g. Yale Primary Care, Cambridge Health Alliance). Consider this if you are interested in community-based or academic general internal medicine (outpatient primary care, health policy, health services research, clinical epidemiology, medical education), or even if you would like to go into an outpatient-based specialty, such as rheumatology, infectious disease, endocrinology, geriatrics, etc. Programs vary with regard to whether they are recruiting generalists only, or whether they are interested in applicants hoping to pursue outpatient specialties (like endocrine, etc.) as well—the majority of primary care programs fall in the latter category. You can figure this out by reading their websites, looking at where past graduates of the primary care programs have gone, and speaking to Penn alumni who are currently in these programs. Primary care tracks at many top programs are as competitive as the
categorical tracks, so they should be viewed as an opportunity for a general medicine and outpatient-focused curriculum rather than an easy way in.

Primary care tracks/programs can vary greatly in how they differ from the categorical track at the same institution. On one end of the spectrum, being a primary care track resident may simply mean having a special didactics series focused on ambulatory medicine. On the other end, there are a few programs (as noted above) that are purely primary care programs considered separate from the categorical program at the same institution. The majority fall somewhere in the middle, with primary care residents rotating on the same inpatient core rotations as the categorical residents (wards, ICU) but with more ambulatory time (usually carved out of the elective time afforded to categorical residents). Some tracks have special clinics where only primary care residents practice, as well as unique ambulatory training opportunities. Additionally, some programs concentrate specifically on underserved populations (Montefiore, San Francisco General Hospital track at UCSF, Hopkins). Primary care tracks also have the advantage of being a smaller “family within a family” and as a result have close mentorship and support systems.

If you are interested in pursuing another area of focus in addition to primary care, such as the special tracks many programs offer in medical education, global health, QI, or other areas, be sure to ask if the program can accommodate both tracks in your schedule. Often there will be no conflict, but sometimes programs allocate primary care outpatient requirements to the blocks their categorical residents use to complete other tracks. At the very least, you will have an idea upfront about what is required to complete the various tracks and how to distribute your elective time.

For the majority of programs, to be considered for this track, you must indicate your interest by specifically applying to the primary care program on ERAS, as well as the categorical program (if you are interested in both) at any given institution. In most cases, you do not have to pay extra to apply for another track within the same institution. A minority of programs let you switch into the PC track once you match at the internal medicine residency. Some programs will have a separate day to interview for their primary care track (UCSF, Brigham, MGH, and Penn to name a few), but for others you can interview for both the categorical program and primary care track on the same day. For programs interviewing categorical and primary care applicants on the same day, they may also state that it is possible to add the primary care track on through ERAS even after the interview day is over; just be sure to talk to the program coordinator to confirm the details. It is very common to apply to both primary care and categorical tracks, and some programs expect (or even require) that you do so; again, carefully read their websites. The primary care track and categorical programs may have different NRMP numbers for ranking, and people will frequently rank a mixture of tracks depending on program preference, geography, etc. As with any interview, expect to be asked about your career goals and think about how training in primary care will help you to meet those. However, you do not need to be 100% committed to a particular track on the interview day and it is actually a good opportunity to ask questions to sort out where you best fit.

For more information, the primary care track program director at Penn is Dr. Marc Shalaby (marc.shalaby@pennmedicine.upenn.edu), who is happy to speak to any Penn medical student interested in primary care programs. Your DOM advisors are also knowledgeable about programs, as are Penn grads at the various programs.

A word about Internal Medicine Physician-Scientist Pathway/Research/Fast Tracks…

Many academic programs offer an ABIM research pathway in internal medicine. Even among those that do not formally have one at the time of applications (i.e. on ERAS), there is often an American Board of Internal Medicine (ABIM) program available (Brigham, MGH, Hopkins, etc.). It is really just the personal preference of the place. These programs usually have a shorter residency (2 years) that fulfills the clinical
ABIM residency requirements along with a matched fellowship program that adheres to the ABIM fellowship requirements but has EXTRA protected research time. Most people apply to both ABIM and categorical when a place offers both, but not everyone. Most, if not all, places make people interview for both even if they only apply for ABIM. Again, it is a preference. Just be prepared to answer why you want to “fast-track” and what the advantages and disadvantages are to both options. In the places with an ABIM pathway it is often a small program (4–5 people/year, max). Only one thing is uniform—every single program handles this pathway differently.

To apply for fast track, if it is on ERAS as an option, check the box. If it is not, your application should make it implicit that you interested in a research-oriented career. (Of note, not all ABIM pathway residents actually “fast-track,” but it is rather an indicator of a desired career outcome. You can be in the research pathway in some places and still do three years of internal medicine). No one forces you to enter fellowship after two years; it’s an ongoing discussion between you and the program, and entering the ABIM pathway simply gives you priority to the fast-track slots if you so choose.

Keep in mind some places have an intensified research track residency where they offer protected time during the traditional 3-year residency for research, which is usually about 3 months or so. This is not the same thing as the research/fast track program.

Some programs have a supplemental application for the ABIM pathway. You can look on their websites (we would recommend this) and it is often posted and requested that you fill it out when submitting ERAS. Alternatively, some people just submit their application and check the ABIM pathway box and wait for the program to send them the secondary. We would not recommend this, but it does work. As part of their supplemental information, most places will ask for you to summarize your research experience, indicate your fellowship(s) of interest, and list potential people at their institution with whom you are interested in meeting (either researchers in your field of interest or labs that you may want to join). Of note, some supplemental applications may ask you to submit a second research letter of recommendation (in addition to your PI's letter included in ERAS). This supplemental letter can be sent outside of the ERAS system, so it is best to plan ahead, ask another research mentor for a letter, and hold it/have the mentor hold it until you need it for this secondary application.

At many places, you will have an additional interview day for the research pathway, typically the day before or after the categorical day. These days will be fellowship oriented as well as research oriented, so it helps to have a “story” to sell yourself to the fellowship. These days are often more jam-packed with interviews (up to 6–8 in a day), but in general are still very laid back. You will likely just be asked to talk about your work in the past as well as where you see yourself going with your work and career. People approach this differently—some people provide very specific interests, while others are more general about their goals. Either is fine as long as you can speak intelligently and realistically. It does help to have a field “picked out” so that you can interview for fellowship at some programs that require this. Even if you do not, it may be best to narrow it down for the sake of “selling yourself” on the trail. You can ask people about their work, but most (good) interviewers will try to flip the topic back around to you.

A few places (e.g. Cornell, Yale) have guaranteed fellowship placement after two years. Other places do not, and you will have to apply for fellowship in the fall of your second year of residency. Take this for what it is; they all have the caveat that you still must “perform well” in residency. Most students who see this as a high priority going into the application process do not feel that way at the end. The fellowships/researchers will tell you how amazing it is to do research in their department and how great your life will be. Remember, at the end of the day, you are still going to be an intern next year.

There will be a bit more schmoozing, phone calls and emails compared to the categorical track cohort. It is just because of the smaller numbers; there are only a handful of you compared to the many categorical track applicants. Some places will reach out to you about re-visits to meet with labs and principal investigators. Do it for you; if you need more exposure, go back. If not, do not. Always respond to these emails. Again, every program has different protocols and ways of handling its research applicants.
This is a fantastic pathway and the interview trail is actually fun as you will have the opportunity to meet countless influential researchers in your field.

Questions

- Categorical track: Neha Mukunda (mukunda.neha@gmail.com), Emily Moin (eemoin@gmail.com), Michael Randall (michaelprandall@gmail.com), Carissa Livingston (carissa.livingston@gmail.com), Moses Murdock (heardley.murdock@gmail.com) – also applied physician-scientist at a small number of programs
- Primary care track: Jessica Dong (jessica.p.dong@gmail.com)
- Physician-scientist track: Jonathan Kotzin (jonathankotzin@gmail.com), Zandra Walton (zandrawalton@gmail.com)
General comments

The integrated IR/DR residency participated in its first large scale match in the 2016-2017 cycle. There were 124 positions offered by 66 programs. This lead to a highly competitive application process, with 423 US applicants and 163 IMGs – a total of 586 applicants for those 124 spots. If you do the math, that meant that only 20% of individuals who applied to the integrated residency will match, making it possibly the most competitive specialty over the past two application cycles. These numbers seem likely to level out in the coming years but expect the specialty to be in the ENT/ortho competitiveness range for at least the time being. That being said, going to Penn is a huge advantage and our track record is excellent so far. As of February 2020, there are 88 programs approved for the integrated IR/DR pathway, so there are more positions in the 2019-2020 match, but the total availability is leveling out.

It is important to note that the integrated IR/DR residency is only one possible path to interventional radiology. There are currently about 225 fellowship positions and only 130 residency spots, which means at least another 100 trainees in IR will come from somewhere other than the integrated residency, assuming that programs stay the same size. The ESIR and independent IR residency pathways will be how those additional positions are filled, as the fellowship is being discontinued in 2020 in favor of these different residency pathways. The two other pathways are the ESIR (early specialization in IR), which is a good option, and the independent IR residency, which is not as good an option without ESIR. Both explained below:

**ESIR:** This pathway allows you to begin IR residency training after you have started a DR residency. If accepted, you basically transfer into the same training pathway as someone who matched into an integrated spot from medical school. You are still a DR resident, but your training (PGY5 in particular) is adjusted to match the IR/DR curriculum. You apply to ESIR during your second year of diagnostic radiology residency. You complete the ESIR curriculum at your residency and then match into an advanced position (year two) of an Independent Residency (below) either at your home institution or another one. This pathway is good for those who 1) didn’t feel they were competitive enough to get an integrated IR/DR residency spot so applied to DR instead or those who didn’t get an integrated spot and matched in DR instead or 2) those who went into DR unsure whether they liked IR, then decided during residency they wanted to do IR. This is probably the best pathway for less competitive applicants because you can focus your application a bit more towards DR and ensure you match at a good DR program that has ESIR. To qualify for ESIR, you need to meet a certain set of parameters (>500 IR procedures before R5, ICU months, etc.). This shouldn’t be a problem at large programs but something you want to keep in mind when applying and assessing programs. This allows you to complete the IR residency in 6 years, same as someone in the integrated pathway. As of November 2018, 137 DR programs have ESIR certification. The number of positions at each program varies, and you should ask how many there are.

Three things are important to note (and should guide your questions about ESIR at various institutions): 1) Independent IR residencies DO NOT need to accept your ESIR certification from residency even if you technically met the requirements. While this shouldn’t be much of an issue even if you change institutions, you could, in theory, get stuck having to do a two-year Independent Residency despite doing ESIR (special thank you to Dr. Nikhil Amesur at UPMC for pulling back the curtain on this). 2) Not all programs will treat their ESIR residents the same as their Integrated IR/DR residents (you may not get as many or as good cases). 3) Not all programs will be bringing back their ESIR residents for their independent positions. This will
depend on the number and needs of the program. For example, in 2017-2018, Penn will take 3
integrated residents and has capacity for 3 ESIR positions. They have the capacity for 5-6 R5 residents
per year, so they could keep the whole cohort. This is the case at many places but IS NOT TRUE AT
EVERY INSTITUTION and is an important question to ask.

**Independent IR:** These positions is for anyone not matching into the integrated IR/DR residency and can
add an extra year of training if not combined with ESIR, making the path to IR 7 years instead of 6 years.
Applying to this will work basically the same as applying to fellowship. In your PGY4 (R3) year, you will
apply to an independent residency that begins in the PGY6 year. This can be at the same institution as
your DR residency or another one (just like a fellowship). If you have completed an ESIR program, you
are eligible to match into the second year of the independent residency, otherwise, the independent
residency will be two additional years (PGYs 6-7) after completing DR residency. Many program directors
feel that this will be uncommon and that most individuals will be able to do the ESIR pathway. Since the
fellowship goes away in 2020, pretty much every program that had a fellowship will have an independent
residency soon.

To get into some of the nitty-gritty: as of February 2019, some DR residents applying to the independent
IR residency without ESIR status are having difficulty getting interviews. These DR residents may be from
smaller DR programs. As funding and cases for IR-trainees seems to be mostly fixed, so independent IR
PDs will more likely consider ESIR residents (1 year funding commitment) or not take 2-year independent
IR residents if a spot is filled with an ESIR resident in their 2nd year.

Some resources to help explain the different training pathways: [http://rfs.sirweb.org/wordpressnstall/ir-
residency-a-new-training-paradigm/](http://rfs.sirweb.org/wordpressnstall/ir-residency-a-new-training-paradigm/)

Approved IR residencies: [https://www.sirweb.org/learning-center/ir-residency/integrated/](https://www.sirweb.org/learning-center/ir-residency/integrated/)

Approved ESIR programs: [https://www.sirweb.org/learning-center/ir-residency/esir/](https://www.sirweb.org/learning-center/ir-residency/esir/)


**Building your application to IR**

Programs are looking for students who display long-term interest in the field, especially for the integrated
spots. Most programs figure that those who are partially interested in IR should go do a DR residency,
figure it out, and apply through the ESIR later. There are multiple things you can do to display long-term
interest in the field:

1) **Become an SIR member ASAP** – The SIR (Society of Interventional Radiology) is the professional
society, and it is very important to the field. You MUST be an SIR member to even be considered for an
IR residency position, so sign up. Many programs will filter out applicants if they do not see you are an
SIR member. They also put on a program director webinar so be sure to sign up for their emails.

2) **Research** – Programs don’t necessarily need you to do some amazing research project, but they want
to see that you can dedicate to yourself to a task and follow through with it. This is most easily displayed
to programs by completing a research project, preferably one that gets published. There are a ton of great
research mentors at Penn so get involved with someone if you already have not. Greg Nadolski is a great
person to talk to, since he knows about almost every project going on. Your projects will be discussed at
almost every interview.

3) **IR interest group** – Another way to show programs that you are interested in the field and have taken
steps to promote the field. Every program you apply to will likely have an IR interest group that the
attendings you will be interviewing with are involved in, so it’s something they are on the lookout for.
Promoting the field is also a huge priority for SIR, so programs are looking for people who will be
“ambassadors” for IR. SIR also offers opportunities for leadership working with medical students interested in IR from different schools, so joining a committee is another great opportunity to show your interest in the field.

**Personal statement:** Start this early and have a few individuals read it. The big question is whether you use the same PS for IR programs and DR programs. Some people didn’t change them, others changed them a lot. Evan Siegelman (DR Selection Committee Chair) recommended using slightly different version. It is unwise to try to hide the fact that you are applying in IR, and the DR personal statement should absolutely not make it seem like DR is your backup if you don’t get an IR spot. The safest bet is to stress how important your DR training is to your ultimate goal of becoming a great IR. There can be regional biases in granting interviews, so be sure to customize your personal statements if you have a strong personal reason to be in a specific geographical region (eg. one version for east coast, one version for west coast, etc.)

**Mentorship:** There are many great mentors within the IR department. The office of student affairs will offer to match you with someone in IR and DR if you ask them to, but most students in IR find mentors through performing research with them or just reaching out to meet for advice. You will also meet most of the IR attendings through the IR elective.

**Traditional:**

January/February: Step 1  
March: Medicine Sub-I (letter of rec)  
April: RAD 300  
May: IR (letter of rec)  
June: GI Radiology (letter of rec)  
July: Vascular Surgery (letter of rec)  
August-December: scholarly pursuit and interviewing  
January: advanced anatomy  
February: frontiers  
March: GI medicine elective

**Combined Degree:**

January/February: Step 1  
March: Medicine Sub-I (letter of rec)  
April: RAD 300  
May: IR (letter of rec)  
June: MRI Radiology (letter of rec)  
July M4 – September M5: MBA + MBA Internship (letter of rec – not sent to programs)  
October: GI medicine elective + interviews  
November – January: Interviews + pathology elective  
January – May: MBA + bioethics

**Letters of recommendation:** From the above, you can see two separate schedules getting medicine sub-I, IR, and DR elective letters. A surgery letter probably adds the best balance to your application, but a second IR letter (especially if you do an away elective) is another option. Your IR letter will preferably be from someone you have worked with on a research project or in some long-term capacity. If you have worked with someone in IR previously, wait to ask for the letter until after you take the elective. That allows your recommender to speak to both your clinical ability and your personal/research/quality improvement/etc. qualities. If you don’t have any long-term mentors in the department, you can ask for a letter from whomever you worked with most on your elective. You also need one DR letter, as it is an
integrated IR/DR residency. Get this from either RAD 300 or your DR elective. The other two letters are really your choice. It could be from a research mentor you worked with in a year-out program (even if that means a second IR or DR letter), or it could be two surgery or medicine elective letters. The balance of one medicine and one surgery letter is nice and gives you options when it comes to intern year, but this is certainly not the only way to do it. It’s the quality of the letters that really matters – not necessarily what field they are from. Letters are one of the most important aspects of your application so choose wisely.

Send 4 letters to all IR/DR programs, even though the minimum is 3. You can send only 3 to intern year programs if you want. NOTE: It is better to send 3 good letters than 3 good letters and 1 bad one! In the example above, I chose not to send the letter from the MBA time to avoid creating the impression that I was less serious about clinical medicine. I kept it available in case anyone asked for it or something like it.

**Scholarly pursuit:** You should do an IR project if you can, and a DR project otherwise. Identify a project early in case you need IRB approval. Starting in August and completed it throughout interview season and the few months after works well. If you can get it started early enough (pre-September 15th when ERAS is due), you can include it as a research project on your application and discuss it on interviews, which is a plus. There is no shortage of research opportunities in the radiology department, so you shouldn’t have difficulty finding a project. Identifying a project and mentor on your IR elective may be a good way of going about it if you don’t have something lined up already.

**Years out and Combined Degrees:** Extra years (including PhDs) are very common in the IR applicant pool. However, THEY ARE NOT NECESSARY TO BE COMPETITIVE. The most important part of choosing to do a year out is doing something you’re passionate about. This will absolutely dominate your interview discussions, so it is extremely important not to do something just because you’re “not competitive enough.” However, your mentors may recommend you strengthen your application before applying. In that case, the same rule applies: choose a project or activity that you expect to be excited about for more than just the one year. In addition to dominating discussions on the interview trail, you also risk locking yourself into a certain type of pathway. When a program director thinks about where to rank you, they are considering what you would bring to their department. Since their only a priori knowledge about what you bring is what you’ve done already, they will naturally think about how your year-out work fits into their department. If you hate it (or even just get bored of it), you don’t want your new program director thinking about setting you up to continue this work throughout residency.

**Applying:**

- **ERAS** generally opens on September 15th. **SUBMIT THIS DAY. NO EXCEPTIONS.** Last year you had the entire week beforehand to submit and it still showed that date (this was to prevent ERAS server crashes due to excessive load). Programs want to see you were prepared for the deadline. There are programs who will not consider applicants who did not submit on day one (rumor has it Penn is one, although I don’t know anyone who has tested them on this). Have your application ready and do it. There is no reason you should not have it ready by this time. You should give your letter writers plenty of time, but if you are still waiting on a letter of recommendation, submit on this date anyway. You can assign letters after submitting. It is not ideal, but it is better than submitting late.
- **Transcripts:** In early August, make sure to follow up on any grade that is >2 months overdue with the Academic Programs Office. Programs start reviewing applications on Sept 15th. If you are waiting on one overdue grade, The Academic Programs Office may not release your transcript until it returns. This may delay or prevent you from getting some interviews.
- **Most programs’ applications are due between October 31st and December 1st, so check the websites of the programs in which you’re interested. This should not matter as you will submit your app on September 15th.**
- **You should apply to both IR and DR programs, as the field is so competitive and there are so few**
IR spots. The number is constantly moving, so speak with your mentors, but about 20 programs is a good number if you are a strong applicant, and more if you are not. Be sure to look at “Outcomes of the Match” put out by the NRMP sometime after the match. This will give you a better idea of how many programs students applied to and how that affected whether or not they matched.

- Things to look for in a program when applying:
  - This is tough as there so little data out there on the new residencies. Talk with the IR attendings, fellows, and residents here to try to get a better idea of what places may be a good fit for you. There are many great programs across the country.
  - Finding a program with strong IR and strong DR is ideal but can be tough to do. Keep this in mind while applying and interviewing
  - Diversity of cases and case volume is somewhat important. You can try to get an idea from programs websites about this. However, remember you are applying to residency, not fellowship. The trajectory of a program is just as important as its current status (if not more so). Your IR-heavy years are five years away from the application year. A lot can change in that time – big names come and go, but the culture probably won’t change as much.
  - Some programs have categorical intern years (you must do a surgery intern year there). Make sure you are aware if this is true of a program. Whether this is a plus or a minus is a matter of personal preference.
  - It really comes down to two things for most applicants: location and “fit”. People send a lot of time talking about other things, but this is really all that is important. Does the program provide good training, and would you be happy there? Do you want to live there for 5+ years? If both of those are a yes, apply to that program.

Preliminary Programs

- Apply to surgery prelim programs. You can mix in medicine programs and transitional years, but realize that most program directors expect you to have done a surgery year by the time you get to them. This varies by program and is likely to change year-to-year, but it is important to leave yourself the option of doing a surgery year. Your prelim rank list is customized to each program, so you are not committed to any one type of prelim year until you’ve matched to your advanced year. That said, plenty of people elect to do medicine preliminary years. The choice of whether to do surgery or medicine is really up to you and your skills, preferences and goals.
- A small but growing number of programs are categorical, requiring you to do a year of general surgery at their institution. An even smaller number offer “linked” programs, where you are able (but not required) to do a general surgery year at their program, which is guaranteed if you match to their IR spot. These linked programs vary, and it’s important to find out if it’s a custom year or if you’re just another warm body to do scut work for the academic program. One of the biggest benefits is that you avoid an additional interview.
- Our advice is as follows: This is really a personal decision, but we recommend doing your preliminary year in surgery at a community hospital unless you go to a categorical program or enter a “linked” preliminary year. You can do this anywhere, but moving is expensive and time consuming. The biggest benefit to doing the year in Philadelphia is that it cuts down on your number of interviews.
- Lankenau (Main Line Health) and Abington Memorial Hospital are both great community/hybrid programs in the area (note, Abington calls itself an “Independent Academic Center” not a community hospital) that will let you get IR time during your intern year (you have to be efficient and earn it, of course). Abington will even let you do a monthlong IR elective.

Scheduling Interviews (adapted from radiology section):
- Interviews usually start being offered as early as the week after ERAS opens. However, some programs don’t release invitations until Mid-late November. Some programs interview as early as
mid-October. **This is why it’s important to submit ERAS on time.** Interviews can go through the end of January. In general, East Coast programs interview earlier and West Coast programs interview later (Dec. and Jan.). Keep this in mind when you are scheduling your early interview offers. Some applicants like to get early interviews “out of the way” whereas some applicants prefer to schedule early interview offers for December and January so they can see what their full schedule will look like and cancel those programs they aren’t as excited about. The right approach is probably a mix of these two methods.

- **Keep your phone on you always.** Interview spots fill up fast. Schedule as soon as you can once you get invited for an interview. A good rule of thumb is that your preferred date will be gone in 5-15 minutes after the receipt time of the email. October is not a good month to do a surgery or IR elective.

- There is a very useful Google Spreadsheet that tells you when interview invitations have been sent out and how many spots are at each program. This provides very useful information so you can know when it is appropriate to get in touch with a program that has not given you an interview invitation.

- IR and DR interviews days are almost always combined (if you applied to the integrated IR program and the DR program, you interviewed for both on the same day). This is true of most, but not all programs. Some programs will have IR-exclusive days, but you are usually able to rank both programs even if that is the case. Remember, 3 years of your training will be identical to your institution’s DR program, so the relationship between the IR and DR divisions matters. There should be a damn good reason the department was not able to coordinate a single interview day for both programs. Otherwise, you should consider it a massive red flag.

- A few programs interview on the same dates, so scheduling may get tough at some point. Do your best to avoid it, but it is possible you will have to turn down an interview because it doesn’t fit your schedule.

- If you have a top choice going into the interview season, it’s best not to schedule this as one of your first interviews. Try to schedule it for the middle of your interview trail (i.e. late November or December), allowing you to get your feet wet with other interviews but also not get too burned out from the process (which is very known to happen come January). This also gives you some perspective on how other programs are set up, so you can more objectively evaluate your top choice and ask more useful questions. People have often said the “sweet spot” is around interview 6-8, but don’t fret because you cannot control your interview schedule that precisely. That number is also for DR, so it isn’t clear what it should be for IR.

- Some programs only interview on a limited number of days. If there are programs you are really interested in, check their websites and save the dates into your calendar in advance to avoid scheduling conflicts.

- Feel free to call or email to inquire about your status once, but don’t be a pest. Always be very professional with the program coordinator. These people can make your application disappear and, more importantly, will be extremely important to you if you go to the program (think of it this way, this is your new Helene). Some applicants have had luck getting invited to a program by emailing a program before interviews have been released, although it is impossible to truly say how effective this strategy is.

- If you do end up on a waitlist, sometimes writing back to let the program know you’re really interested will shortly result in an interview invitation. It’s possible they waitlisted you because they weren’t sure you were really interested. If you express interest in some way, sometimes it makes a difference. At the very least, it doesn’t hurt to try.

- If you are turned down for an interview at one of your top programs, don’t take no for an answer. Contact them (or have your advisor or Dr. Morris contact them) to tell them you are serious about their program. Mentors (and Dr. Morris) will make calls on your behalf to a couple of programs, so take advantage of this! While this will not always result in an interview offer, it never hurts to try.

- It’s OK to cancel an interview within ~2 weeks of the interview date – any closer to the interview than that and you could be screwing over a program. However, if an emergency comes up, it is NEVER acceptable to no-show an interview, even if this means cancelling at the last minute.
Interviews (adapted from radiology section):

- Do your homework! Before each interview, go to the program’s website and read up on the logistics. This comes in handy when you get the “So, what questions do you have for me?” interviewer(s) (sadly in radiology, there are far too many of). Some interviewers want the interviewee to ask questions throughout the interview, rather than the other way around! There have been a few instances where the entire 20-minute interview has consisted of questions asked by the applicant. You should have a rolodex of ~7 questions, which should be easy because you can ask very similar questions across institutions. You have the option of asking the same questions of every interviewer, but you probably want to set aside certain questions for the program director or resident interviewers. ‘How do you like it here?’ is always a great question for resident interviewers. The interview schedule varies from program to program, but at most places you will have a mix of 10- to 30-minute resident and faculty interviews (anywhere from 3 to 15 of them). It can be difficult to engage the interviewer during the longer interviews if you are not prepared for this possibility.
  - If you get a schedule of specific interviewers in advance, you should always look them up beforehand. Remember, interviews are about “fit.” People like you if you have an engaging conversation, and people always like talking about the things they are passionate about. If you have the opportunity, you should always ask questions specific to the people interviewing you.
- Overall, compared to other specialties, Radiology interviews are relaxed and not generally of the same rigor as medical school interviews. They are also less intense than surgery prelim interviews. Your interviewers want to know what it’s going to be like to spend way too many hours in a confined space with you over the next 5 years. For this reason, the hobbies line is typically the most asked about part of the application, so make sure you are well versed and familiar with what you put in that portion of the application!
- If you have done research, be able to talk about it succinctly and explain it in quasi-laymen’s terms. People will ask you about your research quite often.
- Be yourself and be enthusiastic! Remember, you are evaluating the program as well, and everybody loses if you don’t talk about things you care about.
- Be relaxed! Don’t forget to smile and make good eye contact.
- Be polite and pleasant with the support staff!
- Think about what you want to do career-wise. Many programs are interested in your post-residency vision of your life/career. Even in IR, there is a push to train academic radiologists. HOWEVER, program directors see right through it if you tell them you want to do academics and nothing in your application suggests that. Furthermore, IR is traditionally a private practice heavy field, so it isn’t jarring to program directors to hear that. Interviewers want to see two things here: 1) you have ambition and are thinking about the future (it’s the residency version of medical schools figuring out if you’re only applying because of parental pressure) and 2) you have both a plan and an open mind.
- Questions that were always asked:
  - How did you end up interested in IR? / Why IR? / What’s your favorite thing about IR? / etc.
  - Tell me more about your research.
  - What do you see yourself doing in 5/10/20 years (have an answer for all 3)?
  - How does the MBA/MPH/MTR/other year-out fit with IR?
- Questions that were asked often:
  - Tell me about a time you failed / a stressful event in your life.
  - How would your friends describe you?
  - In general, it is a good idea to have a few notable and adaptable anecdotes from your clinical experiences.

After the Interview (adapted from radiology section):

- Take notes for yourself. Programs tend to blend together, and it can be helpful to scribble down a few notes about each place after the interview: things you liked, things you didn’t like, future
developments (new center, new building, changes to the program, etc.), people with whom you could work. When you sit down to make your rank list, the decision will center on how you felt at each place and how you got along with the residents (not how many angiography suites they have).

- **Thank-you notes:** Some programs specifically ask that you do not send thank you notes. Others will provide you with the email addresses of your interviewers and the program director, so you can write if you wish. A handwritten note doesn’t move you up the program’s list any more than an email. With emails, some interviewers will respond, and some won’t. This is very variable and probably doesn’t mean anything. If you really want to write and say thank you because you had a good experience, go ahead. Some applicants will send personal thank-you notes to every interviewer; others won’t send any. Both types of applicants will match at good places.

- **You must tell your number one program that you will be ranking them number one.** There is no reason not to. Try to do this by the end of January when interview season is wrapping up. If your #1 choice is not Penn, you should absolutely ask your mentor or Dr. Morris to call on your behalf. Make sure the call is made in late January/early February (before the program has finalized their rank list). Unless you’re absolutely, 100% certain when you interview at a place that they’re your #1, do not mention it. You **cannot** say this to more than one program!

**Other:**

- If you must look at applicant message boards (Aunt Minnie, Student Doctor, or whatever Google Sheet is circulating), do not believe what you read. People may post false information to mislead other applicants. If you want reliable information, ask the program (i.e., check the website, get email addresses from residents you’ve met on the interview trail or Penn Med grads who’ve matched at these places). Feel free to reach out to us, our emails are at the end of this guide.

- You will see the people you interview with at national meetings for the rest of your career. Be friendly and make connections, even if you do not feel like the program is a good fit for you. This could be a place you end up working at in the future. Applying/interviewing can be a stressful process at times, but it can also be a lot of fun and it somehow works out in the end. Try and visit friends living in the cities in which you’ll be interviewing. It will make the entire process a lot more enjoyable.

- Make friends with people on the interview trail. You’ll see the same faces repeatedly, and one or two may end up being your co-residents. This is also a good way to compare notes about programs. Especially on the IR only days where it was a lot of the same people, we would frequently go out for happy hour at the end of the interview day.

- Be careful what you say during your entire interview trip (this includes the pre-interview day dinner and any interactions with residents). In a casual environment, it is especially easy to forget that people are evaluating you. **Avoid negative comments** about other programs or applicants. Go easy on the alcohol.

- If you choose to apply all over the country, try to make time to explore cities you’ve never seen. This comes in handy when trying to make your rank list, because most of the programs at which you interview will give you an equally strong training. It’s important that you like the city and can be happy there, because this is where you’ll be spending five or six years of your life! It also gives you a little time to unwind between interviews. The interview trail can be a long one, and you may eventually start to tire of putting on the same suit and happy face.

**A few good programs (organized regionally, take with a huge grain of salt, this is just opinion):**

Penn, Mount Sinai, Yale, Brown, Hopkins, UVA, Vanderbilt, UNC, MUSC, Northwestern, MCW, Mallinckrodt (Wash U), Duke, UCSF, Stanford, UW, UCLA. This is in no way a complete list and there are plenty of other good programs throughout the country, but these ones come to mind.
Questions: Dan DePietro (depietro213@gmail.com) - UPenn, Tim Carlon (tim.carlon91@gmail.com) - Mt. Sinai, John Choi (johnmchoi@gmail.com) - USC, Shawn Ma – UPenn (ma.shawn.11@gmail.com), Nikki Curnes (nrurnes@gmail.com)
MEDICINE-DERMATOLOGY

Original work by Alexandra Charrow (2014).

General information

An amazing opportunity to pursue two disparate but rewarding fields of training! Because this residency has few national slots, if you opt to apply, reach out to as many former applicants, current residents, and attendings as possible and determine the best course of action from there.

Why Med-Derm

Med-Derm combines an Internal Medicine (IM) and Dermatology residency into a 5-year program at one institution (there is no prelim year) giving trainees exposure to the team-oriented training of IM and the extensive outpatient and procedural training unique to Dermatology. Residents spend their first year in a categorical medicine internship, their second year in a categorical Dermatology residency program, and their 3rd, 4th, and 5th years toggling between Internal Medicine and Dermatology. Once residents have completed their training, they are board certified in both Dermatology and Internal Medicine. The residency was conceived of as a means by which to train dermatologists comfortable with medically complicated patients and Internal Medicine physicians comfortable with complex dermatologic issues. Most Med-Derm residents go on to work primarily as dermatologists at academic medical centers, either as inpatient consultants or as outpatient dermatologists managing patients with complex rheumatologic, immunologic, and dermatologic issues. However, some go on to complete medicine fellowships in rheumatology, heme/onc and ID. Many work as general medicine hospitalists for some portion of their time as well if they choose.

Med-Derm is a competitive specialty with a total of 7–15 spots open at any time throughout the country. Critical to applying is demonstrating a commitment to both aspects of the training (Internal Medicine, Dermatology, and their overlap). Some students apply to Med-Derm as dermatology applicants in order to increase their odds of matching in a dermatology program. However, this is strongly discouraged. Instead, Med-Derm should be considered only in those individuals interested in pursuing careers in which both sets of training could be beneficial. Because many people add Med-Derm applications onto their dermatology applications in ERAS, to match in a Med-Derm program, it is critical that applicants have a clear sense of why they are pursuing both aspects of training.

Important reasons one might pursue Med-Derm include:

- A strong interest in both fields
- An interest in those fields where IM and Dermatology intersect (Rheumatology and Rheum/Derm, ID, Oncology, and Cutaneous Oncology)
- An interest in learning to lead a multidisciplinary team
- An interest in hospital policy and management
- An interest in primary care in resource-poor areas where dermatology and IM are both necessary

Mentors

Many people will support you through the process. Ensure you have mentors in both the Dermatology and IM departments. Having a mentor who has completed or is completing the Med-Derm residency at Penn is critical. Current Med-Derm Attendings include Dr. Rosenbach and Dr. Micheletti. Other Attendings received training in both IM and Dermatology, separately. These include Dr. Rook and Dr. Werth. Finally, there are dermatologists and internal medicine physicians who, while not board certified in both, spend
significant clinical or research time managing patients with complex Med-Derm issues. These include Dr. Kim in the Dermatology department as well many rheumatologists and oncologists.

Dual Applying

Because of the paucity of spots in any given year, all applicants applying in Med-Derm apply simultaneously to either Dermatology programs or Internal Medicine programs. Double applying can make some mentors (and even some programs) nervous. Nearly all Dermatology programs that have a Med-Derm program are comfortable with applicants who apply in both. If you opt to apply in Med-Derm and Dermatology, it is best to discuss strategy with your dermatology advisor. On the Medicine-side, every year there are a hand-full of applicants nationally (in 2014, I met 4) who apply in Medicine and Med-Derm. Penn, Brigham, and Northwestern are all comfortable with these applicants though it is helpful to attend separate interview days for Internal Medicine residency programs even if, as is the case at the Brigham, the Med-Derm interview day counts as an IM interview day.

The programs

There are residency programs at the following places:
- University of Minnesota (2 spots open per year)
- University of Wisconsin (2 spots open per year)
- University of Pennsylvania (1 spot open, irregularly): This program combines a Penn IM Residency with a Penn Dermatology residency. It requires applying to all three programs on ERAS – IM, Derm, and Med-Derm, even if you are actually only pursuing 2 of the three programs.
- Brigham and Women’s IM/Harvard Combined Dermatology Residency (1–2 spots open per year): This program combines the BWH Medicine residency with the Harvard Combined Dermatology program.
- Northwestern (1 spot open per year): Combines the IM department at Washington Hospital Center

Application

- ERAS opens on July 1, and applications can start being submitted in early September. Try to submit your application by the day applications are released to residency programs, but a few days after is not a huge problem as MSPEs are not released until October 1.
- The Penn Med-Derm application requires that applicants apply to the Medicine, Dermatology and Med-Derm application separately in order to be considered for Med-Derm. Be sure to read the webpages for each program carefully and feel free to follow-up with administrative assistants with questions if contact information is available.

Interviews

Scheduling interviews
- Med-Derm interviews follow the same interview invitation schedule as Dermatology. Most invitations are given out between Thanksgiving and Christmas. If you are applying to Medicine and Med-Derm, it is beneficial to schedule the medicine interviews prior to December to leave room in your schedule for Med-Derm interviews. If you are a Dermatology applicant more interested in Med-Derm, find out when interviews will be offered by each Med-Derm program, so that those slots are available should you be invited for an interview.
- If there is a particular program that you really want to interview at, you can ask your mentor to contact the program on your behalf before invites go out.
The interview

The interview is the most important factor in your application. At each program, you should expect to have anywhere between 4 to 20 mini-interviews, each lasting 10–20 minutes, and each with either a single interviewer or multiple interviewers.

- Be specific about why you applied in Med-Derm and where you see your career taking you within the field.
- Know the program before you go in and why the program would be a good fit for you
- Be excited about the program
- Review the Dermatology section for specific advice about interview day as Med-Derm interviews are most similar to Dermatology interview days.

After interviews

- Thank you notes: Some programs specifically ask that you do not send thank you notes. For the others, you could send notes (either handwritten or email) to the PD and/or chairperson, but you probably do not have to. There will be some applicants who send thank you notes to all interviewers, and others who do not send any—it probably makes no difference in the end.
- Phone calls: If you have a clear #1 program, ask your mentor to call and tell the program this. You should also tell the program this yourself, typically via email. Do this as soon as you are sure about your #1. Do NOT tell more than one program that they are your #1 as Dermatology is a small field and programs do talk.

Questions: Emily Baumrin (ebaumrin@mail.med.upenn.edu)
MED-PEDS

(Combined Internal Medicine-Pediatrics Residency)

Why Med-Peds?

- Consider Med-Peds if you are excited about combining elements from both adult medicine and pediatrics into your career. Caring for both children and adults offers Med-Peds residents exposure to a variety of patient interactions, disease processes, and patient complexity.
- A Med-Peds residency can lead to a more diverse set of career tracks than those possible in Internal Medicine or Pediatrics separately. Some examples of Med-Peds career tracks include:
  - Primary care
  - Global health
  - Underserved medicine
  - Adolescent medicine
  - Combined adult/pediatric hospitalist medicine
  - Transitional care (for patients with chronic conditions such congenital heart disease, cystic fibrosis, inflammatory bowel disease, Down syndrome, sickle cell disease, and childhood cancer survivorship)
  - Subspecialty care (combined fellowships are expanding in fields where adult and pediatric training is useful such as rheumatology, allergy/immunology, endocrinology, HIV/infectious disease, GI, nephrology, and heme/onc)
  - Other interesting career paths such as child and elder abuse, primary care for complex children and young adults, teaching, advocacy, policy, public health, and research
- It is NOT a good reason to choose Med-Peds just because you do not particularly love or hate either field, or you just cannot decide between Internal Medicine or Pediatrics.

What is the difference between Med-Peds and Family Medicine?

- Med-Peds residents have significantly more inpatient pediatric and adult medicine training than Family Medicine residents, including more ICU time. For example, Med-Peds residents are required to have 24 months of pediatrics rotations, while family medicine residents are only required to have 4 months of pediatrics.
- Med-Peds residents are eligible for board certification in both Internal Medicine and Pediatrics, and therefore all Internal Medicine and Pediatric fellowship programs are open to Med-Peds residents.
- Family Medicine residents have more training in outpatient medicine with greater focus on obstetrics, gynecology, surgery, and psychiatry. Therefore, Family Medicine residents are eligible for different fellowship opportunities than Med-Peds residents.
- Both fields have a large percentage of graduates practicing in primary care, including 1/3 - 1/5 of Med-Peds grads.

What fellowships will be open to me after residency?

- All Internal Medicine and Pediatric fellowships are open to Med-Peds residents.
- Combined fellowships are often possible but vary by institution and are usually arranged on an individual basis. Med-Peds residents across the country have completed combined fellowships in fields such as ID, rheumatology, endocrinology, pulmonology, critical care, allergy/immunology, GI, and hematology.
- These combined fellowships may still require 5 years (3 yrs peds fellowship + 2 yrs adult fellowship), but increasingly institutions are establishing integrated fellowships (ex. Brown has a combined 4 year ID fellowship, instead of the 5-6 years it would take to do individual fellowships in adult and pediatric ID).
• Similarly, jobs in Med-Peds after residency may require coordination on an individual basis between pediatric and adult institutions

How does the residency work?
Med-Peds residencies are four years long, with residents switching between pediatrics and internal medicine every 3 or 4 months. Most programs have one intern year, two junior resident years, and one senior resident year. Some programs have a 5th year Med-Peds Chief Resident or allow Med-Peds residents to apply for an additional chief year in Pediatrics or Internal Medicine.

If Internal Medicine and Pediatrics are each 3 year residencies, how can Med-Peds be only 4 years? There is a lot of overlapping pathophysiology between adult and pediatric medicine. Your knowledge in one enhances your understanding of the other. Med-Peds residents have fewer electives than their categorical colleagues, but they also escape some of the lower-yield rotations. The American Board of Internal Medicine and American Board of Pediatrics have specific guidelines for Med-Peds programs, so the content of training is very uniform across programs. Residents switch frequently between adult and pediatric medicine to avoid getting rusty in either field, and many programs have combined Med-Peds continuity clinics so residents are seeing both children and adults in outpatient clinic weekly.

Penn Program Leadership
• Program Director: Dava Szalda (szaldad@email.chop.edu)
• Associate Program Director: Oana Tomescu (oana.tomescu@uphs.upenn.edu)
• Associate Program Director: Chad Johr (Chad.Johr@uphs.upenn.edu)
• Core Faculty: Niki Jaffe, Laura Robinson, and Shelia Quinn

Rotations
Required
• Sub-Internship in Medicine
• Sub-Internship in Pediatrics

Suggested (these selections should be based on your own interests within Med-Peds)
• Electives in Internal Medicine and Pediatrics to:
  o Help decide if Internal Medicine vs. Pediatrics vs. Med-Peds is right for you
  o Gain experiences to talk about in your personal statement and interviews
  o Explore potential career interests and goals
• Examples of electives that may be of particular interest to Med-Peds applicants
  o Transitions from Pediatric to Adult Care **great exposure to many Med-Peds clinicians**
  o Adolescent Medicine
  o Outpatient Medicine, Pediatrics, or Family Medicine
  o Away elective in a Med-Peds continuity clinic
  o Global health elective
• There is a list of generally recommended electives in Internal Medicine and Pediatrics (refer to their respective sections in this booklet)

Mentorship
• If you have not already, you will be offered the chance to request faculty advisors in your field(s) of interest. Ask for a Med-Peds advisor! The current program director, Dr. Szalda, is very open to speaking with students and is able to transition from her role as PD to general advising for students interested in Med-Peds. She may be able to point you in the direction of faculty with similar interests.
• You will also be assigned a residency application advisor from both Internal Medicine (Dr. Keith Hamilton or Dr. Jennifer Kogan) and Pediatrics (Dr. Erin Pete-Devon or Dr. Stacy Rose). It can be useful to talk about categorical program-specifics with these advisors.
• Penn Med-Peds faculty are great and easily accessible.
• The Med-Peds Chief Resident is a great resource. The 2020–2021 Chief is Sarah Capponi.

Letters of recommendation
• A departmental letter from Internal Medicine
• A departmental letter from Pediatrics
• Two letters from (IM or Peds) faculty that know you well and can speak to your clinical skills, often from your IM and Peds sub-internships. Letters can also be from research mentors or other mentors. Talk to Dr. Szalda if you need help planning which letters will best support your application.

Residency programs
Med-Peds programs are now ranked on Doximity. However, the general consensus among Med-Peds faculty, residents, and applicants is that Med-Peds programs have unique niches within their larger institutions and can be strong in ways that categorical programs at the same institution may or may not be. Therefore with Med-Peds in particular you should really pay attention to fit. Here are some factors you may want to consider:
• Location: There are fewer Med-Peds programs on the West Coast, and none in the Pacific Northwest. There are more programs in the Northeast, Southeast, and Midwest.
• Many long-established, strong programs are not at centers you might have thought about (ex. University of Rochester, UNC, University of Cincinnati)
• Setting: Do you see yourself in an academic/university or community/private practice setting? Most Med-Peds programs are at large, well-respected academic centers.
• Strength of categorical components: Is one categorical side significantly stronger or weaker than the other? Consult faculty advisors in Internal Medicine and Pediatrics for their input.
• Med-Peds program identity/cohesion: How well-established is the Med-Peds program? Do the categorical sides both support the program, both philosophically and financially? Are there enough Med-Peds-trained faculty to serve as mentors to residents? Do other specialties know what Med-Peds is at that institution? As a Med-Peds resident, will you be treated as equals to the Medicine and Pediatric residents? Does the program seamlessly organize your schedule?
• Program Director: Does he/she have a strong vision for the program, and ability to maintain program identity within the two categorical programs? What kind of support and mentorship do residents receive from the PD?
• Primary care-focused vs. subspecialty-focused programs: Some programs focus on primary care, while others have many graduates go on to subspecialize. Check out lists of recent graduates.
• Continuity clinic: Does the program have a combined Med-Peds clinic or separate Internal Medicine and Pediatrics outpatient clinics? Some residents appreciate a combined clinic to be an example practice model for a career in outpatient medicine. Other residents value separate clinics that ensure a 50/50 division between adult and pediatric patients. Are there Med-Peds preceptors in clinic? Do residents go to clinic every week or in outpatient blocks or both?
• Age of program: Some programs are relatively new (ex. UT Southwestern matched its first class in 2016 and Mount Sinai restarted their program in 2019), while others have been around for decades (ex. UNC and Rochester). Do you want to be at a well-established program with a strong Med-Peds identity or at a newer program where you may have more influence on the direction of the program, but risk experiencing some early growing pains?
• Internship length: Most programs have 12-month internships, but some extend this to 16-month internships (ex. Brown) in which teaching responsibilities as a junior resident are deferred. In the case of a longer intern year, you usually are in “resitern” roles and not repeating intern rotations in order to build confidence before leading a team.
• Class size: Ranges from 4 (most Northeast programs) to 16 (Indiana University) residents per class, with most around 4–6.
• Special tracks/opportunities (not an exhaustive list):
Global health: Penn, Yale, Harvard (both Brigham and Women’s/Boston Children’s and MGH), Duke, University of Miami, Baylor, University of Minnesota, Brown, Case Western/Rainbow Babies, University of Rochester, University Cincinnati, UCLA, UCSD, Maryland, Tulane

Transitional care: Penn, UCLA, Brown, Baylor, Harvard, University of Michigan, University of Cincinnati

Adolescent medicine: Penn, Harvard, Baylor, University of Pittsburgh, Hopkins, USC (Children’s Hospital of Los Angeles)

Subspecialty care (i.e. adult congenital): Penn, Harvard, UCLA, Duke, Baylor, University of Cincinnati (think large, academic centers)

Urban Health: Johns Hopkins (primary care), Mount Sinai, USC, University of Chicago

Application process

ERAS application

- Apply directly to combined Med-Peds programs (not separately to Medicine and Pediatrics programs) through ERAS. These programs are also listed in FREIDA. There are roughly 80 Med-Peds programs.

- How competitive is Med-Peds?
  - Med-Peds is about as competitive as Medicine, and more competitive than Pediatrics. In recent years, the number of Med-Peds applicants has been increasing and the field is becoming more competitive at many institutions.

- Applying to a “backup” specialty such as Internal Medicine or Pediatrics?
  - First, ask yourself why you are considering this. Are you undecided about Med-Peds? Worried about not matching? Geographically restricted?
  - If you feel you need to apply in a second specialty, consider your ultimate career goals and how you might achieve them. For example, adult congenital heart disease can be approached from Internal Medicine, and adolescent medicine can be approached from Pediatrics or Internal Medicine, etc.
  - Several Penn students have applied to Med-Peds programs as well as one of the two categorical programs or Family Medicine and made up their mind during the interview process, so it can be done and is extremely common to find on the interview trail. Another strategy is to take additional electives in Internal Medicine or Pediatrics, and talk to Med-Peds residents/faculty who can help you figure out your career goals. You could also do an away rotation at an institution that has a combined Med-Peds clinic to experience that unique setting. If you are unsure, Dr. Szalda is a great person to speak to about the possibility of dual applying!
  - One good reason to apply in two fields is if you feel strongly about ending up in a particular geographic location (ex. the west coast).

- Board scores: Like any other specialty, solid board scores are important. This is true especially for the more competitive programs (i.e. where the categorical programs are already competitive). However, clinical grades may be at least of equal importance.

Interviews

- It is important to realize that you will be evaluating three residencies as you visit each program: the Medicine, Pediatrics, and Med-Peds programs.
- Residency interviews are bi-directional, so be assertive about evaluating whether these programs are a fit for you (this is easier if you have given serious thought to what you want from a program going into the interview process, and/or if you have a specific career goal).
- Most programs have a one-day interview, but a few still have two-day interviews (University of Cincinnati, Yale).
- You will have individual interviews with faculty and/or residents from Medicine, Pediatrics, and/or Med-Peds (usually 3-4 twenty minute interviews over the course of the day). Interviews are generally laid back. Interviewers will be interested in hearing a compelling reason for why you chose Med-Peds.
- This is also a great time to talk to other applicants and residents to see the diversity of career paths and interests. Med-Peds tends to attract very bright and interesting people with strong ambitions. You will enjoy the interview trail especially because it is a smaller pool of applicants, and you will get a
sense that Med-Peds is a family within two bigger families (the categorical programs). Try to get a feel for the major values of each program.

- If global health is an interest, ask about how many weeks you are allowed to be abroad, what kind of funding is offered, and if your salary will continue to be paid while abroad.

Final thoughts

Websites with additional information on Med/Peds

- **National Med/Peds Residents Association (NMPRA)** ([www.medpeds.org](http://www.medpeds.org)): Great first stop, where you'll find tons of info for students about Med-Peds training, career options, program history.
- **FREIDA** ([https://freida.ama-assn.org/Freida/user/viewProgramSearch.do](https://freida.ama-assn.org/Freida/user/viewProgramSearch.do)): Searchable database of all Med/Peds residencies. Can also search academic centers by fellowship, if being at a residency with specific future fellowship opportunities is important.
- Individual program websites: All-inclusive map of Med-Peds programs on the NMPRA website with links to individual program websites. Also searchable via FREIDA.

**Med-Peds Core Faculty and Mentors at Penn/CHOP (full list of Med-Peds trained physicians available upon request)**

- Dava Szalda (Program Director at Penn, pediatric hematology/oncology, cancer survivorship, pediatric to adult transitions) szaldad@email.chop.edu
- Oana Tomescu (Associate Program Director, Internal Medicine trained, adolescent medicine and adult primary care, transitions for adolescents with special health care needs) oana.tomescu@uphs.upenn.edu
- Chadwick Johr (Associate Program Director, adult rheumatology) chadwick.johr@uphs.upenn.edu
- Niki Jaffe (Core Med-Peds Faculty)
- Laura Robinson (Core Med-Peds Faculty)
- Sheilia Quinn (Core Med-Peds Faculty)
- Michael Rey (Med-Peds Mentor, Pulmonology)
- Laura El-Hage (Med-Peds Mentor, Hospitalist)
- Alex Vinograd (Med-Peds Mentor, Global Health)
- Ben D’Souza (Med-Peds Mentor, Cardiology)

**Recent Penn Med grads that have gone into Med/Peds (Penn grad year in parentheses, followed by residency location):**

- Olivia Delia (2019) Penn/CHOP
- Jessica Eby (2019) Brigham & Women's/Boston Children's
- Derek MacMath (2019) Baylor
- Catherine Mezzacappa (2018) Yale
- David Olshan (2018) MGH
- AC Gomez (2017) Baylor
- Adam Mayer (2017) Penn/CHOP
- Neha Limaye (2017) Brigham & Women's/Boston Children's
- Peter Dunbar (2016) Brigham & Women's/Boston Children's
- Steven Tsaur (2016) Brigham & Women's/Boston Children's
- Helen Reed (2016) Baylor
- Jing Ren (2015) MGH
- Nicole Oakman (2015) Baylor
- Christine Bui (2015) Baylor
- Darryl Powell (2013) Brigham & Women/Boston Children's
- Kathryn Levy (2013) Michigan
• Michael Rey (2012) Penn/CHOP
• Alana Feiler (2012) Penn/CHOP
• Laury Rosefort (2012) Yale
• Jack Rowe (2012) MGH

Questions: Hanna Elmongy (hanna.elmongy@gmail.com), Madeline Chandra (madelinechandra04@gmail.com)
Preliminary Programs

- Neurology residencies require that residents complete a first year in Internal Medicine (the “preliminary” or “prelim” year) before they begin their three-year Neurology residency. Many programs offer both advanced (three-year Neurology residency only with the option to complete the Medicine internship year at a different institution) or categorical (Medicine internship year tied to a Neurology residency at the same institution) programs.
  - For example, the Penn categorical program includes a Medicine internship year at HUP, while the Penn advanced program requires you to apply for a preliminary Medicine year at a separate stand-alone preliminary program, e.g. Pennsy, MGH, Brigham, Beth Israel.
- HUP does not offer stand-alone Medicine preliminary year slots, so if you are at all considering an institution other than Penn for your preliminary year, you would rank the Penn advanced program over the categorical program. Unlike Penn, some programs do offer a stand-alone preliminary year at the same institution in addition to the categorical program, such that you can match all four years at that institution in two different ways. For example, you could match to Yale for all four years via the categorical program—encompassing a Medicine preliminary year tied to the three-year Neurology residency—OR via the advanced program at Yale with the separate, stand-alone Yale Medicine preliminary year.
- Some advanced programs will guarantee a Medicine internship year at their institution to a subset of applicants if you rank their prelim program (e.g. NYU, Hopkins, Yale). This option gives you the most flexibility, as it allows you to rank other prelim programs first if you want to be in a different city during intern year, with the guaranteed fallback of matching at the preliminary program where you do your Neurology residency. However, many programs in this scenario have fewer prelim spots than Neuro residents and so the prelim year is not fully guaranteed. If interested in a particular Neurology residency, inquire specifically what their prelim policy, and how many guaranteed spots they have.

In short: If you have personal or other reasons to be in a particular city for your internship year (which may be different from where you eventually want to do your Neurology residency), you should apply to a number of preliminary positions in that area and then prioritize advanced Neurology positions. If you want to do all four years of residency training at one program, then you should prioritize categorical positions or apply to multiple prelim programs in that area so that you have the option of matching in two different ways (see above).

Letters of recommendation

- Polish your CV and work on your Personal Statement so that you can give them to your letter-writers. Aim to have a near-complete draft of your Personal Statement by June-July (the earlier the better)
- Most programs require at least 3 letters, including one letter from a Neurology faculty member. ERAS allows you to submit up to 4 letters, which many people take advantage of (although it is not necessary).
- At least one letter (or even 2) should come from a Neurology attending, and it’s helpful to have at least one letter from a Medicine attending as well (those from your Medicine sub-I are a great resource). Try to choose attending(s) who are most familiar with you (this is usually more important than which department they are coming from).
- Ask early and soon after you finish your elective(s), as faculty members are busy and need time (and sometimes prompting) to complete the letters.
- You can ask for more letters than you need, being mindful of faculty's time. You do not have to submit all of the letters that you receive.
- You have the option of sending different letters to different programs (preliminary year or Neurology). You can send letters from different letter-writers and/or different versions of letters from the same letter-writer. Letter-writers can upload different versions of their letters for prelim programs and Neurology programs with slight variations on their closing paragraphs, though this requires you to provide them with two distinct letter upload forms (but this is also really not necessary).

**Mentors**

- The best approach is to find a mentor who you have worked with in the past, either on an elective or in Neurology 200. Alternatively, you can be assigned a mentor by the Office of Student Affairs. Email your mentor and meet in the early spring to discuss your application. If you were matched up with someone who doesn’t share your same perspective/interests, it is okay to try someone else. When in doubt, ask Dr. Pruitt or Dr. Price.
- The Neurology faculty are amazing about welcoming students to do research with them for scholarly pursuit. If you have an idea of what kind of research you are interested in doing, email a faculty member and ask if there are any available projects. Even if that faculty member does not have a project suitable for a student, he/she will usually suggest someone else who might.

**Residency Programs**

- Research programs before you apply and interview (program websites are helpful).
- AMA Freida lets you search for Neurology programs by state.
- Doximity lets you search for Neurology residency programs by location, program characteristics (e.g. size, urban vs. rural), research output, and “reputation.”
- Be sure to talk to other students at your interviews! By the end of the interview trail, you will probably recognize almost all of them and may have made some friends. Talk to them about which programs they like the most. One of the absolute best parts about matching is finding out which of these students will be your new best friends.
- Get a feeling for what type of program you might like: community vs. academic, available fellowships, elective research, international opportunities, etc.
- An incomplete list of programs to consider: Penn, UCSF, UCLA, Harvard Partners (Brigham and Women’s and MGH), Harvard Beth Israel, Hopkins, Columbia, WashU, Stanford, NYU, Cornell, Yale
- Many neurology programs are supportive of research, especially towards the end of your residency. If you are interested, make sure your programs have a track record of projects conducted by the residents. Some programs have an R25 that gives you 6 consecutive months of research time during PGY4 (aka one afternoon/week of clinic but not more), an additional 3 protected months of electives, and 1-2 years of fellowship funding for research. Having an R25 allows one to do research during a brief period in residency (generally PGY3/4) and also during fellowship, with salary support. R25 funding is transferable between other R25-holding institutions if you plan to move between residency and fellowship. You can find the list of R25 funded programs on the NIH website, and definitely ask about it during your interviews.
- UCSF, Penn, and Hopkins historically promote their R25 and support research training. Beth Israel is working towards stronger research. Wash U has probably the strongest research support and most lenient clinical schedule. Programs give a variable amount of research time, some of which may or may not depend on having an R25. Even the programs that offer R25 do not always give the same amount of time in residency (i.e., they’re supposed to give 6 months in PGY4 continuously but historically Partners has not - however Partners is changing that now, they have a new faculty
heading their R25 program). The real benefit of the R25 is funding for fellowship to continue research after residency, but it’s important to ask each program specifically how their R25 works and whether it’s necessary to get research time in residency.

- While many programs participate in the R25, there are some that have separate research tracks/options: Penn has a research track with guaranteed 6 months in PGY4 regardless of whether the R25 is funded. UCSF offers the flexible residency to all residents, which is 6 months of time in PGY4 to pursue research or other opportunities. Yale has a separate physician-scientist training program you can apply for.

### Application Timeline

- [https://www.aan.com/tools-and-resources/medical-students/](https://www.aan.com/tools-and-resources/medical-students/) is a good resource

#### March through June

- Meet with your mentor
- Complete at least one Neuro elective and/or your Neuro sub-I
- Ideally, complete your Medicine sub-I before the end of June
- Ask for recommendation letters
- Plan your scholarly pursuit
- Update your CV (letter writers are going to want this)
- Start working on your Personal Statement (best to wait until after your neuro sub-I so that you have some inspiration!)

#### June through August

- Schedule your MSPE meeting with JoMo and write your MSPE intro paragraph (more on this from JoMo and Suite 100)
- Finish your Personal Statement
- Complete your ERAS application
- Meet with Dr. Price, the Neuro residency program director at Penn. Dr. Price and Dr. Pruitt will hold a meeting in late summer with everyone applying in Neurology, but it is helpful to have met with Dr. Price before this.
- If you are an MD/PhD or strongly interested in research, set up a meeting with Dr. Geoffrey Aguirre, the Associate Program Director in charge of research track residents
- Meet with Dr. Judd Flessh if you need a letter from the Department of Medicine. A few preliminary year programs may require or recommend a department letter. Have a few documents ready (Step 1 score, Medicine 200 and sub-I grades, personal statement, CV, etc.). This process is pretty straightforward, and Ann Marie Hunt will walk you through it.
- Verify that letters of recommendation are in

#### September through November

- Take Step 2 CK/CS (preferably by mid-November, the registrar will let you know the dates). Most programs require that you have scores from these before they will rank you.
- Register for NRMP (the Match)
- Schedule interviews, which usually run from mid-October through early January
- Interviews
  - Schedule as soon as you get an invitation (within the hour if you can - spots fill up quickly!). Most programs will let you know if you have to interview separately for the prelim program. Harvard Partners, for example, schedules one full day for you to interview for the prelim programs at MGH and Brigham in addition to a full day for Neurology interviews. Other programs include a short info session on the day of your Neurology interview that suffices as your preliminary program interview (HUP, Yale)
  - Programs largely use online interview schedulers (e.g. Interview Broker, Thalamus, the ERAS scheduler) so applicants can select, change, waitlist, and withdraw from interviews instantly.
○ Read about programs before you go, and have a few questions prepared. In particular, look up the faculty at those programs in areas of interest to you; it is okay to request to meet with specific people if you have a genuine interest in their work.

○ If you do not get an interview at a program you want, see if your mentor or JoMo will call on your behalf.

○ Interview encounters often span two days. The Neurology interview day itself also tends to be longer than interview days for other specialties, encompassing 5-9 individual interviews ranging from 10 minutes to half an hour.

○ However, Neurology interviews are also typically very laid-back and conversational. Questions are the usual suspects. Most common questions include: why neurology, discuss your extracurricular interests, discuss your research, most interesting patient you have seen, challenging patient, challenges or difficulties during medical school. Interviewers may pick any detail from your ERAS application that caught their eye and ask you about it.

Questions:
Leah Zuroff (leah.zuroff@pennmedicine.upenn.edu) and Kelly Boylan (lkellyboylan4@gmail.com)
NEUROSURGERY

Original work by David Krieger, Ryan Grant, and Brandon Gabel. Most recently updated by Prateek Agarwal and Steve Cho (2020).

- Neurosurgery is NRMP match and the intern year is included in the residency. All Residencies are 7 years.
- The department will have a new chairman as of July 2020. Dr. Grady, the previous chairman, will remain on faculty and will likely continue to be a great source of information and advice (having been the chair for 20 years at Penn).
- Meet with Dr. Grady and/or the Chairman ASAP. They can give you straightforward advice regarding how to prepare for neurosurgery, where to consider for sub-I’s and where to consider applying for residency.
- Dr. Isaac Chen is also a great resource at any point along the neurosurgery trail, whether choosing sub-I’s, interviews, etc. Being a relatively young faculty and a Penn med grad / Penn resident grad, as well as an interviewer for everyone that interviews at Penn, he offers excellent insight on your application and your strengths/weaknesses as an applicant. He is always happy to meet with students interested in neurosurgery.

Letters of Recommendation

- Recruiters want an updated CV and will sometimes “interview” you before you leave the rotation.
- One recommendation will come from the Penn chairman
- 4 recommendations allowed. At least 3 will be from neurosurgeons.
- Get one from the neurosurgeon you did the most research with (not a resident).
- Chairs and Program Directors at your away rotations generally write letters so good incentive to go away early. Doing an away rotation but not including a letter may look irregular to interviewers.

Applications

- What matters?
- (1) Step 1 score (mean of 2018 matched applicant was 245). Many programs have a cut off during the first round of applications before offering interviews, but once you get an interview the playing field basically evens regarding step score. It is very rare that a program requires Step 2 (mean score for matched applicant in 2018 was 249) before rank lists are due. If you did well on Step 1 there isn’t a need to take Step 2 CK before applying. In fact, if you did well on Step 1, consider not taking Step 2 CK until after ERAS is submitted. With a good Step 1 score, a good score on 2 CK will likely not help much while a poor score could hurt. Most people on the interview trail will not have taken 2 CK at the time of interviews.
- (2) Research and papers – very helpful and almost every interviewer will care about it. It’s not necessary to be published in journals, but it will definitely help you be a strong candidate. The strongest applicants have over 15 published papers by ERAS submission; having even >5 publications could make you stand out at most institutions. Having at least one project that you are very involved with is important. Be passionate about your work. Think scholarly pursuit. Many interviews may focus almost exclusively on your research, depending on how much you have done. Be prepared to answer questions on any papers or abstracts you list in your CV, even if you are not the first author. **Note that if you have work in preparation you can and should include this on your CV +/- on ERAS.**
- (3) Letters of Recommendation - This can be tied for number 2. It may even help a lower step 1
score. Neurosurgery is a small community. Getting a strong letter from a well-known, senior neurosurgeon can go a long way, or really any neurosurgeon who can write you a letter that is not "cookie cutter" and who knows you well will stand out.

- (4) Grades, AOA helps but definitely not a necessity. Only 31.9% of applicants who matched in 2018 were AOA. The majority of neurosurgery applicants from Penn in the last few years were not. It may be helpful to honors in medicine, surgery, and/or neurology, but to be honest, very few interviewers seem to have looked at grades at any level.

Residency Programs

- 232 positions offered in the 2019 match. (79.4% match rate for US Applicants in 2019). Each program typically offers between 1-4 positions each year.
- People will tell you that almost all programs (with a few exceptions) offer good training, but take this with a grain of salt. Almost every program gives you an opportunity to become an excellent surgeon; however, the minimum bar might be low at some programs as well.
- Get a feeling of what is important to you (geography, research heavy vs. clinically oriented programs, etc.), **how you got along with the residents**, what field you may be interested in (spine, vascular, tumor, functional, peds; although this will likely change), and what your future career goals are. You will likely be asked what your area of interest is, though you probably won't/shouldn't know the answer. Programs have strengths in different fields and you should communicate your interests, but honestly, your gut feeling will be the biggest factor during the interview trail.
- Ultimately do not pick a program for one attending or lab. Generally, try to get a feel for the culture of the program and where you will like the people. You will be spending a lot of time with your co-residents and faculty, so you want to like them. If you have questions, feel free to ask your fellow applicants or residents you know well.
- If matching at Penn is a priority then you should attend as many Thursday conferences and/or grand rounds as possible (before and after your sub-I), do research with Penn attendings, get to know the residents, and feel the department out. The main thing is to **show your interest and show your ability to work hard**. The more people you know, the more will vouch for you. You will not get to know everyone, but it looks weird if most of the Penn faculty do not know you when you walk in for an interview.
- Neurosurgery is a small field and everyone knows everyone else, especially at academic centers (where almost all residency programs are located)
- Generally, apply to 30–50 programs with the aim of interviewing at 15-20, unless you have a special situation (couples matching, strong geographic preferences). If you are an objectively stronger candidate (Step 1 >255, >5 publications, AOA, etc) applying to 25-30 programs will likely be enough to secure 15 interviews. Conversely, if you are not quite as strong, upwards of 50 programs might be necessary to secure enough interviews.

Interviews

- To be safe, interview at 15-20 programs. Although this can be difficult because lower tier programs offer interviews earlier, interview at a range of programs. People who don’t match (rare) usually didn’t rank enough of the programs they interviewed at or interviewed only at the “top tier” places. Dr. Morris and the chairman will give you good advice. Do as many as would make you personally feel comfortable. Statistically, and for the average applicant, ranking 16+ programs in 2018 resulted in a greater than 90% match, but 10–15 is a good range.
- You will meet people on the trail interviewing at far more (25+) without particular reason. In general, we recommend against this. Interviews are already time-consuming, tiring, and expensive, and interviewing at that many programs does not confer any real advantage (and
you may in fact hurt yourself now and in the future if you interview poorly).

- The vast majority of interviews are benign. You will get the normal “why neurosurgery” question, strengths and weakness, and research questions at nearly every interview. Typically, many attendings just want to converse, but there are always a few that will read right from your resume and “pimp” you about your own application, so be prepared to talk about everything you write about.
- The majority of interviewers will not have read your application or will be reading your application at the beginning of the interview and therefore some will start with the generic “tell me about yourself.” Have a stock opener or story to address this.
- The interview prep course the school runs can be very useful for improving your interview skills, even if you consider yourself a strong interviewer.
- A few times, I was asked about my “favorite” or most “interesting” case, so have some cases in mind that you can talk about. Definitely know the details of the case! Mostly because the interviewers will be interested and want to know more, but it does not look good if you can’t talk about it. Know the relevant clinical guidelines for the case. For example, if you want to talk about a subdural hemorrhage evacuation, the interviewer may ask what are the criteria to evacuate a subdural hemorrhage? You can really shine if you know these for your case when possible. This is kind of rare though, so don’t be too worried about it.
- Some interviews MAY have you read CT/MRI/Angios and ask you questions, but it was low-stress and usually something obvious (Epidural vs Subdural bleed/GBM/Aneurysm). Don’t stress about being pimped, make something up that sounds plausible, it really seems like it is done only to see how you respond. (i.e. can you handle the pressure? -- yes, you’re fine, you can.)
- Most interviews have 1–2 dinners before or after the interview itself. While attendance is not strictly required, it can be very helpful to get to know the program and hang out with the residents. If you cannot make 1 or 2 because of travel restrictions, that is okay. Remember these are also part of the interview process, and the residents +/- faculty are still forming impressions of you.
- You can send thank you notes to the PDs and chairmen and a resident you may have connected with, but sometimes there are 15 or more interviews, there is no need to thank each person. But DO thank the residency coordinator, they put a lot of effort into the interview season. You can really separate yourself if you really loved a program on interview day to be specific and tailored with your thank you to the program director. Remember, they are looking for candidates that want to come to their program and a thoughtful and personalized thank you note can go a long way!
- Afterwards follow up with programs you plan to rank highly (January). Email PDs and Chairmen. Let them know you are interested. That said, only tell your #1 program that you are ranking them #1. Neurosurgery is a small field, and all of the programs talk with each other. If you tell more than 1 program, you are being dishonest and risk your rank position, as well as your reputation within the field. This statement will carry most weight after completing the interview trail, as programs know that you have finished the trail. Let the chairman, program director, and future chiefs (generally PGY-5’s) know this before their respective rank meetings.
- You can consider doing second looks but these are by no means necessary (at most places). Only do them at programs that you did NOT rotate at and are highly considering (i.e. ~1–4). No point to do it at a sub-I location. Some programs may openly stress doing a second look during the interview. For those programs, a second look is most likely necessary but technically it is not allowed to influence their decisions, but if you are highly considering that program, do the second look.
- Where have Penn students matched recently (last ~6 years)? Penn (4),UPMC, Duke, Stanford, Cleveland Clinic, Mount Sinai, UCSF, UCLA, NYU, UW, Columbia, Cornell

Other
- Do people do fellowships in Neurosurgery? If you are going into academics, the trend is to do a
year of fellowship. Many programs offer the opportunity to do an “enfolded fellowship” during the research years. This is an opportunity to gain more exposure to an area of interest (functional, endovascular, peripheral nerve) in residency, but the future of these “fellowships” is uncertain.

Questions: Prateek Agarwal (pagarwal130@gmail.com) or Steve Cho (swcho92@gmail)
Letters of Recommendation

- The required number varies from program to program, but most request at least 3 and will accept up to 4 (including the Chair’s letter).
  - 1 Chair letter (see below)
  - At least 1 from an OB/GYN (other than the one the Department Chair writes).
  - At least 1 should be from a non-OB/GYN (usually people get these from their medicine/fam med sub-I)
- Ask early (as soon as you finish the rotation or potentially before), as faculty members are busy and need time to complete the letters. Try to provide your letter writers with a CV and copy of your personal statement (if you have it—do not stress if you do not).
  - That being said, your personal statement goal should be to show it to people for review and feedback by July-ish, August at the latest.
- Follow up on your letters a few months after requesting them. Unfortunately, faculty members will promise to write them and then forget, and you might have to delicately remind them via email. If this fails and ERAS is due imminently, use Dr. Morris (JoMo) to help put some pressure on them!
- Ask for more letters than you need—you do not have to submit all of the letters that you have received.

Chair Letter: Dr. Sam Perry is the interim chair of the OBGYN department. It is not clear how long it will be until the new chair is announced. When the new chair is announced, you will meet with them individually and you can ask for advice on where to apply etc. When going to this meeting, bring your CV and a list of programs you are applying to.

- Reach out to Roslyn Levit (Roz) to coordinate a meeting about applying to OB/GYN when you know you want to apply, or when you’re still deciding! See below for more info about Roz. She can help you set up a timeline for meetings and applying.
  (levit@pennmedicine.upenn.edu)
- **Schedule meeting with Dr. Perry (or the new chair) in early spring (March-May).**
- It’s also a great idea to meet with the chair as soon as you know (or even think) you’re interested in OB/GYN. They will be a great resource and will help you find research opportunities, etc.

Mentors

- Dr. Divya Shah is the UME advisor for residency applications, and should be your go-to person if you have a question about the process and don’t know who to ask. She is meant to be an impartial advisor that does not contribute to residency rank list decisions for Penn OB/GYN.
- If you were not assigned one when you told the Office of Academic Programs your specialty interests, talk to ***. Choose a person from their list and make an appointment to meet with that person to discuss your application early spring if you are not already in contact with someone. It’s helpful to have someone you can objectively talk with who isn’t writing your letters.
- If you were matched up with someone that does not share your same perspective/interests, it is okay to speak with other faculty. Consider talking to someone...
you like since they will be more likely to offer information/advice that is actually relevant/helpful.

- Do not be afraid to talk to the Chair! You should not be afraid to ask questions about other programs, as they will not penalize you or damage your chances of matching at Penn if you are interested in other programs. They will also offer feedback on your personal statement if you want them to take a look.

- There is tons of research going on at Penn and the department is eager to have medical students involved. For residency applications, research is definitely recommended, but not necessary. Research mentors can serve as great application/career mentors. Most faculty are open to being contacted. Electives are a great time to ask them.

- Roslyn Levitt (Roz) is the program coordinator for the HUP residency, and she has been involved with medical students and the OB/GYN department for almost 20 years. She is a great resource to help you pull all the disparate aspects of the application together since she has so much experience and knows so many people. **You definitely want to set up a time to meet with her after you have decided to apply in OB/GYN.** Set up a meeting with Roz before your Chair’s meeting. She is incredibly helpful and can let you know you know how competitive you are at different programs and can also provide information about different programs since she knows a lot of the other program coordinators. She is a “straight-shooter,” and it can be helpful to know if the process might be a little more challenging.

**Residency Programs**

- **Research them before you apply and interview!**
  - Use websites and talk to other students or residents (including Penn alumni at other places—we are always available to talk, even after we graduate!).
    - APGO has a cool residency navigator:
      - [https://www.apgo.org/students/residency-directory/search-residency-directory/](https://www.apgo.org/students/residency-directory/search-residency-directory/)
    - AAMC Residency Explorer is also a great resource
      - [https://www.residencyexplorer.org/Account/Login](https://www.residencyexplorer.org/Account/Login)
    - The NRMP Website has a ton of data regarding the 2019 Match that can be reviewed as well:
  - Doximity provides a mostly useful ranking approximation tool, but keep in mind that the rankings are not perfectly accurate, and they rely heavily on subjective survey data.
  - US News and World Report also has a residency ranking tool.

- **Apply to a broad variety of programs!** OB/GYN is surprisingly competitive, especially in recent years.
  - The OB/GYN department may tell you that you are applying to too many programs, but they may be a little behind the curve in terms of how competitive it is for residency spots. Consider discussing your program list with faculty at Pennsy or younger faculty that have gone through this process more recently. We generally suggest applying to somewhere between 20–35 programs, but consider applying to more if you are worried about your application or if you are couples matching. The number of programs you should apply to depends on many things—how competitive you think you are (numbers of Honors, research, strength of LORs, etc.) and if you are geographically limiting yourself (i.e. only west coast, only major cities) to name a few. **The median number of programs**
applied to by matched US MD applicants in 2019 was 51, had 15 interview offers, and interviewed/ranked 13 programs.

- Here is a list of recent Penn grads and where they went for residency. These are just the most recent local people, so ask faculty about where people have gone if you have questions about even further back.

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Institution Name</th>
<th>Match Year</th>
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<tbody>
<tr>
<td>Wilson</td>
<td>Elise</td>
<td>WashU St. Louis - MO</td>
<td>2019</td>
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<td>Ryles</td>
<td>Hanah</td>
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<td>2019</td>
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<td>Labora</td>
<td>Amanda</td>
<td>UC San Francisco-CA</td>
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<td>McCallister</td>
<td>Camille</td>
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<tr>
<td>Blauvelt</td>
<td>Christine</td>
<td>UC San Francisco-CA</td>
<td>2018</td>
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<tr>
<td>Bahng</td>
<td>Joey</td>
<td>Emory- Atlanta, GA</td>
<td>2018</td>
</tr>
<tr>
<td>Clyatt</td>
<td>Kylee</td>
<td>Temple Univ Hosp-PA</td>
<td>2017</td>
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<td>Irizarry</td>
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<td>Hosp of the Univ of PA</td>
<td>2017</td>
</tr>
<tr>
<td>Jeffers</td>
<td>Shanaye</td>
<td>Thomas Jefferson Univ-PA</td>
<td>2017</td>
</tr>
<tr>
<td>Lee</td>
<td>Iris</td>
<td>Hosp of the Univ of PA</td>
<td>2017</td>
</tr>
</tbody>
</table>
Schwartz  Rebecca  UC San Francisco-CA  2017
Huepenbecker  Sarah  Barnes-Jewish Hosp-MO  2016
Weinblatt  Rachel  Barnes-Jewish Hosp-MO  2016
Aparicio  Juan  Northwestern McGaw/NMH/VA-IL  2015
Barberio  Andrea  NYP Hosp-Weill Cornell Med Ctr-NY  2015
Butz  Anh  Riverside Reg Med Ctr-VA  2015
Cavens  Arjeme  Northwestern McGaw/NMH/VA-IL  2015
Miller  Carrie  Hosp of the Univ of PA  2015
Onwuzurike  Chiamaka  Northwestern McGaw/NMH/VA-IL  2015
Snider  Malorie  Johns Hopkins Hosp-MD  2015

- Get a feeling for what type of program you might like: community vs. academic, fellowships available, elective research, international opportunities, abortion training offered?
  o If you think you are interested in a subspecialty, it's much easier to match for fellowship from a place that has your fellowship of interest (or at least really good faculty in that subspecialty).
  o You do not get much exposure to community training at Penn so if you think you might have even a small interest you can apply for a few and see. Pennsy has somewhat more of a community feel, so if you think you're interested, you may want to try out a rotation there. You won't get a lot of information from the
If you are set on going to residency in a particular state (i.e. California) and you have an address in that state, use that address as your current ERAS address since that is the only way to demonstrate to programs that you are “from” that state.

USMLE Planning

Step 1
- In 2019, the mean Step 1 score for a matched US MD OB/GYN applicant was 230. US MD applicants with a score of 220 or greater had >85% chance of matching.
- Step 1 is not as important in OB/GYN as other specialties, but some residency programs do use certain cut-off values or require that you pass Step 1 on your first try in their application review process. Some programs will list their cut-off on their websites, others will not.

Step 2 Clinical Knowledge
- If you did very well on Step 1, consider taking CK soon after ERAS opens. This way you won’t have to tell programs if you don’t do well on Step 2 until they ask for it. Most programs won’t ask about your CK score if Step 1 went really well.
- If you did ok but not great on Step 1, study a lot and take Step 2 summer/early fall so that you can send in your CK scores with your application (or take right after ERAS opens so you can send an update to programs as they start to send out interviews). Do not wait to take it until mid-fall since programs will want to see if you improved. If you wait to release your scores for Step 2 CK, some programs may ask about it (they may want to see improvement). More and more programs are caring about Step 2 CK scores because it is clinically relevant.
- If you did poorly on Step 1, take Step 2 as soon as you can and try to improve your score by at least 20-30 points. Study hard and take it very seriously.

Step 2 Clinical Skills
- If you haven’t yet, sign up for this NOW! Take it before the Penn-mandated November cut off so that you can get your results earlier. Take it seriously, it is harder than you think, and you don’t want to spend months worrying about passing. It’s a big red flag to fail the exam, it is expensive, and you have to wait months to know if you passed and then reschedule it. You want your passing score back well before the rank list is due in February.

Application Timeline

March to June
- Meet with Dr Perry or the new chair! Email their assistant to set up a meeting.
- Meet with your OB/GYN mentor
- Take at least one OB/GYN elective
- Ask for letters of recommendation
- Plan your scholarly pursuit
- Start to work on your personal statement
- Update CV
- Schedule Step 2 CS (DO THIS NOW IF YOU HAVEN'T ALREADY!)
- Write Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter) Unique Characteristics Paragraphs (you will get emailed about this)

**June to August**
- Schedule Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter) meeting with JoMo
- Start ERAS application
- Schedule and take Step 2 CK (aim to take it no later than September if possible; register as early as possible to give yourself enough options for dates to take it)

**September & October**
- Complete ERAS application and submit
  - **Apply as early as possible**, ideally by September 15 when ERAS applications are released to residency programs. CREOG (the organization that oversees OB/GYN GME) has mandated that programs wait until October 1 to accept applications, and then only send out invites on one of two dates in October. The idea was to decrease the feeling that you need to be glued to your phone, but some programs may still offer interviews before the MSPE is out on October 1* (between September ~15* and October 1*). Most programs no longer offer more invites than they have spaces, but they will rescind the invite if you don’t schedule your interview within 72 hours.
    - This may be further modified this fall, so be sure to
  - Verify letters of recommendation are submitted on ERAS.
- Register for NRMP (The Match)
  - Check status of applications at every program through ERAS (make sure you send Step scores, personal statement, letters to every program—it is easy to miss a box and not send one piece to a program and then your application is not complete)
- Interviews in OB/GYN are on the early side, starting mid-October and mostly finishing by mid-December, although some programs have dates in January.

**October to February**
- MSPE uploaded and available to programs on October 1. Make sure you read and edit it before it is sent out (Office of Student Affairs will send it to you). Mistakes can be made, so read it carefully.
- Interviews
  - For the most part, interview invites will be sent on one of two days in early October. You have 72 hours to select an interview date before your invite is rescinded and your application is withdrawn.
  - November and December are the big interview months in OB/GYN with some programs offering a few dates in October or January
  - **Schedule as soon as you get an invitation to interview!** Most programs now only send as many invites as they have spots, but your desired date may fill up quickly! Be aware of the dates that your programs plan to send out interview invites, and don’t be surprised if a few programs send out invites early. It’s not a bad idea to have an email address specifically for applications and interviews.
  - Many OB/GYN programs have 4 or fewer interview dates, so be prepared for conflicts.
    - Many programs advertise their interview dates on their websites—it can be helpful to plot them on a calendar to help you plan your preferences
and avoid conflicts (e.g. BWH/MGH and HUP traditionally interview on the first weekend in December, as do many other programs; you will have to prioritize and try to spread them out).

- Almost all programs have a social event the evening before (or sometimes evening of) even if they do not say so explicitly on the website. Penn is one of the few that does NOT have one. These are very helpful but not mandatory. It helps to go and get a sense of the residents, and gives you more to talk about during your interview day.

- Cancelling interviews: If you are going to cancel, make sure you do so far enough in advance so they can squeeze someone in (a simple email to the program coordinator is fine, no need to elaborate on why!). Usually the rule is at least 2 weeks ahead of time.

- ALWAYS read about the program before you go (their website is a great resource) and have a few questions prepared.
  - The big way that programs vary is in terms of the percent of private vs. resident clinic patients, and whether residents are always/sometimes/rarely involved with the private patients. Didactics also vary between the programs, some are more learn on the job while others have a very focused curriculum (dedicated day or half day each week vs. daily lectures). OB triage, intern year surgical exposure, operative deliveries (forceps vs. vacuum) and the amount of ancillary/NP/PA assistance vary. The number of hospitals you rotate at also varies and can be a pro or a con.

- Do not stress about thank you notes. It can get very tedious to write to all of your interviewers, and they aren’t that important. One letter or email to the chair or program director thanking all of your interviewers is a good way to be polite without burning out. In fact, most of the programs will make it clear that thank you notes are not required and do not influence their rank list.

- If you do not get an interview at a program that you want, see if Dr. Morris, Dr. Perry, Dr. Marchiano or Dr. Salva will call on your behalf. REACH OUT TO THEM EARLY if you really would like an interview. If you have a LOR writer who has connections to a place where you really want to interview, ask them first to see if they will call for you.

- Ask the chair, Dr. Shah, or your mentor if they know faculty at programs that you will be interviewing at. It would be useful to be able to speak with these people at the programs; it shows that you have researched the program and that you are interested.

- Rank list is due near the end of February.

- OB/GYN does not depend on the “phone call” as much as Dr. Morris will have you believe. The chair will make a call to a program director for you if you know your first choice, but do not worry if you do not know which one that is far in advance.

- Again, don’t forget to take Step 2 CK and CS. You will need to have your scores out to your programs prior to submitting your rank list.
  - Try to have fun while on your interviews! Remember these are your future colleagues, and it is very affirming to meet so many awesome people applying into this awesome field!

A Note on The Spreadsheet

You will hear about how each residency has “a spreadsheet.” This spreadsheet can be anxiety-producing, so use it carefully. During interview season, it is particularly useful to know interview dates and if programs you applied to had sent out invites already (so that you could ask mentors to advocate on your behalf for places you wanted but hadn’t
received interviews from). Most people on it (some of your fellow applicants) are extremely helpful and nice. Don’t be intimidated by the “stats” sheet where people post their stats and where they got interviews. This is the link for our spreadsheet, a spreadsheet for your year should be getting started soon.

https://docs.google.com/spreadsheets/d/1hWB524xXJxui2SyAHJYL2MLP8pZF2lbqWwzwpZGE/edit?usp=sharing

Questions:

If you have any questions about applying, please feel free to reach out to us!
Dan Saris (dan.saris@gmail.com), Lauren Davis (DrDavisRivera@gmail.com)
OPHTHALMOLOGY

Original work by Joshua Udote. Updated most recently by Hannah Schultz, Alomi Parikh, Naomi Gutkind

Point person for application: Dr. Prithvi Sankar (Prithvi.Sankar@uphs.upenn.edu)

Resources: A 2018 applicant made a website www.pre-ophtho.com, which lists good resources for students to use during electives and while applying.

Scholarly Pursuit

Do it in ophtho. To find a project, reach out to Dr. Sankar or Joan DuPont (Joan.DuPont@uphs.upenn.edu), the manager of clinical research, for advice and speak with various attendings with whom you have worked on your ophtho rotations. A LOR from your scholarly pursuit or other research advisor is great, especially if it’s someone you’ve worked with clinically too. For those interested in basic science research (particularly those who are taking a year out to do research, Dr. Joshua Dunaief is a great investigator to get in touch with (jdunaief@pennmedicine.upenn.edu).

Mentorship

• Dr. Sankar is very approachable and loves teaching and helping medical students through this process. He should be the first person that you contact with your interest and use as a resource in this process. His goal is to be the central mentor to each applicant and truly has the best interest of medical students at heart. He will review your app, list of schools to apply to, do a practice interview with you, go over post-IV communication, and reach out to your top school.

• Dr. Tapino is the program director at Penn. Having been the Assistant Program Director in years past (when Dr. Volpe was the PD), he is very experienced and is an excellent resource as well.

• Dr. O’Brien is the Chair of the Department of Ophthalmology at Penn. At UCSF she was the main mentor for all medical students interested in ophthalmology. She is willing to talk with you regarding what type of ophthalmology program would best fit your individual career goals. As chair, she has insight into other programs from all over the country. She is also famous for her “fireside chat” during Scheie’s interview day, where she pulls up a chair next to a projected digital video of a fire and talks.

• John Dempsey is the program coordinator. He has been at Scheie for a while and knows the residency application process very well. He will edit your personal statement and help you along the way.

• For those interested in basic research, Dr. Joshua Dunaief is very approachable and one of the most caring mentors and faculty members in the department. He is a professor of ophthalmology who specializes in iron-related retinal diseases. He also is very well connected to other ophthalmology programs around the country.

Letters of Recommendation

• Polish CV/Work on Personal Statement; note that most letter writers request these as it helps them to write a letter that is more personal and consistent with the rest of your application (so you must complete it early).
• Ask early, as faculty members are busy and need time to complete the letters – since the application is an early one, you’ll have to really provide an extra early “due date”
• Ophtho is a small field and LORs weigh very heavily. It’s important to get one or two letters from ophthalmologists that know you well. While a “big name” letter can help open doors (assuming the letter is well-written and personal too), it’s more important for the content to be strong.
• You should aim to get 2 ophtho letters and 2 non-ophtho (medicine, etc.) letters. SF match currently only accepts 3 letters, but you can mix and match any additional letters when it comes time to apply for a TY/prelim year for the regular (ERAS) match.
  o For your ophtho (CAS) applications, you need exactly 3 letters: 1 ophtho, 1 clinical non-ophtho, and 1 extra. It’s best to submit 2 ophtho and 1 clinical non-ophtho.
    ▪ For the ophtho letters, people will typically get one letter from an ophtho rotation and one letter from their scholarly pursuit or other research.
    ▪ For the non-ophtho letter, it is best for it to be from your sub-I or an attending who can comment on how great of a house officer you’ll be, but students have used medicine elective letters too (rheum, ID, etc.)
  o For your internship (ERAS) application, you need 3-4 letters.
    ▪ Ask your two ophtho LoR to talk about why you’d be a good intern, they’re used to this and will modify the letter
    ▪ One medicine sub-I letter
    ▪ One or two medicine elective letters

**Prelim Years**

• New this year, the statement from SFMatch reads: The ACGME has mandated important changes for ophthalmology training programs, including a mandatory PGY-1 (i.e. internship) year to be implemented by some programs as early as the January 2020 match cycle, but no later than the 2023 match cycle. Many schools have started it this past year, and many more will continue implementing it throughout the next couple of years. If you match to one of the programs that is integrated and confirm your intern year spot, feel free to gleefully cancel all remaining TY/prelim interviews. You likely still need to apply through ERAS to programs, and some programs may not have integrated yet.
• The IM department will assign someone to meet with you to go over this process
• Apply broadly, as one-year positions tend to be competitive (as the applicant pool consists entirely of students going into specialties such as rads, ophtho, derm, etc.). It is best to apply to a mix of transitional year (TY) programs and prelim med programs (prelim surgery programs are far less popular but also an option). You may ask, “How broadly should I apply?” There’s no good answer for this. One suggested approach is to apply to many programs in Philadelphia and near your original hometown as backups, along with a few in major cities you seriously anticipate ending up in. This year the medicine department suggested at least 10 programs.
• Many ophtho residency programs allow you to complete a prelim peds year (alternatively) to satisfy this requirement. Prelim peds programs are few and far between, with usually one per major city; St. Christopher’s is the only prelim peds program in Philadelphia (listed by ERAS), and it is very popular with students who choose this route. Dr. Sankar can also give you advice on where to apply for intern year positions.
• It is more than acceptable to call the program coordinator at TY/Prelim programs you are interested in and ask for “updates” on your application, especially if it is a program outside of the Northeast. Many programs that see out-of-state applicants do not necessarily offer interviews, even if you are stellar, unless you show a little extra interest.
Do this early (i.e., definitely by mid-Dec, when you have figured out some of the cities at the top of your rank list)

- Some ophthalmology residency programs will offer a prelim year spot at their institution automatically or with a skype interview if you match there for ophthalmology (even if you didn’t apply through ERAS). This is something that you can ask about during interview day.
- After you match in ophtho, don’t be afraid to ask for other prelim/TY interviews (even phone interviews) in the city you matched. That said, note that most internal medicine prelim programs have already finished interviewing before the ophtho match. If you did not receive any TY/prelim interviews in the city of your ophtho match but truly want to find a program in the same city, some surgery programs will indeed offer you invitations in late January.

Residency Programs

- Program rankings: There are rankings in US News and World report, journal called Ophthalmology Times, as well as Doximity. People debate on how accurate these rankings are, with more weight given to Ophthalmology Times/Doximity than US News. The same schools end up being in the top 10 nearly every year with little shifts. The best resource for this is actually Dr. Sankar. He goes over everyone’s list of places they are applying and gives insight into those programs. He will try to balance your preferences with the quality of the program and tactfully lead you in the right direction while respecting your preferences.
- In general, VA and/or county hospitals are where you get most of your surgery numbers as primary. Be cautious of programs without at least one of these, unless they have some other way to adequately increase their surgical volume. Some programs will send you to another state for a rotation to get surgical volume (most programs provide housing and travel for these rotations).
- Things to consider when judging programs are resident happiness, clinical experience (pathological variety in clinics, patient population), learning style (do residents learn by seeing and doing, or by reading and lectures), balance of autonomy and supervision, presence of continuity clinic or eye ED or VA or county, surgery numbers (not just cataracts, but also retinal and glaucoma surgeries and lasers, open globes, refractive surgery) path of graduates (percentage who pursue fellowship vs. comprehensive, academic vs. private, mix of everything), lifestyle, and fellowship matches. Less important are elective research time, international opportunities.
- There are a few special track programs (ex. UCLA EyeSTAR), which offer extra years of research training, but the majority of programs are standard three year residencies.
- Don’t let all of the rumors you’ll hear on the trail regarding programs influence whether or not you will interview at or how to rank a program. Many rumors we all heard were simply not true. Also keep in mind that some stereotypes are based on outdated knowledge, and programs today may not match their descriptions in decade-old posts on student doctor network.

Application process

- Most people worry about ophtho being competitive, and that programs use Step 1 as a screening tool. To some extent, that is true, but your course grades in Mod 4 (especially medicine and surgery), additional extracurriculars, research, degrees, and your letters matter a lot as well. Dr. Sankar will counsel you as to where you fall, but don’t avoid the field just because you don’t feel you’ll be a strong enough candidate! There are a lot of
very, very good programs in fun cities in addition to the super-competitive ones. Moreover, the job opportunities (besides hard-core research) abound for residents graduating from a majority of programs.

- It is best to have research, but it’s not required and some programs are very clinically oriented so it will not make much of a difference. In fact a few MD-PhD’s from Penn as well as from other top MSTP programs have been selected against by these clinical programs. On the other hand, some are very research oriented, so it goes both ways. Research does not necessarily need to be in ophtho, but it is better if it is. Research also does not need to be complete – as long as you can speak about it with enthusiasm during interviews as this is a common interview question.

- Grades are important, and the more Honors, the better. AOA is a great accomplishment, but is the minority of applicants, so don’t worry if you don’t make it.

- Apply to between 25-70 programs, depending on how Dr. Sankar counsels you, and aim to attend 10-15 interviews. In terms of competitiveness, apply to, and go to interviews at a broad range of programs. Don’t be afraid to apply to programs because you don’t think you’ll get the invite! Ophtho programs LOVE Penn Med students! Try to attend many interviews, both to increase your chances at matching and to gauge the environment at each program, as each program is very different. However, travel can become expensive and attending too many interviews can become exhausting. Dr. Sankar will help you decide an appropriate number of interviews to attend.

- Watch out for programs that require supplemental applications/documents before offering interviews. There was a list on the ophth google doc this year (https://docs.google.com/spreadsheets/d/1XuScGooq7uzktuXzPQFmJA3AgOc4FkuX2boKJ5_TqQQ/edit#gid=952746022). Be sure to check the websites (where the supplemental requirements will often be quietly mentioned) of the programs you are applying to for application requirements.

- Another great resource is the Iowa Guide to Ophthalmology, the 2015 version of which can be found here: http://webeye.ophth.uiowa.edu/eyeforum/tutorials/Iowa-Guide-to-the-Ophthalmology-Match.pdf

- There is a meeting in May or June with Drs. Sankar, Tapino, and O’Brien to discuss timing of applications and how to interview.

- Step 2: No programs require Step 2 when you apply. In general, almost all places do NOT require a Step 2 score before matching. However the California based schools sometimes require Step 2 scores before matching. All you have to do is send your score in before match day. Dr. Sankar recommends taking Step 2 in September and Penn now requires you to take Step 2 CK and CS before December 31. Some prelim or TY programs will ask for a Step 2 score or require it before ranking you.

- Scheduling Step 2 CS right after your medicine sub-I works out well. Schedule it very early because they fill up like crazy. Scores are reported in blocks so check here and plan accordingly (https://www.ecfmg.org/news/2019/04/05/results-reporting-schedule-for-step-2-cs/#2020)

**Scheduling interviews**

- Create a new email address JUST for this purpose to avoid false alarm emails. (Remember that you’ll be emailing program directors with this email address so make it something neutral)

- Interviews are usually mid-October to mid-December, you usually have the week of Thanksgiving off (except a couple of schools who have dates that Monday)
• The interview offers can be slow to trickle in so RELAX! Although some people will get interview offers in early September, invites can come as late as December, as there are typically multiple waves of interview offers.
• If there is a particular program that you really want to interview at, you can ask your mentor or Dr Sankar to contact the program on your behalf before invites go out, or after the invites go out for a trickle invite.
• Interview days will overlap! You need to schedule interviews IMMEDIATELY after you receive an invitation to ensure that you get your preferred date. It can be very difficult to reschedule interviews and inevitably you may need to drop an interview due to a conflict with another program you want more. Again, let us stress that you should respond immediately (I once received my third-choice interview date when I replied 4 minutes after receiving the invite). Creating a calendar to map them out and then a table with your top, second, and third choice date for each school is really useful, especially when you have someone covering your email for you.
• People recruit someone to “man their phone/email” while at interviews in CS or in CK, so as to not miss an opportunity.
• Another helpful tip is to set up your email client to auto-forward emails with the words “interview” “residency”, and “ophthalmology” as texts directly to your phone (the texts sometimes load faster than the emails).
• Most programs may offer interviews via email or third party programs (such as “Interview Broker). These are very intuitive and easy to respond to quickly. Of note, one less commonly used third party program (Thalamus) requires you to create a username with your AAMC ID number before you can schedule an interview. Save this number somewhere easily accessible so that you can schedule your interview quickly.

Application Timeline

January–April
• Step 1
• Complete at least one ophtho elective, preferably two (Oph 300 and an elective)
• Meet with Dr. Sankar to form a plan
• Start work on personal statement, update CV, gather LORs
• Plan scholarly pursuit so that it can appear on your application
• Consider setting up an away rotation (see above)
• Register for Step 2CS as spots before September fill quickly
• If you plan on using a sub-I letter, do your medicine sub-I in Jan-June preferably, although July may work.

May–July
• Away rotation (if you’re doing it)
• Write Dean’s Letter Intro, schedule Dean’s Letter meeting, verify that LORs are in
• Register/Begin CAS - Meet with Sankar to go over list of schools and application

August–September
• Submit CAS application – try to have your app done ASAP so it goes out in the 1st wave. This means try to submit your application by the 2nd week in August. Some programs have deadlines as early as September 1st, and it can take up to two weeks to have SF Match process and distribute your application.
• When the Dean’s letter review comes out, read it over carefully- mistakes are made, and it is up to you to make sure everything is correct especially when it comes to grades!
• Follow Ann Marie Hunts emails about meeting with the Department of Medicine. Note that some programs will require a letter from the department in order to match for prelim
there. You will need to get a few documents ready for this meeting (Step 1 scores, medicine rotation grades, personal statement, CV, etc.).

- Register for NRMP

**October–December**

- Try not to do rotations these months, as this is when you’ll be busy interviewing
- Schedule interviews ASAP
- Set up a mock interview with Dr. Sankar before the interview season begins (Sept or early Oct). He has helpful tips about preparing for the interview day and what types of questions are typical.
- This is a good chunk of time for scholarly pursuit and can save free time for you later.
- In mid-late December Sankar will ask you for your preferences so he can communicate with the program

**January–March**

- Submit your rank list to SF Match in early January, match results will be available one week later.
- Follow instructions from your program on how to register for their intern year

**Interviews**

The interview format varies from program to program. While some programs have a single panel interview, others have multiple (up to 15, but usually 4-8) mini-interviews with various faculty members each lasting 10 minutes. The interview format for most programs is in the spreadsheet but these things can change

- Know/be excited about the program! Know a little about the city the program is in. If you have personal connections to the city (ex: significant other has job security there or family living in the city), definitely point them out.
- Be excited about your plans within ophthalmology (and know where you see your career in 5,10,25 years)! You certainly don’t need to decide on a fellowship at this point, but be prepared to talk about whether you think you’ll likely do a fellowship, what fellowships you might have an interest in, academic vs private practice, med ed, mentoring etc. What’s probably more important is to demonstrate that you’ve thought about what the paths would look like and be able to articulate why you think you’d enjoy the different aspects of your future career.
- If they give you the faculty members names beforehand, be familiar with the faculty members and have good questions prepared for them
- Read about the program before you go and have a lot of questions prepared – there are some programs that ask you to just ask questions the whole time.
- Know about your hobbies, your strengths/weaknesses, your research (even from college, if you include it on your CAS), and reasons why you want to go to that program (how you fit in).
- Prepare answers for “classic” interview style questions.
- Most programs also host a pre-interview dinner or event, usually held the night before the interview. While it’s not required that you attend these events, you should try to make them, as they are opportunities to interact with residents (and sometimes faculty) in a less formal setting. Some programs DO solicit resident feedback after these events, though most state that they have no bearing on your application. Still, be aware of these additional commitments when you schedule your interviews and make your travel arrangements. However, many interview dates overlap and you should feel comfortable prioritizing attendance at interviews over dinners.
After interviews

- Thank you notes: Some programs specifically ask that you do not send thank you notes. For the others, you could send notes via email (except Tulane who requests hand-written thank you notes) to the program director and/or chairperson, but you probably don’t have to. There will be some applicants who send thank you notes to all interviewers, and others who don’t send any – it likely makes no difference in the end.
- Phone calls: If you have a clear #1 program, ask your mentor to call and tell the program this. You should also tell the program this yourself, typically via email. Do this as soon as you are sure about your #1. Important: Do NOT tell more than one program that they are your #1 as Ophthalmology is a small field and programs do talk.
- Finally, BREATHE. The application and interview period can be incredibly stressful, so please make time to spend with family and friends to relax and enjoy yourself. Laughter is encouraged. At the end of the day, you have chosen an amazing field!

Questions: Naomi Gutkind (ngutkind@gmail.com), Hannah Schultz (hschultz719@gmail.com), Alomi Parikh (alomi.o.parikh@gmail.com)
ORTHOPAEDIC SURGERY

Original work by Cara Cipriano. Updated most recently by Blake Meza, Scott LaValva, Kate Hutchison (2020). Reviewed by Dr. Jaimo Ahn (2019).

Advising

- Fellow applicants
  - Other Penn students and people you meet along the away rotation and interview trail can give you candid insights into the workings of their home programs. They will also share facts and opinions concerning other places you’ve applied. Exchange phone numbers with people and stay in touch. This collegiality and peer support is a good way to start your professional relationships. This is one of the best parts of the interview process—meeting your future colleagues and making a lot of good friends.

- Senior applicants/Penn alumni
  - Talk to recently graduated med students who are now interns about their impressions of programs they rotated, interviewed, or matched at. There is also a robust network of Penn alumni who are residents at different programs that you can reach out to.

- Faculty
  - This becomes more important as you go. You need someone to give you honest advice, and everyone can use an advocate. These people may be the same person, or they may be different. Getting different opinions from different faculty is also very helpful as they may have trained for residency or fellowship or even worked as an attending at different programs and therefore have different perspectives.

Letters of recommendation

- After away rotations, your letters are the second most important aspect of your application. You will need at least three letters (sometimes 4) from orthopaedic surgeons that ideally (1) you have worked with, (2) know you, and (3) like you. It is probably a bonus if you have worked with this attending in both clinical and research settings, as the AOA Standardized Letter of Recommendation (eSLOR) will ask for evaluations in both domains; this is by no means a requirement, just something to think about and potentially strategize for when choosing your orthopaedic sub-I’s. All of these letters are in addition to the Dean’s letter/MSPE. A few programs have special requirements (UCSF wants one from a non-surgical physician), thus it is HIGHLY recommended that you review the websites of the programs you might be interested in by August prior to your application in case there are other requirements. Be sure to make note of how many letters programs want (i.e.- Temple specifically says no more than 3…sending 4 here is not a good look). Letters can take weeks or months to come back so it helps to get started early. It is worthwhile to ask for more than the standard 3 letters. Most letter writers and/or their secretaries are familiar with the letter-submitting process through ERAS (you add the doctor to a list in ERAS, and they receive an email with a code and instructions on how to submit the letter confidentially). Letters are extremely important to your application, so choose which ones you send to each program on your list wisely. Remember, you can send different letters to different programs. Some past students believe that certain programs like letters from certain other programs and do not like letters from certain other programs.

- Many programs will also request a letter from the department chairman (Dr. Levin). You do NOT need to rotate specifically with Dr. Levin to get this letter. You should, however, meet with Dr. Levin before applying for residency. Therefore, contact his executive assistant Lorna Muramoto (Lorna.Muramoto@uphs.upenn.edu) to set up a 10-minute talk to take place before you leave for
away rotations. Before or after you meet with Dr. Levin, compile a list of attendings and residents at Penn with whom you have worked closely, and ask those individuals if they’d be willing to advocate for you by sending an email to Dr. Levin (with Lorna Cced) which will ultimately help shape the Chairman’s letter. **This is a critical step** – we have been told by attendings who have written these emails and subsequently read the Chairman’s letter that their words are often just copied and pasted into the final letter. Simply, the more support you have in your corner, the better your letter will be. **The Chairman’s Letter typically counts as one of the 3-4 required letters per program.** Year-out students should meet with Dr. Levin just before away rotations the year they plan to apply.

- When requesting a letter, you may email or give your letter-writer a packet with the following:
  - Cover/thank you letter
  - Current CV
  - Personal statement (not always required by faculty)
  - A single AAMC Letter Request Form.
  - AOA SLOR- see below
  - For this application cycle, many programs use the standardized letter for recommendation (eSLOR) form from the American Orthopaedic Association (AOA). When you send this form to an attending, you should fill out your name, their name, and your ERAS letter ID. As of 2019-2020, this required setting up your account through AOA as an applicant and sending your letter writers your AMCAS ID#. The remainder of the form is a fillable evaluation portion. At the end of the form, there is a section for additional comments. In lieu of this, many programs are requesting a traditional letter be attached to the form. Have your letter writer complete the form and a traditional narrative letter of recommendation, combine these documents into a single PDF, and upload them into ERAS. To clarify, it will be a single PDF upload into ERAS of the combined form and letter of recommendation. This will satisfy the requirements for all programs.
    - Some letter writers will make extra requests as well (do a good job!)

- Be sure to send a thank you note once the letter has been received by ERAS.

### Application

- **240 and above is a good goal for Step 1, although NOT a strict cut-off.** Be aware that some programs do have a cutoff.
- **We recommend taking step 2 CS early, well before the application process.** That way, in the extremely unlikely event you have to take it again, you’ll have plenty of time and it won’t affect you. Don’t add the stress of taking CS/waiting for your score to the application/interview process.
- **Step 2 CK is not needed for applications, unless your Step 1 score needs improvement.** Lately, a few programs (specifically, UCSF, Northwestern, Michigan, and programs in Massachusetts) have mandated that you have your Step 2 CK and CS passed by the time they make their rank list (early February), so it would be a good idea to have that completed by New Years as January is a BUSY month with interviews (check the NBME reporting schedule as sometimes score reporting can be delayed). Penn requires you to take both CS and CK before mid-November, so this should no longer be an issue. Many past students have taken it in November/December and none mentioned any difficulty balancing early interviews and studying.
- **Personal statement is not a big issue in orthopedic applications.** Better to be safe and vanilla than risk standing out too much.
- **Alpha Omega Alpha (AOA) is not necessary but definitely helpful;** this is mainly due to the fact that you are at Penn.
- **You should definitely have at least one research project, but more are encouraged because most places will specifically ask you about your research.** The most common research question we got wasn’t anything specific, but rather tell me about your favorite project. Try to organize your scholarly pursuit around this time as you can have a project going during the interview season to
talk about in great detail, which will impress at a lot of programs. Having publications in any field should be listed and is sufficient; having orthopaedic publications is a bonus.

- Some programs will have special requirements (NYU and OHSU want unique personal statements; Iowa and Orlando require a separate paragraph of interest). **Again, review the programs' websites and make a spreadsheet to keep track of the requirements.**
- If you have a connection to a region that is otherwise not apparent in your application (e.g., family ties), some students have emailed the program coordinator and/or program director highlighting this information. This may or may not change whether you are offered an interview but it is unlikely to hurt.

**Programs**

- Consider location, size, culture, fellowship placement, operative experience, and research opportunities. It is definitely not necessary to go to “best ranked” program to be well trained and get great fellowship/job opportunities.
- Statistics/reputation/word-of-mouth are NOT a substitute for rotating and seeing for yourself.
- Do NOT believe anything you read online (e.g. orthogate.com or THE SPREADSHEET) about programs unless you have verified it from another source. Believe what you see on an away over what people outside a program say.
- We'll say it again- BE WARY OF WHAT IS SAID ON THE GOOGLE DOC. People blatantly lie on that all the time, and talking to mentors/older students/home students for advice on programs is much more valuable.
- Ask mentors and/or residents to look over your list, as it can be hard to know much about programs at this stage.
- **Look at the LLOS alumni page and reach out to former Penn students who are residents are programs you are interested in.** They are a great source of up-to-date information. We found they are very willing to help out their fellow Penn med students.
- Most programs have interview/rank preferences for people who rotated there (e.g. NYU). It is hard to know about every program and their nuances, but asking around definitely helps.
- Remember there are many different types and sizes of Orthopaedic programs, pick what is best for you
- Some programs (including Penn) offer special 6-year tracks for research minded residents. You have to choose to apply to these (should see option to apply to “6-year research" or "5-year categorical" on ERAS). You can apply to both or just one if you aren't interested in a research year.

**Timeline**

- Applications should be completed and submitted as soon as possible after ERAS opens (this means submit by September 15 or whatever the opening date is that year). In 2019, the week before the official opening of applications was a soft-opening—you could finalize your applications at any point during that week and they would be time-stamped first thing September 15.
- Each program has different official deadlines, so check their websites. Most fall between October 1 and November 30. However, your applications should be in on September 15- there's no reason not to have it done first thing.
- Shoot for letters to be in by September 15 with the rest of your application, but they can be submitted up until the program deadline. i.e. you can submit your ERAS application on September 15 even if all your letters aren't in yet. Once a letter is added you can assign it to whichever programs you choose, provided it is before that program’s deadline.
- Interviews will take place November, December, and January (with a few exceptions) with the peak interview time the three weeks before Christmas break and the first three weeks after New Year's.
Interviews are typically on weekends, expect to have more than one in a weekend.

Many programs in the northeast interview in January, so weather can occasionally affect your travel plans. Keep an eye out for inclement weather in case you need to change your travel plans to ensure that you can make it in time.

Some interview dates are first-come first-serve. Always be accessible to email (choice dates can be gone in less than 5 minutes).

- Strategies people have used include making a separate email for ERAS (yourname.ERAS@gmail) so this email is only for interviews and you can use the gmail app only for this email. Other people set up special ringtones for their interview email, etc.
- When you have to be away, assign somebody else to be on e-mail reply duty. Another option is setting up your email so that it texts you if you receive in email containing the word “interview.”

Set up a spreadsheet or calendar to plan out dates and when you will schedule interviews. Many places will have interviews on the same day and you will be forced to make some difficult decisions as to which ones to attend. Planning ahead of time will help. It’s also helpful to look at program websites for posted interview dates from your application year or the Google spreadsheet for those dates that haven’t been posted yet as many programs keep similar dates across each year (i.e. always 2nd Friday & Saturday of January.)

Interviews

- Your interview invites will come out later than your friends applying in other specialties, so don’t fret. The earliest programs send out invites is mid-October, you should expect to begin hearing from most programs in November. If you have not received good news from more than a few by mid-November, don’t panic; but do get in touch with a trusted advisor to discuss.

Dinner/social the night before: Go if you can, as this is a great place to get info about a program, chat with many residents who can provide insight that you will otherwise miss on the day of the interview, to meet and befriend the other candidates and your future colleagues, and observe the dynamic among the residents. Often there are faculty members at these socials who may end up interviewing you the next day, so it is a good opportunity to interact in a lower stress environment before the interview.

Interviews are typically laid back. You will often have the opportunity to discuss your research, personal interests, and unique points, so know your application well. If you do get asked tough questions you don’t know the answer to, don’t get flustered—you’re not expected to know everything at this point, and they probably just want to see how you react to the situation. HSS is notorious for having the “stress” interview where you go to 5–6 “themed” rooms where they will show you X-rays, ask you to talk about your diagnostic ladder and tx plan, they also will have a skills room. From 2012 through 2019 this included suturing a pig’s foot. Again, this type of interview structure is rare. Don’t hesitate to reach out to former Penn Med students to get more information about specific programs’ interview days. Many interviewers will also ask you where you did your away rotations—be honest and remember that orthopaedics is a small community, so do not bash places you rotated. Your interviewer may be good friends with a faculty member (or even the PD) there.

Always have a few questions to ask your interviewers, not only because you’ll look more interested, but also because this is your opportunity to get a feel for the programs. Try to NOT say that you have no questions... even if you just ask what their favorite part of living in that city is, ask something. It doesn’t have to be a ground-breaking question. You will also be asked if you have any questions during hospital tours, socials, and waiting times between interviews, so come prepared with several questions.

- Some of our favorites include: How are residents evaluated here? What type of formal mentorship structure is there? What teaching opportunities exist for residents? How would you describe the relationship between faculty and residents? What types of
resident traditions are there within the program? What are some qualities common among residents who are successful in this program?

- **Always come to the interviews with energy and a smile.**

**After the interviews**

- Applicants have different thoughts on thank-you notes. They are probably not necessary at most places, but largely a matter of personal preference. Look carefully through the packets of information you receive on the interview day—many programs explicitly tell you NOT to send thank you notes, or to send only one. Some people find that email is more efficient/quicker than the classic handwritten note, but the preference is largely yours.
- If a program contacts you seeming to want to gauge your interest, you can always just say you think the program was strong and that you would fit in well. It is not recommended to say that you will rank them highly—don’t feel obliged to tell them where you’re ranking them, and don’t say anything you don’t mean!
- **You get to tell ONE program that they are #1.** Most faculty recommend to communicate this to a SINGLE place you want to rank 1. It may or may not alter your standing—this depends on the program. Ask a faculty member in the orthopedics department to make a call for you.
- In 2019-20, there was a renewed commitment among program directors at a national level to not have any post-interview communication to applicants and most programs do not call to tell you where you stand (Duke is one exception). At most programs, even if you are ranked to match, you will likely hear nothing. **Do not become worried when your friends in other specialties have been called by multiple programs.**
- **Always remember: the match works in YOUR FAVOR, not the programs.’ DO NOT LET YOUR RANK ORDER BE UNDULY INFLUENCED** by feedback from programs. This is a common problem with applicants. Put where YOU WANT TO GO. It can be hard if a program tells you they really want you. You do not have to tell programs where you are ranking them, and it is a violation for them to ask you.

**Departmental Contacts:**

Chairman: Dr. Levin  
Program Director: Dr. Farber  
Other Important People: Dr. O'Connor, Dr. Israelite

More information is available on the Leo Leung Orthopaedic Surgery Society website:  
http://www.med.upenn.edu/orthopaedic-surgery-society/

**Questions:** Blake Meza (bmeza15@gmail.com), Kate Hutchison (nothutchinson@gmail.com)
Research

- **Research is huge:** NOT having any research can prevent you from getting interviews at programs.
- In general, you want to have some research experience before applying. You can aim to have 1 or 2 publications by the time you submit your application; the more the better.
- These publications don’t necessarily need to have been published – just submitted to a journal for consideration. There’s a section on the ERAS application that allows you to denote whether a manuscript/project has been submitted or accepted/in press etc. so even if you feel like time is running out as long as you have a manuscript together and get it submitted to a journal that counts!
- Find a mentor in the department soon after completing the core rotations and plan scholarly pursuit ahead of time so you can talk about research on your interviews.
- Year-out research is not required but is looked favorably upon. An increasing number of candidates are taking time out for basic science or clinical research. Dr. Ruckenstein is very honest and will tell you if he thinks your application would be strengthened by a year out.
- Bottom line: Research is a MUST, start ORL research as soon as you know you are applying in the specialty. Prior research in other specialties also counts, as long as you also have some ORL projects to talk about on interviews as well!

USMLE

- High scores get you interviews (some programs use Step 1 scores as screening criteria)
- Step 1: Get at least 230, aim for 240 or higher.
- Step 2: Only take early if you scored poorly on Step 1; otherwise, take it later after applications are submitted (most take in fall or winter of graduating year).
- Of note, a few programs (e.g. UCSF, Boston University) require that Step 2 to be taken and passed prior to rank list submission. Make sure that if you plan to take Step 2 later in the year that your top programs do not have this caveat.

Applications

- OtoMatch: online forum for ENT applicants, find all your juicy gossip here ([http://otomatch.com/](http://otomatch.com/)). In the past two years, a google docs spreadsheet has also been set up for applicants to discuss away rotations, interview impressions, and other general questions.
- Applications are **submitted via ERAS in mid September** (September 15th), but start working on your application in July/August so you do not feel rushed.
• Programs are interested in USMLE Step 1 scores, letters of recommendation, research, interest; sometimes course grades, and AOA status (though this does not make or break an application).

**Talk to Dr. Ruckenstein/ORL mentor about how many programs to apply to. It should be 30+ if your scores and letters are good**, more if you are borderline. Many people will apply to 60+ especially at other schools, so do not get freaked out. The golden number for high match likelihood is 11 interviews if you rank all of those programs.

• Think critically about whether to apply to 7-year programs. Some programs will only interview you for either 5-year or 7-years spot, not both, so make sure it is what you want.

• Letters of recommendation: **Shoot for 3-4 ORL letters.** ORL faculty letters are valued a lot more than other specialties (i.e. general surgery), but you can use amazing non-ORL faculty letters too. Letters from an away rotation institution can help or hurt, but you can choose which letters go to which programs.
  - Required letter: Drs. O’Malley and Ruckenstein write a combined Chairman’s Letter based on your performance on the HUP rotation. Ask for this well in advance of the application due date. Aim to meet with both Drs. O’Malley and Ruckenstein to ask for this letter by late July/early August or during your HUP rotation.

• Personal statement: Not terribly important and many interviewers seem to not read them at all. Have someone read your personal statement whose opinion and command of English you trust. This cannot be overemphasized as typos are highly frowned upon. Just make it vanilla unless you have a really compelling life story, but general structure should include a paragraph on 1) why surgery, 2) why ENT, 3) what you’re looking for in a program, and 4) what you think you can bring. If you’ve done any ENT research, year out work, or masters level coursework you can work some details about it into any of these paragraphs.

• Programs used to require an individual program-specific paragraph at the end of the personal statement explaining your reasons for applying to that specific program. In 2016 it was mandatory, in 2017 and 2018 it was optional, and in 2019 it was not mentioned anywhere on the applications. Most applicants now only submit a few program-specific paragraphs for programs they are particularly interested in (if they do them at all). If you do plan on doing program-specific paragraphs, start early - it is surprisingly time-consuming. Doing or not doing these paragraphs does not seem to make a difference in interview offers.

• Most ORL programs are slow to offer interviews, so don’t freak out when you haven’t heard anything and your medicine friends already have numerous interviews. People will post on OtoMatch as offers come. Interview invitations really start to pick up around early-mid November and come as late as December.

• It is frustrating, but timeliness of response to an interview invite can determine if you get your preferred date (as dates are generally filled up on a first come first serve basis). Therefore, during the months that interviews are being offered, it is best to keep your phone on you at all times so that you can respond to an interview invite as soon as it comes in. Most create a separate ERAS email so that important emails about interviews do not get mixed in with personal emails. Some also forward emails to another email address or text message to make sure an interview invite does not go unnoticed. If you are on a rotation while interview offers are coming out, set the expectation with your attending that you will need to step out briefly if/when an interview invitation comes in. They will understand!
If you are really not getting interviews, talk to Dr. Ruckenstein/ORL advisor and see if anyone has contacts at the schools you are waiting to hear from. They might be able to help.

Interviews

- Interviews make or break you; single most important factor in the application process.
- Dr. Nithin Adappa (ORL interest group advisor) likes to meet with applicants prior to interview season to discuss interview strategy.
- Interviews occur from late November to early February with most in December and January; interview invitations generally start in October.
- Many programs interview on the same days, so look on Otomatch for dates prior to interview offers coming out to try to map out which programs you would want to interview at on which days. All programs have more than one interview day, so you can use that to your advantage to try to avoid conflicts at your favored programs if you start planning in advance (see point below)
- Make an organizational system of your choosing to keep track of anticipated interview days and actual invitations (e.g. google doc, google sheets, excel, physical calendar) so you can try to efficiently plan your interview travels – although this is really hard to do as so many programs end up interviewing on the exact same days. For the days that have a lot of potential conflicts try to have an idea of which programs you’d want to prioritize for those days so when the interview invites come in you can quickly respond.
- Figure out a method for easily being notified as interview invites come in so you can respond as quickly as possible (slots often fill up within 5 minutes of emails going out). Most programs send emails either directly to the email you provide on your ERAS application or via the ERAS notification system (which sends an email to the same email address). A few programs call to schedule interviews. Some people set up totally different email addresses for ERAS (e.g. joesmith_ERAS@gmail.com) so they could set up notifications for that email address alone so you’re not jumping every time a generic email comes into your inbox.
- Interview preparation: Know yourself, know your research, know the program, be on your absolute best behavior, look over FAQs before interviews (find on otomatch, on the ENT interest group’s version of otomatch via this link [https://bit.ly/2SSBqAB](https://bit.ly/2SSBqAB))
- At most programs, you have on average 10–15 interviews lasting approx 15–20 min each. Stamina is key!
- If cancelling interviews, do so at least 2 weeks out.
- If there is an interview that you really want, do not hesitate to express that to the program, to JoMo, or to your mentor. Calls/emails can be very important in getting interviews. Above all, programs want to interview applicants who want to be there. This cannot be understated.
- Academic ORL is a small community. Use the faculty at Penn as a resource. They know a lot of people and their advocacy phone calls carry a lot of weight.

Post-Interview/Ranking Programs

- After interview thank you notes to program director/key faculty/people you really hit it off with: Penn says no, but you can do it if you want to. It will not make any difference in the rank list, just a nice thing to do. Many schools will advise you not to send thank you notes at their interview day, so definitely follow this if it is said.
- Get Dr. Ruckenstein or ORL advisor to contact your #1 school; you can also write a letter/email to your top choice instead.
• Some programs will reach out (phone/email) to say they are ranking you highly. Be prepared with how to respond if you get an unexpected phone call ("would be lucky to train there," "enjoyed my time," "could see myself fitting in well with the residents," etc. unless you are definitely ranking them #1, then by all means say so!).
• Rank lists are due in late February—rank ALL programs that you are willing to go to.

Resources
• People to know: Bert O'Malley (Chairman), Michael Ruckenstein (Program Director), Nithin Adappa (ORL InterestGroup Advisor)
• Websites: [www.otomatch.com](http://www.otomatch.com) (message board for medical students/applicants), [www.ama-assn.org/go/freida](http://www.ama-assn.org/go/freida) (listing of residency programs and contact info)

Questions:
2020: Danielle Reny (daniellecreny@gmail.com), Solymar Torres (Solymar.torres@gmail.com), Kara Silberthau (Krsilberthau@gmail.com)
2019: Ivy Maina (maina.ivyw@gmail.com), Neil Patel (neilnpatel89@gmail.com), Vasiliki Triantafillou (vtriant91@gmail.com), Laura Henry (laura.e.henry13@gmail.com), Dominique Bohorquez (dominiquebohorquez@gmail.com)
PATHOLOGY AND LABORATORY MEDICINE

Original work by Rebecca King. Updated most recently by Dan Child, Mischa Li, and Ethan Mack (2020).

University of Pennsylvania Program Directors:

Nicole Aqui, MD (Program Director)
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Chris Watt, MD, PhD (Assistant PD in Clinical Pathology)
Taku Kambayashi, MD, PhD (Assistant PD of research track)

Pathology Residency Training: What is AP, CP, and AP/CP?

- Training in the field of Pathology and Laboratory Medicine is divided into two main tracks, Anatomic Pathology (AP) and Clinical Pathology (CP).
  - **Anatomic Pathology (AP)** encompasses surgical pathology, cytopathology, neuropathology, hematopathology, medical autopsy, and forensic pathology (medical examiner).
  - **Clinical Pathology (CP)** encompasses chemistry, microbiology, immunology, coagulation, transfusion medicine (blood bank and apheresis), hematopathology, flow cytometry, cytogenetics, and molecular diagnostics.
  - **Note:** Depending on the institution, Hematopathology may be part of the division of Anatomic Pathology, division of Lab Medicine, or may be a separate division in the department of Pathology and Laboratory Medicine. Regardless, you will receive training in hematopathology whether you choose to apply AP, CP, or combined AP/CP.

- You can choose to apply in either AP (3 year residency), CP (3 year residency) or combined AP/CP (4 year residency). Additionally, some programs offer a combined 2-year AP residency with a 2-year neuropathology fellowship (AP/NP) for a total of 4 years.
  - Most programs offer a limited number of spots for AP-only or CP-only candidates each year, typically 1-2 spots for either track at the major research institutions. Therefore, you may have to apply to more programs if you are interested in applying either AP or CP only. That being said, many programs are flexible once you are in the program if you decide to switch to one of these tracks (i.e., you can apply AP/CP, start out as an AP/CP resident, and then later on switch to AP-only or CP-only).
  - You can choose to apply AP-only (or CP-only) as well as AP/CP to the same programs if you are worried about not getting an AP-only (or CP-only) spot. This will depend on how competitive your application is – speak to Dr. Aqui early on in the application season if this is something you are considering (she may tell you to just apply AP-only if your application is strong, or tell you to apply to more programs, etc.).
  - Similarly, you can apply both AP/NP and AP only if you are worried about not matching to an AP/NP spot, or you are geographically restricted. Many AP/NP applicants apply both AP only (with the idea of doing a neuropath fellowship after residency) as well as AP/NP.
  - **Note:** AP/NP is a more competitive track given the relatively few AP/NP spots throughout the country, so if this is something you are interested in, definitely make sure to tell Dr. Aqui early on in the application process so that she can give you good advice on how many programs to apply to and what letters of recommendation to get.

- There is no transitional/preliminary year required for Pathology residency.
The majority of applicants apply for AP/CP residency.
- Unless you have a very specific career path in mind (i.e. academic pathologist in bone and soft tissue pathology, academic microbiologist, research-focused career), the advantage of combined AP/CP training is it prepares you for a broad array of career choices down the line. Many jobs in the private sector require AP/CP training, because most private groups are in charge of a clinical lab as well as surgical pathology.
- AP-only and CP-only residents often pursue post-doctoral research fellowships or other academic career paths (see advice for MD/PhDs below).
- Also, MANY people enter pathology residency and change their mind about what they are interested in, so applying AP/CP gives you the flexibility to experience both AP and CP and figure it out later.

Most clinically-oriented applicants apply to combined AP/CP residency followed by fellowship(s) of interest. Job opportunities in private practice or community hospitals are limited for AP-only or CP-only residents, or for residents who have not done at least one fellowship after residency.

Many research-oriented applicants apply as AP-only or CP-only, as this cuts training time by 1 year and gets them back to the lab sooner. Many programs offer a research track that guarantees extensive research time either during or after residency with a training grant. That being said, plenty of MD-PhDs and other research-oriented applicants apply AP/CP. Just be aware that if you plan to do mostly research, you will be asked on the interview trail why you’re doing AP/CP instead of AP-only or CP-only, and you should have a reasonable answer (i.e. interest in hematopathology).

Of note, some AP/CP residency programs are structured such that each year of the program is entirely AP or CP, while other programs have an integrated AP/CP curriculum. It’s important to know this if you plan to apply AP/CP then switch to AP-only or CP-only.
- Several programs have 2 years of AP training followed by 1 year of CP training, with the last year reserved for electives in both AP and CP.
- Other programs have 1 year of AP alternating with 1 year of CP for the four years.
- Integrated programs generally have alternating months of AP and CP rotations throughout the four years.
- There are benefits and drawbacks to each of these curriculum structures!

Pathology Fellowships and Beyond

- These days, most people do at least one fellowship, many do two fellowships, and some even do three (!), although you are technically not required to do any fellowship. If you are interested in an academic career, you will likely have to do at least one fellowship in your subspecialty of interest.
  - Examples of common combinations of AP fellowships are: general surgical pathology fellowship and cytopathology fellowship, general surgpath and a surgical subspecialty fellowship, hemepath fellowship and molecular fellowship.
- Most fellowships are 1 year; a few are 2 years, usually with some research time included.
- The most competitive fellowships are those which are board-certified and ACGME-accredited (Dermpath, Hemepath, Cytology, Neuropath, Transfusion Medicine, Molecular Genetics).
  - Dermatopathology is particularly competitive since you are competing with Dermatology residents for spots. If you are considering a dermpath fellowship, it’s a good idea to get involved early on in residency, and to go to an institution where the interesting/educational cases go to Pathology rather than Dermatology.
  - Note that for hematopathology fellowships, it is institution-dependent if they will accept applicants with CP-only training. Some may require a 6 months of AP “greatest hits” whereas some require full AP training. If you are considering CP-only and interested in hematopathology, double check with the institution if that path is open to you.
- Non-ACGME-accredited fellowships (e.g. subspecialty surgpath fellowships like Gynecology, Bone and Soft Tissue, Renal/GU, Breast etc.) are somewhat more flexible and often less
competitive. Certain programs may allow you to do a mini-fellowship during your last 6 months of AP training or to do an integrated fellowship year (a year of fellowship in between your 2nd and 3rd year of AP or CP training, or between your 3rd and 4th year of AP/CP training).

- If you already have an interest in a specific field within pathology, look for programs that offer a fellowship in that area. It is worth it to consider particular institutions’ subspecialty strengths and locations when making your list of residency programs to apply to and eventually your rank list.
  - For example, if you already know that you want to do transfusion medicine, look for residency programs with excellent transfusion medicine fellowships. However, if you don’t know what fellowships you might want to do three years down the line, don’t stress! Just look for programs with many diverse fellowship options in AP and CP.
- There is currently no fellowship match system and fellowship applications are being submitted earlier and earlier, to the point where residents are applying for fellowships two years in advance of starting their fellowship.
- Many residents, though not all, stay at their home institution for fellowship(s) since it is easier to get fellowship positions as an internal/local candidate. Fellowships may also be done out of sequence to facilitate better scheduling of research or elective time.

**Mentorship**

- A great source of mentorship is the Pathology Interest Group. Dr. Rose Wu is the main advisor for this group.
- Almost all pathologists in the department at Penn are very receptive to interested students, so if you’re really interested in a few areas of pathology, just send an email and ask to grab coffee!
  - Cindy McGrath and Rose Wu in cytopathology, Carolyn Cambor in medical autopsy, Emma Furth in Surg Path, and Don Siegal in Transfusion Medicine are some excellent people to contact.
  - Also, feel free to just reach out to any of the program directors! They all love talking about pathology as a career and what it means to train as a resident. Particularly, reach out to Chris Watt if you’re thinking CP-only, Nicole Aqui if you’re interested in transfusion medicine, and Rose Wu if you are thinking AP/CP or AP-only.

**Letters of recommendation**

- ERAS requires 3 letters and allows up to 4 letters. Do not feel pressured to get 4 letters, since you will also have the Dean’s letter, for a total of 4 or 5 letters.
  - If you think about it, that’s quite a lot of letters to read per applicant, and it’s much better to have 3 solid letters than 4 letters, with one being forced and not as well written.
- You should have at least one or two letters from a pathology attending. There is no departmental letter in pathology as there is in some other fields.
- A strong clinical letter, such as from a sub-I or other clinical rotation, is also recommended
- Letters from research mentors (obligatory for MD/PhDs) or other clinical faculty who know you well in another capacity (i.e. community service) are also great.

**Research**

- Pathology is an academic discipline, so it is definitely an advantage to show interest in research, though research does not need to be basic science. There is a great amount of clinical AP and CP pathology research, bioinformatics, and quality assurance, so do not feel pressured to pursue basic science research.
- You DO NOT need to have done a PhD, or have been published in Nature, or have presented at
a scientific conference to be a competitive applicant in Pathology. Even a small amount of research experience (e.g. your summer project from first year, scholarly pursuit, etc.) can show your passion for pathology.

- If you have absolutely NO research experience and have NO interest in ever doing any, there are still LOTS of great opportunities for clinical research within pathology—smaller projects that are less basic science-oriented and focus more on education or clinical data.

- Once you know you are interested in pursuing pathology reach out to an attending in the department that does what you find to be interesting research and ask if they have any projects you could work on.
  - There are tons of opportunities for pathology-related research at Penn. Some attendings you could consider approaching include Dr. Feldman (breast/head and neck surg path, bioinformatics), Dr. Bagg (hemepath), Dr. Zhang (breast or soft tissue surg path), Dr. Montone (head and neck), Dr. Furth (GI/liver surg path), Dr. Siegel (transfusion medicine), Dr. Schwartz (gyn surg path), Dr. Nasrallah (neuropath), and Dr. Wu (cytopathology).
  - But really, you can contact anyone in the department!
  - If you don’t know who to contact and don’t have a particular area of interest, try meeting with one of the program directors and asking their advice on who to do research with.

- Advice for MD/PhDs: If you’re an MD/PhD who wants to run a lab eventually and have some clinical duties, you will be an attractive candidate to programs that emphasize research. Many of these programs offer some arrangement whereby research funding (T32 grant or similar) is guaranteed for 1-3 years either during or after residency, with an established infrastructure to mentor you to a K award or other types of junior investigator funding. If this is what you want, then doing straight AP or straight CP is an excellent way to go. Some programs even require you to choose AP-only or CP-only if you apply for the T32-funded research track, though others may be more flexible and may allow AP/CP students to join their T32. CP-only is especially desirable for residents interested in research, as your clinical duties will be much lighter compared to your AP colleagues. However, non-academic jobs for CP-only-trained pathologists are scarce.
  - Additionally, as the field moves towards integrating practices and technologies traditionally limited to either AP or CP, many programs are willing to work with you if you want to apply AP/CP or complete fellowship training before getting into research. If you are an MD/PhD who doesn’t want to be near a lab ever again, honesty will not be detrimental to your application. Many programs still want to attract top-notch applicants with research experience—there are many opportunities for pathologists to be involved in other areas of the field including translational and clinical research, quality improvement, education, and administration without having to compete for R01 grants. Programs will typically be happy to help you on whatever track you choose.

Residency programs

- There is no national ranking of pathology programs. Your best bet is to talk to people at different stages of pathology training (attendings and residents) to get an idea of what programs might be best for you. The best program for you will likely be the one whose strengths align with your career goals. Your list may be very different if you are applying to AP/CP versus AP-only or CP-only programs, or if you are interested in a research-heavy career versus a clinically-focused career.

- Strong programs tend to be ones that are strong in other areas of medicine such as Johns Hopkins, Brigham and Women’s, MGH, Stanford, UCSF, Penn, Columbia, Yale, Wash U, U of Michigan, U of Washington, University of Chicago, Baylor, etc. This is by no means an exhaustive list, and changes in program directors/department chairs/program policies can change the strengths of a program.

- Bottom line… talk to people in the field and apply to enough programs that you see the variety of possibilities.
Application process

- Big name programs like some of those listed above are going to be somewhat competitive, but coming from Penn will put you in a very advantageous position at any of these institutions.
- You should apply to 8–12 programs unless you are extremely restricted by geography for some reason. Most people end up ranking fewer than 10 programs. NRMP’s “Charting Outcomes in the Match” (2011) lists an average of 9 programs for US graduates who successfully matched in pathology. Bear in mind that you may be applying for fellowship positions in a couple years time, so it can be helpful to visit more than a mere handful of programs to start making those connections.
- Likely due to the smaller volume of applicants into pathology, you should hear back from a significant majority of programs within 2 weeks of applying, with initial interviews occurring in the first week of October at some programs.
- Interview days tend to be low-stress and are more “getting-to-know-you” occasions for both parties. Usually programs will have a dinner for applicants and a few of the current residents either the night before or the day of the interview. These meals are extremely valuable, as it gives you an opportunity to get a sense of the program from the residents’ perspective. Given the small size of most programs, there are often only a handful of other applicants. For single track positions at certain institutions, you may be the only applicant on a given day.
- Individual interviews tend to be very informal. There will likely be few, if any, curveball questions; just be ready to talk about anything included in your application and your passion for pathology!
- If applying for research-track positions, most interviews are 2 days and will involve meeting with potential research mentors and some institutions will ask you to give a talk on your research.
- Expect to be asked, “what questions do you have for me?” more than any other question. You can—and in some cases should—ask the same question to multiple individuals. Interviewers don’t compare notes about what questions you asked, and you will often get many different perspectives. Some things that distinguish programs include but are not limited to:
  - (AP) How autopsies are scheduled, how programs get residents to the required 50, do residents share autopsies or is volume sufficient to allow for individual cases.
  - (AP) Surgical pathology work-flow—one day vs. three day cycle, subspeciality vs. general sign-out, specific frozen section rotation vs. integration into other surgical pathology rotations, institution’s total number of cases per year, etc.
  - (AP) Division of work between fellows and residents—how significantly are fellows involved in running a service, what sorts of cases go to the fellows versus the residents, etc.
  - (AP) Resident learning and responsibilities—what sort of infrastructure is in place to enable resident teaching, how often do didactics occur, how many PAs are available to help with grossing/autopsy, do faculty have delineated expectations for resident responsibilities and case loads or is it a more fluid process, etc.
  - (AP) Resident participation in research, QI projects, conferences, seminars, etc.
  - (CP) Whether apheresis is covered by Pathology residents (or Transfusion fellows, or Heme/Onc, or Renal), as this will be a major factor in how often you have to come in when on call, and also whether you’ll get exposure to apheresis during residency.
  - (CP) Related to above point, how often residents come in when they’re on call.
  - (CP) Whether the residents round with clinical teams or have weekly joint meetings (i.e. with Heme when on Coag, or with ID when on Micro)
  - (CP) New technologies/methodologies implemented in the past few years, or new technologies on the horizon for the department.
  - (CP) How much bioinformatic training will be built-in in the curriculum.
  - (CP) Whether this particular institution is amenable to residents going from CP-only to Hematopathology fellowship, or whether they believe that AP training is required for Hematopathology. Ditto for Molecular.
○ (AP and CP) How has the program changed in recent years.
  ● Board scores: We have only heard of one program having a “cut-off” (217 for UVA). Overall, don’t worry too much about it as long as you passed and the rest of your application is strong.
  ● After interviews, program directors will typically be very transparent with you regarding how your interviews went, especially if they are particularly interested in you coming to their program. Unless a program specifically says not to, you should feel free to reach out to programs following your interviews if you are particularly interested. You may also schedule a second visit if there are additional things/people you want to see. It is not uncommon for pathology applicants to informally know where they will be going well before match day.

Questions: Dan Child—AP/NP (dchild@pennmedicine.upenn.edu)
      Ethan Mack—CP (ethan.mack@pennmedicine.upenn.edu)
Point persons

• Dawn Young will guide you through the entire process, and you will also be assigned one faculty member from the medical student teaching leadership (Dr. Erin Pete Devon or Dr. Stacey Rose) to advise you.
• There is a meeting in May held by CHOP residency and medical student teaching leadership to review the process of applying in Pediatrics.
• For MD/PhD applicants, Dr. Mike Hogarty, who directs the Physician-Scientist Program at CHOP, will also be an important adviser both generally and for CHOP recruitment.

Mentorship

• The Office of Student Affairs will assign you a mentor once you tell them that you are interested in Pediatrics.
• CHOP is an awesome resource with very approachable faculty. Feel free to ask your advisers at CHOP to review drafts of your personal statement and CV and comment on your program application list.

Letters of recommendation

Chair/Departmental Letter

• This letter is written by a member of the medical student leadership (Dr. Erin Pete Devon or Dr. Stacey Rose), with a contribution from Dr. Joseph St. Geme, the Chair of Pediatrics, who co-signs the letters. This is a very supportive process.
• Starting in early summer Dawn will coordinate your letter-writing meetings. You will first meet with your advising point person. Be totally open and honest in discussing anything that may not be a strength in your application (e.g. Pass grade on a clerkship, disappointing Step 1 score, etc.); Dr. Pete Devon and Dr. Rose are your advocates here and will help you minimize the impact of such weaknesses on your application.
• Your assigned adviser for the application process (Dr Rose or Pete Devon) will review your CV and personal statement with you in detail as well as help refine your list of target programs.
• You will follow this up with a brief meeting with Dr. St. Geme. Do not be afraid to ask him also for advice on programs to apply to or how to approach interviews; he is very approachable.
• You will be asked to provide your CV, relevant clerkship and elective evaluations, and a draft of your personal statement prior to the meetings.
• To prepare for the meetings, simply be able to talk about your CV and personal statement, and have answers to the basic questions: Why Pediatrics? How do you envision your career? What would you like us to highlight in your letter?
Individual faculty letters
● When to ask: Early and often! You will need up to three individual faculty letters of recommendation, but you can ask for more letters than you will need. Realistically, August is the latest rotation to get a letter, so plan accordingly.
● Who to ask: You should get at least one letter from your sub-I, preferably from someone who can comment on your clinical acumen and preparation for intern year. Many people get their other letters from pediatric elective rotations, but one letter can be from another discipline (i.e. Medicine) and one can be from someone who knows you in a research capacity. Most importantly ask those who know you best.
○ Some rotations are thought to be better than others for getting letters (more active participation, closer contact with faculty, etc.) so ask around if you are unsure.
● How many to ask: Most programs require three total letters, some require three plus a Chair Letter. For those programs requiring three, most will accept four and will count your Chair Letter as one. This is independent of your MSPE written by JoMo. You should review individual program websites for specific application requirements.
● For MD/PhD applicants, programs with Physician Scientist Training Programs will require a letter from your PhD thesis advisor.

Tips on obtaining letters:
○ Be prepared to give a draft of your personal statement (does not have to be final!) and CV to your letter writers, and feel free to ask for feedback from them on either.
○ Although it is best to ask in person, do not be afraid to ask for a letter over email at the end of your rotation.
○ Do not be afraid to follow up with your letter writers if they have not submitted anything—sometimes they just forget! If needed, JoMo and/or Dr. Pete Devon or Dr. Rose can also email letter writers on your behalf when it is getting close to the deadline.
● You can assign different letters to different programs on ERAS. Some programs will allow you to submit additional letters outside of ERAS as well, which can be especially useful for away rotations. If you are dual applying (i.e. Pediatrics and Medicine-Pediatrics) this lets you tailor your letters to the specialty.

Boards
Step 1
● Slightly less important in Pediatrics than in some of the more competitive specialties, but not obsolete. Additionally, the competitiveness of individual pediatric residency programs varies widely.
● If you are worried about your Step 1 score you should expand and diversify your program list. If your score is reasonable, it is unlikely that you will be asked about it during interviews.
● Step 1 will be transitioning to Pass/Fail in or around January 2022 which may change the emphasis placed on other application elements, including Step 2CK score.
Step 2 CK/CS
● Some programs require Step 2 CK and/or CS scores prior to the rank list deadline, but none will require them to apply or interview. Many students choose to take CK after applying but before
November 10th, which is the medical school’s strongly encouraged deadline. However, some prefer to take CK/CS earlier when elective and sub-I experiences are still fresh.

● CK tips: While your score is not automatically sent to programs, programs are able to see that you have taken Step 2 CK and may think the worst if you do not send it. Some programs, including UCSF and the University of Pittsburgh, will not rank you without your score. Make sure to check all your specific program requirements on their websites and ask for clarification if needed! Scores come back in about 4-6 weeks.

● CS tips: This exam is pass/fail and only offered in select cities, including Philadelphia. Look at the NBME website for a description of the exam content and format. You may choose to look briefly through First Aid before taking it so that you are aware of common exam topics. Schedule early to make sure you get the date and location you want. It takes about 12 weeks for CS scores to become available, so schedule CS earlier than CK. The medical school will strongly recommend taking CS by September 7th in case of later need to remediate.

Research

● Having done research is nice but not necessary. If you have research on your CV, be prepared to discuss it during your interview. You may have to review research you did in college or early medical school.

● MD/PhD applicants should have a small practiced speech about PhD work ready for interviews. Try to have some inkling of fellowship and future research interests.

Scholarly Pursuit:

○ Put out feelers to faculty early for potential Scholarly Pursuit projects. Many students start thinking about potential projects in late fall to early spring of third year. It is better to sit on a couple potential projects and tell people no than to not have anything. Most people at CHOP are really open to medical students contacting them about research, and the medical student teaching leadership can help you get in touch with a faculty member with similar research interests. Your scholarly pursuit certainly does not need to be in the field that you intend to enter.

○ The CHOP Divisions of Infectious Diseases and Emergency Medicine do tons of research and regularly take on several medical students to work on projects with lots of guidance and mentoring. For those more public health or policy inclined, PolicyLab is a great place to look as a research institute with faculty spanning across most of the specialties.

○ Elective coordinators and advisers are also good resources for pointing you to good faculty research mentors.

○ Check out opportunities for short term research funding (like the FOCUS fellowship) via the Penn SOM Portal. Pediatric Academic Societies is usually held in the spring (submissions due in early January) so if you are trying to do a poster presentation, aim for having an abstract finalized by then.

○ You should also include your project on your CV, whether you have started it or not, and be prepared to discuss it during residency interviews.

Residency programs

Factors to consider in choosing programs
Tracks: Programs are required to provide residents with 6 months of individualized career preparation and each program implements this differently. See “Application process” below.

Opportunities: Community hospital, global health, rural health, research, advocacy

Size: Number of residents, number of faculty

Presence of fellows: People are often concerned about the possibility of competition with fellows for autonomy and procedure experience, although this can be driven by the culture of a place as much as the number of fellows present. Also, fellows often bring enhanced learning opportunities and more complicated specialized patients. Remember, you are coming from a program that is often considered “fellow-rich,” so your choice may be guided by how much you liked your rotations at CHOP.

Training sites: Academic vs. community vs. combination, one site vs. rotating through multiple hospitals, freestanding children’s hospital vs. integrated

Postgraduate opportunities: Where residents go after graduating, including fellowship placement

Call schedule: Most places are similar in accordance with ACGME duty hour restrictions, but there are some differences especially in the PGY2 and PGY3 years (number of q4 call months, weekend schedule, etc.). As of the 2017 requirements, interns may be assigned to 24-hour shifts, which some programs are starting to incorporate into intern rotations.

Programs may schedule rotations in one month (4 week) blocks or an “X + Y” schedule like CHOP is piloting in 2020, with 6 weeks of inpatient time consistently followed by 2 weeks of outpatient clinic experience.

Program leadership (program directors, chief residents): Responsiveness to feedback, level of support

Top programs vs. location vs. where you can see yourself: The “feel” of a program is crucial. You will be working there for at least three years so concentrate on places where you think you would be a good fit.

Resources for choosing programs

Your advisers: Dr. Pete Devon and Dr. Rose are incredibly objective in advising applicants on programs. As much as they probably would love to see you stay at CHOP, their top priority truly is for you to find and match to the program that is the best fit for you.

American Medical Association FREIDA provides basic information about all programs.

Doximity can help you build a list of programs to apply to, but as with all rankings take theirs with a grain of salt.

Individual program websites: Make sure to check all of these for additional requests and requirements (specific letters of recommendation, essays, Step 2 requirements).

Check recent match lists and contact people who matched at places you are interested in. This is a great resource as you go through the interview process especially since they have had similar experiences during medical school and can give you a better comparison to what you have already seen!

Below are programs where Penn applicants seem to apply frequently. Do not limit yourself to this list! Talk to mentors, attendings, and/or MS4s to find a list that works for you and your goals. This list is in no particular order.

- CHOP
- Boston Combined Residency Program (Boston Children’s and Boston Medical Center)
○ University of Washington (Seattle Children’s)
○ UCSF
○ Baylor (Texas Children’s)
○ Cincinnati Children’s
○ Northwestern (Lurie Children’s)
○ University of Pittsburgh
○ Hopkins
○ Children’s National
○ Columbia
○ Yale
○ MGH
○ Children’s Hospital at Montefiore
○ Washington University in St. Louis
○ University of Colorado
○ Stanford
○ Children’s Hospital of Los Angeles
○ UCSD
○ Brown

Application process

Overall timeline

● January–June
  ○ Step 1
  ○ Sub-I and electives
  ○ Start to ask for letters or recommendation
  ○ Look into scholarly pursuit projects
  ○ Attend information session for applicants in Pediatrics, which gets the ball rolling with introductions, the Chair Letter, questions, etc.
  ○ Receive ERAS token (will be emailed to you)
● June–August
  ○ Gather info about programs and make a list of programs to apply to
  ○ Meet with Dr. Pete Devon or Dr. Rose then Dr. St. Geme about Chair Letter
  ○ Collect letters with the goal of having all of them uploaded to ERAS by September 1st
  ○ Work on ERAS, CV and Personal Statement
  ○ Meet with JoMo about MSPE
  ○ Write MSPE Unique Characteristics paragraphs

● September–October
  ○ Submit ERAS applications starting (and ideally on) September 15th
  ○ MSPEs are released to programs on October 1st
  ○ Start receiving interview invitations. Pediatrics interviews seem to be earlier than other specialties, with many invites sent even before the MSPE is sent out. If you have not received interview invitations by mid-October you should start asking questions and reach out to your advising point person. Rejection letters can go out as early as
mid-October, so if you want to contact a specific program you should do it earlier rather than later.

- Attend residency interview information sessions held by the medical school, including an interview skills workshop and a program director panel event. Keep these in mind when scheduling interviews.
  - **Late October–Early January**
    - Attend interviews
    - National Resident Matching Program (NRMP) registration deadline at the end of November
    - Medical school deadline to take Step 2 CK/CS at the end of December
  - **January–February**
    - Meet with your advising point person to discuss rank lists. This may be done over email, but you will be invited to meet in person.
    - You will likely have a contact with Dr. Ronan, the CHOP residency program director, in January or February about an advocacy call.
    - Email your number one program (and only your number one program!) to tell them they are number one.
    - Rank order list is due the third week of February.

**ERAS application**

- Most Penn students apply to 10–15 programs, with the goal of interviewing at 8–12 and ultimately ranking a subset of these.
- If you want to be in a particular location make sure to indicate so somewhere in your application, either by having done an away rotation there or mentioning that you have a specific reason to be there (i.e. family in the area) in the personal statement version you send to those programs.
- **Special tracks:**
  - Research/Physician Scientist Track: Typically only for MD/PhD applicants. Allows for additional research time in residency (Integrated Research Pathway) or shortening residency by a full year in exchange for an additional year of fellowship research (Accelerated Research Pathway). Programs will differ in which of these pathways they emphasize, so be aware of which you prefer.
  - Primary Care, Community Health, or Urban Health Track: Offered by some programs. Provides more electives for outpatient primary care and/or advocacy.
  - Global Health Track: Provides additional opportunities for travel and research abroad.
  - Pediatric Subspecialties/Hospitalist Track: Less common, but often offers opportunities to do a hospitalist rotation and additional subspecialty electives.
  - Combined Pediatrics applications: Child Neurology, Pediatric Anesthesia, Medical Genetics

**Interviews**

- Be on top of your email (consider a smartphone email alert) and schedule as soon as you get an invitation to interview! Many spots will fill within just an hour of an invitation being sent, although be assured this is less intense for pediatrics than other programs like surgery. While some programs (Boston) offer just a few dates, many host 3 days per week. Most programs now use online schedulers such as Interview Broker, Thalamus, and the built-in ERAS calendar.
● Programs are generally accommodating if you need to switch or cancel an interview date, but try to do so at least two weeks in advance. Interviews are a limited commodity and out of respect for other applicants it is important for you to adhere to this.
● When arranging your travel schedule, try to allow yourself to attend as many pre- or post-interview dinners and social hours as possible. While they are not technically required, they do give you a valuable opportunity to interact with residents in an informal setting, and some programs may seek feedback from residents about applicants. Thus, have fun and socialize, but be smart about it. Avoid negative comments about other programs or applicants, and go easy on the alcohol. Remember—normal is good. This also applies of course to any hosting arrangements you make with residents.
● Read about the program before you go and always have at least 3 program-specific questions. Try to find Penn Med graduates in the program to get their candid views. Some may even kindly reach out to you before your interview and offer to answer any questions!

Common interview topics:
○ The most common question you will get is, “Do you have any questions for me?” Some interviews may even lead off with or consist entirely of this question. Obviously have some questions prepared that reflect your interests and priorities and demonstrate you have done your homework researching the program beforehand.
○ Why our program? What are you looking for in a program?
○ Why Pediatrics?
○ Tell me about
(Anything from your ERAS application is fair game. Be able to talk about any experience you included.)
○ Where do you see yourself in ten years?
○ What do you want me to share with (or highlight for) the intern selection committee about you?
○ Leadership, volunteer, or research experiences
○ An interesting, difficult, or memorable patient
○ A time you failed and what you learned from it
● Interviews are generally low-stress and conversational, and they feel bidirectional as programs are recruiting you to rank them highly just as you want them to rank you highly.
● Try to avoid unprompted name-dropping of CHOP during interviews, tours, etc. as this may be off-putting to programs trying to gauge their chances at recruiting you away from CHOP. However, you will meet CHOP-trained faculty at some programs who may make the comparison between programs for you.

After interviews
● As a simple courtesy, we generally recommend sending thank you notes to your interviewers and anyone you interacted with a lot (e.g. program director, chief resident) during your interview day, especially if they provide you with their email addresses. Practically the notes probably mean very little to your application, so keep yours short and sweet. Some interviewers will respond and others will not.
● Second looks are generally billed as “optional” and meant to help you get a better sense of whether you like a program. Do not feel pressured to do these unless you truly want to.
● In our experience, most programs do not engage in individualized post-interview communication, with some programs (e.g. University of Washington, Children’s National) explicitly indicating as such during their interview days. A few programs (e.g. BCRP, Cincinnati) have in years past reached out to individual applicants, but do not be discouraged if you do not hear from them; Penn graduates at these programs often received no such suggestions beforehand that they would match there.

● Always remember: the Match works in YOUR FAVOR, not the programs’. Trust your gut and rank the places you want to go, independent of feedback from programs. It can be hard to tell how much a program truly wants you even with active recruitment. You do not have to tell programs where you are ranking them, and it is a Match violation for them to ask you.

● You can tell one—and only one—program that they are your #1 choice. If your #1 is CHOP, you will have the opportunity to communicate that to program leadership. Otherwise, CHOP leadership will call your #1 program to advocate on your behalf.

**Final thoughts**

You are choosing a truly wonderful field in Pediatrics. The range of subspecialties you can enter is immense, the patients are a joy to work with, and the opportunities to have a life-changing impact on children in their most formative early years are truly special. Also, all along the interview trail as you meet friendly faculty and residents, you will appreciate even more just now nice the people in the world of pediatrics are. Of course we are here to help if you have any questions and want a student perspective!

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PHYSICAL MEDICINE & REHABILITATION

Original work by Mously Almoza. Updated most recently by Krystal Hill (2020), Elaine Hong Hatch (2020), and Tawnee Sparling (2017). Introduction adapted from “Roadmap to Physical Medicine & Rehabilitation: Answers to Medical Student Questions about the Field” and Dr. Alexis Tingan’s “PMR Primer.”

What is PM&R?

PM&R was developed in the 1930s to address neurologic and musculoskeletal ailments. Also known as physiatry. The goal of PM&R is to prevent, minimize and/or alleviate deficits in function among patients with neuromuscular illnesses or injuries such as muscular dystrophy, polymyositis, peripheral neuropathies, limb amputations, spinal cord injury, traumatic brain injury, sports injuries or work-related injuries.

Physiatrists manage the medical complications of disability such as spasticity, neurogenic bladder, autonomic hyperreflexia, and pain. They perform intra-articular and intramuscular injections as well as peripheral nerve and spinal epidural blocks. Physiatrists are also trained to perform EMGs – among other procedures.

In the inpatient realm, physiatrists lead an interdisciplinary team of physical therapists, occupational therapists, speech therapists, social workers, rehab nurses, dieticians & psychologists. In the outpatient realm, physiatrists may manage the above issues in outpatients, as a general physiatrist, or practice within the sub-specialties of occupational medicine, pediatric rehab, cancer rehab, EMG, musculoskeletal medicine, sports medicine, interventional spine management, or pain management.

Overall, physiatrists are physicians of function. Their aim is to restore patients to a particular functional level whether it be at home, at work, in the battlefield, or on the playing fields/courts. As a result, physiatrists don't only focus on the disease or ailment itself, but also on how it affects a patient's function.

How is PM&R residency structured?

PM&R residency includes one preliminary year and three years of dedicated PM&R training. In PGY-1 year, you may do either a medicine prelim, transitional year, pediatric prelim, or surgery prelim-- at this point, doesn’t really matter, although medicine prelim will best prepare you for your inpatient PM&R rotations.
Some PM&R programs have a categorical PGY1 year that is more tailored to a PM&R residency. They are becoming more popular for programs to offer to a few of their residents (Shirley Ryan, UW, VCU, Penn plus a few more).

Inpatient

Inpatient is at least 12 months (as required by the ACGME), mostly during PGY2, with call ranging from q5 to q20 to home call, depending on the program. In the inpatient setting, PM&R residents manage patients with spinal cord injuries, strokes, amputations, burns, traumatic brain injury, joint replacement, etc.

Outpatient

In the outpatient setting, PM&R residents manage all of the above types of inpatients as well as patients with cerebral palsy, chronic pain, and sports-related injuries. PM&R residents also perform EMG’s, trigger point injections, joint injections (including spinal injections under fluoroscopic guidance), and botox injections for spasticity management.

Consults

PM&R residents will evaluate patients for inpatient rehabilitation. Some PM&R programs also have consult services for spinal cord injury and traumatic brain injury to help with management on the acute injury side.

Electives

Most programs offer 1-2 electives, some more. If you desire to go abroad or out of state for an elective, plan early and research your programs well because many require extensive paperwork for you to complete before you can begin the elective.

Fellowships

- Sports Medicine (1 year)- very popular, most competitive
- Sports Medicine Interventional Spine Management (1 Year)
- Musculoskeletal Medicine (1 year)
- Pain Management (1 year) - also very popular and competitive
- Palliative Care (1 year)
- Pediatric PM&R (2 years)- a few programs offer this built into their residency. Candidates will need to interview for those specifically during medical school.
- Traumatic Brain Injury (1 year)
• Spinal Cord Injury (1 year)
• Neuromuscular Rehabilitation (1 year)
• Cancer Rehabilitation (1 year)

Letters of Recommendation

• Polish CV/Work on Personal Statement; note that most letter writers request these.
• The required number varies greatly from program to program, but most require at least 1 from a PM&R faculty and 3-4 total letters.
• At least 1 from a PM&R attending. The others can be from any other sub specialty (helpful to have a medicine letter in there because of the inpatient heavy PGY2 year).
• Ask early, as faculty members are busy and need time (and sometimes prompting) to complete the letters
• You can ask for more than you need, you don’t have to submit all of the letters that you have received

Mentors

• Dr. Lenrow (PD), Dr. Popescu (Interventional Spine/MSK), Dr. Kim (Pediatrics), Dr. Tingan (Sports), Dr. Hampton (TBI), and Dr. Abramoff (SCI) are a few great mentors, and all of the attendings in the department are wonderful and would be good to shadow.
• Make an appointment to meet with them to discuss your application in the spring if possible.
• They are always happy to have you shadow them as well!

Residency Programs

• Research them before you apply and interview. Programs vary widely in class sizes, sub-specialty emphasis, and inpatient/outpatient balance.
• Use websites and talk to other students, residents, or faculty
• Get a feeling for what type of program you might like; small (3-4) vs. big (9-13) programs, fellowships available, number of electives, location, exposure types (free-standing hospital, academic hospital, out-patient to in-patient ratio), specialty exposure (pediatric, spine, pain, musculoskeletal, sports medicine).
Application Timeline

March to June
- Meet with mentor
- At least one PM&R elective
- Ask for recommendation
- Plan scholarly pursuit

June, July, August
- Schedule Dean’s Letter meeting
- Start work on Personal Statement
- Update CV
- Write Dean’s Letter Intro Paragraph
- Start ERAS application
- Complete application
- Verify that letters of rec are in
- Register for NRMP

Interviews

- Schedule as soon as you get an invitation to interview
- Read about the program before you go (their website is a great resource) & have a few questions prepared.
- The PM&R interview trail is fun and you’ll meet many kindred spirits!
- If you have a particular sub-specialty in mind, focus your questions on the program’s particular strengths in that department-- every program will vary in what it excels in.

Resources

• Association of Academic Physiatrists: [http://www.physiatry.org/](http://www.physiatry.org/)

Questions?

Feel free to contact us at: Krystal Hill agkrystalh@gmail.com, Elaine Hong Hatch elainehonghatch@gmail.com, Tawnee Sparling tsparling@me.com. Happy to help with any questions!
PLASTIC SURGERY

Original work by Vivian Hsu. Updated most recently by Will Piwnica-Worms (2020).

Letters of recommendation

● Keep your CV up to date—your letter writers will request a copy.
● You have to send 3/4 letters—can be a combination of plastics, away rotation, and/or research letters. Keep in mind that Plastic Surgery is a very small field, so it’s best to use as many Plastics letters as possible, and from the most prominent surgeons (however, if one of your closest mentors is not nationally recognized but they will write an exceptional letter USE IT!)
● You will need a letter from Dr. Serletti—if you don’t get to do a month with him, work on his research projects. It is important that he knows who you are.
● You should get a letter from the chair, program director or prominent faculty member from at least one of the away rotation program(s) at which you rotate.
● Ask for your letters as early as possible.
● Also FYI there’s a separate evaluation form that the ACAPS (plastic surgery chairmen’s association) have introduced to go along with all applicant’s LORs. You’ll need to give this to your letter writers, and they send it along with their LOR to the Office of Student Affairs. Review this before you start doing rotations so you know at least some of the criteria on which you’re being judged! Confirm with your letter writer that the separate ACAPS evaluation form is submitted with the letter. Most of my letter writers forgot the separate form and only uploaded it onto ERAS after being reminded.

Grades/Scores

Aim for a 240 or higher on Step 1 to be considered for interviews at the top programs. Your clinical grades (Module 4) matter as well, obviously, and making AOA is definitely something to shoot for. The criteria change each year, but usually you need to honor medicine, surgery, and peds clerkships in order to qualify. However, it is NOT the end of the world if you do not make AOA. All you can do is try your best!
A few places (UCSF, Hopkins, UTSW, Long Island North Shore) want Step 2 CK scores before rank lists are due in mid-February. Most people choose to take it between August and December so that their score is not automatically reported along with Step 1 (in case it is not as high as you would like), but it is still available to send to programs before rank day.

Mentors

● Easier to identify potential mentors after you’ve gotten to know them or work with them.
● Can be attendings, fellows, and/or residents—any and all of them can have great advice to offer. It is helpful to have mentors at different stages in their careers/training levels because they will be able to offer different and valuable insights.
Residency Programs

- How many to apply to? This is hard to answer, and depends on the strength of your application. I recommend talking with your mentors to get their sense of how many interviews you will be able to get. The goal is to get 12-15 interviews. It’s easy to click the boxes on the ERAS application and apply to all the programs in the country, and just see what happens; you can eliminate programs after they offer you interviews. But this is EXPENSIVE! On average, it seems people applied to around 50 programs, I ended up only applying to 34 programs.
- You can also apply to general surgery programs as a safety net. It’s absolutely possible to do a 3-year plastics fellowship after general surgery residency, however most programs are moving towards the integrated model.
- Most programs have basic information on their websites—definitely worth reading (and this is essential if you get an interview there – see below).
- Things to consider: Mandatory research year vs. no research (i.e. 7 vs 6-year program) - UCSF, Hopkins, Stanford, UMich, Northwestern have mandatory research year), academic vs. private practice experience, number of spots offered (most programs take 1-3). Seattle and Hopkins have 4 spots.

Research

Get involved as early as you can, and get your name on as many projects as you can. Talk to the current residents about who’s doing what work and how you can help. Most of your “research” as a med student will be chart reviews, digging through Epic etc. to put data into an Excel sheet. Try to help out with lit reviews for the projects you’re working on as well – it exposes you to the current literature and also really helps out the residents writing the papers. Also try to pick one project that you can “own” as a 3rd or 4th year – write the abstract, submit it to either a local meeting (the Ivy Society) or the Northeastern (NESP) so you have an opportunity to put your name out there. Anything that’s submitted before September 15th of your 4th year gets seen by the programs you apply to. Even if you don’t end up as first author on the paper itself, you’ll (usually) be 1st on the abstract when you present.

If you have any weaknesses/gaps in your application (board scores, grades, etc.) then you might consider doing an extra year of research. There’s funding available to do this at most places, and it’s a good way to get a bunch of publications on your CV before you apply.

Application Timeline

March to June
- At least one plastics sub-I, more if you can
- Ask for recommendation letters
- Plan for scholarly pursuit and away rotations

June, July, August
- Meet with Dr. Morris about Dean’s Letter and your application; while somewhat helpful, he will defer to Dr. Serletti in terms of recommending which programs you should consider.
- Meet with Dr. Serletti for advice about programs
- Complete Personal Statement/CV/ERAS
Because you can submit a different personal statement for each program, it might be a good idea to tailor your PS to an individual program (especially if you would really like an interview there). Interviews are often given out somewhat randomly, and can be based on geography. If you’re from the NE, programs in the West and South might have trouble thinking you would really rank them and thus might not offer you an interview (unless you do an away rotation in that region and have a LOR from that place). With a more personalized personal statement specifically directed at a particular institution, it might get your foot in the door.

- If applying to both plastics and gen surg, you’ll need different rec letters/different spins on rec letters and (probably) different personal statements for each.
- Register for NRMP
- A good time for scholarly pursuit project
- Also a good time for away rotation(s)

**September, October**

- ERAS opens September 15. Get your application in then.
- A good time for away rotation(s), even if a LOR doesn’t get sent into the system – gives you a chance to check out different programs/regions
- Also a good time for Medicine sub-I/Pediatric sub-I/Medicine

**November to February**

- Dean’s Letter sent November 1 (most programs don’t look at your application until this is released, so if your LOR are not in by Sept. 15 it is OK, just make sure they are in by Nov. 1.

**Interviews**

Apply broadly—send your ERAS app to basically everywhere you’d ever consider going. A lot of people apply to every plastics program in the country, then filter through interview offers as they come in.

- The interview invite process changed in 2019 → all program directors met to agree to send out a 1st round of interview invites on Fri. Nov. 14. Applicants were supposed to have until the following Monday to assess their invites, set a schedule, and accept or decline based on preferences. The main advantage was that applicants didn’t have to spend 24/7 monitoring emails during the fall in order to jump on the opportunity to get a slot. Most programs allowed you to wait until Monday to respond, but some still said first come first serve, SO be available on the interview release date in order to potentially accept interviews at your top programs. Many people still waited to figure out their schedule over the weekend and it worked out for most. After the first round of interviews, programs continued to send out additional invites in a trickle fashion over the next 2-3 weeks. The process will likely be tweaked each year as this was totally new in 2019, but overall this system is FAR SUPERIOR to the other specialties. Ideally accept between 12-14 interviews if possible. Those that do > 15 get VERY TIRED If you do not get an interview at a program that you want, see if Dr. Serletti or any of the other attendings will call on your behalf. This really can get you an interview (and potentially a residency spot)!

**Interview days**

- As with any interview, you want to look polished, and also feel comfortable and confident. If your suit does not quite fit, consider getting it tailored. Most women on the trail this year
wore pantsuits, but I wore a skirt. Totally up to you and what you feel best in. In the past, people recommended bringing a nice, leather portfolio and/or briefcase/bag. But not necessary, and by the end most people just carried around the folders they give to applicants on interview day. I was never asked to show a copy of my CV.

- Before every interview, review your CV, focusing on the research section. If your name is on something, you MUST know the details of the paper. I never got asked for p-values or confidence intervals, but you need to be able to explain (briefly) what every paper was about and the key findings. If anything has been published, it’s totally plausible that someone on the faculty has read that article.

- Most interviews are pretty laid back and conversational—just a chance for the faculty to get to know you. Some places are more intense (Harvard, USC, Johns Hopkins, Pitt, Northwestern) and will give you clinical scenarios to work through. For the most part they are looking for how you think and react in a stressful situation, not whether or not you know the right answer. There isn’t really a way to prepare for these, so just breathe and trust that you learned as much or more than other applicants during your last three years!

- This should probably go without saying, but you must under all circumstances, no matter what, be unfailingly polite to everyone. NEVER speak ill of your home program (or any other) on the interview trail. Not to other applicants, and certainly never in an interview.

- Plastics is a small, small community, and word will get around. Similarly, make sure you are ALWAYS polite to the support staff, both via email and in person.

- A word of caution: If you have to cancel interviews, make sure you do so at LEAST 2 weeks beforehand. THIS SHOULD NOT HAPPEN WITH THE NEW INTERVIEW INVITE SCHEDULE. As you get further into the interview season you’ll get tired and be tempted to cancel some of the weaker programs. If you know you’re not going to rank somewhere, cancel the interview (assuming it’s >2 weeks ahead of time). Give someone else who’d really consider the place a shot at the interview. If it’s within 2 weeks, you may not cancel.

- Lastly, ENJOY interview season. It can be tiring to travel around the country in a short span of time (plastics interview season is late, mostly in January and may even extend to February), but you will tend to see the same applicants at multiple programs. By the end you will grow very close, my best analogy is that it is like summer camp. You go through an intense time together, and it is really nice, especially when you are feeling tired, to look forward to reuniting with some friends at the interview day. You definitely will meet your future co-resident at some point on the trail, and everyone else will also be your future colleagues!

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PSYCHIATRY

Original work by Scott Campbell. Updated most recently by Anik Saha (2020) and Alex Miller (2020).

Program directors: Cabrina Campbell (PD), Kristen Wesley (APD-psychotherapy), Matt Kayser (APD-research & neuroscience), Cecilia Livesey (APD-curriculum)
Chair: Maria Oquendo

Mentorship
- Get a mentor early: KEY to a successful experience. If you feel you haven't connected with anyone, Dr. Campbell is very friendly and happy to help. Another good source is your sub-I attending.
- Connecting with recent Penn alums can be very helpful for navigating the interview trail and getting feedback on your application.
- Dr. Campbell states that at the end of the interview trail that she will support you if you want to go to another institution and can advocate for you, but as always in such circumstances proceed with caution when telling a PD that you want to go to another program. Consider having an attending who you have a close relationship with advocate for you instead.

Letters of Recommendation
- Polish CV/Work on Personal Statement; most letter writers request these. It is a good idea to ask your mentor to read/edit it before submitting your final draft. Have more than one person weigh in.
- Most programs require 3 letters, a few require 4 (e.g., CHA and Stanford). Look up specific program websites about their letter requirements, as they can be picky and vary from place to place (e.g. 2 need to be psychiatrists, at least 1 needs to be from IM/peds, etc). A general guideline is that you should aim for 2 letters from psychiatrists who have worked with you clinically (Sub-I and elective or clerkship).
- Aim to have at least one medicine letter, preferably from your sub-I/externship. Some programs require this.
- Fourth letter can be from someone who knows you well, even if not from Mod 5 clinical work (research mentor, Doctoring facilitator, community clinic advisor, etc).

Residency Programs
- Research them before you apply and interview
- Number of programs:
  - Psychiatry has become increasingly competitive over the last few years. You need to apply to more programs than the number you would like to rank. This gives you room to 1) have enough places to rank even if you don’t receive interview invites from every program you applied to, and 2) NOT rank a program if you disliked it. For example, as a singleton, one of the MS4s matching in 2020 with strong board scores and grades applied to 13 top-tier programs and was given interview invites to 11 programs; 11 programs is comfortable in terms of making a rank list/matching. Applying to ~15 programs should ensure enough programs to match, however if there are weaknesses in your application, consider applying to more / reaching out to mentors for more personalized advice.
  - Couples matching may require more applications depending on geographic limitations and your partner’s opportunities. Please review the couples matching section for more info.
- Use websites and talk to other students (especially the MS4s who just interviewed) or residents
  - Penn interview site has some useful information
• Doximity Residency Navigator lets you sort programs by geography, “ranking”, research, etc. It also has comments from former/current residents.
• Student Doctor Network forums (if you want to brave them) contain multiple threads with peoples’ rank lists, interview reviews, and other descriptions.
• Each year, there is a reddit spreadsheet with tons of information from other applicants, but it can be a toxic environment as well with occasional trolling and false info. Some applicants used it this year, some did not. Here is the link to the 2019-2020 spreadsheet:
  https://docs.google.com/spreadsheets/d/1yZLeIFJt_jaLdjN3hK5G_95nkqHaCrd4zD_zK3fqF7k/edit

• Aspects of Programs to Consider:
  - Emphasis of Psychotherapy training? When do you start seeing therapy patients? How many hours/week are dedicated? What are preferred modalities? Psychodynamic or behavioral? -Balance between psychotherapy and biological psychiatry
  -Affiliation with Psychoanalytic Institute?
  -Academic vs. community –which fellowships are available? -How much time is reserved for electives, research & international opportunities –how much meaningful experience with populations you’re interested in (e.g., child, forensics) -Free standing hospital vs. part of general hospital -exposure to various systems of care (e.g., partial hospitalization programs, integrated behavioral health, street/shelter-based services) -One vs. 2+ sites, -Opportunity to rotate at the VA? -Special tracks: research, therapy, child, med ed, pharmacology -Breadth and flexibility of electives, -Separate Psych ER, CPEP, or consultants to medical ER -Training in DBT -Didactic curriculum: daily, weekly, or scattered? protected? How do they try to teach clinically relevant neuroscience? Do they even teach neuroscience? Are they addressing social determinants of mental health or using a narrower medical model? Does someone else carry your pager while you are in class?

Application process
• Research (clinical, translational, bench, etc.) is not necessary, but good to have. Be prepared for questions about the details of your research; you are usually paired up with interviewers who share your interests. It can be quite helpful to have your scholarly pursuit started (doesn’t have to be much) in a research area related to psychiatry before you apply so you can mention it in your personal statement and discuss in your interviews, which hopefully by then you’ll have some interesting things to discuss from your project.
• Boards are not extremely important. However, a growing number of programs require Step 2 CK scores to be in before rank day (February MS4). You can take CK in April (shortly after Step 1) before you start to lose knowledge or put it off until as late of November or December. Studying for CK during interviews can be stressful. Just know that all of your available board scores are submitted together in ERAS – you can’t pick and choose which to release. So if you get your score back for CK prior to the application due date, and it’s not as high as you hoped, it will be sent to the school no matter what. Try to get Step 2 CS out of the way early if you can. Almost every US med student who takes it passes, but if you take it for the first time later in the year (Nov-Dec), the long grading process might make it hard to get scores back for a second take before rank day.
• A handful of programs are extremely competitive and research/grades/boards are thought to matter more. An incomplete shortlist of these programs would include Columbia, MGH/McLean, UCLA, UCSF, and Cornell.

Application Timeline
March to June
• Meet with a mentor in March/April
• Psych/medicine electives/Sub-Is
• Ask for recommendations early!
• Plan scholarly pursuit (If you can get in a few weeks of research before applying, that enables you to discuss it on your application, but if you can’t Oct-Feb is nice for being able to travel to interviews as well)

June, July, August
• Work on Personal Statement early! One current resident says, “Creativity tends to be more highly valued by Psychiatry programs than others. Don’t be afraid to write something a bit different from the standard essay.” Do not follow JoMo’s advice of your personal statement not being personal or a statement - it should be both, but do not overshar or take controversial stances in your essay unless you are willing to discuss/debate it during your interviews.

• Update/polish CV
• Have a definite plan for scholarly pursuit/Start ERAS application
• Schedule Dean’s letter meeting
  September & October
• Complete application & submit
• Verify letters of rec are all in (ideally, by end of August)
• Review Dean’s letter
• Register for NRMP
• Dean’s letter mailed Oct 1
  November to February
• Start interviews: read up on every program
• Enter Rank List by mid-Feb

Interviews
• Expect 3 to 8 one-on-one interviews at each program, usually ~30 minutes, but sometimes with shorter (i.e. 15 minutes) interviews with the program director.
• Many interviews started with “Tell me about yourself” or “What questions do you have?”, so be prepared for those types of vague questions where YOU drive the interview.
• Expect some “interesting” interview questions, including “tell me about your childhood?” especially at more psychoanalytically oriented programs. (One applicant matching in 2020, interested in adolescent psych, was asked, “What was adolescence like for you?”)
• Prepare a few patient cases. Think about the many patients you have seen, choose a handful, distill the story down to 2 minutes, and describe what you learned from that patient. Interviewers like to ask about a “challenging patient,” an “interesting patient,” and “a patient who meant a lot to you”. These were followed up by questions such as “what did you learn about yourself?” but never by anything about management or pathophysiology. Having a few patients to talk about adds variety and also allows you to pick one that you think the interviewer would enjoy hearing about.
• DO attend the applicant dinners so you can meet as many residents as possible. Try to gauge if the residents like the program and each other. Do they feel supported by their program director? What is the call schedule like? If you feel like they are giving generic responses to your questions, ask for specific examples: what fun events do the residents plan together? What teachers / faculty really stand out to them? You should assume the residents are evaluating you during the interview; the residents at most places are asked what they thought about the applicants after the interview day. Importantly, though, is being yourself, as you want to find the best fit for you.
• Questions for faculty / program directors: any question about themselves and their career (people like talking about themselves, psychiatrists are no exception), research opportunities in particular fields you’re interested in, leadership opportunities, national conferences, the didactic curriculum, their vision for the future of psychiatry, post-residency plans of graduates. DON’T ask faculty and program directors about call schedules, or vacation/sick leave. DON’T ask program directors what the weakest aspect of the program is, since it is generally not well received. DO ask what recent changes have been made and if there are any changes in the near future (as well as what role residents have in bringing about changes).
• Questions for residents: call schedule, quality of teaching, learning vs. scut work/paperwork, do they have social workers in the inpatient or outpatient settings, happiness and unity of class, weaknesses of program (areas of improvement), cost of living, commute (public transit or need a car?), how you are used on off-service rotations (are you there for your learning or to fill holes in the medicine program?)
• See how many residents show up at the dinner, and if you get along with them.
• Don't judge a program based on an outlier. Even if you really like or really dislike one resident or faculty member, that one person shouldn't be enough to sway you. Try to maintain an overall view of the program. The exception might be if you are very interested in doing research with one faculty member.

After interviews
• Take notes during or after the interview day—it may seem easy to keep program details separate in your mind early on, but by the end of interview season the programs will all blur together. Notes will help you remember what you learned/felt about each school. The NRMP also has a free app, Match Prism, that lets you take notes/rate programs for yourself.
• For thank you notes, an email is fine; a handwritten letter is NOT expected.
• Some programs have “second look” days. These are not required and you are not expected to attend if you are interested in the program. They are designed to help you decide about a program.
• Post-interview communications are a (frustrating) part of the game. There are a few places (Yale, Cambridge Health Alliance, Brown) that specifically say they believe in holding to the ethics of the Match and not trying to influence your decision-making. These places will not initiate contact with you. Otherwise, you may hear from programs by email or phone and they tend to be fishing for how you will rank them. You are under no obligation to reveal to them anything about your rank list, though it may feel awkward not to do so in the moment.
• Once you do decide on your #1 (ideally after you are finished interviewing, so you are 100% sure), it is a good idea to call/email the PD at that program. Programs generally have ranking meetings the first several weeks of February. The longer you wait to call your #1, the higher the chance that programs have already solidified their rank lists, and that telling them you are ranking them #1 may not bump you up in their eyes. You should only tell one program you are ranking them #1.
• JoMo generally recommends to NOT initiate contact with the other programs who aren’t number 1. However, if they initiate contact, you should respond in some fashion. There’s no specific written down rule for this, but telling a program you are “ranking them highly” seems to be a widely-understood code that they are 2/3/maybe 4 on your rank list. If you’re not ranking them #1, it may be best to respond vaguely but with enthusiasm about how their program fits you and to stay away from mentioning the word “rank” at all. Instead, you could say things like, “I’d love to match with you”, “I loved my interview day”, etc.
• Finally, the general advice from many people is to take everything a program tells you about your ranking with a grain of salt. “You are ranked strongly to match” and “you are in a very strong position to match with us” and “we are so excited about your application” mean nothing, and the only real words that you should bank on are “you are ranked to match with us” (even then, wait to celebrate until Match Day). At the end of the day, focus on where you want to be and try to make your list based on that, and not so much your perception of which programs will rank you highly. Good luck! And please reach out with any questions.

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RADIATION ONCOLOGY


How does radiation oncology fit into the cancer care team?

In an academic setting, most cancer patients are seen by a multidisciplinary team consisting of medical (or pediatric), surgical, and radiation oncologists who are supported by pathologists, radiologists, and other specialists. Medical oncology deals with long term inpatient and outpatient management of adult cancer patients, administration of chemotherapies and immunotherapies, and ideally a comprehensive management of patient medical care issues based on completion of 3-4 years of Internal Medicine residency and 2-3 years of Hematology/Oncology fellowship. Pediatric oncology similarly deals with long-term management of children with cancer. The cancer patient is usually first seen by one of these oncologists, and then often referred to a surgical or radiation oncologist depending on the type and stage of the cancer, and details about the clinical scenario. The exact blend of chemotherapy, surgery, or radiation (one, two, or all three), will depend on all these factors.

The radiation oncologist has an understanding of all types of cancer, and uses this expertise to evaluate patients for radiation therapy, plan the very complex treatments, and to supervise and manage cancer response and complications during and after radiation therapy. Compared to other cancer care providers, radiation oncology represents a technical field almost entirely based on outpatient procedures. Radiation oncologists use their expertise of the clinical literature on patient outcomes to evaluate patients for the suitability of radiation therapy. Treatment planning utilizes information regarding the anatomy, pathology, histology, stage, and prior treatment (i.e., surgery) of the disease as well as the other general patient-related issues (i.e. co-morbidities). This information is used to guide radiation planning based on imaging in three-dimensional space, with the goal of maximizing tumor dose while sparing normal tissues from radiation.

What is the training for Radiation Oncology?

The training for radiation oncology requires an internship year. Any kind of internship is acceptable, with most applicants having completed a transitional, medical, or surgical year. The internship year is almost always applied for separately (with the exception of ~3 programs, including Penn). This is followed by 4 years of Radiation Oncology residency, typically performed as 2-3 month rotation blocks in each broad cancer site or group. One of the most commonly heard reasons for pursuing radiation oncology is that this is the most time spent in training specifically on cancer. Training begins in earnest as a PGY-2, and team structure is typically one-on-one between the resident and the attending. Alternatively, some programs may utilize service-based model in which you will cover up to 2-3 attendings on a particular disease site (e.g. breast service, genitourinary service, thoracic service, etc.). As such, there is not the typical medical hierarchy (JAR, SAR, fellow, attending), though one has large amounts of responsibility and a steep learning curve from an early time in residency. Fellowships in specific cancer sites or techniques are possible but not usually required even in academic radiation oncology.

How competitive is radiation oncology?

Radiation oncology has historically been a very competitive specialty. The past 2-3 years, however, have witnessed a slight dip in competitiveness after several years of increasing competitiveness, therefore, this may be an aberration rather than a new trend. NRMP data from 2018 match reports 176 matched US seniors out of 190 total US senior applicants for a match rate of 98%. Data from 2018 “Charting Outcomes
in the Match” showed the following mean scores for matched US Seniors Step 1: 247 and Step 2: 253, respectively. 35.2% of matched applicants were in AOA. The specialty matches the highest percentage of MD/PhDs at 20.8% of matched applicants, and most applicants have some if not extensive research experience (mean of 15.6 abstracts, publications, and presentations per matched applicant). Additionally, many applicants have a second graduate degree (19.2% of matched applicants) that is not a PhD.

**Why is radiation oncology so competitive?**

The simplest explanation is high earning potential with a balanced lifestyle often both during and after residency. Additional very important factors include that radiation oncology is a small specialty (less than 1% of medical school graduates) while cancer care is of interest to many medical students. Further, the field is highly technical and rapidly evolving but still involves direct patient care and long term relationships with patients, which appeals to likely more than 1% of graduates.

Some theorize that the competition is increasing because we are now graduating the first generation of doctors comfortable with technology from a young age via the home computer. Further, as radiation therapy improves, patient outcomes improve. In the past, radiation oncology was almost entirely palliative, end of life care, partially due to extensive long-term side effects from the radiation. As technology and research accumulates, half of all patients are being treated with curative intent, with far fewer long-term complications. Further, medical schools and society have increasingly emphasized palliative care and end of life issues, again making them less taboo.

For those with a strong academic interest, radiation oncology continues to be very academically oriented, and opportunities in research exist in physics as well as cell and molecular cancer biology and immunology. Another argument is that radiation oncology provides training in patient-care medicine and oncology with a surgical approach involving anatomy and curative procedures, without the surgery lifestyle.

**How do radiology and radiation oncology differ?**

With the exception of starting with ‘rad’, they are very different specialties. Radiology is the art of interpreting diagnostic films based on numerous modalities, some based on low-dose radiation, and others not. Radiation oncology involves treating cancer patients with high-dose, high-energy radiation with the intent to cure or palliate their disease. The level of patient contact is quite different, with radiologists mostly interpreting films, and radiation oncologists seeing and managing patients in the clinic before and after treatment, as well as following them during their treatment. The knowledge base of each field is quite distinct. Radiation oncologists do develop some skill in image interpretation, but that is limited to particular aspects as relevant to cancer treatment. This is in comparison with the much broader and dedicated imaging skills of the radiologist. However, the radiation oncologist does have a depth and breadth of knowledge of cancer that is exhaustive (and sometimes exhausting).

**What is the career outlook for radiation oncology?**

A frequent argument is that a magic bullet chemotherapeutic agent will be developed in the near future that will make radiation therapy obsolete. This remains highly unlikely. While we have developed amazing single-agent therapies for certain, mostly hematologic malignancies, we now understand that the molecular basis for cancer is based on many distinct biochemical pathways that evolve during the course of the disease and treatment. Inhibiting one or even multiple tumor growth or metastatic pathways does not cure the vast majority of solid malignancies. Further, our understanding of cancer is that chemotherapeutic agents are best to remove microscopic and hematologic disease due to high perfusion compared to solid tumors. Within solid tumors, because of poor blood flow inside the tumor, it is difficult for the chemotherapy agent to achieve concentrations necessary for cell killing. Radiation therapy, based on radiation “beams”, not molecules, is not as susceptible to solid tumor perfusion effects. Cancer typically begins as a local disease, requiring local treatment such as surgery and radiation. In fact, among cancers that are cured, the majority are through these two modalities.

Not surprisingly, research continues to find that surgery, radiation, and chemotherapy are complementary modalities. The research trend for decades has been that improving or increasing combinations of multiple modalities of therapy improve patient outcomes based on pathology, imaging and
patient-selection factors. Meanwhile, advances in radiation delivery (such as radiolabeling, CT and MRI-based target verification, and radiosurgery) permit us to improve outcomes by raising dose to tumor while simultaneously better protecting normal tissue. Thus, as our population ages and as technology and radiation-therapy patient outcomes improve, radiation oncology will represent a rapidly growing field of medicine. For example, active research today suggests that stereotactic radiation will become standard of care for the cure of early lung cancers instead of surgery. Prostate brachytherapy represents an increasingly low cost, low side effect, high cure rate treatment option for the treatment of early prostate cancer. Additionally, there has been great interest, particularly in recent years, in using immunotherapies in combination with radiation therapy, as radiation therapy has long been believed and shown to potentiate robust immune responses in patients. With increasing experience and success in using immune modulators to treat a variety of malignancies, there is now ample opportunity in clinical, translational, and basic science research to investigate optimal ways of combining radiotherapy with immunotherapy to enhance the effectiveness of both treatments. Lastly, it is worth mentioning that radiation therapy has just recently been implemented in non-oncologic cases, as in the use of cardiac stereotactic radiation for ablation procedures. As such, the field may witness a diversification and expansion in the applications and uses of radiation therapy in the future.

What USMLE Step scores will make me competitive?

While it is hard to generalize, it seems that most students invited to interview will have a 220 at minimum (although 7 students matched in 2018 with 220 or less) with the majority above 230 (mean of 247 Step 1 in 2018). Mid to upper tier academic institutions commonly interview applicants with scores above 240. For lower scores, the applicant usually has something else special in their application that makes them attractive, such as extensive research. Many programs will state that, “we don't care about board scores if the person has something else to offer.” But, that should be taken with a grain of salt.

Step 2 is increasingly being used as a measure of applicant abilities. If you have a borderline low Step 1 score (220-230), it may help your application to take Step 2 and improve to above a 240 score. Many applicants are taking this early in hopes that it will increase their chances. Although UCSF as an institution may require Step 2 CK to rank, the program director has stated that rankings will be done even without the Step 2 score available. As of March 2019, the current consensus is that you do not need Step 2 if you have a solid Step 1 score (240+). However, the trend is that more applicants are taking it early, and in future years it may be considered more necessary.

What else do residency program directors look for?

Clinical grades and class rank are scrutinized by many programs. Some look for honors in certain rotations such as internal medicine. Others look for a certain proportion of honors in your clinical rotations. AOA seems to be important for many programs. In short: do as well in medical school as you can.

Outstanding letters of recommendation from your radiation oncology rotation(s) are a must. Aim for 2-3 radiation oncology letters, and 4 letters total. A strong letter from a well-known attending can hold great weight. Most applicants will solicit letters from department chairs at their home institution or where they did away rotations. Radiation Oncology is a small field and letters are particularly important, even more than in most fields. The interview is also crucial. Of note, interviews can be tougher than for other fields. While most interviewers are polite and kind, it is typical to interview with 8-12 people or more from the department ranging from all 1-on-1s to panel interviews. A poor interview performance will completely ruin your chances at any program, given the high level of competition. Be gracious, pleasant, and well-spoken to everyone you meet, including your fellow applicants (it is a small field and you WILL see these people again and again).

Research, either clinical or laboratory based, is increasingly important to the application and expected in many, especially academic, programs. However, extensive research (including an MD/PhD graduate with an excellent PhD) is unlikely to make up for an otherwise lackluster application. Lastly, while not an absolute requirement in the field, at least one away elective, particularly at a program that interests you, will may be helpful. It will offer the opportunity to get to know the field better, solicit additional letters of recommendation from highly regarded faculty, and certainly distinguish yourself as a
known entity to another program. When planning the away rotation, take into consideration how other programs could interpret your choice. For example a Midwest or California rotation shows interest to other schools in that region, but a rotation at Stanford may suggest to UCSF that they aren't your top choice and vice versa.

**What tips can you give for the research experience?**

Clinical research in radiation oncology, medical physics, or radiobiology is favorable. Oncology related research in general is also acceptable. Nevertheless, research in general shows academic interest and ability, which is attractive to most programs. Some applicants have also done well with research in other cancer related fields such as health care economics, epidemiology, hospice or palliative care. In general, it is best to have performed radiation oncology research because it will come up constantly in interview questions and it will hopefully get you more connections in the field and the best letters of recommendation. The Penn Radiation Oncology department has excellent research opportunities and outstanding mentors, so that is a great place to ask around for a research project. Be sure to find a project that seems publishable within the time you have.

The amount of time to pursue research is debatable. If you are aiming for top academic programs, a year out is probably your best bet. It would be prudent to do your year in a department of radiation oncology. It can theoretically work against you if you have a particularly unproductive year. That said, you certainly do not need to take a year out if you have been productive with research during your first three years of medical school. If you feel early on in medical school that radiation oncology is something that you even might consider, getting started with oncology research (whether it is radiation, medical, surgical, pathology, etc...) would be worthwhile. The Radiation Oncology Interest Group (ROIG) at Penn is a great place to start, as they frequently send out emails to the listserv with research opportunities with residents and attendings.

If you are an MD/PhD student, it is best that you perform basic research in oncology and preferably within radiation oncology. It is not crucial that you do this, but it will help. If you did not perform your PhD in oncology or a closely related discipline, it may be to your advantage to perform clinical research in radiation oncology before applying if you have the time.

**Is a transitional year or a preliminary internship better?**

It probably makes no difference. Transitional programs have a more flexible curriculum that can be tailored to your interests in oncology (medical oncology, surgical oncology), related disciplines (pathology, radiology), and with a variety of patients (pediatrics, gynecology, etc....). Or you can find the cushiest program out there, take the easiest electives, live in a cool location, and enjoy life. These programs are very competitive, so be warned that unless you are a star you may have to apply to a lot of programs and sacrifice either the location or an easier program. Memorial Sloan Kettering Cancer Center in particular has a well-known transitional year program that is highly sought after, particularly by aspiring radiation oncologists, given your broad exposure to complex, multidisciplinary cancer care while on the inpatient service. Once again, this program is highly competitive, given its location in New York City and the high number of top applicants from other specialties (i.e. Dermatology, Ophthalmology, Radiology, etc.) that also apply for these positions.

Preliminary medicine programs are more service oriented towards a high number of inpatient medicine and ICU months. A small number do still allow for a good number of electives to pursue your own interests (in this area: Lankenau). You might consider a surgical internship, but most other applicants are going to think you are crazy. Surgical internships are notorious for providing very few electives, focusing on high volume patient management with little learning and little OR time, and treating you poorly. The bottom line is to do what you like. Note that about 4 radiation oncology programs (including Penn) are categorical and thus include a required medicine intern year.

Other programs may ask you on interview day what type of intern year you plan on doing. At a minority of top programs, there is a preference among department chairs that their incoming residents will have pursued strong preliminary medicine intern year training, though this is often not explicitly stated.
What is the new technology to look for in the field?

- Highly conformal treatment machines with integrated imaging technologies such as Truebeam or ViewRay (MRI guided as opposed to traditional CT guidance)
- Frameless Stereotactic Radiosurgery: Gamma Knife Icon
- Particle Therapy, such as Protons (growing steadily in the US) or Carbon (promising results from Japan) In-department imaging for radiation planning based on advanced MRI and CT/PET fusion.
- Flash radiotherapy, which is. a type of radiotherapy that delivers extremely high doses of targeted radiation in a matter of seconds

Is radiation oncology safe or will my baby have three heads?

Your baby may have three heads, but we had nothing to do with it. Just kidding, radiation exposure to the physician is monitored and is typically very low.

Is a strong background in math and physics required?

No. Similarly, a medical oncologist does not need a strong chemistry background to administer chemotherapy. The basic skills required are basic geometrical relationships and simple algebra. The physics actually is not like what you did before medical school and it is taught during residency. Most radiation oncologists do not come from a technical background and do just fine in this area of the field. However, if you do have a strong background in math or physics you might consider a career contributing to radiation oncology-related physics, radiobiology or mathematical modeling.

What should I do in medical school to help my chances?

Aside from the obvious (great clinical performance), you might want to get involved in research early. Write an abstract or peer-reviewed publication and present research nationally. It is unlikely that particular rotations other than radiation oncology elective will help your chances, although many electives may be applicable to your future field (i.e. most IM electives, ENT, path, radiology, neurosurgery, orthopedics, and nuclear med). As a radiation oncologist, it will be useful for you to know and appreciate the roles of other teams that actively participate in your patients' care, and in addition, doing these non-radiation oncology rotations could provide valuable experiences to speak about at interviews. This is the last chance you’ll have to do stuff that’s not part of your career, so keep that in mind as well. Have fun.

Are there any procedures?

Yes, there are small procedures. Brachytherapy involves the placement of temporary or permanent radioactive sources in the body to treat tumor. The radiation can be relatively high-dose since the dose is highly localized, and normal tissue is spared. Common brachytherapy sites are prostate, breast, and gynecological malignancies. While fellowships are not common in radiation oncology, more complex forms of brachytherapy typically require a one year brachytherapy fellowship. Radiation oncologists perform brachytherapy procedures, typically with the help of urologists, neurosurgeons, otorhinolaryngologists, ophthalmologists, orthopedic surgeons, and gynecologists depending on the site. Radiation Oncologists also perform intra-operative radiation therapy in specified cases, working in conjunction with surgeons to delivery radiation to a tumor at the time of surgery.
What is call like?

Call at most programs is home call based, usually for a week at a time, and often with decreased responsibilities further along in residency. At a major tertiary center, it can be very busy. But most of the time it is not bad. There are only a few radiation oncology emergency scenarios, and even these can often wait until the following day. Ask the residents (not the attendings) at interview what call is like for them, as the amount of call and volume varies wildly among programs.

Should I schedule away electives?

It can be a hit-or-miss depending on your personality and grades. If you are a superstar on paper (AOA, high Step 1, strong research), then it may hurt you if your personality does not shine or you just happen to rub someone the wrong way. If you’re the kind of person that everyone loves and gets along with, it can be a great idea, especially if there is one particular place you would love to be. Realize that places like Harvard, Memorial Sloan Kettering, and MD Anderson have 4 or more rotators per month and interview <30 people, meaning they cannot interview all the people that rotate there.

Rotating is certainly useful for seeing a different department and how they do things, as well as for providing material to discuss on your interviews. It is becoming common that most applicants do away rotations at 1 or 2 programs. Rotating at programs like MD Anderson, Harvard, or Memorial Sloan Kettering can allow for the opportunity to get a letter from a very well-known radiation oncologist, which certainly has the potential to help bolster your application. In addition, programs will often favor you over an equally qualified non-rotator. Still, if you are not in that league of top-tier programs (see the list at the bottom); it may make more sense to rotate at one program where you have a more realistic chance of matching.

If I do away rotations, when should I do them?

Most students throughout the country will be doing their aways after most medical schools’ “traditional” third-year rotations end. You can certainly do your away rotations during that time (i.e. July/August/September of MS4). As a Penn Med student though, you are done with your core clerkships in December of MS3. As such, you have the advantage of being able to apply for away rotations for months during which there will be fewer away rotators, giving you more exposure to the department, or at the very least, less competition when applying for the away. A potential drawback of doing your away rotations too early is that some feel that the program may not remember you as well as someone who applied closer to the new ERAS application cycle. If you are getting a letter of recommendation from an attending/PD at an away though, it’s hard to imagine that they would not remember you.

What books should I buy for rotations?

Radiation Oncology: A Question-Based Review (Boris, Lin, and Christodouleas) is the best book for any rotation. Written primarily by Penn faculty, it is used across the nation. The Pocket Guide to Radiation Oncology (Chamberlain, Yu, and Decker) is a useful book as well.

You do not need a radiation oncology textbook at this point, and they are written above the medical student level. For a broad overview, check out “Cancer Management: A Multidisciplinary Approach” which is available online along with many other textbooks and resources.

How difficult is it to deal with dying patients every day?

It can be hard. But most doctors cope well with it. You have to know your strengths. One resident’s opinion: “I found that dealing with acutely ill patients in my prelim year of medicine on the wards was far more
emotionally unsettling on a day-to-day basis. I think dealing with cancer patients doesn’t change you obviously, but rather slowly, incrementally over time and only really is really appreciated when comparing where you were at first with how you are after some time. It enriches the lives of many doctors. Moreover, hey, many of our patients are cured!”

**What is the job market/salary like?**

Right now, though getting a residency is difficult, there are many attending-level positions available. That being said, it remains difficult to find positions in desirable locations (NYC, Pacific NW, California, Florida), and it will help you find a job there if you complete residency in that location. The job market may change in the next few years as programs expand and reimbursements change, but that is hard to predict for any specialty. Recognize also that since the field is small, you may not be able to find a job in a particular state in any given year, but can usually find work in the region you desire and move later on.

**Academic:** $300k (range $175–425k)
**Private practice:** $450k (range $250–700k)

*Note that higher end salaries are typical in less desirable places to live. For example one PGY-5 resident stated that he had an offer for almost $700k starting salary in rural North Dakota.*

About six years ago there was a national scare that there would be too many young radiation oncologists coming out of residency into the field. In response, residency spots were cut and some completely closed. In the light of day, it turned out that in fact there were not enough trainees graduating and the field is now feeling the shortage. Academic jobs, which typically pay significantly less than private jobs, are feeling the squeeze in particular. This may (or may not) change over the next few years as the many MD, PhDs and research-oriented residents currently entering training leave residency. The most recent evidence points to a shortage of all oncologists (medical and radiation) over the next decade. **BOTTOM LINE:** Who knows? Every year is different and it depends on what location and type of job you want out of residency.

**How many programs should I apply to?**

Our advice for the standard (i.e. strong at baseline) applicant is to apply to all of the programs. The average matcher in 2018 ranked >12 programs, and so you should be aiming for ~14 interviews to feel safe. Few applicants of any caliber will be granted an interview to every program they apply to, for a variety of reasons. Remember, programs are very small and may interview a lot of people for their small number of spots. Programs, for example, may interview ~15–20 applicants for each available spot.

If you are the total package (AOA, high Step 1 score, strong research), you may get away with applying to around 30 programs. In recent years, many students have applied to 40 or more programs, including those who have felt themselves to be relatively strong applicants when starting the application process. You may also ask faculty who are intimately involved in the application process for recommendations on how many programs to apply to.

If you are an MD/PhD applicant or an applicant with a very strong research background, community programs will typically not bother with you, so you can probably just apply to all the academic programs. Anecdote from 2011 applicant: “I feel that I am a fairly strong MD/PhD applicant, and I received 13 interviews out of 45 programs I applied to. Due to scheduling conflicts, I was only able to interview at 11.” **Thus, when you do receive interview invitations, call or email as soon as possible to schedule! Opportunities to interview are missed because program interview dates conflict with one another, and the date you need may be filled with other applicants by the time you call 30 minutes later!** This is also true for many transitional year programs. You can also try swapping with other applicants using Student Doctor Network. 2012 applicant: “I was able to do this successfully to schedule two west coast interviews back to back. You just have to make sure both parties are included on the correspondences, and in my case, the program coordinator waited for responses from both of us before making the switch to avoid any confusion.”
What are the biggest name academic programs?

Note: based on Student Doctor Network and Doximity. Reputation is of course subjective, so be sure to have an open mind at each of your interviews. You might be surprised at what you like/what you don’t! Don’t get hung up on these opinions. These programs are famous for their *research*. If you are very interested in research, aim here. If not, you will obtain excellent clinical training at many programs! Factors important to you (i.e., research, location, teaching style) may differ from those who are posting.

The Big 3: Memorial Sloan Kettering, MD Anderson, Harvard
East: Penn, Memorial Sloan Kettering, Harvard, Yale, Hopkins
Midwest: Michigan, WashU, Mayo Clinic, University of Chicago, University of Wisconsin
West: UCSF, UCSD, Stanford
South: MD Anderson, Duke

Who are the key people in the department at Penn?

Dr. Neha Vapiwala: Vice Chair of Education for Radiation Oncology, and until ~2014 the Program Director. She also serves as the Assistant Dean of Student Affairs for the entire medical school. Dr. Vapiwala is a great person to get in touch with at any point in your training if you are considering a career in radiation oncology, as she is highly involved in clinical radiation oncology, radiation oncology education, and medical education in general. She is well-known and well-respected in the field, and having her perspective, help, and potentially a letter of recommendation could be extremely useful in your path to radiation oncology.

Dr. Samuel Swisher-McClure: Program Director
Dr. Jim Metz: Chair of Radiation Oncology (named Chair in 2015 after Dr. Stephen Hahn left for MD Anderson).
Cordelia “Cordy” Baffic: Residency Coordinator

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RADIOLOGY

Original work by Tessa Sundaram and Alicia Levin. Updated most recently by Chris Yu (2019) and Steve Baldassano (2020).

Mentors: Talk to Chelsea Grasty in The Office of Student Affairs if you were not assigned a faculty mentor. Try to meet with this person as soon as you’ve decided on radiology, because he or she will be able to guide you further regarding strengths and weaknesses in your application and on which electives to take. This is especially important since Radiology is still competitive, especially if you are trying to match at a top academic program. Continue to meet with your mentor periodically, so that his or her advice is tailored to each specific stage of your application process. Be prepared to not get a letter from this relationship (unless you do research or electives with your mentor). Dr. Siegelman, who currently heads Penn’s residency selection committee, is also a great resource and is listed as one of the career advisors for radiology. I would highly advise anybody applying into Radiology to have a meeting with him in the summer before the application process.

Scholarly Pursuit: Do something in radiology, and try to start it by the end of the summer if you can. This way you can ask your mentor for a letter and have something, even if not a published paper, to include in your application. If you’re doing research after the summer with an attending you already worked with on a rotation, that’s fine too; you can ask the attending for a letter based on the rotation. Bottom line, though, is that it’s a good idea to begin research before you submit your application so that you can include it in your application (research is often a topic during the interview). There is certainly no shortage of research opportunities in radiology here at Penn, thankfully with a wide range of projects (both in terms of topics and time required), so be proactive about asking around the department to see what’s currently available.

MD/PhD applicants, who obviously have significant research experience, are still able to get interviews at many large academic radiology programs without necessarily having done radiology research. I think large academic programs are looking for applicants who have shown interest and effort in research. If you’re interested, you can also consider taking a year out to do radiology research, but this is certainly not necessary.

Letters: Standard = 3 or 4 letters (1 or 2 radiology + 2 non-radiology/research).

- Clinical Radiology letter-writer options: Faculty on radiology electives. Ideally, get 2 letters of recommendation (though 1 is completely fine). Can be from RAD300 and 1 subspecialty rad elective
- Non-radiology letter-writer options: Getting a letter from Medicine (either the Sub-I/externship or an elective) is recommended and you can use this for both radiology and prelim programs. However, as stated before, a good letter from an ER Sub-I will also suffice, especially if your goal is a transitional intern year. In my opinion, and probably JoMo’s, the strength of a letter from an elective you got Honors in will be better than the strength of a letter in an elective you didn’t Honor. Other alternatives include any 200 level rotation (if you formed a strong relationship with your psych attending, feel free to use that letter if you think it would be strongest)—bottom line is you want to get a letter from someone who really knows you and can give the letter a very personal touch. If there is any chance you may want to do a surgery prelim year, you should also ask for a surgery letter either from an attending you worked closely with during your surgery clerkship or elective. At the time of this writing, surgery prelim years are recommended for integrated IR/DR programs but only required for a select few integrated IR/DR programs such as Stanford. In the future, the field may move toward required surgery prelim years for integrated IR/DR, so keep that in mind. General advice is to ask for letters shortly after your rotation so that you are fresh on your letter writer’s mind. And decide later when ERAS opens for application.
submission. Also, feedback I’ve gotten from PDs is that letters from people who know you personally >>> letters from “big name” faculty.

- 4th Letter: Ideally will be from a research mentor of yours, ideally which is imaging related (though unrelated research is still a big positive). If your research mentor is also one of your clinical radiology letter-writers, consider another non-radiology elective writer that can give the letter a personal touch.
- Most people submit 4 letters, though only 3 are typically required. For transitional/prelim, consider using 1 Rads letter and 2 non-rads letters, however this is not necessary.

** No intern year programs that I have researched have had requirements in terms of what type of letters they want (Medicine vs. Surgery vs. Radiology etc), just a minimum number they want (Never more than 3). The only Radiology program to my knowledge that has limited the number of Radiology letters of recommendation to 1 is UCSF. If you want to apply to this school you must have at least 2 letters from non-Radiology faculty. From personal experience, Radiology programs at other institutions have been impressed with the fact that applicants from Penn have the ability to take 3 electives in Radiology.

Applying:

- ERAS generally opens around September 15th. BE READY TO SUBMIT THIS DAY IF POSSIBLE! Some programs will download applications the following day and shortly after begin sending out communications or invites.
- TRANSCRIPTS NOTE: In early August, make sure to follow up on any grade that is >2 months overdue with the Academic Programs Office. Programs start reviewing applications on Sept 15th. If you are waiting on one overdue grade, The Academic Programs Office may not release your transcript until it returns. This may delay or prevent you from getting some interviews. However, do not rush submitting your application unless you feel it is ready.
- Most programs’ applications are due between October 31st and December 1st, so check the websites of the programs in which you’re interested. Many start looking at applications in September and early October.
- It’s good to aim to submit ERAS within a week or two of the opening date; the end of September should be viewed as an absolute deadline because interviews may start as early as October. The sooner you can submit ERAS the better. Most students submit within a few days of ERAS opening.
- On average, people apply to about 15-20 programs and get interviews from 60-70% of them. You should aim for at least 10 interviews. According to recent Match results, applicants across the nation who ranked 14 programs had a 99% chance of matching. But as a general rule, apply to any program you think you would be happy at, regardless of how many this is. It is easier to turn down an interview than to realize that you only have 5 interview offers in January. Your advisor/the dean may suggest more programs or allow less depending on the strength of your application and any geographic restrictions you may have. Programs that are geographically distant from Penn and in cities to which you have no ties (e.g., spouse, family, etc.) may think you’re not serious about them. Emailing or calling programs in cities where you have no ties to express interest often helps.
- Points to consider while picking programs to apply to (and ultimately which programs to rank):
  - Community based vs academic/university based residencies: you can get great hands on training at the former, but more research experience at the latter. Keep in mind that the ACGME now requires some type of research from radiology residents. This may be easier to do at an academic-based center.
  - Size of program: some programs have as few as 2-3 residents per year. Others have as many as 10-18. More residents means more people to share call, and you see more pathology. Residents at smaller places often develop a great learning relationship with the attendings.
  - Number of fellows: residents do more at programs with fewer fellows. This is not to say that training is lacking at programs with lots of fellows--there’s more than enough
work to go around in radiology—but its something to consider. Also keep in mind that fellows can be an additional source of information separate from attendings.

- Location: If you have a specific location you’d like to be in, be sure to let the residency program know. They REALLY REALLY factor this in.
- Fourth Year Elective: This is one area which varies a decent amount between programs. Some places push a 9-month “mini-fellowship” while others offer 2 4-5 month long “mini-fellowships” or just continue to offer several one month electives.

- I and a few applicants on the interview trail noted that it was easier to obtain Radiology interviews than prelim interviews (especially medicine and transitional year programs). Keep in mind, for the prelim programs, you are competing with a larger group of highly competitive applicants applying into Derm, Rad Onc, Optheo, Anesthesia and Interventional radiology. Don’t underestimate your application to prelim programs and make sure to apply to enough of them.

**Scheduling Interviews:**

- Interviews usually start being offered as early as the week after ERAS opens. However some programs don’t release invitations until Mid-late November (MGH and California schools in particular). Some programs interview as early as mid-October. This is why it’s important to submit ERAS early.
- If you have a top choice going into the interview season, it’s best not to schedule this as one of your first interviews. We’d recommend scheduling it in the middle of your interview trail (i.e. late November or December), allowing you to get your feet wet with other interviews but also not get too bored with the process (which is very known to happen come January). This also gives you some perspective on how other programs are set up, so you can more objectively evaluate your top choice and ask more pertinent questions. Often, people begin to learn what kind of program they are looking for while going through the interview process. People have often said the “sweet spot” is around interview 6-8, however don’t fret if you cannot control your interview schedule so precisely.
- Some programs only interview on a limited number of days. If there are programs you are really interested in, check their websites and save the dates into your calendar to avoid scheduling conflicts.
- Feel free to call and inquire about your status once, but don’t be a pest. Always be very professional with the program coordinator. These people can make your application disappear, but they can also bring your application closer to an invite. There is often a google spreadsheet on SDN or reddit where all applicants continuously update interview dates/communications about all programs. If there is a program you are very interested in going to and it appears invites have been sent out, don’t be afraid to call the program coordinator to inquire about your application. This has gotten me a few interviews as the coordinators will often make a note of your calling in your file. And if you have a reason to be at their program geographically (e.g. family, spouse) be sure to mention it to them.
- If you do end up on a waitlist, sometimes writing back to let the program know you’re really interested will shortly result in an interview invitation. It’s possible they waitlisted you because they thought they were your “safety” program and didn’t want to be. So if you express interest in some way, it makes a difference. On one occasion, I cold called a program coordinator and was instantly offered an interview spot during that call.
- If you are turned down for an interview at one of your top programs, don’t take no for an answer. Contact them, or have your advisor or Dr. Morris contact them, and tell them you are serious about their program. He will make calls on your behalf to two or three programs; take advantage of this! While this will not always result in an interview offer, it never hurts to try.
- ***After submission of your application, interview invites will start rolling in randomly. They can be scheduled through a variety of ways (depending on the program). Some are scheduled through the ERAS scheduler, Thalamus scheduler, Interview Broker, or via direct e-mail with the coordinator. INTERVIEW SPOTS FILL UP VERY QUICKLY, USUALLY WITHIN MINUTES. At competitive programs, all interview spots will be taken within 15-60 minutes of the invite being sent out. This has become problematic as some programs will send more invites than there are
interview spots. It is HIGHLY RECOMMENDED that you give email access to someone you trust that can also notify you or at worst, schedule an interview for you in the event that you are busy and cannot get to a computer to quick enough. This happened to me several times when I was in the OR scrubbed in. Even if the spots don’t fill up completely, being quick to schedule your invites will help you coordinate your interview travel in the most efficient way to save on hotels and flights.

Interviews:

- Do your homework! Before each interview, you can go to the program’s website and read up on the logistics. This comes in handy when you get the “So, what questions do you have for me?” interviewer (which, sadly in radiology, there are far too many of). Some interviewers want the interviewee to ask questions throughout the interview, rather than the other way around! You have the option of asking the same question of every interviewer, but you may set aside certain questions for the program director vs other attending interviewers vs resident interviewers. ‘How do you like it here’ is always a great question for resident interviewers. The interview schedule varies from program to program, but at most places you will have a mix of 10- to 30-minute resident and faculty interviews (anywhere from 2 to 8 of them). It can be difficult to engage the interviewer during the longer interviews if you are not prepared for this possibility.
- Overall, compared to other specialties, Radiology interviews are relaxed and not generally of the same rigor as Medical School interviews. The interviewers are generally just trying to get an idea if they can sit next to you in a room and work side by side with you for 8 hours. For this reason, the Hobbies line seems to be the most asked about part of the application, so make sure you are well versed and familiar with what you put in that portion of the application! It is often best to have a few stories about your hobbies prepared to help get the conversation going.
- Also, if you have done research be able to talk about it succinctly and have the ability to explain it in quasi-laymen’s terms. While radiologists are the ones asking you about it, your research may be in a completely different subspecialty.
- Be yourself! The interview is as much about how you fit with the program as how they fit you. Being fake doesn’t serve either of you.
- Be enthusiastic! Programs like to see that you’re excited about radiology and about them. If there is a particular subspecialty in which you’re interested, say so, but also stress that you will keep an open mind, since not all of your interviewers will be from that particular subspecialty.
- Be relaxed! Don’t forget to smile and make good eye contact.
- Be polite and pleasant with the support staff!
- Think about what you want to do career-wise. Many programs are interested in your post-residency vision of your life/career. Keep in mind that the push these days is to train academic radiologists especially at top academic institutions!

After the Interview:

- Take notes for yourself. After several interviews, programs tend to blend together. It can be helpful to scribble down a few notes about each place after the interview: things you liked, things you didn’t like, future developments (new center, new building, changes to the program, etc.), people with whom you could work. When you sit down to make your rank list, the decision will center on how you felt at each place and how you got along with the residents (not how many IR rotations they make you do).
- Thank-you notes: Some programs specifically ask that you do not send thank you notes. Others will provide you with the email addresses of your interviewers and the program director, so you can write if you wish. A handwritten note doesn’t move you up the program’s list any more than an email. With emails, some interviewers may respond and some don’t…very variable and probably doesn’t mean anything. If you really want to write and say thank you because you had a good experience, go ahead. Some applicants will send personal thank-you notes to every interviewer; others won’t send a single one. Both types of applicants will match at good places. If you do write a letter, make it short and sweet. I personally wrote thank you notes to all the PDs, but only wrote individual thank yous to each interviewer at a handful of places.
Phone calls: This is very important: tell your top choice that it is your #1 program. If your #1 choice is not Penn, you can ask your mentor or Dr. Morris to call on your behalf. Make sure the call is made in late January/early February (before the program has finalized their rank list). Unless you’re absolutely certain when you interview at a place that they’re your #1, do not mention it—you cannot say this to more than one program! Dishonesty is not an option, and programs will find out if you lied.

Post-Interview communication from programs: Some programs may reach out to you directly after the interview (by email or phone call). They may tell you that you are “ranked to match,” which is an actually meaningful statement such that you will not go below that program on your list. They may conversely tell you that you would be a “good fit” or “great addition” which is nice but no guarantee of anything. Depending on where you apply, about 1/3 of programs have some kind of communication after the interview. Make sure to respond to all such contact and be appropriately grateful, though obviously do not imply that a program is your #1 rank if it is not so. Also, these calls should not influence your rank list at all – list programs in the order you prefer always.

Finally:

If you must look at applicant message boards (www.auntminnie.com, SDN, reddit), do not believe what you read. People may post false information to mislead other applicants. If you want reliable information, ask the program (i.e., check the website, get email addresses from residents you’ve met on the interview trail or Penn Med grads who’ve matched at these places).

Applying/interviewing can be a stressful process at times, but it can also be a lot of fun and it somehow works out in the end. Try and visit friends living in the cities in which you’ll be interviewing. It will make the entire process a lot more enjoyable.

Make friends with people on the interview trail. You’ll see the same faces repeatedly, and one or two may end up being your co-residents. This is also a good way to compare notes about programs.

Be careful what you say during your entire interview trip (this includes the pre-interview day dinner and any interactions with residents). In a casual environment, it is especially easy to forget that people are evaluating you. Avoid negative comments about other programs or applicants. Go easy on the alcohol.

If you choose to apply all over the country, try to make time to explore cities you’ve never seen. This comes in handy when trying to make your rank list, because most of the programs at which you interview will give you an equally strong training. It’s important that you like the city and can be happy there, because this is where you’ll be spending four or five years of your life! It also gives you a little time to unwind between interviews. The interview trail can be a long one, and you may eventually start to tire of putting on the same suit and happy face.

Questions: Chris Yu (chrisyu@pennmedicine.upenn.edu), Steven Baldassano (stevenbaldassano@gmail.com)
UROLOGY


Point person for application: Alan Wein (former chairman of the department and current program director, very well-respected across the field)
- There is no general meeting for urology applicants in the fall of MS3 year. Interested students should talk to Dr. Wein at the end of their sub-I, when he meets one on one with you (this is always arranged). If you are not sure you want Urology at this point that is fine, but make sure you email him to let him know when you are committed and you'll likely meet with him again then. The residents are always happy to chat about the application process.

Why urology?
- Urology is a surgical subspecialty that encompasses a wide range of diseases. Its scope includes oncology, infertility, stone disease, voiding dysfunction, pediatrics, trauma/reconstruction, and renal transplant.
- Urology is an extremely varied field that combines both medical and surgical management of numerous patient populations, and it offers tremendous flexibility in terms of practice. One can choose to never leave the office or to spend 3-4 days a week in the operating room. There are over 27 surgical procedures ranging from in-office flexible cystoscopy and vasectomies to day-long surgeries such as a cystectomy and diversion with neobladder reconstruction (which involves removing the entire bladder and creating a neobladder with intestine).
- Urology also offers numerous minimally invasive procedures, such as robotically-assisted prostatectomies, laparoscopic nephrectomies, and ureteroscopy.
- There is a myriad of research opportunities in the field, and many active fronts of investigation have the potential for significant public health impacts (e.g. prostate cancer screening). Ultimately, urology has a unique breadth, depth, and flexibility among surgical sub-specialties.

Mentorship
- You may find a good mentor while doing your urology sub-I. Dr. Kovell often acts as a mentor or can set you up with someone whose interests match yours. Also feel free to talk to residents and/or any faculty whose work you find interesting. CHOP fellows are a particularly good resource for research and mentorship.

Research
- Research is one of the best ways to get to know people in the department and to get a good letter of recommendation (even if the research person does not write you the letter, Wein will write you a stronger letter if he knows you did a good job doing research with one of the Penn faculty). Furthermore, it can bolster your resume and be a strong talking point during interviews. At some institutions, interviewers will explicitly ask you about your research. Numerous opportunities exist within the department at Penn and CHOP. Since urology is an
early match, it is often beneficial to start your Scholarly Pursuit early in August or September. Ask the residents and faculty about ongoing projects if you are interested in pursuing research before residency. Again, Dr. Kovell will likely be able to direct you to someone.

Letters of recommendation

- Letters of recommendation are extremely important in urology. Program Directors often rely on the opinions of individuals they know well (e.g. Department Chairs). That is to say: it likely matters more the reputation of the letter writer than how well the writer knows you (assuming, of course, they indicate they will write you a positive letter).
- Applicants must submit 3 letters, with a 4th being optional but encouraged:
  - One letter must be from the Chair at Penn (now Dr. Guzzo)
  - Another letter should be from Dr. Wein, former Penn Chairman and current Program Director (it would be crazy not to get a letter from him, his letter means a lot)
  - The additional letters may be from your research mentor, Chair at CHOP (Dr. Canning), and the Chair at your away site.
  - Applicants may also have a letter from one of the general surgery Sub-I faculty (Drs. Fraker, Morris, Drebin, etc.). However, these letters are from non-urology faculty and may have less impact beyond Penn. Letters from non-chairs in non-urology fields are not recommended (i.e. don’t asking your doctoring preceptor).

Residency programs

- Residency training is 5 or 6 years. In a typical 5-year program, the structure is 1 year of internship that is split between general surgery and urology (6 months each), and the subsequent 4 years devoted to urology. Within some 5-year programs, a research rotation of 3-4 months will be offered somewhere in those 4 years. Most 6-year programs are the same as 5-year programs but with 1 full year of research built in. Research can be laboratory or clinical.
- Penn has just recently transitioned from being an exclusively 5-year program to offering 1 of the incoming residents a 6-year track while the other 3 incoming residents pursue the 5-year track. Zoe and Kara are the research-track residents at Penn as of 2020.

Application process

- The match is very competitive. On average, there are 2-3 residents per year per program (range 1-5 residents). In 2019, there were 389 rank lists submitted for 339 spots with an overall match rate of 87%, although the match rate is higher for graduating US seniors (91%). Excellent grades and Step 1 scores are important. At the end of the day, Penn applicants have traditionally done very well.
- The number of programs to which people apply varies. Dr. Wein will give you individualized guidance when he meets you, which may happen on your sub-I or before the application season. The number of programs people apply to has been increasing, with an average of around 70 this last cycle in 2018-19, with many applicants across the country applying to all 128 programs. That being said, highly competitive applicants with a geographic preference may apply to as few as 30 programs and rank between 10-15.
● Step 1 score: Every program has its own standards, but one rough approximation is that 230-240 will bolster a good application, 240-250 will be an asset, and >250 will make you stand out.
● Step 2CK: The vast majority of programs do not require CK, however a very small number of programs require that you complete Step 2CK by the end of December. You should contact programs of interest in advance to verify their specific requirements.
● Grades and board scores are not the be-all/end-all of an application. Additional factors such as letters of recommendation and research are especially important. Urology is ultimately a relatively small field. Therefore, many program directors put significant weight on letters of recommendation from important figures. At Penn, students have an invaluable asset in the former department Chairman, Dr. Alan Wein. He is an extremely well-respected figure in the field, and he is also very accessible to medical students.
● The Urology match is still conducted by the American Urological Association (AUA) in mid-January (it’s one of the “Early” matches). Applicants submit a single application through the Electronic Residency Application Service (ERAS) beginning in early September with most programs having deadlines before the end of September. You do not need to register for the NRMP!
  ○ As interviews are offered on a rolling basis, it is ideal and strongly recommended to have the application submitted on September 1st.
● Interview invitations are sent out from mid-September through early November, and the interviews are conducted from October through mid-December.
● Respond to interviews as quickly as possible! Most programs only offer 2-3 dates and the best dates can go very, very fast (sometimes within minutes). It is a better strategy to accept and then later cancel the interview rather than miss the opportunity to schedule it in the first place
● You should aim to interview at around 15-20 places. Again, this is highly variable depending on how competitive of an applicant you are.
● If you must cancel an interview, the generally accepted minimum notice is 2 weeks. Interviews are a limited commodity and out of respect for other applicants, it is very important that you adhere to this.
● Applicants submit a rank list to the AUA in the first week of January and await match results several weeks later. Once matched into a Urology program, the applicant is also accepted for the first months of general surgical training at the same institution. You should confirm this with the year you are applying, but since the 2019 season the NRMP Match is no longer needed for urology.

Interviews

The interviews are very relaxed. They are focused on getting to know you. There is no pimping or questions about knowledge. Try to make as many pre-interview dinners as possible; while their value is debated, it is an opportunity to put your best foot forward and demonstrate your interest in the program. Additionally, residents’ opinions of their programs can help you compose program-specific questions for the interview.

After interviews
In general, 2019-20 applicants received minimal contact from programs after their interviews. The field is moving toward not having any contact at all between applicants and programs after interviews. There is no need to do thank you notes.

Resources
The match is organized by the AUA. You can find registration information at www.auanet.org. The best informal source of information is at www.urologymatch.com. This site, created by a Penn Urology resident, contains information on the match process. It also has numerous other features like discussion boards, tips on interviewing, sample thank you letters, etc. However, always remember that the information posted on this site is user-generated. There is also usually an unofficial google spreadsheet that the current applicants use to share information about when programs release interviews, and maybe some impressions of programs. Do not trust this info. But it may be nice to see when programs release interviews so you know if you haven’t heard from them that you may not be getting an interview.

Questions: Kara Michel (k.freeman.michel@gmail.com) who matched at Penn in 2020, Ian Berger (iberger156@gmail.com) who matched at Duke in 2019, Esther Nivasch (enivasch@gmail.com) who matched at Penn in 2018, and Jeff Morrison (morrjsjc89@gmail.com) who matched at Colorado in 2017.

Recent Penn med students who have matched in Urology:
2020: Kara Michel (Penn), and Juan Serna (Mt. Sinai)
2019: Ian Berger (Duke), Cat Gu (Brigham and Women’s), Nick Seranio (Stanford), Chris Corbett (Minnesota)
Point Person: Dr. Ben Jackson (Program Director, Penn Vascular Surgery Residency Program)

General Comments
The original training paradigm for vascular surgeons involves completion of a general surgery residency program and then a 2-year vascular surgery fellowship program. Over the past decade, the field of vascular surgery has transformed and now includes a broad scope of advanced endovascular techniques in addition to more traditional open surgical procedures. To accommodate the extensive training required to master these newer techniques, “integrated” or “direct” vascular surgery residency programs have emerged as an alternative training paradigm.

Vascular surgery residency programs involve 5 years of clinical training, which includes a minimum 18 months of general surgery rotations (some programs will have up to 24 months of GS rotations) and up to 42 months of vascular surgery-specific training. Hence, these programs are “integrated” with general surgery programs in order for vascular surgery trainees to learn areas of general surgery that will benefit or complement their vascular training (in addition to learning general operative skills). Specific non-vascular surgery rotations vary from program to program, but vascular trainees almost always spend some time on the following services: transplant, trauma, ACS/ESS, GI/hepatobiliary, and cardiothoracic. Some of the more academic vascular surgery programs also require or offer dedicated research time during residency (similar to academic general surgery training programs), which are 1-2 years in length. Thus, for medical students who are committed to a career in vascular surgery, integrated vascular surgery residency programs shorten clinical training time by 2 clinical years and provide a more focused vascular surgery experience. Trainees are board certified in vascular surgery, but NOT in general surgery after completion of residency training.

The number of vascular surgery residency programs has been rapidly increasing nationwide as vascular surgeons continue to recognize the benefits of more focused training in the field. There are now ~60 of these programs across the country, with ~80 residency positions annually (most programs match 1-2 resident per year, now a couple match 3/year). Some applicants apply simultaneously to general surgery programs for various reasons (e.g. still not 100% on vascular, geographical restrictions/couples matching, competitiveness), but this is becoming less common.

Mentorship
- Try to develop your mentors from the time you know you are interested in vascular surgery and use them for advice along the way. The vascular surgery faculty at HUP can be intimidating, but they all actually really enjoy meeting and working with students. The vascular residents and fellows can be a good resource as far as directing you to specific faculty mentors.
- If you ever had questions about the application process, don’t hesitate to contact Dr. Ben Jackson (he is great about responding to questions via emails or even chatting on the phone or in person). Dr. Grace Wang is also a great mentor and would be happy to chat at any time – she has been gaining significant credibility in the academic world through her research.

Letters of Recommendation
- You will want 4 LORs total, preferably all vascular surgeons for your integrated vascular application (Penn faculty +/- away rotations)
  - It is best to have letters from faculty who are Division Chiefs or Program Directors. These faculty tend to be better known nationally, and their opinions of you will carry more weight. However, keep in mind it’s best to choose someone who knows you well and can truly differentiate you from others.
  - Away rotation letter (Chief or PD is best) – Don’t be afraid to ask for one; they expect it!
**Note: If you are applying to general surgery programs, you will need a Chairman’s Letter from Dr. DeMatteo. Email Mayuli Arthur to set up a time to meet with Dr. DeMatteo during the summer months. See more in the applying to general surgery section.**

- Give letter writers a copy of your CV and personal statement.
- If you have worked with a surgeon on a research project, consider asking them for a letter, especially if you have spent some clinical time with that attending.
- If you are planning to apply to academic residency programs, it is certainly helpful to have someone comment on your research interests and academic potential.
- Try to have your letter writers set up as early as possible as there are inevitably delays. Don’t be afraid to send gentle reminders to your writers.

Residency Programs

- Research them before you apply—search the websites, talk to students at other medical schools, talk to former Penn students who are now residents at other programs, and talk to the fellows and attendings who have trained and worked at other programs. Read the blogs (but do NOT post anything. EVER.). Listen to the rumors, but keep an open mind and make your own judgments of the programs. Sometimes the reputations lag the changes in the programs.
- Consider whether you want to have the dedicated research time during residency. There are very few programs that have a mandatory 2-year research period (Beth Israel Deaconess Medical Center, MGH, Dartmouth, Michigan, Stanford, Pitt). Many others have optional research time (including Penn).
- Consider what your ideal ratio of endovascular vs open cases would be – there are differences between numbers in some of the West coast programs vs the Midwest programs. However, don’t get too fixedated on the numbers. You will be well-trained no matter where you go!
- List of programs: It is helpful to get as much advice as possible on this. Dr. Jackson is the best person to talk to about vascular surgery residency programs, as he knows other PDs at various programs across the country and can provide insight regarding programs’ reputation and faculty.
- Go to the Society for Vascular Surgery Vascular Annual Meeting (VAM) during your MS3 year if possible. They have an excellent medical student program where you can meet the residents and PDs of various programs and get a quick feel for whether or not you want to apply/interview. They also have a Student Travel Scholarship for which you can apply (this is a great opportunity to do medical student/resident training to develop vascular surgery skills).

Scholarly Pursuit

- Find out about projects by asking vascular attendings, residents (especially the former Penn students), and fellows. They will have a good sense of ongoing or new research projects. But, keep in mind that you do not necessarily have to work on a vascular surgery project!
- Consider meeting with potential mentors during the spring of your MS3 ear to get a project in order and submit an IRB. This is will allow you to hit the ground running come the fall.
- Most students do scholarly pursuit during the interview months (Nov/Dec/Jan) because it allows for the most flexibility. It is nice if you have the general project set up beforehand, so that you can get it on your application and talk about it during your interviews.

Application Process

- You need to be proactive. Other specialties give a lot more support to their applicants. For vascular surgery, if you have questions, actively seek out the advice of your mentors.
- Start working on your personal statement—write when you get inspiration. It helps to get this mostly done before ERAS opens so then you are ready to go with the next step.
- Have anyone who is willing read over your personal statement: Drs. Ben Jackson & Grace Wang are good resources in vascular surgery. JoMo also reviews many personal statements for general surgery applicants and can give you his thoughts. Family members and friends can be useful for brainstorming, editing, and proofreading as well.
- Work on updating your CV before ERAS opens. This is immensely helpful when filling out ERAS because you can copy and paste!
- If you are planning to apply to general surgery and vascular surgery programs, please see the “Surgery” section for more information about the general surgery process. You will need different letters for general vs vascular applications. If at all possible, have complete separate LORs for
each application – unfortunately, vascular surgeons do not know a lot of general surgeons, and many general surgery programs discriminate against applicants who they believe are dual-applying into another specialty.

- In general, people apply to about 20–40 vascular surgery programs. You should try to meet with Dr. Jackson to go over programs that you are considering, and he will tell you if you can apply to fewer than that or if you need to apply to more.
- Schedule at least 15 interviews at places you would consider ranking (either 15 vascular surgery programs or 15 total general surgery and vascular programs if you are applying in both). You won’t be able to interview everywhere, since there are so few interview dates (sometimes only 1 date per program since there are so few applicants). If you will be couples matching, try to interview at more to be safe.
- Meet with Dr. Jackson/the Division Chief when you are close to submitting your rank order list (preferably by early February)—let him know your number one choice and your top choices. He will make a phone call (which carries a lot of weight) to your number one program, so don’t worry if it isn’t Penn. He is a great advocate and has your best interest at heart.
- Step 2: More and more programs require Step 2 scores before matching, some even now ask for Step 2 CK scores before your interview date.

**Application Timeline**

**January to June**
- Meet with mentor and/or Dr. Jackson to plan the year
- Apply for away rotations
- Ask for letters of recommendation
- Start writing your personal statement and updating your CV
- Start thinking about possible scholarly pursuit projects

**June, July, August**
- Schedule MSPE Dean’s Letter meeting (Suite 100 will contact you)
- Meet with Dr. Jackson
- Submit info for Dean’s MSPE letter (Suite 100 will contact you)
- ERAS, register for NRMP
- Ask for LORs and verify that they have been received
- Set up a scholarly pursuit project
- ERAS opens. Work on the application so that when September rolls around, you can get your application in early!
- You can submit your application even if all of your letters aren’t in yet.

**September/October**
- Dean’s MSPE letter mailed

**November to February**
- Interview invitations will start typically after the MSPE letter is mailed (begin in October, but continue through November – do NOT be worried if you don’t start getting invites early! They come out pretty late in vascular surgery, especially compared to general surgery.)
- Many programs interview on the same dates – you can find the interview dates on the programs’ websites or the year’s Vascular Surgery Google Sheet to figure out which dates to schedule to minimize potential conflicts
- Be prepared to respond to a request to interview IMMEDIATELY UPON RECEIVING AN EMAIL. Dates fill up if there are more than one!

**Interviews**
- Go to the pre-interview dinner/social the night before to meet the residents and get a feel for the program. The big questions are: “will I like working with these people?”, “do I want to be like these chiefs when I grow up?”, “what is the culture like at this institution?”
- If you are unable to make it to the dinner the night before, communicate with the program coordinator - they will appreciate having an accurate head count.
- The interviews are generally pretty benign. Lots of questions about where you see yourself in 10 years?, what will your career look like?, why surgery?, do you want a fellowship/research?
• Some more challenging questions include: what are your greatest flaws or regrets?, describe a scenario when you disagreed with your resident or attending, describe the steps of an operation, questions regarding recent journal articles, ethical dilemmas
• Be prepared to discuss an interesting/challenging vascular surgery case you participated in during your rotations. You don’t need to provide a detailed operative description – just describe the patient, the indication for surgery, the basics of the case, any issues intra operatively, and what you learned from the experience.
• Also be prepared to ask questions about each program! This can often be the most difficult part. Keep it appropriate and relevant to each interviewer’s role.
• Figure out some way to keep the different programs straight: take notes after each interview, create a ranking system.
• If you have a real reason to be at a specific program or region of the country, make sure to verbalize this to the program.

After Interviews
• Send thank you emails to ALL programs: Chief, PD, and any interviewers you hit it off with.
• There are Google docs for almost all specialties and reddit forums that applicants will often comment on to blow off steam - DO NOT DO THIS, it can only hurt you.
• Once you have made up your mind about your #1 program, send an email to the chief and/or PD stating your intent to place them at the top of your list. Ask Dr. Jackson and your other mentors to also call the program on your behalf. This can be very helpful.
• If you receive a phone call from a program, do not initially pick up the phone. Take a moment to compose yourself and think through what you plan to say, then call them back as soon as possible. You can communicate as much interest in a program as you wish to, but never feel that you are forced to tell a program where they are on your rank list. Remember, every program communicates differently with their highly ranked applicants (some call, some email, and some do not communicate at all). Try not to change your opinion about programs based on the post-interview communication and stick with your gut instincts about which place is right for you.

Questions: Amanda Chin (amchin15@gmail.com)

~THE END~